



Ministry of Health & Family Welfare Government of India



National Public Health India Conference NPHICON 2024

23rd – 25th February 2024

e-TechnoDoc

Organized By

National Centre for Disease Control

(Directorate General of Health Services) 22,Shamnath Marg, Delhi -110054



प्रो. एस.पी. सिंह बघेल PROF. S.P. SINGH BAGHEL



राज्य मंत्री स्वास्थ्य एवं परिवार कल्याण भारत सरकार MINISTER OF STATE FOR HEALTH & FAMILY WELFARE GOVERNMENT OF INDIA



Message

It is a matter of pleasure that our prestigious Public Health Institute, National Centre for Disease Control (NCDC) is organising this very important National Public Health Conference for the first time from 23 to 25 February, 2024.

Under the able leadership of our Hon'ble Prime Minister, Shri Narendra Modi Ji, we were able to equip ourselves to stand up in resilience in the pandemic times and Disease Control Program had a pivotal role in this endeavour. In this context, this Conference assumes greater importance as the country needs to be prepared to face any eventuality with regard to a future pandemic like situation.

Today the country is progressing in the field of public health by adopting cutting-edge trends, and transformative strategies. It is enthusing that the Conference will have excursive and fruitful exchange of ideas as it draws in a diverse crowd, from seasoned professional to emerging researchers and influential policymakers. Their combined expertise will provide platform for adopting best practices ranging from localized community health initiatives to global preventive strategies.

I congratulate DGHS and Director, officers and staff of NCDC for this initiative and hope this Conference will fulfill its theme "Health Initiatives towards Goal of India as a Developed Nation"

I wish all the success for the event and hope that we would align ourselves with the vision of our Hon'ble Prime Minister for a developed nation by the year 2047.

Gilli acin

(Prof. S.P. Singh Baghel)

कमरा सं. 650, छठा तल 'ए' विंग, निर्माण भवन, मौलाना आजाद रोड, नई दिल्ली–110011, फोन : +91–11–23061998, 23062427 Room No 650, 6th Floor, 'A' Wing, Nirman Bhavan, Maulana Azad Road, New Delhi-110011, Tele : +91-11-23061998, 23062427 E-mail : mos-hfw@gov.in डॉ. विनोद कुमार पॉल सदस्य Dr. Vinod K. Paul M<u>EMBER</u>



मारत सरकार नीति आयोग, संसद मार्ग नई दिल्ली—110 001 Government of India NATIONAL INSTITUTION FOR TRANSFORMING INDIA NITI Aayog, Parliament Street New Delhi-110 001 Tele. : 23096809, 23096820, Fax : 23096810 E-mail : vinodk.paul@gov.in

15 February 2024

Message

I am very delighted to know that National Centre for Disease Control (NCDC) is organising first national level conference public health conference. This institution has been instrumental in eliminating polio, guinea worm disease and recently yaws. NCDC played a stellar role in national effort to tackle COVID-19 pandemic for which the nation is indebted to it scientists and staff. NCDC has also been a prime force in combating other disease outbreaks in the country including SARS, H1N1 infection, Avian Influenza and Zika virus disease, as well as re-emergence of infections such as Plague, Scrub Typhus, Leptospirosis etc. In all such instances, NCDC have always been in the forefront to undertake epidemiological investigation, providing laboratory support and controlling outbreaks.

The present national conference being organised at NCDC under various public health themes with the ultimate objective of "Health Initiatives towards India's Goal for a developed nation". I am sure this conference will fullfill its objectives by bringing diverse public health professionals of various domains under one roof. I whole-heartedly congratulate the NCDC team and the participants.

Vinod Paul)



अपूर्व चन्द्रा, भा.प्र.से. सचिव **APURVA CHANDRA, IAS** Secretary



भारत सरकार स्वास्थ्य एवं परिवार कल्याण विभाग स्वास्थ्य एवं परिवार कल्याण मंत्रालय **Government of India Department of Health and Family Welfare Ministry of Health and Family Welfare**





MESSAGE

I am immensely delighted that National Centre for Disease Control is for the first time organizing National Public Health India Conference in New Delhi from 23rd to 25th March 2024 on a widely significant subject of national importance -"Health Initiatives towards India's Goal for a developed nation".

This Conference aims to highlight the innovative approaches and successful implementation of public health initiatives prioritized at various levels in the country like NCDs, Tuberculosis, Infrastructure strengthening in the primary health facilities and aspirational blocks for health improvement. It will also enlighten ways to collaborate for multisectoral approaches towards One Health. I am sure that sessions on International Health Regulations, Research and Ethics, Vaccine Preventable Diseases, Vector Borne Diseases, Medical Curriculum etc would pave foundation for reforms required in particular domain area. There are immense gains, when such efforts of uniting Pan-India public health workers across various domains are taken, as it synergizes the healthcare imbalances of the country.

I congratulate National Centre for Disease Control and its dedicated office bearers for laudable task of building an interactive platform for health-care professionals across the country to learn the challenges and strive for solutions in pursuit of India as Developed Nation

Date : Place :

21.02.2024 New Delhi

(APURVA CHANDRA)



डॉ. राजीव बहल, एमडी, पीएचडी DR. RAJIV BAHL, MD, PhD





सचिव, भारत सरकार स्वास्थ्य अनुसंधान विभाग स्वास्थ्य एवं परिवार कल्यांण मंत्रालय एवं महानिदेराक भारतीय आयुर्विज्ञान अनुसंधान परिषद

Secretary, Government of India Department of Health Research Ministry of Health & Family Welfare & Director-General Indian Council of Medical Research

Message

I am pleased that National Centre for Disease Control (NCDC) is organizing the first National Public Health India Conference (NPHICON). The chosen theme for this year, "Health Initiatives towards India's Goal for a Developed Nation," underscores the paramount importance of collaborative efforts in advancing public health nationwide.

One of the key highlights of NPHICON is its inclusive approach, bringing together a diverse array of stakeholders ranging from policymakers to frontline healthcare workers. This inclusivity will facilitate rich discussions and exchanges of insights, enabling participants to gain a comprehensive understanding of the multifaceted nature of public health challenges in India. The conference agenda is thoughtfully curated to cover a wide range of topics, including the implementation of recent health initiatives, strategies for disease elimination, and the integration of technology in healthcare delivery. Sessions on combating non-communicable diseases, strengthening primary healthcare infrastructure, and addressing emerging threats such as antimicrobial resistance provide valuable insights into the current state of public health in India and the path forward.

Furthermore, the emphasis on collaboration and interdisciplinary approaches will underscore the importance of holistic solutions to complex health issues. Deliberations on the significance of international health regulations, research integrity, and the role of evidence-based policymaking will highlight the need for a coordinated effort at both national and global levels to safeguard public health.NPHICON will also serve as a platform for addressing critical gaps in healthcare education and workforce development. Discussions on medical curriculum reform and bridging the gap between medical and public health professionals will emphasize the importance of equipping healthcare professionals with the necessary skills and knowledge to meet the evolving needs of India's healthcare system.

I extend my best wishes for the successful culmination of this event. The insights gained and lessons learned from this conference will undoubtedly inform policy decisions, drive innovation, and ultimately contribute to the realization of India's goal for a healthier, more developed nation.

(Refiv Bahl)

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प्रो.(डॉ.) अतुल गोयल Prof. (Dr.) Atul Goel MD (Med.) स्वास्थ्य सेवा महानिदेशक DIRECTOR GENERAL OF HEALTH SERVICES



भारत सरकार स्वास्थ्य एवं परिवार कल्याण मंत्रालय स्वास्थ्य सेवा महानिदेशालय

Government of India Ministry of Health & Family Welfare Directorate General of Health Services



Message

I am eagerly looking forward to this first national level public health conference being organised by National Centre for Disease Control (NCDC) Delhi which is the most prestigious public health institute of this country in public sector. This is first of its kind with a special purpose of uniting public health workers across various domains under one roof.

This conference aims to highlight innovative approaches and successfully implementation of the recent health initiatives prioritized at various levels in the country like NCDs, Tuberculosis, infrastructure strengthening in primary health facilities and aspirational blocks for health improvement. This conference has been designed to enable sharing of experiences and best practices in the field of public health and also cross learn from experts working in different domains of public health. This will aid health policy makers understand real ground situations in public health matters thereby helping them design the new initiatives or modify existing programmes accordingly.

I must congratulate the entire team of NCDC for taking up and successfully managing a mammoth task in extremely short period, As DGHS and Director NCDC, I personally acknowledge the hard work put in by each and every member of our NCDC family in organising this conference. Hope this conference full fills the objectives it has been organised for. Wish all my officers the best for all times.

(Atul Goel)

15th February 2024.

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From the Editorial Desk

National Public Health India Conference (NPHICON) organized by National Centre for Disease Control (NCDC) from 23-25 February 2024 is unique and first of its kind initiative to provide an enabling cross learning platform for sharing experiences and best practices on public health concerns among both health and relevant allied health professionals in the country.

The primary objectives of NPHICON are multifaceted:

- i. **Platform for Knowledge Exchange:** The conference will serve as a platform for sharing, recognizing, and focusing on various health initiatives across the country.
- ii. **Cross-Learning Opportunity:** It will facilitate cross-learning among national experts, program implementers, and students, fostering a collaborative environment conducive to innovative solutions.
- iii. **Dissemination of Best Practices:** an avenue for sharing experiences and best practices at the local level, allowing for their replication and adoption nationwide.
- iv. Policy Support and Intervention Development: The conference aims to contribute to the development of resilient health policies and interventions

NPHICON will bring together diverse stakeholders, aligned with India's aspirations of becoming a developed nation.

NCDC a premiere public health institute in India had its origin in Central Malaria Bureau, established at Kasauli (Himachal Pradesh) in 1909, which after expansion was renamed in 1927 as the Malaria Survey of India to cater the need for malaria control in British India. The organization was shifted to Delhi at its present location at 22 Shamnath Marg, Civil Lines in 1938 and called as the Malaria Institute of India (MI). Government of India decided to reorganize and expand the activities of the Institute to cover other communicable diseases and thus, on July 30 1963, the erstwhile MII was renamed as National Institute of Communicable Diseases (NICD).

The Institute was instrumental in eradication of Smallpox, Guineaworm Disease and Yaws. After plague outbreak of 1994 and with recommendations of the Bajaj Committee, 1996 Public Health System in India was revamped with surveillance as core strategy. NICD mandates has been expanded in recent times and has been renamed as National Centre for Disease Control (NCDC) on the occasion of its 100 years existence in 2009.

NCDC aims to respond to public health threats, in partnership with States and Union Territories as India's National Public Health Institution using multi-disciplinary integrated approach. Capacity building of health workforce, Surveillance, Outbreak Management and Operational Research in various arena of communicable/non communicable diseases are its core functions. The institute has an effective disease surveillance and response mechanism round the clock during disaster situation and disease outbreaks which also came very handy in dealing with COVID-19 pandemeic.

It is interesting to know that earlier this establishment was occupied by Commander-in-Chief of Indian Army and still has few heritage buildings in its premises. NCDC envisages infrastructure upgradation at Delhi and branches at regional and state level in years to come. Further, in recent times echoing with the global voice of One health, NCDC has stepped forward to ennsure integration of One Health approach as an inbuilt principle in its various national programmes/divisions.

In conclusion, NPHICON 2024 represents a pivotal opportunity to advance public health discourse and policy formulation in India. I extend my warm greetings and felicitations to all the stakeholders associated with NCDC. I am sure while NPHICON 2024 will be a grand academic feast , it also gives opportunity for introspection with a view to have well conceived plans for the future and confidence that progress so far made by NCDC must inspire.

Dr Monil Singhai Joint Director National Centre For Disease Control, Delhi (On behalf of Souvenir Committee)

About

National Public Health India Conference (NPHICON 2024)

"Health Initiatives towards India's Goal for a developed nation".

National Public Health India Conference is an effort at the national level to foster an enabling cross learning platform for sharing experiences and best practices on public health concerns among both health and relevant allied health professionals in the country. Sharing of experiences of the health policy makers and implementers on the grounds will benefit the real efforts and solutions in managing and achieving goals of concerned public health programs in the country. This conference also aims to highlight the innovative approaches and efforts in successfully implementing the recent health initiatives prioritized at various levels in the country like NCDs, Tuberculosis, infrastructure strengthening in the primary health facilities and aspirational blocks for health with special reference to zoonotic diseases, antimicrobial resistance. Environment and climate change. The insights into the application of the latest advance tools and technologies in the management of huge data and its analysis will enlighten professionals about role of Integrated Health Information Platform, Artificial Intelligence and Machine learning, Environment and Genomic surveillance in public health surveillance and response.

Experiences and efforts on targeted disease elimination in India will be a great learning lesson for every public health professional.

Research Integrity and Ethics in Research especially during humanitarian Emergencies and Disasters will support health in developing of evidence based health policy driven and intervention areas especially during crisis. International Health Regulation experiences in the country will bring perspectives on the ways which manage and handle cross border transmission of diseases in the days of globalization and risk of rapid transmission at any locations in the world.

The discussions on barriers and opportunities in medical curriculum will bridge the gap between medical and public health professionals To strengthen on health policy driven and implementations on the ground, there will be highlights of appropriate needed approaches for medical graduates to implement the national health priorities from a galaxy of luminaries in the public health areas.

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	Dr. Garima Srivastava, Deputy Assistant Director



INDEX			
S. No	Name of presenter	Topic (ORAL PRESENTATION)	
1.	AJEET KUMAR SINGH	UNVEILING THE PATH TO IMPROVED IMMUNIZATION	
		COVERAGE IN INDIA: EXPLORING ZERO DOSE & PARTIALLY	
		IMMUNIZED CHILDREN AS CATALYSTS FOR PROGRESS	
2.	AMIT RANJAN JHA	PUBLIC HEALTH MEASURES AND CHALLENGES AT THE POINTS	
		OF ENTRY DURING THE MASS EVACUATION FROM A YELLOW	
		FEVER ENDEMIC COUNTRY TO A NON-ENDEMIC COUNTRY:	
		OPERATION KAVERI.	
3.	ANJANA AGGARWAL	MODERNISING BIOMEDICAL RESEARCH AND REGULATORY	
		POLICIES TO ADVANCE HUMAN HEALTH	
4.	ANUKRITI	UNIVERSAL HEALTH CARE FOR CHILDHOOD CANCER THROUGH	
	<u>SRIVASTAVA</u>	PMJAY SCHEME IN INDIA; EXPERIENCE AND CHALLENGES	
5.	ARUSHI GHAI	EVALUATION OF SEVERE ACUTE RESPIRATORY INFECTION (SARI)	
		SENTINEL SURVEILLANCE SYSTEM UNDER INTEGRATED DISEASE	
		SURVEILLANCE PROGRAM- INTEGRATED HEALTH INFORMATION	
		PLATFORM (IDSP-IHIP) IN RAJASTHAN, INDIA, 2023	
6.	ASHA KUMARI	HIGHLY PATHOGENIC AVIAN INFLUENZA (H5N1) INFECTION IN	
	VERMA	CROWS THROUGH INGESTION OF INFECTED CROW CARCASSES	
7.	ASWINRAM	TRACKING OF RODENTS AND THEIR FLEAS FOR PLAGUE	
	RATHAN.A	SURVEILLANCE IN CHENNAI INTERNATIONAL SEAPORT: A FIELD	
		EPIDEMIOLOGICAL STUDY	
8.	BERYL RACHEL J	DIGITIZING ORAL PATHOLOGY: ALIGNING WITH THE DIGITAL	
		INDIA INITIATIVE FOR REVOLUTIONIZING HEALTHCARE	
9.	BHAVESH	JOINT EVALUATION OF HUMAN AND VETERINARY ANTHRAX	
		SURVEILLANCE SYSTEM IN ODISHA, JULY 2023	
10.	DARSHAN	ENHANCING PREPAREDNESS OF KYASANUR FOREST DISEASE	
	NARAYANASWAMY	THROUGH CROSS-SECTORAL CO-PRODUCTION OF RISK MAPS	
		AND DECISION SUPPORT TOOLS.	
11.	DAYASIS SAHU	MORBIDITY AND MORTALITY PORTFOLIO OF SNCU GRADUATES	
		AT ASPIRATIONAL DISTRICT SNCUS IN ODISHA, INDIA - A CROSS-	
		SECTIONAL QUADRENNIAL PERIOD STUDY	
12.	DHANALAXMI	CHANGING MALARIA EPIDEMIOLOGY IN THE CONTEXT OF	
	BALAGA LOLACH	ELIMINATION: EVIDENCE FROM ONE SELECTED TRIBAL AND	
		NON-TRIBAL DISTRICT, ANDHRA PRADESH, INDIA, 2023	
13.	DHIRENDRA KUMAR	GENOMIC EPIDEMIOLOGY OF CEFTRIAXONE RESISTANT	
		SALMONELLA TYPHI FROM TWO STATES IN THE COUNTRY.	
14.	<u>GAYATRI GOGOI</u>	INTEGRATING WASTEWATER-BASED SURVEILLANCE AND	
		MACHINE LEARNING APPROACHES FOR COMPREHENSIVE	
		UNDERSTANDING OF SARS-COV-2 INCIDENCE	
15.	<u>GOPAL BERI</u>	INTENSIFIED TB CASE FINDING ACTIVITY AMONG INDOOR	
		PATIENTS IN PUBLIC SECTOR HOSPITALS OF HIMACHAL	
		PRADESH, INDIA.	

Abstracts

16.	HARSHAD PRAJAPATI	ENHANCING DISEASE SURVEILLANCE AND PREVENTION: GUJARAT'S JOURNEY WITH IHIP PORTAL IMPLEMENTATION
17.	HEMANT SAIKIA	EMPIRICAL VS TARGETED ANTIMICROBIAL THERAPY FOR BLOOD
		STREAM INFECTIONS IN ICU PATIENTS OF A TERTIARY CARE
		HOSPITAL IN NORTH INDIA
18.	IAYRAI NAKUM	SHOWCASE FOR BEST PRACTICES OF HEAT ACTION PLAN:
_0.		AHMEDABAD CITY (GUJARAT).
19.	KEVIN JOSEPH R	A STUDY ON SCRUB TYPHUS AMONG ADULTS PRESENTING
_		WITH ACUTE FEBRILE ILLNESS AT A TERTIARY CARE HOSPITAL
20.	NIBEDITA DAS	SARS COV2 – THE PERSPECTIVE OF ENVIRONMENTAL
		SURVEILLANCE IN PUBLIC HEALTH SURVEILLANCE.
21.	P POORNIMA	IMPLEMENTATION OF INTERNATIONAL HEALTH REGULATIONS-
		ARTICLES 22,23,27,28,37,39,42 AND 43:
		BEST PRACTICES AT PHO TUTICORIN- MANAGEMENT OF
		SYMPTOMATIC/ASYMPTOMATIC COVID POSITIVE CREW
		ONBOARD SHIPS CALLED AT TUTICORIN SEAPORT THROUGH
		INTERNATIONAL TRAVEL DURING THE COVID PANDEMIC.
22.	PANKAJ KUMAR	DENGUE CONTROL MEGA CAMPAIGN: A COMPREHENSIVE,
	<u>SINGH</u>	INTEGRATED APPROACH FOR DENGUE CONTROL IN
		UTTARAKHAND 2023.
23.	PRACHI DABHOLKAR	ETHICS FOR USE OF MACHINE LEARNING IN RESEARCH: A
		REVIEW OF LITERATURE.
24.	PRAKAMYA GUPTA	HEALTH TECHNOLOGY ASSESSMENT OF BREAST CANCER
		SCREENINGTECHNIQUES IN INDIA
25.	PRAVEEN MADALA	CREW CHANGE REPORT – AN INNOVATIVE TOOL FOR SAFE AND
		EFFICIENT WAY OF CREW CHANGES OF THE SHIPS DURING
		COVID-19 PANDEMIC
26.	RAGHURAM	ADVANCING TOWARDS TUBERCULOSIS ELIMINATION: INSIGHTS
	SHYAMSUNDER RAO	FROM A COMMUNITY-CENTRIC MORTALITY ANALYSIS OF
		INDIVIDUALS WITH TUBERCULOSIS IN INDIA
27.	RAHUL NARANG	SECTOR CONNECT: TRANSITION FROM FRONTLINE FIELD
		EPIDEMIOLOGY TRAINING PROGRAMME (FETP) TO FELLOWSHIP
		IN ONE HEALTH, A MULTISECTORAL INTERMEDIATE FETP IN
		INDIA
28.	ROHIT SATISH	COLLABORATIVE PLATFORM FOR DENGUE MONITORING AND
		CONTROL IN KARNATAKA
29.	SAMIKSHA ARORA	MIXED METHOD RESEARCH TO ASSESS THE EFFECT OF SOCIAL
		MEDIA ON CYBERBULLYING: ACTION FOR CYBER HEALTH
		PROMOTION
30.	SANTANU DAS	TRIPLE ELIMINATION OF VERTICAL TRANSMISSION OF HEPATITIS
		B, HIV AND SYPHILIS: AN INTEGRATED INTERVENTION IN WEST
		BENGAL
31.	SHAKTI LAISHRAM	PARAGONIMIASIS: A CONTINUING PUBLIC HEALTH PROBLEM IN
		THE NORTHEAST INDIA

Abstracts

NPHICON 2024

32.	SIDDHARTHA	VISCERAL LEISHMANIASIS ELIMINATION AND RESURGENCE: A
	KARMAKAR	STUDY IN COMPARTMENTAL MODELLING
33.	SIVAPRASAD M S	ENSURING ETHICAL RESEARCH IN FLOOD: A FRAMEWORK FOR
		ETHICAL CONSIDERATIONS
34.	SRISHTI GULATI	A MIXED METHOD STUDY ON PERFORMANCE MOTIVATION OF
		ASHAS: A COMPARISON ACROSS DIFFERENT INCENTIVE
		SYSTEMS IN INDIA
35.	SUJEET KUMAR	JOINT EXTERNAL EVALUATION (JEE) - A TOOL FOR
	<u>SINGH</u>	STRENGTHENING IHR COMPETENCIES FOR PANDEMIC
		PREPAREDNESS: SHARING EXPERIENCES FROM INDONESIA

Abstracts

NPHICON 2024



Abstracts

Title: Unveiling the Path to Improved Immunization Coverage in India: Exploring Zero Dose & Partially Immunized Children as Catalysts for Progress

Ajeet Kumar Singh*, Pritu Dhalaria

*Immunization Technical Support unit, MoHFW, Delhi, ajeet_singh@in.jsi.com

Background: Immunization is vital in preventing infectious diseases and promoting public health. Despite global progress, universal immunization coverage remains a challenge, especially in vulnerable populations. India having the world's largest birth cohort presents unique challenges in achieving universal coverage. This study examines the immunization landscape in India, focusing on left out (absolute Zero Dose), antigen-wise zero dose, the pattern of undervaccination (Partially Vaccinated), and the immunization cascade.

Methods: Utilizing data from the National Family Health Survey-5 (NFHS), we analysed immunization status across India. The prevalence of left-out children, co-coverage rates, and cascade levels for vaccine combinations are assessed. The multilevel regression model has been applied to understand the likelihood of left-out and antigen-wise zero doses by socioeconomic determinants.

Results: The findings illuminate the landscape, spotlighting distinct immunization patterns. Children lacking vaccination cards experience a higher prevalence of left-out cases (21.2%). Notably, scheduled tribes (4.1%), the Muslim group (5.4%), and the poorest wealth quintile (4.6%) exhibit the highest prevalence of absolute zero dose. Remarkably, within partially vaccinated, children 42.8% show zero dose for Measles-containing vaccines., while 6.7% of children failed to achieve full immunization coverage due to just one missed dose of vaccine. Further, 20% of the partially vaccinated subset reveal that 7.29% missed full immunization coverage due to OPV dose gaps. Zero—zero dose in terms of previous definitions and vaccine wise percentage of children who missed full vaccination.

Conclusion: Focusing on partially vaccinated children, particularly those missing OPV doses and measles vaccine, offers the potential for improved full immunization coverage and achieving zero polio dose children. Recent policy updates, like Intensified Mission Indradhanush, show promising results in reducing dropout rates and reaching underserved children. By addressing specific challenges faced by left-out children (Absolute Zero Dose) and antigen-wise zero doses, evidence-based strategies can improve immunization coverage, aligning with the Immunization Agenda 2030 and the Sustainable Development Goals.

Keywords: Immunization, drop out, zero dose, partial vaccinated, fully vaccinated, Universal Immunization Coverage.

Abstracts

Title- Public Health Measures and challenges at the Points of Entry during the mass evacuation from a yellow fever endemic country to a non-endemic country: Operation Kaveri.

Amit Ranjan Jha*, Binay Kumar, Jyoti, Sujata Arya, Rajindra Kumar

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Background: Sudan has ongoing civil war since April 2023, which warranted the mass evacuation of Indian Citizens from Sudan to India. Sudan is a yellow fever-endemic country and India is a receptive country for yellow fever disease. International Health Regulations 2005, states that yellow fever vaccination card from an authorized vaccination centre is required to travel to and from yellow fever endemic country to a non-endemic country. Ministry of External Affairs was the nodal Agency for mass evacuation, while APHO Delhi was tasked with screening evacuees from the T3 terminal of IGI Airport and coordinating the quarantine of passengers under the guidance of the Central International Health Division.

Objectives: i) To enumerate the measures taken during Operation Kaveri at IGI Airport & quarantine centres. ii) To enlist the challenges faced during Operation Kaveri.

Methods: This descriptive study was done on data and materials available on Operation Kaveri at APHO Delhi.

Results: A total of 4000 passengers were evacuated under Operation Kaveri, of which nearly 50%(2006) brought through Delhi Airports, were screened for the presence of symptoms of yellow fever and the vaccination cards, 298 (14.8%) passengers with a mean age of 32.3 years were quarantined. The public health measures included contingency plan preparation, coordination between different stakeholders to bring Indian citizens to Delhi, training the airport staff about the screening of passengers for yellow fever vaccination cards and sending susceptible passengers to the quarantine centres in Delhi. The challenges included limited space in the area for immigration checks, crowd mobilization & convincing for quarantine, lack of adequate manpower and logistics, and lack of financial support to provide for passengers' daily pocket expenditure & further travel.

Conclusion: A coordinated approach from different stakeholders within & outside POEs is very crucial for public health measures during a mass evacuation.

Keywords: APHO Delhi, Sudan evacuation, Quarantine, Operation Kaveri, Public Health

Abstracts

Title: Modernising Biomedical Research and Regulatory Policies to Advance Human Health **Anjana Aggarwal*, Emily Truennell, and Kimberly Jayne** *

^{*}People for the Ethical Treatment of Animals (PETA) India. *aaggarwal@petaindia.org* **Background**: Animal experiments' limitations, low translatability, and recent scientific advancements have triggered a global shift towards human-relevant, animal-free research tools. We review evidence, advocating a paradigm shift from animal-based methods and recommend a six-point strategy for a faster transition.

Methods: A comprehensive literature review was conducted to identify research areas of animal experimentation. Based on these data, PETA entities have developed the Research Modernisation Deal, containing a six-point strategy for accelerating a shift away from experiments on animals and towards the uptake and further development of non-animal, human-relevant research methods.

Results: The six-point strategy urges immediate cessation of animal use in biomedical areas where they're poor predictors for human health outcomes. It highlights systematic reviews to identify other ineffective areas, transparent evaluations, public commenting periods, global acceptance of non-animal testing methods, fund redirection, and education in non-animal methods.

Conclusion: The mounting evidence against the value of experiments on animals is evident across various domains. The limited predictive value of animal-based methods, increased recognition of animal sentience, and dwindling public support for the use of animals indicate a shift in policies and priorities is needed. Transitioning away from failing animal-based methods will not only spare millions of animals and expedite new treatments and cures for humans, but also open possibilities for economic growth and accelerated returns on investments in drug research and development.

Keywords: Animal experimentation, Human-relevant methods, Roadmap, Strategy, Research Modernisation Deal

Abstracts

Title: Universal Health Care for childhood cancer through PMJAY scheme in India; experience and challenges

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Background: Ayushman Bharat (PMJAY) a flagship scheme of the Government of India, was launched to achieve the vision of Universal Health Coverage (UHC). The scheme provides a cover of INR 500,000 per family for secondary and tertiary care hospitalisation in public and private empanelled hospitals in India. We describe the experience of treating children with cancer under PMJAY scheme in a government centre in North India.

Methods: The data of children who underwent cancer treatment in this scheme between Jan 2018 to June 2022 (4.5 years) were analysed. Clinical details and outcome were collected from patient files. The details of hospital bills were collected from itemised data presented for verification prior to payment. A survey of parents was collected to understand the difficulties faced while enrolling into this scheme.

Results: During the study period, out of 425 children with cancer, 51 (12%) were enrolled in the Ayushman Bharat scheme. The diagnosis included ALL in 33, 14 solid tumours, 3 lymphomas and 2 children with CML. Additional funding from other sources was sought in 40% of patients due to either delay in sanction of Ayushman card or anticipated increase in estimate considering the high-risk nature of the disease. On surveying, 15% of parents expressed significant delay in getting Ayushman benefits despite being eligible. The difficulties faced included different owner names in the sanction letter from the government, spelling mistakes in parent's/ child's name in the card, children who were born after the 2011 census not being part of the database, multiple states not being added to the database and difficulties included disease-based sanction of amount (rather than weight or risk-based), the need to upgrade treatment while on one package and the need for inter-state coordination.

Discussion: PMJAY scheme is extremely beneficial for patients undergoing treatment for cancer. However, it provides support to only a fraction of children with cancer from lower socioeconomic strata. Even when eligible, there are multiple challenges faced by paediatric patients which if ironed out can be extremely beneficial.

Abstracts

Title: Evaluation of Severe Acute Respiratory Infection (SARI) Sentinel Surveillance System under Integrated Disease Surveillance Program- Integrated Health Information Platform (IDSP-IHIP) in Rajasthan, India, 2023

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Background: Severe acute respiratory-tract infections (SARI) is amongst top three causes leading to morbidity and mortality globally. Surveillance of SARI is critical for monitoring and early-response. After recent occurrence of global pandemics of acute-respiratory-infections, India developed SARI-surveillance-systems for Influenza and COVID-19 under Integrated Disease Surveillance Program (IDSP).

Objectives: i) To evaluate SARI-surveillance-system under IDSP-IHIP in Rajasthan. ii) To conduct descriptive analysis of SARI-cases from July2022-June2023.

Methods: Cross-sectional study conducted from March-July 2023 to evaluate system-attributes such as simplicity, acceptability, flexibility, representativeness, stability, usefulness, timeliness, and data-quality using MMWR guidelines. We selected lowest SARI incidence reporting (during July-December2022) State-Rajasthan. We conducted stakeholders' interviews, record-reviews, and recorded field observations. Attributes were graded as poor (<40%), average (40-59%), good (60-79%), very-good (80-100)

Results: Simplicity of system was poor-36% based-on knowledge on reporting-guidelines, formats and SARI case-definition. Acceptability was good-72%, based-on health-facility-registration, regular-reporting on IDSP-IHIP, and ease of data-entry. The system's usefulness lacked at state-level as no feedback was sent on SARI-reporting to districts, but trend generation on IDSP-IHIP and monitoring through weekly reports at national-level was done. Data-quality among sites reporting SARI cases was average-43%, with data-completeness (64%), 50% sites reporting inpatient-cases in SARI, but data not reviewed before submission. Flexibility of IDSP-IHIP was very-good, allowing for adaptability at various-levels. System was representative for both public and private health-facilities (86%). Stability in human-resources and infrastructure was very-good. Timeliness was good with transition from paper-based-reporting to online near-real-time reporting on IDSP-IHIP. SARI-cases reported on IDSP-IHIP from July2022 to June2023 peaked in July2022 (median age=32years, range=1-100years, 57% males) and SARI-sentinel-sites reported 4.3% of overall cases reported by state.

Conclusion: Implementation of SARI-surveillance-system showed very-good representativeness and stability, good acceptability, but average data quality, and poor simplicity and usefulness. We recommended training on SARI case-definitions and streamlining of hospital-level data flow with regular monitoring, data-quality checks, and feedback.

Keywords: Surveillance, Severe Acute Respiratory Infection, IDSP-IHIP, COVID-19

Abstracts

Title: Highly pathogenic avian influenza (H5N1) infection in crows through ingestion of infected crow carcasses

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Background: Highly pathogenic avian influenza (HPAI) viruses is a global public health concern not only for poultry but for humans as well. Understanding the transmission pathways of these viruses during outbreaks is vital for controlling avian influenza transmission. Cannibalism has been suggested as a likely cause of sudden mortality in house crows, which is believed to be associated with outbreaks of HPAI viruses in poultry which can eventually lead to spill-over infection to humans.

Objectives: The present study was aimed to investigate the role of cannibalism in transmission of H5N1 avian influenza virus to house crows (Corvus splendens).

Methods: Four crows were intranasally inoculated with 10^{8.0} EID⁵⁰ (A/crow/India/01CA249/2021) H5N1 highly pathogenic avian influenza (HPAI) virus and were observed for 14 days for any overt signs of illness. Two of the infected crows showed signs of wing paralysis, incoordination, and torticollis. For cannibalism experiment, two crows showing clinical signs were euthanized on 14th day post-infection (dpi) and were kept in the isolator and four naïve healthy crows were introduced along with the euthanized crows. The viscera from the infected carcasses were eaten by all the four crows. Oropharyngeal and cloacal swabs were collected up to 14 days to assess virus excretion.

Results: All four crows showed clinical signs on 6th day post cannibalism along with neurological signs (incoordination and wing paralysis). Virus excretion was observed from 3rd to 11th day post cannibalism through both oropharyngeal and cloacal routes with maximum shedding through oropharyngeal route. The virus was isolated from lungs and trachea of one the infected crows at 21st day after euthanasia. All the four crows seroconverted against H5N1 virus infection at 14th day post cannibalism.

Conclusion: Our study confirms the transmission of H5N1 virus in crows through cannibalism and highlights how H5N1 virus might circulate in a crow colony once they become infected.

Keywords: Avian Influenza, Crows, Cannibalism, H5N1 virus transmission, Zoonosis.

Abstracts

Title: Tracking of Rodents and Their Fleas for Plague Surveillance in Chennai International Seaport: A Field Epidemiological Study

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Background: India as one of the State parties to the IHR (2005) has an obligation to strengthen public health capacities at designated airports, ports and ground crossings in both routine circumstances and when responding to events that may constitute a public health emergency of International concern. Plague is a zoonotic disease primarily of rodents. Natural decline in plague incidence would not justify the conclusion that plague has disappeared from the area. Plague outbreak can reappear after long years of quiescence. Rodent surveillance is essential to identify species of rodents, extent of their infestations with ectoparasites and location for initiating control measures based on the behaviour and activity pattern.

Objectives: i)To determine the prevalence of rodents and their ectoparasites species in Chennai sea port. ii)To know the presence of Yersinia pestis bacilli infection in rodents if any present. Iii) To study the seasonality of flea infestation among rodents in Chennai sea port.

Methods: Chennai seaport has five divisions and the plague surveillance was conducted in each division per week from 1st January to 31st December 2023. Rodents were collected using wonder traps. The traps with baits were laid in the evening at pre-selected areas within the Chennai port, collected on the next morning and taken to the laboratory. Rodents collected were anaesthetized and identified after recording their different morphological characteristics by trained personnel's. The hair of the rodent is examined and flea collection is done. To detect Yersinia pestis bacilli infection, rodent organ sample (liver, spleen) and organ smear were collected and transported in CBT medium to NCDC Bangalore for analysis.

Results: Awaited

Keywords: Rodent, Ectoparasites, Surveillance, Plague, Chennai sea port, Yersinia pestis, CBT (Cary Blair Transport) Medium, NCDC (National Centre for Disease Control), IHR (International Health Regulation).

Title: Digitizing Oral Pathology: Aligning with the Digital India Initiative for Revolutionizing Healthcare

Beryl Rachel J*, Deepika Mishra, Varun Surya, Anubhuti Sood, Shivangni Rajoria et al.

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Background: The digital pathology era, aligned with India's digital transformation, brings about transformative changes in medical diagnostics, enabling remote access, collaboration, and efficient storage of vast pathological data. This framework is integral to the National Cancer Screening Program, targeting both rural and urban areas with advancing public health initiatives in India.

Objectives: We aim to enhance workflow efficiency, remote access, standardising diagnostics, integrating artificial intelligence, education and training, efficient archiving retrieval, cost-effective healthcare delivery, providing enhanced pathology services in underserved areas, promoting data sharing and collaboration, utilizing data analytics, fostering technology adoption, and encouraging research and innovation.

Methods: The Department of Oral Pathology and Microbiology at AIIMS, Delhi has adopted a fully digitalized approach with virtual microscopy and whole-slide imaging. Technological infrastructure for tele pathology and annotation tools has been provided by ARTPARK@ IISc, funded by ICMR. Collaboration with participating centres Pan-India for data sharing and technology adoption.

Results: A digital platform that supports the transmission of images, videos, and other relevant clinical data with the integration of existing Electronic Health Record systems to generate digital pathology reports with detailed findings, diagnoses, and recommended treatment plans was developed. Image specifications and annotation features for oral lesion images were identified, datasets were catalogued, and open-source software for histological image pre-processing and augmentation was optimized

Conclusion: The development of image analysis techniques, including machine learning algorithms, for interpreting medical images, particularly for oral lesions, is crucial. Robust interpretation technologies can enable disease screening at the facility level, especially in areas with limited medical personnel. Creating datasets will facilitate evaluating the performance and readiness-for-use of existing and future algorithms in the Indian context. With digitalization, the future goals are to provide remote access for sampling receiving and reporting.

Keywords: Digital pathology, remote reporting, standardising diagnostics, data sharing

Abstracts

Title: Joint Evaluation of Human and Veterinary Anthrax Surveillance System in Odisha, July 2023 Bhavesh*, Ajit Shewale, Simmi Tiwari

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Background: Anthrax, a priority zoonotic disease in India, is a threat to lives and livelihood of rural populations. Joint evaluation of anthrax surveillance systems is required to understand the complexity of operationalising 'one health' approach.

Objectives: We evaluated the human and veterinary anthrax surveillance systems in Odisha.

Methods: We conducted a cross-sectional descriptive study during July 2023 in three districts purposively selected based on case reporting (reference period; July 2022 to June 2023), using the surveillance system evaluation guidelines (US Centres for Disease Control and Prevention) and the Joint External Evaluation tool (WHO). We interviewed 39 stakeholders and surveillance staff, and reviewed records from eight human and seven veterinary surveillance units selected purposively. Surveillance system attributes were assessed on a three-point scale (0-2); non-fulfilment, partial or complete fulfilment of assessment criteria.

Results: Both human and animal sectors have anthrax in the list of priority zoonotic diseases. We observed case-based online reporting (human sector; 14 cases) and paper-based aggregate reporting (veterinary sector; zero cases) for the reference period. The district had laboratory facilities for presumptive diagnosis (gram stain), and all notified cases were investigated \leq 24 hours in both sectors. Twenty-five percent (1/4) clinicians were aware of gastro-intestinal clinical presentation of anthrax in humans; cases identified at Primary Health Centre (PHC), were reported using computer facility at Community Health Centre (CHC) using PHC login. One clinically diagnosed human case was not reflected in reported cases, one was reported twice and 120 cases were misreported as anthrax in the reference period. Stability and timeliness scored (2) higher; acceptability and data quality scored lower (0).

Conclusion: The joint anthrax surveillance system demonstrated stability and timeliness. Integration of case based human surveillance and aggregated veterinary surveillance is challenging. We recommended training of existing staff on case identification, data analysis and feedback mechanisms to improve acceptability and data quality.

Keywords: Anthrax; Zoonotic Diseases; Public Health Surveillance; India

Abstracts

Title: Enhancing preparedness of Kyasanur Forest Disease through cross sectoral co-production of risk maps and decision support tools.

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Background: Kyasanur Forest Disease (KFD) is a potentially fatal tick-borne viral haemorrhagic disease, increasing in incidence among forest-dependent communities in South India. Spatial risk modelling can map "at risk" areas and communities to better target interventions and advance understanding of key risk factors. For neglected zoonosis however, effective mitigation is hampered by limited stakeholder coordination across sectors and risk models are rarely scaled to health interventions.

Objectives: This study, part of the Monkey Fever Risk project (www.monkeyfeverrisk.ceh.ac.uk) , used a cross-sectoral co-production process and spatial risk modelling to (i) enhance understanding of KFD risk factors and decision support needs (ii) and co-develop a predictive tool to enhance preparedness.

Methods: Key risk factors and decision support needs for KFD were framed with cross-sectoral managers (from public and animal health, wildlife and forestry in Kerala, Karnataka, Maharashtra) through a participatory workshop. Spatial patterns in human cases were (2014-2020) modelled in relation to identified risk factors including forest characteristics, livestock densities and public health access using machine learning. The utility of the risk maps and interactive tool for decision making was validated through another cross-sectoral workshop and key informant interviews.

Results: Human cases of KFD were more likely in areas with high cover of moist evergreen forest and plantation, and high densities of indigenous cattle, suggesting that epidemics are precipitated when forest is replaced by paddy and plantation. Models predicted new outbreak hotspots in 2019, in areas geographically remote from outbreaks in prior years. Stakeholders indicated that the maps would enhance preparedness before the transmission season by improving spatial targeting of tick surveillance and awareness raising in health centres.

Conclusion: The participatory co-production approach was critical for developing a decision tool and risk maps that were contextualised for forest use and needs of cross-sectoral decision makers and is widely applicable across zoonotic and livestock diseases in India.

Keywords: One Health, co-production, decision support tool, deforestation, neglected zoonosis

Title: Morbidity and Mortality Portfolio of SNCU graduates at Aspirational District SNCUs in Odisha, India - A cross-sectional quadrennial period study

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*Epidemiologist, Directorate of Public Health, Bhubaneswar, Odisha, dayasis@gmail.com **Background**: The Facility-Based Newborn Care (FBNC) program is one of the strategic programs to improve new-born health status in India

Objectives: We described the morbidity and mortality portfolios of SNCU graduates and assessed the quality of care provided at the SNCUs using seven quality of care indices (SQCIs) at 10 District Hospitals in Odisha, 2020-2023.

Methods: Using data from the SNCU online database(https://sncuindiaonline.org), we carried out a cross-sectional descriptive study of new-borns received care at SNCUs of 10 aspirational districts (District-Hospitals) in Odisha for four calendar years, 2020–2023. We profiled the admissions by Age, Gender, Weight, Maturity, Place of Delivery, Morbidity and described critical outcomes like mortality, referral, and discharge. Every quarter of the year, desired parameters were entered in an already-designed Excel spreadsheet, and the composite SNCU Quality of Care Index (SQCI) score was generated.

Results: A total of 69847 new-borns were admitted. Males were predominant (40530,58%). Out born were more than Inborn (35422,51%). Preterm was 48.5%(n=33886). 31632(45%) were in LBWs (1500-2499 gm). HIE/Birth Asphyxia (n= 19814, 28%) was the major morbidity of the SNCU graduates. The median average duration of stay was four days (0-98 days). Out of all admitted, 77%(n= 53612) got discharged, 11% were referred, 9% died, and 3% were Left Against Medical Advice. The top cause of mortality was Birth Asphyxia (n= 2711,42%). The overall Composite SQCI for the districts gave a satisfactory performance range of 0.56 to 0.68.

Conclusion: Asphyxia prevention and management requires immediate attention and can be achieved through community-based interventions to raise the awareness level of the intended beneficiaries and better capacity building of health workers. SQCI is an effective digital tool for improving the Quality of neonatal care in SNCUs and needs to be regularly analysed.

Keywords: SNCU, Morbidity, Mortality, Birth Asphyxia, SQCI

Title: Changing malaria epidemiology in the context of elimination: evidence from one selected tribal and non-tribal district, Andhra Pradesh, India, 2023

Dhanalaxmi Lolach Balaga*, Tanu Jain, Rinku Sharma, AT Rama Natha Rao, Dadi Sambha Murthy et al.

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Background: India has made remarkable progress towards malaria elimination with a decline in cases and deaths. As elimination efforts intensify, malaria reservoirs start to cluster in hotspot areas and populations with shared geographic, social, and behaviours. The circulating vector population and parasite also undergo a shift. To sustain elimination, control measures should address changing epidemiological patterns. Andhra Pradesh (AP) is a low-endemic state with annual parasite incidence (API) less than one and a tribal population of 9%. We compared malaria epidemiology and selected programme monitoring indices over five years (2018-22) in tribal Alluri Sitharama Raju (ASR) with non-tribal Visakhapatnam (VSP) district.

Methods: Two districts were selected using a multistage method on basis of tribal population proportion and average API for five-years. Data was extracted from relevant recording and reporting formats available under the National Malaria Elimination Programme of AP for two districts. We analysed surveillance data between 2018-22 descriptively using trends, proportions, and median.

Results: The annual malaria incidence in VSP and ASR was 0.07 per 1000 and 1.85 per 1000 population. Among cases, the median age and gender were: VSP=30 years (SD=15), under five=7%, males=67%; ASR=20years (SD=17), under five=17%, males=54%. Nearly 83% of annual cases occurred seasonally between April to October in both districts. VSP reported a higher proportion of *P.vivax* cases (643/693; 93%) in five years; However, *P.falciparum* proportion increased from 4.6% to 25.6% between 2018-22. In ASR, *P. falciparum* cases were >95% (7770/8157) in five years. Annual blood examination rate was maintained above the target of 7 in VSP (range=5-10) and 10 in ASR (range=68-103); API (VSP=0.13 to 0.02 vs ASR=4 to 0.8) decreased in both districts.

Conclusion: There is evidence of changing epidemiology in both tribal and non-tribal districts. Both have shown improvement in program implementation indicators. We recommend sustaining disease control activities and intensification of surveillance in hidden pockets.

Keywords: Tropical disease, vector-borne, tribal malaria, epidemiological shift

Abstracts

Title: Genomic epidemiology of ceftriaxone resistant *Salmonella Typhi* from two states in the country.

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Background: *Salmonella Typhi (S. Typhi)* is the causative agent of enteric fever which is a global health concern affecting an estimated 20–30 million individuals annually. Though most isolates in India continue to show susceptibility to Ceftriaxone, the first line treatment of Enteric fever, sporadic cases and small outbreaks of Ceftriaxone Resistant Enteric fever infections face treatment challenges. The application of Whole Genome Sequencing (WGS) has emerged as a crucial tool in identifying high-risk *S. Typhi* clones. This molecular approach may play a pivotal role in surveillance efforts, helping to track the spread of antibiotic-resistant strains and informing public health strategies to mitigate the impact of typhoid fever.

Objective: Identification and characterization of AMR determinants and Sequence Type (ST) of Ceftriaxone Resistant *S. Typhi* isolates using WGS

Methods: Of the Ceftriaxone resistant isolates *S. Typhi* received by the AMR National Reference Laboratory at the CBDDR Division of NCDC, 14 isolates including 4 from Tiruchirappalli, Tamil Nadu (2019), and 10 from Vadodara, Gujarat, (2023) have been included in this study. The isolates were confirmed at the NRL using conventional biochemical and serotyping. The genomic DNA of 12 isolates of *S. Typhi* were extracted by Sigma Aldrich Genomic DNA purification kit. Subsequently, genomic DNA libraries were constructed following the Illumina protocol. Identification of ST among the *S. Typhi* isolates was performed through Multilocus Sequence Typing (MLST).

Result:All the isolates were biochemically, serologically and Geno typically confirmed as *S. Typhi* (O9; Vi; d) and all the isolates were resistant to ampicillin, cotrimoxazole, ceftriaxone and ciprofloxacin. All the isolates belonged to sequence type 1 (ST1) and were carrying CTX-M 15, the plasmid mediated ceftriaxone resistance gene.

Conclusion: To conclude, enteric fever producing salmonellae harbour the CTX-M gene which makes ceftriaxone ineffective for treatment. Thus, the CTX-M gene detection in blood specimen of patients suspected with enteric fever could be used as a rapid test to initiate the second line/ alternative treatment.

Keywords: Salmonella typhi, Ceftriaxone Resistant, CTX-M 15, ST, WGS, MLST

Title: Integrating Wastewater-Based Surveillance and Machine Learning Approaches for Comprehensive Understanding of SARS-CoV-2 Incidence

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Background: Wastewater-based surveillance (WBS) has emerged as a crucial tool in monitoring public health, particularly in the aftermath of the COVID-19 pandemic. Leveraging a small WBS dataset, the investigation employs machine learning techniques to discern the impact of environmental factors on SARS-CoV-2 prevalence.

Objective: To examine the wastewater parameters, assess seasonal impacts, identify genetic lineages, explore associations with COVID-19 incidence, and establish a framework for future infectious disease surveillance.

Methods: Wastewater samples were collected from 28 sites across rainy and dry seasons, focusing on both surface and intermediate layers from Jorhat District of Assam, India. RT-qPCR and whole genome sequencing was conducted to detect SARS-CoV-2 presence and lineage identification, while physicochemical analysis, heavy metals concentration, and minerals composition assessments were performed. Relevant parameters were retained for correlation analysis using Pearson's method. Unsupervised learning algorithms, K-means and K-medoid clustering, categorized the data into four clusters. Performance metrics evaluated the clustering quality.

Results: Eight distinct lineages were identified through whole genome sequencing. Unsupervised learning revealed distinct clusters, with the highest viral positivity during the rainy season, characterized by unique water quality parameters. Conversely, a cluster with the lowest viral positivity emerged during the dry season, featuring its distinctive water quality characteristics. Further analysis exposed notable patterns in cluster combinations across sample sites, emphasizing the influence of environmental factors on SARS-CoV-2 prevalence.

Conclusion: This integrated approach demonstrates the utility of WBS in comprehending viral loads' dynamics in a region. The study highlights the association between wastewater parameters and SARS-CoV-2 incidence, offering valuable insights for future investigations. The identification of novel lineages underscores the importance of WBS in tracking viral diversity. This study provides a robust framework elucidating the intricate interplay of infectious diseases within environmental contexts, informing pandemic preparedness.

Keywords: Wastewater-Based Surveillance (WBS), SARS-CoV-2, RT-qPCR, Environmental factors, Machine Learning (ML)

Abstracts

Title: Intensified TB case finding activity among indoor patients in public sector hospitals of Himachal Pradesh, India.

Gopal Beri*, Ravinder Kumar, Aatmika Nair, Mahesh Puri, Aditi Sharma et al.

*Director Health Services cum STO, Department of H& FW Himachal Pradesh stohp@rntcp.org **Background**: Patients admitted in hospitals have higher risk of acquiring TB due to multiple factors like debilitated condition, immunocompromised state, and risk of nosocomial TB infection. Intensified case finding being one of key strategies under India's National Strategic Plan, the state of Himachal Pradesh carried out screening of all indoor ward patients in public sector hospitals.

Objective: To study attempts to analyse the impact of intensified case finding (ICF) initiative like indoor screening on TB case notifications for the state.

Methods: Since 2022, all admitted patients in public sector hospitals of the state have been screened by a specially designed "6S-TB symptom stamp" (cough, fever, blood in sputum, chest pain, weight loss and night sweats) used on the patient's record file. Health care staff screened all patients immediately after admission and marked their findings on the stamp. All TB presumptive patients were offered microscopy, Chest X-ray and NAAT testing as per the diagnostic algorithm of the TB program and were initiated on appropriate TB treatment regimen along with the treatment for primary complaint of admission.

Results: The indoor screening activity was carried out across 132 public sector hospitals. In 2022, of the 4,68,220 admitted patients in different hospital wards, 366268 (78%) were screened. In them 22652 (6.2%) were presumptive TB (which contributed to 8% of state presumptive TB examination rate) and 1468 (6.4%) were diagnosed as TB (which contributed to 9.1% of state total case notification). Moreover, in 2023, 5,56,490 admitted patients in different hospital wards, 502128 (90.2%) were screened. In them 34903 (7%) were presumptive TB (which contributed to 9% of state presumptive TB examination rate) and 2497 (9.4%) were diagnosed as TB (which contributed to 10.1% of state total case notification). Percentage increase of 10.4% (p< 0.05) was observed in state TB case notification in 2022 and 2023 each vis-à-vis 2021.

Conclusion: Stamp based ICF activity among admitted patients in public hospitals has proven to be an effective intervention for early diagnosis and treatment of TB and contributes significantly to TB case notification in the state. This activity is scalable at all levels including the private sector and is crucial for expediting TB elimination.

Keywords: Intensified TB Case Finding, Key population.
Title: Enhancing Disease Surveillance and Prevention: Gujarat's Journey with IHIP Portal Implementation

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Background: In October 2021, Gujarat initiated the full-scale implementation of the IHIP portal with the aim of early detection and prevention of health-related outbreaks.

Objectives: The primary objective was to ensure the daily entry of cases from all health institutes into the IHIP Portal, spanning from sub-centres to Medical Colleges. Challenges included addressing capacity-building needs and ensuring seamless daily reporting & to enhance decentralized laboratory-based IT-enabled disease surveillance for epidemic-prone diseases, enabling early outbreak detection and response through trained Rapid Response Teams (RRTs).

Methods: Gujarat adopted a proactive approach involving daily monitoring and supervision of skill base training programs conducted across districts and corporations. The state prioritized strategic capacity-building initiatives and logistical support to ensure early reporting of all alerts and the prompt completion of outbreak investigation activities by Rapid Response Teams.

Results: Through on-job skill-based training and continuous monitoring, Gujarat successfully accelerated IHIP portal achievements, overcoming the challenges in capacity building. Collaborative efforts with the IHIP Team at the National Centre for Disease Control in Delhi played a crucial role in promptly resolving portal entry issues. The state, ranking as the fourth-highest contributor to the National Level for IHIP Portal targets, achieved a remarkable 94% IHIP Portal score by December 2023. District and corporation teams have investigated a total of 1438 alerts, 694 health condition events and 245 outbreaks in last 3 years.

Conclusion: Gujarat's multifaceted strategy, which includes daily monitoring, supervision, and strategic capacity building, positions the state at the forefront of effective disease surveillance and prevention, ultimately leading to a reduction in morbidity and mortality during outbreaks. The state's proactive stance, swift response mechanisms, and collaboration with national health agencies showcase a model for achieving high IHIP Portal scores and improving public health outcomes.

Keywords: Disease Surveillance & Prevention, IHIP Portal, Capacity Building, Collaborative Efforts, Proactive Approach.

Abstracts

Title: Empirical Vs Targeted Antimicrobial Therapy for Blood Stream Infections in ICU Patients of a Tertiary Care Hospital in North India

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Background: ICU infection rates are growing, owing to the increased use of invasive procedures and specialized gadgets. Antibiotic abuse and misuse, partly due to inaccurate diagnosis, and illogical antibiotic market combinations have led to widespread drug resistance among hospitalacquired pathogens.

Objectives: To determine the epidemiological patterns of bacteria causing bloodstream infections in ICU patients, determine their antibiotic susceptibility profile and analyse empirical antibiotic therapy in ICU.

Methods: This is a prospective study that enrolled adult patients admitted in Medical and Surgical ICU, Lok Nayak Hospital, New Delhi with laboratory confirmed blood stream infections. Identification and antibiotic sensitivity testing were done using conventional methods and VITEK 2[™] COMPACT SYSTEM. Colistin MIC was detected using agar dilution while vancomycin resistance was done by vancomycin screen agar. Antimicrobial resistance pattern was noted and report communicated to treating clinicians. The data was collected on antimicrobials prescribed empirically and modifications done after receiving the blood culture report.

Results: 101 cases were included. Mean age of the enrolled subjects was 44.79 years with preponderance of male patients (65%). 87% cases of gram-negative bacteria were isolated. Most common organism was *Acinetobacter baumannii* (28%). Also, 12 cases (15%) of Gram-positive bacteria and 2 cases (2.5%) of Candida were isolated. Among Gram negative bacteria all isolates were resistant to Ampicillin and lowest resistance was towards Minocycline (58% of tested isolates susceptible). While 59 (98%) of gram-negative bacilli showed intermediate susceptibility towards Colistin (MIC), 10 (83%) of Gram-positive cocci showed susceptibility towards Vancomycin. Two cases of Vancomycin Resistant Enterococcus (VRE) were isolated. Meropenem was the most commonly used antibiotic in ICU in our patients (41.25%). Antibiotic prescription was modified in 66 (83%) cases after blood culture report. Modification of antibiotic therapy was done in 80% of the cases. Average duration of admission in ICU was 21.2 days. While 43 (54%) of patients included in study had a negative outcome but 37 (46%) of patients were shifted towards further treatment.

Conclusion: Study indicates increased incidence of Antibiotic resistant infections in ICU setting and therefore increased need of strengthened antimicrobial stewardship in such settings. **Keywords**: AMR, Antibiotic Stewardship, Empirical drug therapy, Sepsis, ICU

Abstracts

Title: Showcase for Best Practices of Heat Action Plan: Ahmedabad City (Gujarat).

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Background: Gujarat, with its diverse geography, has experienced drastic changes in climate over the past decade, leading to an increase in the frequency of cyclones and other natural disasters. The National Program on Climate Change and Human Health (NPCCHH) aims to enhance the health system's resilience to these challenges. This study focuses on the implementation and impact of the Heat Action Plan by the Ahmedabad Municipal Corporation (AMC) in response to extreme heat conditions in the region.

Objectives: The study aims to assess the effectiveness of AMC's Heat Action Plan in reducing health risks associated with rising temperatures. Specifically, it seeks to understand the collaborative efforts, early warning systems, and inter-sectorial coordination that contribute to successful implementation.

Methods: Data collection involves a comprehensive review of the NPCCHH and AMC's Heat Action Plan, including collaboration with government departments, NGOs, and institutes. Analysis includes the assessment of health indicators, monitoring strategies, and the role of community participation. The study also evaluates the effectiveness of Information, Education, and Communication (IEC) activities in raising awareness about Heat Related Illness (HRI) and Acute Respiratory Illness (ARI).

Results: The results highlight the successful execution of AMC's Heat Action Plan, emphasizing early warning systems, well-organized IEC activities, and collaborative efforts with various stakeholders. The study reveals a reduction in health vulnerabilities and mortality rates associated with extreme heat conditions in Ahmedabad.

Conclusion: The AMC's Heat Action Plan stands as a commendable model in mitigating health impacts of climate change. Lessons learned from this initiative have broader implications for regions facing similar challenges globally. The study underscores the importance of proactive planning, inter-sectorial collaboration, and community engagement in building resilience to climate-related health risks. Moreover, the action plan shows how the collaborative work against the heat wave condition like early warning system, public awareness and outreach with help of various departments, preparedness of health care facility with trained health care staffs and various adaptive majors helps to mitigate the heat wave condition. That can clearly have observed in study.

Keywords: Climate change, Health impact, Heat Action Plan, Inter-sectorial collaboration, Ahmedabad Municipal Corporation.

Abstracts

Title: A Study on Scrub Typhus Among Adults Presenting With Acute Febrile Illness At A Tertiary Care Hospital

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Background: Scrub typhus, caused by the bacterium *Orientia tsutsugamushi*, and transmitted by the bite of trombiculid mite, is emerging as an important cause of acute febrile illness. There's been a resurgence of this once forgotten disease due to various factors such as globalisation, urbanization and climate change.

Objectives: This study aims to determine the frequency of scrub typhus in adult patients with acute febrile illness and associated socioeconomic, demographic and clinical factors. The study also aims to evaluate the utility of rapid assay for serodiagnosis of scrub typhus.

Methods: This observational cross-sectional study, conducted in the Department of Microbiology, MAMC, enrolled hospitalized adult patients (\geq 18 yrs.) with acute onset of fever (temperature >38°C) for duration <14 days with any of the following features: eschar, rash, lymphadenopathy, hepatosplenomegaly, jaundice and multi-organ involvement. Serum from study subjects was tested for IgM antibodies to *Orientia tsutsugamushi* by ELISA and rapid assay. **Results**: The study was conducted from September, 2022 to November, 2023. Out of 175 AFI patients enrolled, 36 (20.6%) were positive by IgM ELISA. The average age of the cases was 35.4 years, with majority being males (n=19, 53%). Majority of the cases (n=25, 69%) resided in urban areas. Maximum number of cases were diagnosed in the month of August, 2022 (n=11, 30.5%). Eschar was seen in 25% of cases with neck and abdomen being the most common sites. Rash was observed in 44% of cases. Other common signs and symptoms included abdominal pain (44%), hepatomegaly (53%) and splenomegaly (36%). The most common complications were ARDS (11%), AKI (11%) and myocarditis (11%). The case fatality rate was 0.6% (n=1). The sensitivity and specificity of the rapid assay when compared with IgM ELISA was 22% and 100% respectively.

Conclusion: This study highlights the signifance of scrub typhus in patients presenting with acute febrile illness. The rapid assay due to its poor sensitivity was found to be unreliable for the serodiagnosis of scrub typhus.

Keywords: Scrub typhus, acute febrile illness, zoonosis, vector-borne, diagnosis.

Abstracts

Title: SARS CoV2 – The perspective of Environmental surveillance in Public Health surveillance. **Nibedita Das* Ishita Ghosh, Bandhan Pal, Shamita Mandal.**

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Background: Management of the COVID-19 pandemic continues to prove challenging in the face of an evolving virus, and uncertainties in designing proportionate and evidence-based public health interventions. In an increasing number of settings globally, routine COVID-19 surveillance programs have augmented diagnostic testing with community-scale COVID-19 environmental surveillance (ES) of SARS-CoV-2 in wastewater samples. Similarly, ES have been done for other diseases and risks such as for polio, typhoid and antimicrobial resistance (AMR).

Objectives: The objective of the study is to provide early warning and additional evidence regarding the virus in circulation in the population, including its presence or absence, trends in concentrations, and variants of concern or interest.

Methods: A cross-sectional study of 350 waste water samples was conducted at Institute of Serology, Kolkata from August 2021 to May 2023 from 5 collection sites of Kolkata, West Bengal. The samples were concentrated, viral RNA extracted and RT-qPCR done for E, ORF, RdRp and β ACTIN gene. The data was analysed by Epi Info version 7.2 software (CDC, USA).

Results: Out of 350 samples analysed 141 was positive for SARS Cov2 virus (Ct value<35). The positivity in environmental samples showed a positive predictive analysis before the onset of SARS Cov2 in the community.

Conclusion: Correlation between results from public health surveillance and SARS-COV-2 ES sampling is approximate because of the nature of sanitation systems and mobility of people. Environmental surveillance of SARS CoV2 can help to form decisions on and assist in measuring the effect of public health interventions.

Keywords: SARS Cov2, Environmental surveillance, RT-qPCR, E gene, Public health interventions.

Abstracts

NPHICON 2024

Index Page (Oral Presentations)

Title: Implementation of International Health Regulations- Articles 22,23,27,28,37,39,42 and 43: Best Practices at PHO Tuticorin- Management of Symptomatic/ Asymptomatic Covid Positive crew on-board ships called at Tuticorin Seaport through International travel during the Covid Pandemic.

P. Poornima*, S. Senthilnathan

*Port Health Officer, Port Health Organization, Tuticorin., poornima.p@gov.in **Background**: Prevention, early detection & response.

Objectives: i) Compliance with WHO's IHR 2005, MOHFW's travel advisories, ICMR's Covid testing strategy, NCDC's IPC guidelines, WHO's SOPs for COVID-19 outbreak on-board ship & PHO's Tuticorin COVID SOP's. ii) Cargo operations at ports despite Covid lockdown.

Methods:

Prearrival: Documents scrutinized and ship assessed 72 hours prior to arrival through email.

DOCUMENTS:

ASSESSED FOR:

1.	Maritime declaration of health	
2.	Medical log entries for 1 month	
3.	Ship sanitation certificate	- Public health events on-board
4.	Crew daily body temperature & SPO ₂	
	record for the last 14 days	-
5.	Last 10 ports of call	- Travel history, incubation period,
6.	Crew list with embarkation	source of infection.
7.	Medicine chest certificate with medicine list	 PPEs, O₂ Cylinder, Disinfectants,
	_	medicines for on-board outbreak
		management.

Following assessment: Checklist & COVID SOPs to the ship.

Berthing: By Pilot with adequate PPE. Upon berthing PHO's inspection & issuance of limited free pratique. The ship cleared for cargo operation. Other stakeholders boarding formalities. *Port stay:* continuous monitoring of Crew's daily body temperature & SPO₂ record to PHO.

Departure: health clearance for ship's sail out with health advisory.

Results:

Prevention: Prearrival screening and continuous monitoring, issuance of COVID SOP's, safe port operations guidelines.

Early detection and Response: If the crew becomes symptomatic, upon berthing at a designated isolation berth, safe transport, Isolation & management of the crew at the designated isolation facility. Periodical Ship disinfection, tracing & testing of the contacts, quarantine of the ship with suspected crew for 14 days, coordination with State health officials for isolation during quarantine period.

Conclusion: During the COVID pandemic, this is the best practice of PHO Tuticorin. Besides uneventful cargo operations, 15 ships with COVID-19-positive crew after quarantine and isolation, carried out cargo operations and cleared for sail out. Finally, Upgradation from Email scrutinization of Prearrival documents to an online portal is a milestone.

Keywords: IHR- International Health Regulation, IPC- Infection Prevention & Control, ICMR-Indian Council of Medical Recruitment, SPO₂ - Oxygen saturation, PPE- Personal Protective Equipment.

Abstracts

Index Page (Oral Presentations)

Title: Dengue Control Mega campaign: A comprehensive, integrated approach for Dengue control in Uttarakhand 2023.

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Background: In the year 2023, a Dengue Control Mega Campaign in Uttarakhand was conducted, aimed to mitigate transmission and impending outbreak of Dengue cases. A well-crafted strategy led to control in transmission of dengue in Uttarakhand state. Success resulted from proactive monitoring, hotspot identification, and targeted interventions in urban and rural areas. Clear roles for healthcare workers and others ensured seamless coordination. Intersectoral collaboration and community engagement were pivotal, highlighting the efficacy of a coordinated strategy in Dengue control.

Objectives: i) To enhance community knowledge and awareness about public health emergencies linked to climate change and to cultivate a pool of trained manpower within the community itself. ii) To achieve these goals, the campaign meticulously monitored Dengue cases, identifying hotspots from the outset and intensifying efforts as the transmission increased.

Methods: Intersectoral and inter-convergent actions were systematically executed in identified hotspots, focusing on source reduction, fogging, and awareness activities. Daily mega drives, with assigned house coverage targets for healthcare workers, were a keystone of the campaign. The collaborative efforts of the Health Department and Municipal Corporation were instrumental in preventive actions such as source reduction, cleanliness campaigns, and fogging. Dengue volunteers played a vital role in surveys and source reduction for campaign success.

Results: The results of the campaign underscore its effectiveness, with 3,163,534 houses surveyed, inspecting 6,350,311 containers, and the destruction of 256,954 containers with Dengue larvae. Dengue volunteers played a pivotal role in surveying 192,687 houses, inspecting 1,101,514 containers, and eliminating larvae in 368,519.

Financial penalties were judiciously imposed on individuals or institutions posing a risk of mosquito breeding places. IEC campaigns, utilizing various mediums, further augmented awareness.

Conclusion: In 2023, Dengue Control Campaign in Uttarakhand successfully reduced cases despite challenges. Timely interventions, control rooms, and collaboration among authorities, municipalities, and the community formed a successful model for Dengue control.

Keywords: Hotspot identification, community engagement, source reduction, awareness initiatives, and Dengue volunteers and epidemic.

Abstracts

Title: Ethics for use of Machine Learning in Research: A Review of Literature.

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Background: Machine learning is a subset of Artificial Intelligence that allows computers to understand datasets and make predictions based on their patterns. Ethical considerations are often of paramount importance in research because these processes can affect the society with its positive or negative predictions. Four ethical pillars are Fairness, Transparency, Accountability, Privacy.

Objectives: i) To identify research related ethical bias due to Machine learning. ii) To find possible solutions to eliminate these biases.

Methods: Literature search using databases like Google scholar, PubMed. Publications related to ethical boundaries of research using machine learning were only included. Research work published before the year 2020 was excluded.

Results: Decision making algorithms are based on assumptions hence it should represent data of a real system. There are various tools for identifying uncertainties, and quality assessments of the data that must be incorporated while developing a machine learning code. Techniques like Fundamental Conditions approach, Numeral unit spread analysis pedigree, global sensitivity analysis are used to maintain the ethical code of conduct for machine learned outcomes. Guidelines for designing Machine learning tools must be adopted and lastly this process should be regulated by the government bodies.

Conclusion: Maintaining transparency is an essential aspect of research, justification of every machine led decision is necessary for reinforcing trust. Accountability gives a sense of responsibility to the developer to perform his tasks rightfully. If the data is free from biases, it would facilitate fairness in the decisions. Large data sets are used for learning patterns, but the advantages of algorithms must not violate individual privacy. Ethics are beyond simply conveying norms of right and wrong; it involves enhancing the moral awareness of machine learning researchers, enabling them to recognize the broader impacts of the systems they develop. **Keywords**: machine learning, research, bias, ethics, data

Abstracts

Title: Health Technology Assessment of Breast Cancer Screening Techniques in India Prakamya Gupta*, Ragini Bhatia, Ranjan Choudhury, Atul Kotwal

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Background: Breast cancer accounts for approximately 2.3 million new cancer cases globally and 6,85,000 deaths annually from the disease. Breast cancer is the leading cause of morbidity and mortality worldwide. In India, the incidence increased significantly, almost by 50%, between 1965 and 1985. Early detection is key in the treatment of breast cancer. Effective screening techniques serve as the basis for the prevention of breast cancer among females.

Objective: The study aimed to evaluate the cost-effective strategy for screening breast cancer in the population of India. Its objective is to compare all the available screening techniques (Ultrasound, mammography, Clinical Breast Examination, Ultrasound paralleled with CBE and Piezoelectric Finger) in terms of costs, clinical effectiveness, feasibility and budgetary implications.

Methods: A hybrid economic model involving a Markov model was conducted to analyse the costeffectiveness of various screening techniques for breast cancer as compared to no screening. The economic evaluation model was conducted from the provider perspective that includes cost incurred by the health system at various levels of health facilities. PICOT included (i) Population: All females between 35 to 65 years of age of India (ii) Intervention: CBE, Mammography, MRI, USG and Piezoelectric finger (iii) Comparator: No Screening (iv) Outcome: Diagnostic accuracy of breast cancer screening techniques in the form of sensitivity and specificity, NPV, PPV, QALYs gained, incremental cost effectiveness ratio (ICER) as compared to baseline (no screening). The treatment costs were estimated from a provider's perspective from the National Cancer registry program report 2012-2016. The costs of treatment were combined with updated costs from CGHS rates, 2021. After evaluating the model parameters, Markov Model was run on TreeAge pro healthcare software incorporating the input parameters to obtain ICER and QALYs.

Results: The database search yielded 508 citations published between 1st March'2018 to 30th June'2022. Articles were excluded based on the information available in the title and abstract. The full texts of potentially relevant articles were obtained for further assessment. Twelve studies were included in the study for clinical effectiveness. The initial results of meta-analysis of literature review for clinical effectiveness depicted that CBE paralleled with USG had high sensitivity, specificity, PPV and NPV while Piezoelectric Finger had acceptable sensitivity, specificity, NPV and PPV. However, it's budgetary implications and feasibility at primary level needs to be evaluated. Further, use of USG for community screening may not be feasible due to the limitations of trained manpower and placement at the PCPNDT licenced facilities.

Conclusion: Breast cancer has surpassed lung cancer as the leading cause of global cancer incidence in 2020. With the increase in the global population, an increase in breast cancer incidence is expected. Awareness and education supplemented with screening women for breast cancer at least once in every 3 years should be made available to provide patient access to prompt diagnosis and treatment. The most cost-effective screening strategy should be implemented at primary healthcare system level.

Abstracts

Title: Crew Change Report – An innovative tool for safe and efficient way of Crew changes of the Ships during COVID-19 Pandemic.

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Background: The outbreak of COVID-19 pandemic all over the world has seriously affected seafarers work and life. At the end of March 2020, the world went quiet because of COVID-19 lockdowns and travel bans, the shipping management companies were unable to perform crew changes. But, as the crew changes are very much important and to perform the crew changes in a safe and efficient way, Port Health Organisation, Chennai has innovatively developed the Crew Change reports and performed the crew changes very effectively.

Objectives: i) To minimize the spread of infection of COVID-19 from the New joiners (embarkation crew) to the crew present on board. Ii) To minimize the spread of infection of COVID-19 among the disembarkation crew till they proceed to their home town.

Method: Crew Changes were performed with the help of the Crew Change Guidelines and with the help of Crew Change Report (CCR). CCR captures the vital information of COVID-19 Vaccination status, RT-PCR test report, date of Completion of Quarantine and further advice. CCR was sent in e-mail to all the important stakeholders involved in crew changes so that the crew changes can be done very fast in a non-contact way.

Results: With the application of CCR, the crew changes were carried out effectively without much transmission of infection even during the time of lockdowns and travel bans. Foreign crew were able to proceed to their home country without any hassles. CCR also helped in travel of the seafarers across the states within the country in times of lockdowns and travel restrictions.

Conclusion: Crew Change Report has proven to be a very important tool, with which crew changes can be done very efficiently and can be recommended for all Seaports across the Country for any airborne transmitted Public Health Emergency of International Concern (PHEIC). **Keywords**: Crew Change Report, PHEIC, Crew Changes.

Title: "Advancing Towards Tuberculosis Elimination: Insights from a Community-Centric Mortality Analysis of Individuals with Tuberculosis in India"

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Background: The National Strategic Plan to END TB in India (NSP) 2017 – 2025 initiated a comprehensive approach to enhance the National Tuberculosis Elimination Programme (NTEP) interventions. Despite global efforts, methodological challenges persist in estimating TB mortality, particularly in India. TB deaths present a significant challenge, necessitating a deeper understanding of associated factors to prevent such occurrences.

Objectives: The study aims to investigate factors contributing death among individuals with TB, facilitating prevention strategies.

Methods: A community-based death audit was conducted among family members of deceased individuals with TB (N=115), using a semi-structured, pilot tested verbal autopsy tool. The series of case record reviews were undertaken to identify the events around deaths and establishing the cause of death. Simple random sampling was employed in districts having high mortality rate, with data obtained from State NTEP offices of Gujarat and Jharkhand. Descriptive and inferential statistics were utilized for analysis, supplemented by cause of death assessments (ICD-10) by medical specialists.

Results: Most deaths (80%) happened within 12 weeks from the diagnosis to death, primarily at home. Most deceased patients belonged to key populations (57%) and had addiction (63%). Interrupted medication, adverse drug reactions and comorbidities, were common. Mode of death observed due to cardio-pulmonary failure (48%), cardiac arrest (20%) and others, with TB identified as the underlying cause in a significant proportion of cases. Based on medical records review and deployment of ICD-10 classification, the TB identified as a cause of deaths in 65% (n=75) cases of study sample.

Conclusion: TB death highlight gaps in early diagnosis, treatment adherence, and healthcareseeking behaviour. Empowering communities, enhancing early diagnosis and treatment, highrisk stratification, capacity building, comprehensive treatment support, and establishing a TB Death Surveillance and Response System helps to address the gaps which are crucial for reducing TB mortality and strengthen TB elimination efforts.

Keywords: Tuberculosis, mortality, TB death audit, surveillance, and response, NTEP.

Abstracts

Title: Sector Connect: Transition from Frontline Field Epidemiology Training Programme (FETP) to Fellowship in One Health, a multisectoral Intermediate FETP in India

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Background: During COVID 19 pandemic National Centre for Disease Control (NCDC) along with Centres for Disease Control and Prevention and World Health Organisation, India Office started to build capacity of district level responders in outbreak investigation and surveillance. As of May 2023, we trained nearly 300 Frontline FETP officers and 73 mentors in 124 districts from 8 states. The officers completed 120 outbreak investigations during their field assignments, but most investigations required a structured One-Health approach.

Framework: Recognizing the limitations of the Frontline FETP by only targeting district level officers from human health sector, India has embraced a One-Health perspective. The International Health Regulations (2005) mandates strengthening of Global Health Security at the human animal interface. The quadripartite agreement provides a comprehensive 'Competencies for One Health Field Epidemiology (COHFE)' framework.

Output: NCDC in collaboration with Department of Animal Husbandry and Dairying and other partners launched Sector Connect, Field Epidemiology trainings in One Health. In December 2023 Sector Connect started its three-month short course called FEP-OH. Currently 17 districts with 73 officers and 18 mentors are under training from human-health, port-health, veterinary, wildlife and food-safety sectors.

Way forward: A need was felt for training state-level officers from various sectors involved in outbreak response at a regional or national level. These are mid-to-top level programme managers. To initiate a fellowship in one health based on the COHFE and intermediate FETP guidelines was the recommendation. The fellowship will be a 12-month on-the-job training with up to 80% time allotted for field assignments and 20% time for contact sessions. Sector Connect Alliance (consortium of partnering institutes) and a Unified Training Unit (joint working group of nodal members from partner institutes) will be constituted to support its operations. The trained fellows will strengthen cross-sectoral surveillance information sharing and joint outbreak response.

Keywords: FETP, One Health, health security

Abstracts

Title: Collaborative Platform for Dengue Monitoring and Control in Karnataka **Rohit Satish***

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Background: Dengue is one of the leading public health challenges in India and is endemic across nearly all states in India, with increasing incidence in recent years¹. It is highly seasonal, and the majority of the cases occur during the Indian Summer Monsoon Rainfall (ISMR) period (i.e. June to September)². Recent studies have shown that dengue is highly sensitive to climate conditions^{3,4}, especially temperature, precipitation and relative humidity and increased climatic suitability for dengue transmission due to climate change⁴.

Objectives: Implement monitoring and early warning system for dengue outbreak preparedness for policymakers and administrators.

Method and **Results**: We set up a consortium of researchers, data analysts and data science fellows at ARTPARK's *Data Science Innovation Hub* for this purpose. We leveraged epidemiological data for 5 years (including the Integrated Health Information Platform for 2023), meteorological data, land-use-land-cover, entomological data from larval surveys and used generalized linear models (GLMs) to forecast disease incidence at district and sub-district levels for a four-week period in Karnataka. The forecasts were transformed into easy-to-understand qualitative risk maps at district and sub-district levels and integrated into a disease surveillance platform accessible to

¹ https://doi.org/10.1371/journal.pntd.0006618;

https://ncvbdc.mohfw.gov.in/index4.php?lang=1&level=0&linkid=535&lid=3710;

² https://doi.org/10.1016/j.scitotenv.2020.140336

³ https://doi.org/10.1073/pnas.1806094116

⁴ https://doi.org/10.1186/1471-2334-14-167

officials. The risks were evaluated against reported incidence in the July-August season at district and sub-district levels.

Conclusion: Our work demonstrates the value of problem-led research and collaborative partnerships between researchers and government health officials to solve a public health challenge. The underlying models will continuously be evaluated, and newer models will be benchmarked against existing ones. This approach could be leveraged for other vector-borne diseases and integrated into the IHIP for scale and sustainability.

Keywords: Dengue, IHIP, Integrated Health Information Platform, Surveillance, Artificial Intelligence, Computational Epidemiology

Abstracts

Title: Mixed method research to assess the effect of social media on cyberbullying: Action for Cyber Health Promotion

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Background: Cyberbullying has become a global issue with consequences on both physical as well as mental health of the individual. It has been observed that cyberbullying has no age bar still it is questionable whether people who are directly involved in cyberbullying understand what cyberbullying exactly is and how it affects others.

Objective: Assess the prevalence and types of cyberbullying and its effects on mental and physical health of the people.

Methodology: Quantitative Data was collected through a short survey questionnaire comprising 27 questions administered to the willing participants. Qualitative Data was collected through an Anonymous confession, group discussions and interpersonal communications to gather experiences. Three key action areas of health promotion approach (Ottawa Charter 1986) were utilized to address cyber health promotion. Personal skills developed through IPC, supportive environments garnered through GDs, strengthening community action through sensitisation and dissemination of IEC (Booklet-Cyber Health Promotion).

Results: 86% of participants had reported frequent use of the internet, 34% acknowledged facing related issues, while 1/3rd (37%) chose not to report due to various reasons. 31% reported being bullied 1-5 times while around 3% were bullied more than 5-10 times in the past three years. 65% felt that males commit cyberbullying, 24% perceiving females to be committing cyber bullying. Trolling and harassment are major types of cyberbullying experienced by participants. 77% experienced mental affects which impacted their physical health also. Through the anonymous confession box 41% accepted the victim of cyberbullying, 7% confessed to committing cyberbullying. Anger was most common reported emotion followed by scared, embarrassed, feeling to commit suicide, sad, lonely and depression. Findings indicate adverse interactions in a virtual setting mostly anonymous may play role in influencing a wide array of issues. Qualitative analysis revealed that anonymity of the platform emboldened the perpetrators "I find it hard to approach girls but easy on online platforms, "I used to bully people in order to save myself from wrath" were some of the confessions received from anonymous confession boxes.

Conclusion: Overall cyberbullying affects mental health of the person which is translated into physical melodies. Majority of participants felt that people bully others online for fun, followed by money, revenge, pranks and hate. Key findings emphasize the need for cyber health promotion and raising awareness amongst the population.

Keywords: Cyber Bullying, Cyber Crime, Anonymous survey, physical health, mental health.

Abstracts

Title: Triple Elimination of Vertical Transmission of Hepatitis B, HIV and Syphilis: An integrated intervention in West Bengal

Santanu Das*, Kousik Chowdhury, Chinmoy Burman, Nilay Kanti Das, Soumendra Nath Haldar, at al

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Background: National programs – NVHCP and NACP accord high priority to prevention and elimination of Hepatitis B, HIV and Syphilis from mother to new-born. Besides, a robust RMNCH+A framework with 1.6 million pregnancies annually, is a suitable launch pad for an integrated elimination response in West Bengal.

Objectives i) Conduct a situational assessment of the care cascade for Triple EVT of Hepatitis B, HIV and Syphilis to identify areas of improvement around service delivery, data management and governance.ii) Develop appropriate intervention packages based on findings.

Methods: A detailed situation assessment in four districts was conducted. It was a cross-sectional study, utilizing service provider interviews, document reviews, and beneficiary interviews. The study was conducted at a single point in time, generating qualitative and quantitative data for analysis.

Results: Overall screening coverage at primary facilities for all three diseases was found above 90%, but first-trimester coverage was 85%. Instances of repeat testing was seen across levels. Knowledge of Syphilis care was found limited. For infant care, facilities were adequately equipped with drugs, vaccines, and test kits for Hepatitis B and HIV but not so for Syphilis. Supply of Syphilis treatment commodities was found irregular. There was no cohort-wise data visibility of mother-child cohort for service delivery and health outcomes for Hepatitis B and Syphilis. Linkage and communication between labour rooms and testing and treatment facilities for Hepatitis B, HIV and Syphilis needed strengthening and standardization.

Conclusion: Based on the results, the responses delineated and developed are - integrated approach to improve screening, capacity strengthening and awareness; standardized and optimized management and care services - SOP with flows for the pregnant woman and exposed infant have been developed with accompanying training manuals IEC and job aids; strengthening of data and governance systems - a revamped governance plan with defined roles and responsibilities; and monitoring checklists and data management systems through an integrated MIS tool.

Keywords: NVHCP – National Viral Hepatitis Control Program, NACP – National AIDS Control Program, RMNCH+A – Reproductive, Maternal, Newborn, Child and Adolescent Health, EVT – Elimination of vertical transmission, SOP – Standard Operating Protocol, IEC – Information Education Communication

Abstracts

Title: Paragonimiasis: A continuing public health problem in the Northeast India Shakti Laishram*, Takhellambam Shantikumar Singh, Khuraijam Ranjana Devi, Kh. Ratankumar, Thangjam Dhabali Singh

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Background: Paragonimiasis is a food borne parasitic zoonosis caused by trematode species of the genus *Paragonimus*. It is acquired by ingestion of raw or undercooked freshwater crabs and crayfish containing the infective larval stage of the parasite. Since early 1980s paragonimiasis has been recognized as an emerging parasitic disease in northeast India. Although the incidence has apparently declined over the years, it continues to be a health problem in Manipur with the discovery of new endemic foci in Chandel, Churachandpur, Ukhrul, and Senapati districts. Pulmonary and cerebral paragonimiasis were most frequently diagnosed as tubercular infections due to similar clinical, radiological and CT findings. Low awareness among the medical practitioners about paragonimiasis may be one of the important factors for initial misdiagnosis.

Objective: To appraise the public health authority and medical practitioners about the continuing problem of paragonimiasis in Manipur, and the various clinical manifestations that may mimic tuberculosis or other medical conditions.

Methods: Suspected cases were analysed and tested for paragonimiasis by direct microscopy and serology.

Results: We report 32 cases of paragonimiasis consisting of pulmonary (n=19), pleural effusion (n=11), cerebral with pulmonary (n=1) and cutaneous (n=1) paragonimiasis. These cases were initially mistaken for tuberculosis or some other diseases. Detailed history including consumption of freshwater crabs, thorough physical examination, blood eosinophilia, microscopy demonstration of *Paragonimus* ova and/or worm in the clinical specimens and paragonimiasis serological tests were the mainstay for diagnosis of paragonimiasis.

Conclusion: Patients presenting with high blood eosinophil counts associated with respiratory or neurological symptoms or migratory subcutaneous lesions should always be investigated for paragonimiasis. It is suggested that National Tuberculosis Elimination Program in India to include screening of all smear negative clinically diagnosed pulmonary tuberculosis for paragonimiasis by simple sputum microscopy for *Paragonimus* eggs or serological test for paragonimiasis especially in the Northeast Indian states where paragonimiasis is endemic.

Keywords: Paragonimiasis, Smear negative tuberculosis

Title: Visceral leishmaniosis elimination and resurgence: A study in compartmental modelling. **Siddhartha Karmakar*, Rashmi Tiwari, Mithun Kumar Mitra, Suchita Nath-Sain, Souvik Banerjee** *Project Research Scientist, National Disease Modelling Consortium, IIT Bombay, karmakars@iitb.ac.in

Background: Visceral leishmaniosis (VL) is a sand-fly-borne neglected tropical disease caused by the parasite *L. donovani*. VL is targeted for elimination by 2030 globally and 2023 in India. In India, the elimination target is < 1 case/year in 10000 populations at the block level. Modelling the transmission dynamics of VL can help in the elimination efforts and in mitigating the risk of resurgence.

Objectives: (a) Generate estimates of disease burden, (b) predict required indoor residual spraying (IRS) coverage and active case detection (ACD) for elimination, (c) predict risk of

resurgence, (d) assess role of post kala-azar dermal leishmaniosis (PKDL) as a potential threat to elimination.

Methods: We calibrate an established compartmental VL transmission model [1] to the elimination threshold. We estimate the fly-to-human ratio, fraction of PKDL cases, and the duration of dormant and PKDL stages that could lead to near-elimination case counts. We create hypothetical scenarios with different coverage of IRS and ACD and demonstrate their impact on the reduction of new VL cases.

Results: We present the posterior density of the relevant parameters satisfying the aforementioned calibration target. The posterior suggests broad ranges of values of fly-to-human ratio and durations of dormant and PKDL stages. The fraction of PKDL cases and the duration of PKDL stage are highly correlated. We find that ACD reduces the cases by an order of magnitude, although IRS can be more effective. Assessing different hypothetical scenarios, we compute the resurgence risk on cessation of IRS.

Conclusion: Simulations with VL transmission model can be used to estimate VL incidence while accounting for the PKDL reservoir in a population. Immediate withdrawal of IRS after achieving elimination can lead to a substantial risk of resurgence. Predictions of VL and PKDL case counts may help in taking precautionary action for case reduction.

Keywords: Active case finding, compartmental model, elimination target, resurgence risk, visceral leishmaniosis, vector control

Abstracts

Title: Ensuring Ethical Research in Flood: A Framework for Ethical Considerations **Sivaprasad, M.S*, Vinod, V.K, Jisna K.S.**

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Background: As we all know, various parts of India, like Kerala, Assam, and recently Tamilnadu, have been affected by floods. In light of the escalating frequency and impact of floods worldwide, this topic delves into the ethical dimensions inherent in conducting research and executing responses in flood disaster settings.

Objectives: To find out the ethical considerations in a flood-affected situation

Methods: Analysing research articles and reviews from 2000- 2024 on ethical considerations in flood-affected situations in India and other Asian countries and analysing them.

Results: Floods represent the most common type of disaster worldwide, highlighting the urgency of incorporating ethical considerations in flood risk management. A holistic approach to disaster ethics must be pursued, encompassing preventative responses and post-disaster ethics. Ten ethical topics, including Environmental Ethics, Ethical Reflection, Flood Risk Management, Health and Well-Being, Justice, Professional Ethics, Research Ethics, Virtue Ethics and Vulnerability are discussed here.

Conclusion: This review highlights the significant impact of floods on human health and well-being, emphasizing the imperative for ethical reflection and action in flood disaster response. Finally, it underscores the importance of addressing conflicts of interest during floods to ensure ethical integrity in disaster risk reduction efforts. This review contributes to the evolving discourse on disaster ethics, advocating for a robust ethical framework to guide flood disaster response and risk management endeavours worldwide.

Keywords: Flood, Ethics, Research, India, Disaster Management

Title: A Mixed method study on performance motivation of ASHAs: A Comparison across Different Incentive Systems in India

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Background: ASHA program is a major initiative of 'communitisation' of the health systems and ASHAs perform threefold functions of a facilitator, a service provider, and an activist. ASHAs are being compensated through different incentive mechanisms. It is important to have a national level understanding of performance motivating factors for ASHAs which will sustain them to perform at an optimum level.

Objective: The study aims to assess the level of performance motivation of ASHAs with a comparison of existing different incentive systems.

Methods: A Mixed-method study was conducted on four different existing incentive systems. All the states were segregated on this categorization and one state was included in the study from each group. Rajasthan (performance-based incentive plus fixed top-up), Chhattisgarh (performance-based incentive plus variable top-up), Telangana (fixed incentive) and Meghalaya (performance-based incentive). At the state level, a 30*30 sampling technique was used. A quantitative study of ASHA's performance motivation (1200 ASHAs from all 4 states) and a Qualitative study of perspectives of ASHAs and health system personnel on ASHA's incentive system were conducted.

Results: The findings revealed that financial incentives are but one of the factors that influence performance motivation, however a number of non-monetary factors also play a major role in the performance motivation of ASHAs. These non-monetary factors could be both intrinsic or extrinsic. The quantitative findings showed that the Chhattisgarh incentive model seemed to be the best incentive model thus playing a crucial role in motivating ASHAs.

Conclusions: Performance motivation of ASHAs could be further improved by providing a more holistic combination of monetary and non-monetary incentives and building on existing altruism and intrinsic needs but also not ignoring financial and other programme inputs. However, the main decision depends on the states who can adapt the model considering their socio-cultural context.

Keywords: ASHA, incentive, motivation, performance, non-monetary factors.

Abstracts

Title: Joint external Evaluation (JEE) - A tool for strengthening IHR competencies for pandemic preparedness: Sharing experiences from Indonesia

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Background: The International Health Regulations (IHR) (2005)requires multisectoral/multidisciplinary approaches for preparedness of efficient systems to prevent, detect and alert response systems. This requires core capacities both during routine times and during public health emergencies of international concern (PHEIC) for rapidly responding to public health threats occurring naturally or accidental events due to chemical, biological, radiation (CBRN). The Joint External Evaluation (JEE) process was developed by WHO in collaboration with partners and initiatives such as the Global Health Security Agenda (GHSA) using self-assessment, peer review and voluntary joint external evaluations involving national and international experts.

Objective: To assess 19 technical areas to prevent, detect, and respond to public health threats using JEE tool (version 3).

Methods: The process started with an orientation workshop for in-country focal points to gain a common understanding on JEE. The two stage process started with an initial self-evaluation conducted by host experts using the JEE tool followed by actual evaluation conducted by a team of 19 national and international experts spread over a week. First day was visit to actual sites, as decided earlier with national authorities, followed by presentations, joint observations, inputs from relevant experts on each technical area.

Results: Capacities for IHR coordination, AMR, Zoonotic, Laboratory, Infection prevention and control, chemical and radiation was developed with score of 3. In areas like legislation, finance, surveillance and human resource, health emergencies, public health, risk communication and community engagement and points of entry it was also sustainable for more years with score of 4. Country capacities in immunization was rated as highest being capable of supporting other countries also. Capacities in Biosafety were lowest and in developing stage with score 2.

Conclusion: The key areas were identified for National mid-term development plan and next fiveyear plan.

Keywords: WHO:World Health Organization, IHR: International Health regulations, PHEIC: Public Health Emergency of International Concern, CBRN: Chemical, Biological, Radiation and nuclear, AMR: Antimicrobial Resistance



INDEX		
S. No	Name of presenter	Topic (e-POSTER PRESENTATION)
1.	<u>A KRISHNAVENI</u>	EPIDEMIOLOGICAL INVESTIGATION OF AN OUTBREAK OF ACUTE
		VIRAL HEPATITIS A IN KUMARAKURICHI VILLAGE OF SIVAGANGAI
		DISTRICT, TAMILNADU
2.	<u>A R PASI</u>	BEST PRACTICES FOR DETECTION OF SUSPECTED CASES OF
		COVID – 19 AT INTERNATIONAL AIRPORT MUMBAI IN INDIA
3.	<u>A VISHNU</u>	EVALUATION OF NATIONAL TOBACCO CONTROL PROGRAMME
	KUMARAN	IN VILLUPURAM DISTRICT, TAMIL NADU, INDIA, 2023
4.	AARZOO CHANDER	EPIDEMIOLOGICAL STUDY OF SCRUB TYPHUS FROM A TERTIARY
		CARE HOSPITAL IN NORTH INDIA
5.	ABHISHEK GUPTA	APPLICATION OF CHEST X-RAY AI AIDING DIAGNOSIS OF
		TUBERCULOSIS: A PILOT STUDY DONE IN THREE TRIBAL
		DISTRICTS OF CHHATTISGARH, INDIA
6.	ADITYA KUKRETI	ANTIBIOTIC USE AND RESISTANCE: A CROSS-SECTIONAL STUDY
		EXPLORING KNOWLEDGE, ATTITUDES, AND PRACTICES AMONG
		UNDERGRADUATE STUDENTS IN DELHI, INDIA
7.	AGNIBHO MONDAL	SERODIAGNOSIS OF HUMAN BRUCELLOSIS IN RESOURCE-
		LIMITED SETTINGS: A COMBINATION OF ROSE BENGAL PLATE
8.	AGNISWAR DAS	COLLABORATING WITH TRADITIONAL HEALERS FOR TB FREE
		VILLAGE STATUS: OBSERVATIONS FROM IMPLEMENTATION OF
9.	AJAY DOGRA	INTEGRATING ARTIFICIAL INTELLIGENCE (AI) IN PUBLIC HEALTH
		EMERGENCY OPERATIONS CENTRES (PHEOCS): A CONCEPTUAL
10		
10.	ARASH PRASAD	IN WEST RENGAL INDIA
11		SENTIMENT ANALYSIS OF PUBLIC PERCEPTION TOWARDS COVID-
	ALAN NOBLE JOHN	19 VACCINATION IN INDIA
12	ALAN NOBLE JOHN	COUNTERING DIPHTHERIA RESURGENCE: STRATEGIES FOR
	<u>ALAN NOBLE JOINT</u>	REVITALIZING ADOLESCENT TO VACCINATION PROGRAMME
		ACROSS FOUR STATES OF INDIA.
13.	ΑΙΚΑ ΜΑΗΟΒΙΑ	CLASSIFICATION OF ZOONOTIC DISEASES AND ESSENTIAL
		FRAMEWORK FOR MITIGATING FUTURE EPIDEMICS: A SCOPING
		REVIEW
14.	ALKA SHARMA	PUBLIC HEALTH EMERGENCY AND DISASTER MANAGEMENT
		(PHEDM) IN COMMUNITY SETTINGS -A NEW MULTI
		DIMENSIONAL APPROACH
15.	AMOL MANKAR	EPIDEMIOLOGICAL INVESTIGATION OF CHOLERA OUTBREAK IN
		RURAL AREA OF AMRAVATI DISTRICT, MAHARASHTRA.
		,
16.	ANAMIKA SAHU	DEVELOPMENT OF LATERAL FLOW ASSAY FOR AFLATOXIN M1
	1	DETECTION IN MILK

17.	ANANTHA KUMAR SRINIVASAIYER	MODELS OF ASHA PROGRAMMES IN URBAN AND PERI-URBAN AREAS IN INDIA: A QUALITATIVE STUDY
18.	ANIL KATHAIT	RESEARCH INTEGRITY: COMMUNITY PARTICAPATION FOR STRENGTHENING PUBLIC HEALTH EMERGENCY AND DISASTER MANAGEMENT (PHEDM) AT THE LOCAL LEVEL
19.	ANJALI MODI	LYMPHATIC FILARIASIS ENTOMOLOGICAL SURVEILLANCE OVER THREE DECADES: THE CONSTRAINTS TO ELIMINATION
20.	ANKOOR TYAGI	A SITUATION ANALYSIS OF BRUCELLOSIS IN SAWAI MADHOPUR DISTRICT OF RAJASTHAN: JAN-MAY 2023
21.	<u>ARJUHN R</u>	THE NEED FOR A PARADIGM SHIFT FROM VIA SCREENING TO HPV DNA TESTING FOR CERVICAL CANCER PREVENTION: CHALLENGES AND SOLUTIONS
22.	<u>ARJUHN R</u>	ADVANCING CERVICAL CANCER PREVENTION AND ELIMINATION: A SYSTEMATICASSESSMENT OF HPV VACCINATION IMPACT
23.	ARUSHI GHAI	SCRUB TYPHUS EPIDEMIOLOGY AND RISK FACTORS IN SUNDARGARH DISTRICT, ODISHA, INDIA, OCTOBER 2023
24.	<u>ARVINDERPAL</u> <u>SINGH</u>	SEROSURVEY OF SELECTED VIRAL DISEASES IN NORTH-WESTERN REGION OF INDIA
25.	ASHLESHA	ASSESSING HEALTH CARE WORKERS' KNOWLEDGE AND PREPAREDNESS FOR IMPLEMENTATION OF AYUSHMAN BHARAT PRADHAN MANTRI JAN AROGYA YOJANA IN A MEDICAL COLLEGE IN MAHARASHTRA
26.	ASHVINI VYAS	ASSESSMENT OF CLINICAL AND SOCIAL VULNERABILITIES AMONG NEWLY DIAGNOSED PERSONS WITH TB IN TRIBAL AND URBAN POPULATIONS SETTINGS IN INDIA
27.	ATUL BHANU RAIRKER	EXPLORING THE ROLE OF COMMUNITY HEALTH OFFICERS IN DELIVERING COMPREHENSIVE PRIMARY HEALTH CARE: A MIXED METHOD STUDY AT AYUSHMAN AROGYA MANDIR IN INDIA
28.	<u>AVIJIT KUMAR</u> AWASTHI	PREDICTORS OF RIFAMPICIN RESISTANCE IN WESTERN UTTAR PRADESH - A TEN-YEAR RETROSPECTIVE ANALYSIS
29.	AWADHESH KUMAR YADAV	ASSESSMENT OF AEDES VECTORS BREEDING SOURCES IN AND AROUND THE PREMISES OF LAL BAHADUR SHASTRI INTERNATIONAL AIRPORT, VARANASI
30.	BALU MOTE	BURDEN OF DIABETES AND HYPERTENSION IN INDIA: A SECONDARY ANALYSIS OF NATIONAL SURVEYS AND DATA PORTALS
31.	BANDI SIVA GOPAL	FACTORS ASSOCIATED WITH ANAEMIA AMONG ADOLESCENTS IN MANNAVA PRIMARY HEALTH CENTRE, GUNTUR DISTRICT, ANDHRA PRADESH, INDIA – 2023
32.	BHALACHANA O PRADHAN	METROPOLITAN SURVEILLANCE UNIT LEAP INTO STRENGTHENING & DIGITALIZING SURVEILLANCE.
33.	BRINDHA S	BRUCELLOSIS IN PUNJAB: A STUDY ON SEROPREVALENCE AND RISK FACTORS AMONG MALE AND FEMALE LIVESTOCK FARMERS AND THEIR ANIMALS

34.	CHINGANGBAM	MOSQUITO BORNE DISEASES AND CLIMATE CHANGE IN
	DHANANJOY SINGH	MANIPUR
35.	DELFIN LOVELINA	AYUSHMAN AROGYA MANDIR – AN EXPLORATION OF THE
	FRANCIS	PATHWAY TO UNIVERSAL HEALTH COVERAGE IN INDIA.
36.	DHARMESH ARYA	EVALUATION OF THE DIGITIZATION OF NATIONAL PROGRAM
		FOR NON-COMMUNICABLE DISEASES IN RAJASTHAN, 2023
37.	DIGVIJAY	EFFECT OF LIFESTYLE RISK FACTORS ON CORONARY ARTERY
		DISEASE IN UNIVERSITY EMPLOYEES
38.	DIKSHA SINGHAL	BUILDING A CADRE OF TB CHAMPIONS AMONGST TB SURVIVORS
		OF TRIBAL IDENTITY TO REPRESENT AT PUBLIC PLATFORMS AND
		DRIVE TB ELIMINATION IN TRIBAL COMMUNITIES
39.	DIVYA KAPPARA	A DATA DRIVEN APPROACH TO ESTIMATE MEASLES INFECTIONS
		AT THE SUB NATIONAL LEVEL.
40.	ESHA KASHYAP	MATHEMATICAL MODELING OF THE SUSTAINED IMPACT OF
		ROTAVIRUS VACCINATION IN INDIA
41.	FAISAL RAZA KHAN	VISHESH GRAM SABHA FOR CATALYZING TB MUKT PANCHAYAT
		INITIATIVE: A PILOT FROM CHHATTISGARH, INDIA
42.	G JAGANNATH RAO	CHHATTISGARH MODEL: FOSTERING COMMUNITY DRIVEN
		AWARENESS ON CLIMATE CHANGE AND ITS LINK WITH HEALTH
43.	<u>G T THUNGON</u>	STUDY OF SCRUB TYPHUS IN TAWANG DISTRICT, ARUNACHAL
		PRADESH
44.	GARYLL RYAN	FACILITATORS AND BARRIERS AFFECTING ADHERENCE TO
		ANTIRETROVIRAL THERAPY AMONG PEOPLE LIVING WITH
		HIV/AIDS: A QUALITATIVE STUDY
45.	<u>GAUTAMI</u>	ENABLERS AND BARRIERS TO DIGITAL ADOPTION AMONG
	PANIGRAHI	ACCREDITED SOCIAL HEALTH ACTIVISTS (ASHA) IN HARYANA
		AND UTTAR PRADESH -A QUALITATIVE STUDY
46.	GOPAL BERI	SCREENING VULNERABLE POPULATIONS USING ARTIFICIAL
		INTELLIGENCE AIDED HANDHELD X-RAY MACHINE IN THREE
		DISTRICTS OF HIMACHAL PRADESH, INDIA
47.	GUDADAPPA KASABI	INTERIM FINDINGS FROM AN ONGOING KYASANUR FOREST
		DISEASE OUTBREAK, UTTARA KANNADA, KARNATAKA, INDIA.
		2024
48.	HALEEMA AHMAD	EXPLORING HUMAN BRUCELLOSIS: SYMPTOMATIC DIVERSITY,
		DIAGNOSIS MODALITIES, AND ITS COMPLICATIONS
49.	HARISH KUMAR	FOOD BORNE OUTBREAK OF STAPHYLOCOCCUS AUREUS
	KAUSHIK	AMONG WEDDING ATTENDEES IN UDAIPURWATI, DISTRICT
		JHUNJHUNU, RAJASTHAN, MAY 2023
50.	HARLEEN KAUR	DETECTING HOTSPOT CLUSTER OF MODERATE AND SEVERE
	GULATI	ANALMIA AMONG THE ANAEMIC CHILDREN AND PREDICTIVE
		FEATURES USING EXPLAINABLE AI FOR HEALTHCARE POLICY
		MAKING

51.	HARSHAD P	DATA ANALYSIS OF CRIMEAN-CONGO HEMORRHAGIC FEVER
	<u>PRAJAPATI</u>	CASES IN GUJARAT (2011-2023): IMPLICATIONS FOR FUTURE
52.		CONSECUTIVE POINT PREVALENCE SURVEY OF AN INVICROBIAL
		ANTIMIC POPULAL STEWARDSLUD DEOCEANA
53.	INGALE RAVIRAJ	EVALUATING SERUM C - REACTIVE PROTEIN AND LACTATE
		DEHYDROGENASE AS BIOMARKERS OF HEMOTOXICITY IN
54.	INYA LOLLEN	EPIDEMIOLOGICAL DESCRIPTION OF SUSPECTED MALARIA CASES
		IN ANJAW DISTRICT, ARUNACHAL PRADESH, INDIA, JANUARY
		2019 TO DECEMBER 2023
55.	IQRA ARIF	SEROLOGICAL INVESTIGATION OF NEGLECTED BACTERIAL
		ZOONOSES: Q- FEVER AND BRUCELLOSIS IN BOVINE
		POPULATION OF NORTHERN WEST STATES OF INDIA
56.	J M KATIRA	COMPREHENSIVE HEALTHCARE IN CHALLENGING TERRAINS:
		GUJARAT'S SICKLE CELL ANEMIA CONTROL PROGRAM
57.	JAYESH SULANKI	
		FOR EFFECTIVE PANDEIVIC RESPONSE: A CASE STUDY OF ITIHAS
		AND DHANVANTARIKATH IN GUJARAT
58.	JUBAIR SHAMSI	COMPARISON OF SELF MEDICATION PRACTICES OF RURAL AND
		URBAN ADULTS OF WESTERN UTTAR PRADESH, INDIA
59.	JUHI KUMARI	ROLE OF HEALTH INFORMATION HELPLINE IN MONITORING AND
		SUPPORT OF TB PATIENTS: A PILOT TO COMPLEMENT
		AASHWASAN, AN ACTIVE CASE FINDING CAMPAIGN IN
		JHARKHAND, INDIA
60.	JYOTI RAUT	TECHNICAL ASSESSMENT OF THE FUNCTIONING OF NUTRITION
		REHABILITATION CENTRES ON PUBLIC-PRIVATE PARTNERSHIP
		MODE IN JHABUA AND BETUL DISTRICTS, MADHYA PRADESH
61.	KAMLESH	DESCRIPTIVE EPIDEMIOLOGY OF JN.1 VARIANT CASES OF COVID-
	MANDRIYA	19 IN GUJARAT STATE: A COMPREHENSIVE ANALYSIS
62.	KANCHAN SAINI	INTEGRATING NUTRITIONAL SUPPLEMENTATION AS A ONE
		HEALTH APPROACH TO DEVELOP HOST-DIRECTED THERAPY TO
		IMPEDE TUBERCULOSIS INFECTION
63.	KHANGEMBAM	IDENTIFICATION OF HOTSPOT CLUSTERING OF TUBERCULOSIS
	JITENKUMAR SINGH	AND ITS PREDICTORS FOR THE IMPROVEMENT OF HEALTHCARE
		INTERVENTION AND POLICY MAKING IN NORTHEASTERN STATES,
		INDIA
64.	KRISHNA KUMAR	ASSESSING THE SOCIOECONOMIC PREDICTORS AND SPATIAL
		CLUSTERING OF MISSED MEASLES VACCINATION IN INDIA:
		EVIDENCE FROM THE FIFTH ROUND OF NATIONAL FAMILY
		HEALTH SURVEY

Abstracts

65.	<u>KRITI NEGI</u>	ADVANCING ONE HEALTH THROUGH ANTIMICROBIAL TEXTILES: A STRATEGY TO MITIGATE ZOONOTIC RISKS IN HEALTHCARE ENVIRONMENTS
66.	<u>KUMANAN V</u>	OPERATION KAVERI: SHARING EXPERIENCE IN MANAGING EVACUATED INDIAN PASSENGERS FROM YELLOW FEVER AFFECTED COUNTRY OF SUDAN AT AHMEDABAD INTERNATIONAL AIRPORT DURING 2023
67.	KUMAR SHARP	BARRIERS IN MEDICAL RECORD DIGITIZATION AT LEVEL OF HEALTH CARE WORKERS UNDER AYUSHMAN BHARAT DIGITAL MISSION
68.	<u>KUMARESAN</u>	PREVALENCE AND DISTRIBUTION OF DENGUE VIRUS IN FIELD- CAUGHT AEDES MOSQUITO IN TAMIL NADU, INDIA: MOLECULAR IDENTIFICATION AND CHARACTERIZATION
69.	LAASYA SAMHITA	PROTOCOL OPTIMIZATION AND ANALYSIS OF COMMUNITY BASED AMR IN WASTEWATER FROM THE DELHI-NCR REGION
70.	MAMATHA T	USE OF WEB AND MOBILE APPLICATIONS TO COMBAT COVID-19 PANDEMIC IN KARNATAKA
71.	MANAS KUMAR KUNDU	REVIEW OF ROADMAP TO END NEGLECTED TROPICAL DISEASES IN INDIA BY 2030: STRATEGIES, CHALLENGES AND OPPORTUNITIES
72.	MANOJ SINGH	ACTIVE CASE FINDING ACTIVITIES IN EVENING HOURS FOR DETECTING HIDDEN MALE LEPROSY CASES
73.	MD ASIF KHAN	IDENTIFICATION OF SPATIAL HOTSPOTS CLUSTERING OF CESAREAN SECTION DELIVERY AND ITS PREDICTORS WITH VARYING SPACE FOR THE IMPROVEMENT OF INTERVENTION PROGRAMMES AND POLICY MAKING IN NORTHEASTERN STATES, INDIA
74.	<u>MEENAKSHI</u> BHAKARE	COMPREHENSIVE SCREENING PROGRAMME FOR EARLY DIAGNOSIS OF CHRONIC RESPIRATORY DISEASES.
75.	MICHI MONYA	EVALUATING REPORTING SYSTEM OF VIRAL HEPATITIS B AND C UNDER THE NATIONAL VIRAL HEPATITIS CONTROL PROGRAM IN NAMSAI DISTRICT, ARUNACHAL PRADESH, INDIA, 2022-23
76.	NAHID ANSARI	SELF-MEDICATION WITH ANTIBIOTICS: THE PIVOTAL ROLE OF COMMUNITY PHARMACISTS IN PROMOTING RATIONAL MEDICATION USE BY CONSUMERS
77.	NEHA SINGH	KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS ANTIBIOTIC USE AND RESISTANCE AMONG VETERINARIANS IN INDIA: A CROSS-SECTIONAL STUDY
78.	NGURANG RADHA	FIRST EVALUATION OF ANTIMICROBIAL CONSUMPTION SURVEILLANCE NETWORK UNDER THE NATIONAL PROGRAMME ON AMR CONTAINMENT, INDIA, 2022

Abstracts

NPHICON 2024

79.	NISHA GOYAL	A SURVEILLANCE STUDY ON EFFECTS OF DUAL PANDEMICS ON AMR IN ESKAPE PATHOGEN
80.	NIVEDITA RAI	TO STRENGTHENING PUBLIC HEALTH SURVEILLANCE: WASTE- WATER SURVEILLANCE AS AN EARLY WARNING OF COVID-19
81.	NOORUL AYSHA K	DENGUE CHIKUNGUNYA CO-INFECTIONS: SEROLOGICAL STUDY FROM TERTIARY CARE CENTRE IN NORTH INDIA
82.	NYANTHUNG KIKON	COVID DEATHS AMONG COVID-19 PATIENTS IN NAGALAND, INDIA, JULY 2020- MARCH 2022
83.	<u>P MADHAVA</u>	SEROPREVALENCE OF SCRUB TYPHUS AT A TERTIARY CARE HOSPITAL IN ANDHRA PRADESH
84.	PALLAVI RAHUL SHIDHAYE	DETERMINANTS OF ISONIAZID PREVENTIVE THERAPY COMPLETION AMONG HIV INFECTED INDIVIDUALS ATTENDING ART CENTRE AT PUNE: A CROSS-SECTIONAL STUDY
85.	PALLAVI SINHA	CHROMOSOMAL POINT MUTATIONS IN PMRB GENE: A RELIABLE MOLECULAR MARKER FOR DETECTION OF COLISTIN RESISTANCE IN KLEBSIELLA PNEUMONIAE
86.	<u>PANKAJ KUMAR</u> <u>SINGH</u>	GREEN AND CLIMATE RESILIENT HEALTHCARE FACILITY DEVELOPMENT IN UTTARAKHAND
87.	PANKAJ PRASAD	DETERMINANTS OF DELAYED TREATMENT SEEKING AMONG SNAKEBITE VICTIM IN INDIA: A REVIEW OF EXISTING LITERATURE
88.	PAYEL MONDAL	HARNESSING THE POTENTIAL OF POLYVALENT LYTIC PHAGE STWB21: A DUAL APPROACH FOR IMPROVED FOOD SAFETY AND THERAPELITIC INTERVENTION AGAINST SALMONELLA TYPHI
89.	PRABHAV AGGARWAL	CUMULATIVE ANTIBIOGRAM OF A TERTIARY CARE HOSPITAL AT NEW DELHI FOR THE YEAR 2023 SHOWS LOW SUSCEPTIBILITY TO SEVERAL ANTIMICROBIALS
90.	<u>PRAJAKTA</u> <u>GULABRAO KADALE</u>	LESSONS FROM A TRIBAL DISTRICT IN MAHARASHTRA CAN PAVE THE WAY FOR FUTURE DISEASE CONTROL INITIATIVES- THE GADCHIROLI COVID-19 VACCINATION EXPERIENCE
91.	PRANIL M KAMBLE	RESPONDING TO PUBLIC HEALTH EMERGENCY OF INTERNATIONAL CONCERN: PERSPECTIVE OF A NEW POINT OF ENTRY HEALTH UNIT.
92.	PRARTHANA GOUR	A CLINICOMICROBIOLOGICAL PROFILE OF LEPTOSPIROSIS AND SCRUB TYPHUS IN CHILDREN WITH ACUTE UNDIFFERENTIATED FEBRILE ILLNESS IN A TERTIARY CARE HOSPITAL IN NORTH INDIA
93.	PRASHANT BHAT	OUTBREAK INVESTIGATION OF COVID-19 IN A UNIVERSITY CAMPUS, KARNATAKA, MARCH 2021
94.	PRASHANT BHAT	ACHIEVEMENTS TOWARDS MALARIA ELIMINATION IN UDUPI, KARNATAKA, 2011-23; WHERE WE ARE AND WAY FORWARD
95.	<u>PRAVEEN</u> <u>KONGALETI</u>	OUTBREAK INVESTIGATION OF FOODBORNE ILLNESS AMONG DEATH ANNIVERSARY ATTENDEES IN A VILLAGE OF TELANGANA STATE, OCTOBER 2023
96.	<u>PRAVEEN KUMAR</u> <u>KARN</u>	IMPLEMENTATION OF "INTEGRATED CLIMATE LEARNING AND ACTION NETWORK (I-CLAN) IN THE STATE OF JHARKHAND"

Abstracts

97.	<u>PRAVEEN KUMAR</u> KARN	CONTAINMENT OF DENGUE OUTBREAK IN JAMSHEDPUR CITY OF JHARKHAND
98.	PRETTY	EXPLORING GAPS IN MEASLES VACCINATION IN INDIA: AN
	PRIYADARSHINI	OBSTACLE IN THE PATH OF MEASLES ELIMINATION GOAL
99.	PRIYA LALJI SINGH	EPIDEMIOLOGICAL INVESTIGATION OF LEPTOSPIROSIS
		OUTBREAK IN AMRAVATI CITY, MAHARASHTRA
100.	PRIYANKA RANA	ENVIRONMENTAL SURVEILLANCE ON MOSQUITO SOURCE
		REDUCTION AND ITS IMPACT ON DENGUE CASE REDUCTION IN
		WEST BENGAL
101.	PRIYANKA SAINI	PREVALENCE OF ANTIMICROBIAL RESISTANCE IN
		ENTEROBACTERALES DUE TO PRODUCTION OF AMPC IN
		CLINICAL ISOLATES OF PATIENTS ATTENDING KCGMC, KARNAL
102.	<u>PUNAM</u>	UTILIZATION OF INTEGRATED ROAD ACCIDENT DATABASE
	BNADODKAR	SYSTEM AT THE PRIMARY HEALTH CENTERS, NORTH GOA, INDIA,
		2022 – A MIXED METHODS CROSS-SECTIONAL STUDY
103.	PUNITA KUMAR	SENSITIZATION POSTERS CREATED ENGAGING THE AIR
		POLLUTION IMPACTED COMMUNITIES THROUGH COMMUNITY
		ENGAGEMENT FOR IDENTIFYING THE SOURCES AND IMPACTS OF
104		
104.	<u>KAGHAVENDRA</u>	
	KUKLU	
105	RACHURAM	TRIBAL TUBERCULOSIS (TR) INITIATIVE ACCELERATING TOWARDS
105.	SHYAMSUNDER RAO	ENDING TUBERCULOSIS (TB) INITIATIVE ACCELERATING TOWARDS
106.	RAJU THAPA	ENHANCING PUBLIC HEALTH EMERGENCY AND DISASTER
		MANAGEMENT IN INDIA: A FIVE-TIERED APPROACH
107.	RAMYA M	EPIDEMIOLOGY OF ANIMAL BITES AND RABIES POST-EXPOSURE
		PROPHYLAXIS- A CROSS-SECTIONAL STUDY IN TIRUVALLUR
		DISTRICT, TAMIL NADU, INDIA, 2019-2022
100	ΒΑΝΙΑΝΑ	
100.		CLITCEE OF SCRUB TYPHUS FUSA IN NORTHEAST INDIA
109.	REETIKA MALIK	PRELIMINARY FINDINGS FROM A COMMUNITY-BASED
	YADAV	SURVEILLANCE FOR ADVERSE EVENTS FOLLOWING
		IMMUNIZATION WITH BCG VACCINE
110.	<u>RISHI KUMAR</u>	INITIATIVES TAKEN TO INCREASE TB CASE NOTIFICATION IN
	<u>SAXENA</u>	UTTAR PRADESH
111.	<u>RIVU BASU</u>	DEVELOPMENT AND VALIDATION OF THE MOTIVATION FOR
		HEALTHY EATING BEHAVIOR SCALE (MHEBS) IN ADULTS OF
112.	<u>KOHINI PATIL</u>	MACHINE LEARNING BASED BREAST CANCER SCREENING
		IECHNIQUE FUR EARLY DETECTION.

Abstracts

113.	ROOPAM	SARS-COV-2 RNA CONCENTRATIONS IN WASTE WATER ANTICIPATE DYNAMICS OF COVID-19 CASES IN A POPULATION:
		ONE-YEAR STUDY IN DELHI
114.	<u>SAGNIK</u>	INSPECTION OF THE GALLEY OF A SHIP WITH A CHECKLIST – A
	CHAKRABORTY	CASE STUDY
115.	SANDEEP KUMAR	AUTOMATION OF DRUG RESISTANCE TB SURVEILLANCE
	<u>CHAUHAN</u>	REPORTS: LEARNINGS FROM INDIA TOWARD HUMAN-MACHINE
		INTERACTION
116.	SANDIPAN	MAPPING THE PREVALENCE OF SOIL-TRANSMITTED HELMINTHS
	GANGULY	IN NORTHEASTERN STATES OF INDIA BEFORE AND AFTER
		DEWORMING INTERVENTIONS
117.	SANJAYA KUMAR	HEALTH PROMOTION FOR YOUTH
	<u>BHOI</u>	
118.	SANJIB KUMAR	PREVALENCE AND GENETIC CHARACTERIZATION OF THE
	SARDAR	EMERGING ENTERIC PARASITE E. MOSHKOVSKII IN EASTERN
		INDIA
119.	SATYABRATA MAITY	INSPECTION OF MEDICAL FACILITIES IN A SHIP: A CASE STUDY
120	SAYAN	EVALUATION OF A RAPID FIELD METHOD OF TESTING
120.	BHATTACHARYYA	COLIFORMS AND OTHER PATHOGENS IN DRINKING
	<u></u>	WATER
121.	SERIN KURIAKOSE	SOCIODEMOGRAPHIC DETERMINANTS OF MEASLES
		VACCINATION AMONG CHILDREN AGED 12 TO 23 MONTHS IN
		INDIA: ANALYSIS OF THE NFHS-5 DATA.
122.	SHAILY BHAKUNI	PATTERNS AND PREDICTORS OF CYTOMEGALOVIRUS INFECTION
		AMONG PEOPLE LIVING WITH HIV/AIDS
123.	SHEFALI GUPTA	IDENTIFICATION OF SPATIAL HOTSPOTS CLUSTERING OF NON-
		COVERAGE OF HEPATITIS-B A VACCINE PREVENTABLE DISEASE
		IMMUNIZATION AMONG CHILDREN IN NORTHEASTERN STATES
		AND GEOGRAPHICALLY WEIGHTED REGRESSION ANALYSIS TO
		ASSESS ITS ASSOCIATED FACTORS
124.	SHIVANGNI RAJORIA	MIDAS: REVOLUTIONIZING HEALTH RESEARCH IN INDIA
		THROUGH MEDICAL IMAGING DATASETS FOR ORAL LESIONS
125.	<u>SHUBHASHISHA</u>	IMPACT OF SOCIAL MOBILIZATION ON MASS DRUG
	<u>MOHANTY</u>	ADMINISTRATION (MDA) UNDER ELIMINATION OF LYMPHATIC
		FILARIASIS(ELF) PROGRAMME OF ODISHA
126.	SIVAPRASAD M S	FIRST REPORT OF SERO-MOLECULAR DETECTION OF
		BARTONELLA HENSELAE INFECTION AMONG DOGS AND
		VETERINARIANS IN INDIA AND ASSESSMENT OF RISK FACTORS
127.	SOURABH SHARMA	BREAKING BARRIERS- UNDERSTANDING ORGAN DONATION
		PERCEPTIONS IN THE INDIAN TRANSPLANT COMMUNITY
128.	SOWNTAPPAN	INSIGHTS FROM THE PILOTING OF VERBAL AUTOPSY TOOL TO
	BALASUBRAMANIAN	ASSESS THE DETERMINANTS OF MORTALITY AMONG SNAKE BITE
		VICTIMS

Abstracts

129.	<u>SRIVIDYAV</u>	CONTROL OF DENGUE OUTBREAK IN A PERSISTENT DENGUE HOTSPOT IN UT PUDUCHERRY USING INTEGRATED HEALTH INFORMATION PLATFORM
130.	<u>SUBHENDU KUMAR</u> RAY	MUMPS OUTBREAK IN A CLOSED CANTONMENT AREA, KOLKATA, WEST BENGAL, INDIA 2023
131.	<u>SUBHOJIT</u> GOSWAMI	IMPACT OF CLIMATE ANOMALIES ON HEALTH DETERMINANTS IN STATES WITH CO-ENDEMICITY OF LEPROSY AND OTHER NTDS
132.	SUCHITRA SASMAL	MAJOR PUBLIC HEALTH ACTIVITIES AND ITS IMPACT IN BIJU PATNAIK INTERNATIONAL AIRPORT, BHUBANESWAR IN LAST FOUR YEARS (2020 TO 2023)
133.	<u>SUCHITRA</u> <u>VISHWAMBHAR</u> <u>SURVE</u>	PARADIGM SHIFT IN DISTRIBUTION OF LEPROSY CASES IN HIGH AND LOW ENDEMIC DISTRICTS OF MAHARASHTRA STATE, INDIA
134.	<u>SUDIPTA KUMAR</u> <u>RAM</u>	TYPICAL AND ATYPICAL MANIFESTATION OF SCRUB TYPHUS IN CHILDREN AT A TERTIARY CARE HOSPITAL IN EASTERN ODISHA
135.	<u>SUHAS MAHAVEER</u> <u>VISHWAMBHAR</u>	A STUDY OF HYPERTENSION PREVALENCE AND RISK FACTORS IN RURAL AND TRIBAL AREAS OF POYANJE, RAIGAD DISTRICT, MAHARASHTRA
136.	<u>SUNANDA M</u>	STUDY REPORT: EFFECT OF MALATHION 5% FOR TICK CONTROL IN KYASANUR FOREST DISEASE IN ENDEMIC DISTRICTS OF KARNATAKA DURING TRANSMISSION PERIOD
137.	<u>SUPRIYA DHAKNE</u> <u>PALWE</u>	VIKSIT BHARAT@2047- VOICE OF THE FUTURE HEALTHCARE FORCE
138.	<u>SURABHI SETHI</u>	A CONCURRENT MIXED-METHODS STUDY ON THE UTILIZATION OF LAB TECHNICIANS IN PUBLIC HEALTH FACILITIES OF TWO STATES OF INDIA.
139.	<u>SUSMITA SETH</u>	A STUDY ON FOOT CARE PRACTICES AMONG LEPROSY AFFECTED PERSONS LIVING IN A LEPROSY COLONY IN BANKURA, WEST BENGAL
140.	<u>SWETHA</u> RAJESHWARI	OUTBREAK INVESTIGATION OF CHEMICAL PNEUMONITIS CASES- HYDERABAD, INDIA JUNE 2023
141.	<u>T MEENATCHI</u>	ENTOMOLOGICAL SURVEILLANCE FOR THE VECTOR OF YELLOW FEVER, DENGUE, AND CHIKUNGUNYA AT CHENNAI INTERNATIONAL AIRPORT: A COMPREHENSIVE ANALYSIS OF FINDINGS FROM JANUARY TO DECEMBER 2023
142.	TARUNA SINGH	MEETING CLEAN AIR TARGETS COULD REDUCE THE BURDEN OF HYPERTENSION AMONG WOMEN OF REPRODUCTIVE AGE IN INDIA
143.	TRIVENI MANCHU	A POINT PREVALENCE STUDY OF ANTIMICROBIAL USE IN A TERTIARY CARE FACILITY IN INDIA
144.	UDAY KELKAR	AIR CONDITIONING UNITS AS POTENTIAL SOURCE FOR CONTAMINATING HEALTHCARE ENVIRONMENT – NEED TO EDUCATE HEALTHCARE ESTABLISHMENTS.

Abstracts

145.	<u>USHA RANI</u>	ASSESSING ADOLESCENT HEALTH LITERACY SKILL TO NON- COMMUNICABLE DISEASE PREVENTION: A MULTI-STATE SURVEY IN INDIA.
146.	<u>V TRIVENI</u>	EFFECTIVE IMPLEMENTATION OF VECTOR SURVEILLANCE SYSTEM OF AEDES MOSQUITO AT VISAKHAPATNAM SEAPORT.
147.	<u>VAISAKH T P</u>	INCEPTION AND EVOLUTION OF SMART PHONE BASED MOSQUITO LARVAL SURVEILLANCE IN AIRPORT HEALTH ORGANISATION, TIRUCHIRAPPALLI, TAMIL NADU, DECEMBER 2020- JANUARY 2024
148.	VANI MALHOTRA	STRATEGIES TO PREVENT HEPATITIS B VERTICAL TRANSMISSION
149.	<u>VINEESH P V</u>	MEASLES AND RUBELLA OUTBREAK IN MALAPPURAM, INDIA (2022-23): EPIDEMIOLOGICAL ANALYSIS AND PUBLIC HEALTH IMPLICATIONS
150.	VINOD PRABHAKAR	OUTBREAK INVESTIGATION OF DENGUE IN A COACHING AREA TALWANDI, DISTRICT KOTA, RAJASTHAN, INDIA, JULY 2023- JANUARY 2024.
151.	YENEMBAM BIDYALAKSHMI DEVI	SEROLOGICAL PROFILE OF SCRUB TYPHUS IN REGIONAL INSTITUTE OF MEDICAL SCIENCES (RIMS) HOSPITAL, IMPHAL.
152.	YOGESH KAURAV	PILOT FOR TESTING STRATEGIES TO ENGAGE WITH THE PRIVATE SECTOR FOR REPORTING ON IHIP

Abstracts

NPHICON 2024



Abstracts

Title: Epidemiological investigation of an outbreak of Acute Viral Hepatitis A in Kumarakurichi Village of Sivagangai District ,Tamilnadu

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Background: Hepatitis A, a self-limiting viral disease, is the most common major public health problem in India. The disease is closely associated with a lack of safe water, inadequate sanitation and poor personal hygiene. There was an outbreak of acute hepatitis in Kumarakurichi village of Sivagangai district during June to July 2013.

Objective: To describe the epidemiological features of the hepatitis A outbreak in Kuarakurichi village of Sivagangai district during June to July 2013.

Methods: Rapid Response team was formed and active case search was done. Time ,place and person analysis was done .Demographic profile ,clinical findings ,environmental findings and lab findings were analyzed .

Results: Line list generated consisted of 24 cases. Overall attack rate was 2.3% and attack rate was the highest among the age group 12 - 14 years (51%) followed by 10-12years (17%). Attack rate among male (2.6%) and female (1.9%) was statistically not significant (p value 0.44). Blood samples of the cases were positive for IgM for Hep A. Water samples showed evidence of fecal contamination of Ecoli ,Steptococci and Clostridium Perfringens . Spot map analysis shows the geographical distribution of the cases found to be a clustering around the portable water supply source which had a attack rate of 79% and near to that suspected three pipeline leakages were identified and rectified . Epidemic curve showed a sharp rise of cases with respected to suspected water supply and suggestive of a common source outbreak.

Conclusion: This epidemiological investigation shows the possibility of occurrence of hepatitis A outbreak as a result of water contamination supplied from a water storage tank. This study provided an opportunity to strengthen the existing health system and increased overall preparedness of the health system in preventing and managing future outbreaks.

Keywords: Hepatitis A, Attack rate, Epidemic and spot map.

Abstracts

Title: Best practices for detection of suspected cases of COVID – 19 at international airport Mumbai in India

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Background: On January 30, 2020 WHO declared the COVID-19 as a PHEIC. In response to the increasing number of COVID – 19 cases, Government of India started thermal screening of international passengers at all Points of Entry.

Objectives: Present study was conducted to document the best practices of screening activity done for detection of suspected COVID – 19 cases at international airport Mumbai in India.

Methods: We did a descriptive study based on secondary analysis of data collected from Mumbai international airport. Various orders issued by the competent authorities, screening forms, minutes of meeting and registers were analysed. Results were presented in the form of rates & ratios appropriately.

Results: During universal thermal screening a total of 1954 flights and 225481 passengers were screened. Out of all passengers screened 3 (13.3 per million) were identified as suspected case of Covid-19 and were referred to Kasturba hospital for further management and laboratory reports were negative for Covid-19. Coordination among various stakeholders was very effective and efficient. Screening by using ceiling mounted Mass Thermal Scanners and Air Suvidha Portal for self-declaration form was very innovative approach. Additional manpower was provided by CGHS, State Health Department and local Health Department for augmenting the screening activity.

Conclusion: Thermal screening of passengers has limited role in detection of suspected cases of infectious diseases like COVID – 19, effective use of technology, adequate & trained manpower, intersectoral coordination is the key to best practices at PoEs.

Keywords: COVID – 19, Thermal Screening, Detection of COVID – 19, PoEs, Best Practices

Title: Evaluation of National Tobacco Control Programme in Villupuram district, Tamil Nadu, India, 2023

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Background: The National Tobacco Control Programme (NTCP) was launched in 2007-2008 with the aim of creating awareness, helping people quit tobacco, and ensuring effective implementation of tobacco laws. Setting up tobacco cessation centres (TCC) and organizing school programs are two of the six major thrust areas identified by NTCP.

Objective: To describe and evaluate the TCC and school health awareness arms of NTCP in Villupuram district, Tamil Nadu.

Methods: We conducted a cross-sectional study to describe and evaluate the tobacco-free educational institutions and TCC arms of NTCP. We interviewed stakeholders and reviewed guidelines and program documents to describe the program. We used a logical framework for evaluation in terms of input, process, output, and outcome indicators. The study was conducted in a TCC established at a medical college and 39 schools in the Villupuram district. In-depth interviews were conducted using interview guides for key informants/providers at different levels. Facilities were surveyed using a checklist and questionnaire. Data were analyzed using Epilnfo 7.

Results: Of the 39 schools visited, 25 (64%) had a nodal teacher allotted, and 14 (36%) underwent training in tobacco-free institution initiatives. Of the 39 schools, 14 (36%) had display boards on the boundary wall, and none had shops within 100 yards of the school selling tobacco. The TCC in the medical college had a psychiatrist, psychologist, and social worker. Of the 484 beneficiaries who attended TCC, all of them were given counseling services, and 40 of them were initiated on Nicotine Replacement Therapy. However, 95% of beneficiaries were lost to follow-up within two weeks of treatment initiation.

Conclusion: There is a need to strengthen the tobacco-free educational institutions initiative by training nodal teachers and displaying IEC materials about the harmful effects of tobacco use. Retention of tobacco users attending TCC needs to be addressed urgently to increase quit rates.

Abstracts

Title: Epidemiological study of Scrub Typhus from a Tertiary Care Hospital in North India **Aarzoo Chander*, Parakriti Gupta, Varsha Gupta**

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Background: Scrub typhus, zoonotic infection caused by the Orientiatsutsugamushi, transmitted by tick bite, is substantial cause of acute febrile illnesses (AFI) in North India, especially during monsoon and post monsoon seasons, with evolving epidemiology.

Objective: The present study was conducted to delineate the epidemiological, clinical and outcome profile of all cases of scrub typhus from our tertiary care centre.

Methods: This was a retrospective study conducted at the Department of Microbiology of our centre. From August 2022 to December 2023, all AFI cases were included. Scrub typhus IgM ELISA kit (J.Mitra& co. Pvt. Ltd.) was employed for investigation, and demographic, clinical, and outcome data were analysed.

Results: Of 245 samples, 5% tested positive, with a median age of 31 years (range 1-76 yrs) and a male:female ratio of 1.08. Predominantly, patients hailed from Punjab (n=50) and Haryana (n=32). Fever (61.42%), rashes (41.42%), and abdominal pain (35.7%) were common symptoms, followed by breathlessness (21%), jaundice (12.8%), and seizures (7%).Thrombocytopenia was observed in 67.14% cases, with 34.28% requiring platelet transfusion. Ferritin levels were assessed in only 10 patients, 8 of whom exhibited hyperferritinemia. 37.14% patients had liver dysfunction and 30% patients developed acute kidney injury. Mortality was noted in 6.2% patients.

Conclusion: The present study determined 5% positivity of scrub typhus in our study population, emphasizing its consideration in AFI differential diagnosis. The challenge lies in overlapping presentations with dengue and chikungunya during similar months. Early diagnosis and treatment are crucial for reducing complications and mortality.

Keywords: Scrub typhus, diagnosis, ELISA, AFI
Abstracts

Title: Application of Chest X-Ray AI aiding diagnosis of Tuberculosis: A pilot study done in three tribal districts of Chhattisgarh, India.

Abhishek Gupta*, Faisal Raza Khan, Suraj Kumar, Shobha Ekka, Rupesh Singh, et al

*State Lead (Chhattisgarh), Piramal Foundation, Hyderabad abhishek.gupta@piramalswasthya.org **Background**: X-ray is an important means of screening and diagnosing active Pulmonary TB cases particularly those which are negative on sputum examination. X-rays also assist the clinicians in monitoring the progress of the disease as well as the efficacy of the treatment. However, it was observed that X-rays were of limited use in these areas due to the unavailability of specialist doctors for reporting these.

Objectives: To assess the yield of Artificial Intelligence (AI) guided detection of TB using analogue X-rays in government health facilities in tribal districts of Chhattisgarh.

Methods: Following consultation with state and district authorities, one trained field coordinator was stationed at each facility of districts Sukma, Kanker and Dantewada. All chest X-rays advised for any reason at the facility were uploaded on the software by the field coordinator through the qXR application (of Qure AI) installed on their smartphone. The differential diagnosis reported by the application is shared with the attending doctor of the facility.

Results: A total of 2542 X-rays were performed and uploaded in the application from the three health facilities between May to December 2023. Out of these, the application reported 353 (14%) X-rays as presumptive TB cases of which 154 (44%) were confirmed TB positive upon testing. Further, a notable 6% of the total X-rays were diagnosed as TB positive cases even in the absence of TB symptoms.

Conclusion: A software with AI (qXR) can be a useful point of care tool for screening of TB in the absence of specialists or trained human resources. This also cuts the delay in diagnosis of TB and other lung conditions and fast tracks treatment.

Keywords: TB testing, Artificial intelligence, TB elimination, X-rays in TB, TB diagnosis

Abstracts

Title: Antibiotic Use and Resistance: A Cross-Sectional Study exploring Knowledge, Attitudes, and Practices among Undergraduate Students in Delhi, India

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Background: The study investigates the knowledge, attitudes, and practices concerning antibiotic use and resistance among undergraduate students in Delhi, India. By assessing the awareness, knowledge, and attitudes of undergraduate students in this specific region, it helps to gain insights into the existing misconceptions and gaps in understanding. With the growing concern over antibiotic resistance, understanding the perspectives and behaviors of this demographic is crucial for devising effective interventions. The study aims to provide valuable insights into the factors influencing antibiotic consumption behaviors in this population. By exploring their knowledge, attitudes, and practices, the study aims to shed light on potential areas for educational interventions and policy measures to combat antibiotic resistance.

Objective: The primary objective of the study is to assess the knowledge, attitudes, and practices of undergraduate students in Delhi, India, regarding antibiotic use and antibiotic resistance. The specific objectives include:

- To determine antibiotics usage frequencies for treating diverse illnesses among undergraduate students in Delhi, India.
- To analyze the knowledge levels and understanding of rational use of antibiotics and resistance within the target population.
- To investigate attitudes, practices, and demographic factors associated with antibiotic utilization among the specified undergraduate student group in Delhi.

Methods: A descriptive cross-sectional study was conducted from April to June 2023 among the undergraduate students in Delhi, India. Simple random sampling was conducted to recruit 303 undergraduate students. The study utilized a questionnaire adapted from the World Health Organization (WHO) to assess participants' knowledge, attitudes, and practices regarding antibiotics usage and antibiotic. Random sampling was used to recruit the participants. Chi square test was performed to determine the association between knowledge, attitudes and practices regarding antibiotics usage, resistance and demographic variables.

Results: Study revealed that antibiotics were commonly misused for viral infections, such as cold (43.89%) and flu (41.25%). Notably, 48.51% reported antibiotic use for diarrhoea, contributing to antibiotic resistance. Contributing factors included easy access, self-medication practices, and a perception of antibiotics as a panacea. Limited knowledge (4.62%) about rational antibiotic usage underscores the need for educational campaigns. While 22% showed good knowledge about antibiotic resistance, 33% exhibited low knowledge, indicating a need for awareness initiatives and 45% showed average level of knowledge about antibiotic resistance. Approximately 34.98% demonstrated unfavorable attitudes and practices towards responsible antibiotic use. Demographic factors like age, academic level, living area, and household composition significantly influenced both antibiotic use and knowledge levels.

Conclusion: The study highlights the importance of targeted educational campaigns and policy initiatives to enhance awareness about responsible antibiotic use and mitigate the rising threat of antibiotic resistance.

Keywords: Antibiotic use, Antibiotic resistance, Undergraduate students, Knowledge, Attitudes and practices

Abstracts

Title: Serodiagnosis of Human Brucellosis in Resource-Limited Settings: A Combination of Rose Bengal Plate Test and Standard Agglutination Test

Agnibho Mondal*, Dolanchampa Modak, Malabika Biswas, Silpak Biswas, Rupali Dey et al *Senior Resident, School of Tropical Medicine mondal@agnibho.com

Background: Brucellosis remains a significant global health challenge, particularly in regions where resources are scarce. Culture methods and serodiagnostic methods like IgM ELISA are often impractical in such settings due to their high cost and infrastructural demands.

Objectives: The primary aim is to evaluate the Rose Bengal Plate Test (RBPT) combined with the Standard Agglutination Test (SAT) as an affordable

alternative for the serodiagnosis of brucellosis in resource-constrained environments.

Methods: We conducted a retrospective analysis of laboratory data of last 2 years from School of Tropical Medicine. We included patients who presented with compatible clinical features and/or history of exposure and underwent serological tests for brucellosis. The serological tests included RBPT, SAT and IgM ELISA from blood. We compared the performance of the combination of RBPT and SAT against the combination of all 3 tests. Culture method could not be utilised due to a lack of infrastructure.

Results: We included 712 patients in our study all of whom had history of exposure to animals.

The combination of RBPT and SAT shows near perfect agreement with the combination of all 3 tests including RBPT, SAT and IgM ELISA with the Cohen's kappa being 0.84. When comparing against the combination of all 3 tests, the sensitivity and specificity of the combination of RBPT and SAT was 100% and 95.2% respectively. In contrast the

Conclusion: The study establishes the combined application of RBPT and SAT as an efficient, costeffective and practical method of serodiagnosis of brucella in areas with limited healthcare infrastructure. This approach offers a promising

solution for early detection and management of brucellosis in rural and resource-poor regions, potentially improving patient outcomes and aiding in the control of brucellosis.

Key Words: Brucellosis, Zoonosis, Serodiagnosis, Rose Bengal Plate Test, Standard Agglutination Test

Abstracts

Title: Collaborating with Traditional healers for TB free village status: Observations from implementation of Tribal TB initiative in Ri Bhoi, Meghalaya, India

Agniswar Das*, Evangelica Blah, Biswajit Debnath, Shobha Ekka, Rupesh Singh et al.

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Background: Traditional healers are the first point of contact for most health issues in tribal communities, especially those living in remote areas with limited access to healthcare services. They understand the communities' cultural belief and faith system. In most cases, they have been serving the communities for generations and have built a reputation within. In Ri Bhoi district, most of these healers are associated with Ri Bhoi Traditional Healers Association (RBTHA) and this network is widespread across the district.

Objectives: Collaborating with Ri Bhoi Traditional Healers Association for capacity building of the traditional healers on TB disease, schemes, services, referral of TB presumptive.

Methods: District Collector, Ri Bhoi, was onboarded for engagement with Traditional healers

for TB elimination in the district. Simultaneously, meeting with the President and Secretary of RBTHA for potential collaboration with Traditional Healers was undertaken. This was followed by planning with District TB cell on training content and roll out of the training program.

Results: Over108 Traditional healers and 61 Village headmen from Umling and Umsning blocks participated in the training program. They provided a commitment to support the National TB elimination program to make their district TB-free.

Conclusion: Given the role of traditional healers in the tribal communities, it is vital to seek their support and inclusion in achieving TB free status. Therefore, to drive an acceptance amongst traditional healers for TB services, a buy-in from their collective association like RBTHA is imperative.

Key words: Traditional Healers, TB elimination, End TB by 2025, TB referrals, TB presumptive.

Abstracts

Title: Integrating Artificial Intelligence (AI) in Public Health Emergency Operations Centres (PHEOCs): A Conceptual Framework

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Background: Public Health Emergency Operations Centres (PHEOCs) are essential for managing crises, requiring cutting-edge technology for enhanced preparedness and response. This study proposes a framework to integrate Artificial Intelligence (AI) into PHEOCs, enabling risk assessment, surveillance, early outbreak detection, resource optimization, communication improvement, and continuous learning.

Objectives

- 1. To explore the potential of AI technology to strengthen PHEOCs and enhance preparedness and response capabilities.
- 2. To provide recommendations for key stakeholders to effectively integrate AI into elements of PHEOCs.

Methods: A comprehensive literature review on AI technology in public health, emergency management, PHEOCs, and related fields was conducted. The effectiveness of different AI technologies for different components of PHEOCs, such as risk assessment, surveillance, interoperability, and scalability, was assessed. Key AI technologies included predictive modelling, machine learning, natural language processing, and ethical considerations.

Expected Outcome: Results would show improved detection, resource allocation, decision support, response time, data-driven strategies, and public trust, ensuring PHEOC readiness with agility and ethics.

Conclusion: Al in PHEOCs promises to enhance preparedness and response. Advanced technologies improve decision-making, provide accurate information, and contribute to efficient emergency responses. Ongoing research and collaboration among public health experts, technologists, and policymakers are vital for maximizing Al's potential in PHEOCs.

Keywords: Public Health Emergency Operation Centre (PHEOC), Emergency Operation Centre (EOC), Artificial Intelligence (AI), Preparedness, Response

Abstracts

Title: Prevalence of Paragonimiasis in tuberculosis patients in West Bengal, India.

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Background: Paragonimiasis, a foodborne parasitic zoonosis is caused by *Paragonimus westermani* and related species. Human infection occurs through consuming improperly cooked freshwater crustaceans, crabs or crayfish, raw meat pickled of paratenic hosts or by ingesting metacercariae from contaminated hands and cooking utensils. Most infections are asymptomatic, but pulmonary symptoms can occur, including a chronic cough, chest pain, shortness of breath, and bleeding. Morbidity associated with paragonimiasis includes acute febrile illness and chronic pleuropulmonary symptoms that may be associated with tuberculosis. Both tuberculosis and paragonimiasis are endemic in the north eastern states of India.

Objective: To address the limited evidence on the dual burden of TB and Paragonimiasis in West Bengal, we attempted to document the prevalence of this disease among TB patients using sputum, stool examination and Serological detections.

Methods: We divide our detection work in two phase – first we have been Collecting samples from patients (ages in between 5 to 50) with history of cough "Hema ptosis", chest pain, abdominal pain, expectoration of sputum with blackish and rush coloured streaks and also smear negative suspected pulmonary TB cases attending nearest DOT /RNTPC/PHC/DMC centres. Secondly, we have been Collecting samples from active surveillance study. Diagnosis is made by detection of eggs from sputum, feces and serological tests (IgG-ELISA).

Results: In the event of Active Surveillance study, patients who provided consent were screened, resulting in a positive serum finding of 4.09%. Conversely, in the passive surveillance study, a positive serum finding of 3.52% was observed. However, when the active samples were tested for TB, a positive result of 1.25% was obtained.

Conclusion: This work would help us in providing the incidence rate of Paragonimiasis *in* West-Bengal which in turn gives a prevalence map for this neglected tropical disease in eastern part of India. However, Paragonimiasis is rarely included in the differential diagnosis of tuberculosis. **Key Words**: Paragonimiasis, Tuberculosis, Zoonosis, Diagnosis, Prevalence map.

Abstracts

Title: Sentiment Analysis of Public Perception Towards COVID-19 Vaccination in India **Alan Noble John*, Prem Singh, Poorva Sharan, Anshul Shukla, Awnish Kumar Singh et al.** *Monitoring and Evaluation Officer-Jhpiego India; alannoble.john@jhpiego.org

Background: The COVID-19 pandemic highlighted the role of social media in influencing patient knowledge, perceptions, and the uptake of health interventions, especially the COVID-19 vaccination programme. A lack of understanding of public feedback could potentially negate the gains achieved through the rapid development and deployment of these life-saving vaccines during a global pandemic. This abstract outlines the use of social listening and sentiment analysis to understand public perceptions of COVID-19 vaccination on social media.

Objectives: To analyze the public's perception and beliefs about the COVID-19 vaccine and vaccination programme in five Indian states through social media, and to leverage these insights to spread accurate information and tackle myths and misconceptions on social media.

Methods: Al-enabled social listening and sentiment analysis was done across five states in India, analyzing public posts from Twitter and Facebook using BlueSilk GPT algorithm. It involved three data collection phases, with sentiments categorized as positive, neutral, or negative. Additionally, workshops were conducted in each state, complemented by a national-level workshop. These workshops brought together key immunization program managers and social media influencers. Participants were briefed on the study's insights and trained to effectively utilize social media platforms for spreading awareness, identifying credible sources, and dispelling myths and misconceptions.

Results: Analysis of 892,957 posts showed varying sentiments across regions. It was observed that 20% of the posts reflected a positive sentiment, 29% conveyed negative sentiment, and a majority of 51% remained neutral. A shift towards positive/neutral sentiments was observed in these five states as the data collection progressed over the three phases. The study also highlighted sentiment variations by age, gender, language, and platform, predominantly featuring posts from individuals aged 18-44 and males. The social media workshops facilitated a practical application of these findings, equipping key stakeholders with tools to influence public opinion positively.

Conclusion: Continuously refining communication strategies based on real-time insights and public feedback is paramount for the successful implementation of public health interventions **Keywords**: COVID-19, Vaccination, Sentiment Analysis, Social Media, Public Perception, India.

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: Countering Diphtheria Resurgence: Strategies for Revitalizing Adolescent Tetanus and adult diphtheria (Td) Vaccination programme across four states of India

Alan Noble John, Prem Singh, Apoorva Sharan, Anshul Shukla, Trupti Dinkar Shinde et al. *Monitoring and Evaluation Officer-Jhpiego India; alannoble.john@jhpiego.org

Background: Despite India's robust childhood immunization programme, a concerning resurgence of diphtheria cases, primarily among adolescents, has emerged in recent years. Seroprevalence studies in Kerala and Gujarat indicate that this resurgence is linked to declining diphtheria toxin antibody levels due to waning immunity. To combat this, the NTAGI recommended replacing the TT vaccine with the Td vaccine in the Universal Immunization Programme for adolescents and pregnant women. Unfortunately, Td vaccine uptake remained low, exacerbated by the COVID-19 pandemic. To address this challenge, four states, with Jhpiego's technical support, implemented tailored strategies to enhance Td vaccine coverage between April and August 2022.

Objective: To highlight the strategies undertaken by the four states to enhance Td vaccine coverage, demonstrating their potential as models for a sustainable adolescent vaccination programme.

Methodology: State-specific tailored strategies were adopted across the four Indian states to increase Td vaccine coverage:

- 1. Leveraging Existing Adolescent Programmes: The frameworks of the RBSK, RKSK, and School Health and Wellness Programme were utilized to expand the capacity and resources available for service delivery, targeting adolescents both in and out of school.
- 2. Inter-departmental Coordination: Convergence meetings were organized to orient nodal officers from various departments (education, women and child development, tribal affairs), along with sensitization of key community influencers.
- 3. Political Endorsement: Video appeals were developed by elected representatives in Gujarat and Madhya Pradesh.
- 4. Tailored Communication Campaigns: Peer and community-led campaigns were implemented, utilizing social media to boost vaccine confidence.
- 5. Capacity Building: Technical assistance and training were provided to programme managers, nodal officers, and frontline workers.

Results: Through these initiatives, 4.1 million adolescents received Td vaccines in 2021-2022, resulting in a 30-45% increase in Td10 and Td16 coverage in the four states. The success of this achievement can be attributed to the adoption of best practices, including leveraging existing adolescent platforms, enhancing inter-sectoral coordination, and implementing peer-led communication campaigns.

Conclusion: The key is to develop tailored strategies based on state-specific programmatic strengths and socio-cultural contexts, ensuring seamless integration across the continuum of care.

Keywords: Vaccine Preventable Diseases; Diphtheria; Adolescents; Vaccination programmes; India

Abstracts

Title: Classification of Zoonotic Diseases and Essential Framework for Mitigating Future Epidemics: A Scoping Review

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Background: The global burden of zoonotic diseases particularly impacts underdeveloped nations, where numerous vertebrate animals act as reservoirs for viral zoonoses. The complex dynamics at the human-animal-environment interface, including zoonotic diseases, vector-borne diseases, and food/water-borne diseases, pose significant risks to both animal and human populations, resulting in substantial mortality and morbidity.

Aim & Objective: The primary aim is to establish a classification of zoonotic disease with a colorcoding framework for a unified One Health approach, aligning the efforts of various departments within the health sector and ensuring intersectoral coordination. The objective is to create a classification system as a practical toolkit for implementing One Health strategies in the context of zoonotic diseases.

Methodology: We conducted an extensive search across online literature, utilizing PubMed, Google Scholar, and government websites to classify zoonotic diseases. Further, this classification, accompanied by color coding, offers a visual and standardized framework for different departments to tailor their responses based on the specific characteristics of each disease. The color coding enhances visual recognition, facilitating quick and informed decisionmaking during epidemics.

Results: The implications of integrating this classification into a reference manual are substantial. It provides a structured foundation for reporting, offering a systematic flow chart for documenting and analyzing zoonotic disease data. To enhance accessibility and ease of reporting, the creation of a user-friendly website at the district level. This website serves as a centralized platform for reporting, connecting stakeholders, and empowering local authorities to manage and respond effectively to zoonotic disease outbreaks.

Conclusion: The significance of organized classification with color coding for (IMS) Incident Management System and informed decision-making during epidemics. This approach not only guides the prioritized actions of various departments but also fosters a cohesive response to mitigate the impact of zoonotic diseases.

Keywords: Zoonotic Disease, Classification, One Health, Epidemic, Incident Management System

Title: Public Health Emergency & Disaster Management (PHEDM) in community settings - A New Multi Dimensional Approach

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Background: Communities are not only the first to experience the impacts of disasters but also the initial responders. And with the continued focus on "Whole of Government" and "Whole of Society" approaches of the Government of India for managing health emergencies and disasters, there is a need to enable communities to map existing resources and strengthen their capacities for Public Health Emergency and Disaster Management (PHEDM).

Objective: Thus, empowering and involving them in disaster preparedness and mitigation activities is vital to developing local capacity and initiative in disaster risk reduction. The objective was to develop a Village Public Heath Emergency and Disaster Management Plan. **Methods:** NCDC and NIDM of Govt. of India and U.S.CDC, India have developed a comprehensive five-tiered approach to booster Public Health Emergency and Disaster Management (PHEDM) Capabilities at every level from grassroots communities to policymakers. Community Emergency Management Teams (CEMT) and Community Emergency Response Teams (CERT) would aid in enhancing the community through various means. The focus is on the move for community Participation (Tier I) training for which a district Alwar in Rajasthan on basis of risk assessment has been selected for pilot launch after which it shall be rolled out throughout the state.

Results:Two meetings have been held, one at State level and the other at Alwar involving stakeholders and a Block has been identified.The expected results would be a well-prepared, active and well-organized community. It will be able to reduce risks & mitigate the impact of emergencies.

Conclusion: The concept of clubbing of Public Health Emergency & Disaster Managementwith community participation would prove be of great importance. CEMT and CERTswould proactively manage emergencies and disasters with an emphasis on "Local Resilience by Local Participation".

Abstracts

Title- Epidemiological Investigation of Cholera Outbreak in Rural area of Amravati District, Maharashtra.

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Background: Outbreaks of acute diarrheal disease is common in developing countries. ADD outbreaks occur due to lack of access to potable water. Cholera occurs in sporadic, epidemic and endemic forms in Maharashtra. 26 cholera outbreaks occurred in Maharashtra during 2022. Among these 1104 cases and 20 deaths were reported (State report). Sudden an unusual increase in number of ADD cases were observed in Pachdongri village. Rapid response team was deployed to implement immediate response to control outbreaks.

Objective :

1. Investigate and ascertain descriptive epidemiological characteristics of the outbreak

2. To provide the appropriate response to control the outbreak.

Methodology: An observational descriptive study was conducted. The outbreak started on 7thJuly 2022. Rapid Response Team was deployed immediately in the affected village. Active surveillance was initiated in the village. Description of the outbreak by time, place and person was done. 35 stool samples were collected & tested for Vibrio cholera and 94 water samples were tested for contamination.

Results: Overall attack rate was 18.7 percent and case fatality rate was 1.6. Incidence among <5 years was found 6.18 % which is less than >5 years was 20.13 %. The highest attack rate was observed among the males (19%), than female (18%). Eleven stool samples were positive for Vibrio cholera O1 and 42 water samples were found contaminated.

Conclusion: The drinking water source was contaminated due to fecal matter and was the main reason for the onset of cases and outbreak. RRT has initiated the public health action timely and able to and curb the cases and deaths. Open air defecation, interrupted water supply and cultural taboos were the main challenges observed.

Key words: Cholera, Outbreak, Epidemiological investigation

Abstracts

Title: Development of lateral flow assay for Aflatoxin M1 detection in milk

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Background: Aflatoxins, which are produced by Aspergillus fungi in suitable moisture conditions, pose significant health risks to humans and animals. The Aflatoxin B1 (AFB1) is a potent carcinogenic toxin found in various foods and feeds. Of particular concern is the metabolite of AFB1, Aflatoxin M1 (AFM1), that is present in the milk of animals that have been fed contaminated feed. India, known for its remarkable global ranking in milk production and consumption, relies heavily on it with a rich nutritional profile essential for sustaining life. Developing a field-level rapid AFM1 detection kit is imperative to monitor and control its levels in milk, ensuring human and animal well-being due to widespread consumption and dietary significance.

Objectives: To develop, standardize, and optimize a Lateral Flow Assay (LFA) for the easy, rapid, affordable, and on-site screening of AFM1 in milk

Methods: The present study was aimed with the preparation of gold nanoparticles and conjugated with AFM1-specific monoclonal antibodies based on the physical adsorption. The characterization of gold nanoparticles before and after conjugation was done using UV-Vis spectroscopy, DLS, and TEM. The standardization of the developed kit was done using the checkerboard titration method followed by internal validation.

Results: The optimized LFA exhibited the lowest limit of detection ranging 0.5-0.7 ng/ml, observed at the permissible limit (0.5 ng/ml) recommended by the Food Safety and Standard Authority of India with a detection time of less than 20 min. The developed LFA test showed good reproducibility and repeatability across three different laboratories of the institute with diagnostic sensitivity and specificity of 84% and 100%, respectively, as compared to reference HPLC.

Conclusions: The study concludes with the successful development of an onsite AFM1 detection kit that offers practical solutions to ensure milk safety and protect human health and animal health.

Keywords: Aflatoxin M1, Health, Hepatotoxic, Milk, One Health

Abstracts

Title: Models of ASHA Programmes in Urban and Peri-Urban Areas in India: A Qualitative Study **Anantha Kumar Srinivasaiyer*, Henna Dhar, Roopesh Gupta, Atul Kotwal**.

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Background: The surge in non-communicable diseases and the COVID-19 crisis have underscored the urgent need for robust public health systems. Cognizant of the challenging migrant populations and poor living conditions in urban areas, coordinated community and facility-based care through medical officers and ASHAs is critical at the level of urban Ayushman Arogya Mandirs. Amid limited research, understanding diverse models of urban community health workers was important.

Objectives: This study evaluated three major ASHA models, identified implementation challenges and solutions for enhancing urban healthcare utilization and delivery.

Methods: This qualitative study explored the governance, capacity building, service delivery, incentives and supportive supervision and the associated challenges and solutions through indepth interviews and focus group discussions during March and April 2022. The respondents included Urban ASHAs/Link Workers/Community Health Workers (CHWs), program officials, and urban communities. The sampling included seven megacities and six million-plus cities with Urban Primary Health Centers (UPHCs) as sampling units. The analysis involved thematic analysis method incorporating both a-priori and themes that emerged during the interviews.

Results: The study identified three urban ASHA program models, i. Urban ASHA programme administered by the urban local body or ii. the state health department; iii. and non-ASHA-based urban community health worker program. The study identified key enablers such as city-level program management units, polling-booth-level selection of ASHAs, city-level training centers, and adoption of IT-based incentive disbursal systems perceived by health professionals to aid timely and effective urban health service delivery.

Conclusion: The solutions identified in the study may be considered with careful contextual modifications for scale up in both million-plus and megacities, for improving urban healthcare delivery and coverage.

Keywords: Urban ASHA, Urban health systems, Community Health Worker (CHW) programmes, Comprehensive Primary Health care.

Title: Research Integrity: Community participation for strengthening Public Health Emergency and Disaster Management (PHEDM) at the local level.

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Background: Community participation is the foundation for successfully implementing any intervention. Achieving this requires acknowledgement of the ethical and cultural scenarios of the community, ensuring responsible research for the implementation of community interventions, particularly those concerning Public Health Emergency and Disaster Management (PHEDM). Moreover, a participatory approach with local stakeholders such as frontline workers and community members can guarantee the applicability of findings and the sustainability of PHEDM in local communities.

Objectives: The article seeks to examine the ethical and cultural factors involved in conducting research for the implementation of PHEDM programs at the community level, emphasising the essential role of a collaborative approach and stakeholder participation to ensure integrity in programs designed to improve PHEDM systems at the community level.

Methods: Through a review of previous qualitative studies and literature, this article looks into the benefit of acknowledging the cultural and ethical milieu in the community setting to promote PHEDM.

Results: The findings reveal the complexity of conducting research at the community level, where cultural and ethical settings can have a bearing on access to health care and services, particularly during emergency or disaster situations. The results emphasise the need for researchers and implementers to engage in collaborative, participatory approaches that respect local values and involve community members at all stages of the program, from design to implementation.

Conclusion: In order to conduct research for implementing programs regarding public health emergencies and disasters in communities, implementers need to engage with the cultural and ethical complexities in these areas. The article concludes with an understanding that research for implementation of a program can have integrity when conducted with adherence to positionality, sensitivity and dedication to collaborative partnerships and stakeholder participation.

Keywords: Research integrity, Community participation, Public health, Emergency management, Ethical considerations

Abstracts

Title: Lymphatic Filariasis entomological surveillance over three decades: The Constraints to Elimination

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Introduction: Latest facts suggest that Mass Drug Administration (MDA) has prevented at-least 90 million new filaria cases globally since 2000. To secure these gains of elimination of lymphatic filariasis (ELF) program; focus is needed on under-privileged urban populations where prolonged "residual microfilaraemia" and re-establishment of transmission may result in excessively crowded areas with poor sewerage and drainage, conducive to breeding of Culex quinquefasciatus vector mosquitoes. The present study documents entomological LF surveillance, more sensitive and cost-effective compared to MDA surveys, over three decades in urban migration prone Indian setting. We envisage that study findings will help to guide future strategies and policies on the urban filariasis.

Methods: The study/city area was divided into fifty parts each having one fixed and one random site amounting to hundred sites per week for routine entomological surveillance. Four sentinel sites of MDA surveys were also montored for entomological indicators. The resting adult mosquito collection amounting to 700 man-hours/month from approximately 3000 stations was done each year from 1995 to 2022. From the insects collected, fresh-fed parous Culex mosquitoes were dissected and observed under microscope.

Results: In the routine surveys, total 1,041,469 resting female adult C. quinquefasciatus were dissected between 1995-2021. The highest infection rate was 0.24% (121 mosquitoes positive out of 50448 dissected) in 2004, the first year of MDA. In 2016, after ten rounds MDA, infection rate was less than 0.01% (2/38499) declining by 98% and infectivity rate by 92% in vector mosquitoes. In 2022, the sentinel site areas having high density of mobile populations from other filariasis endemic parts of the country show rising infectivity rate of 0.02% (6/31568) among mosquitoes.

Conclusions: In the present study, sentinel sites show higher infectivity rates compared to indigenous populations. ELF programs now need to prioritize existing resources on surveillance and treatment of mobile and migrant populations, for these populations' own benefit and to prevent resurgence in the wider population. India needs guidelines on health coverage of migrant/ mobile populations.

Key words: Lymphatic Filariasis; Surveillance; Entomological; Culex quinquefasciatus; Mass Drug Administration

Abstracts

Title: A Situation Analysis of Brucellosis in Sawai Madhopur District of Rajasthan: Jan-May 2023 **Ankoor Tyagi*, Anil Jaimini, Bharti Malhotra, Ruchi Singh, Praveen Aswal, et al**

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Background: Brucellosis is a re-emerging zoonotic disease caused by ingestion of unpasteurized milk from infected animals, or close contact with their secretions. The disease is under-reported in India due to low suspicion and testing among fever cases. We conducted this study in Government District Hospital (DH) of Sawai Madhopur of Rajasthan from January to May 2023.

Objectives: To assess the incidence of Brucellosis amongst fever cases in Sawai Madhopur District and descriptive analysis of positive cases.

Methods: We defined a suspect case as any resident of Sawai Madhopur with acute onset of fever and with chills or myalgia, headache, fatigue, malaise, and body ache from January to April 2023. Suspect cases were tested for Brucellosis with IgM ELISA test at District Public Health Laboratory (DPHL). Secondary data analysis of the positive cases entered in the case record form at DPHL was done.

Results: Total 443 samples from suspected cases were sent from district health facilities to DPHL out of which 12% (53/443) tested positive for brucellosis. 66% (35/53) of positive cases were females. 55% (29/53) of cases were admitted and 45% (23/53) were "walk-in" cases. Maximum cases were from age group 20-30 years (32%, 17/53). Fever, chills, and myalgia was present in all cases, rigor was seen in 19% (10/53) and headache in 92% (49/53) cases. There was a median delay of 4 days between onset of symptoms and testing. 74% of the positive cases were from rural areas.

Conclusion: There is a considerable prevalence of brucella infection amongst fever patients in the district. Females were more commonly affected. We recommend a high degree of suspicion in fever cases and increased testing for brucellosis and further study in to risk factors in the population.

Key words – Brucellosis, Zoonotic disease, One Health, Neglected Tropical Disease, Rural Health

Abstracts

Title: The Need for a Paradigm Shift from VIA Screening to HPV DNA Testing for Cervical Cancer Prevention: Challenges and solutions

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Background: Cervical cancer is a major public health problem that affects millions of women worldwide. HPV DNA screening and VIA screening are methods of detecting cervical cancer and precancerous lesions. The aim of this study is to compare the advantages of HPV DNA screening over VIA screening.

Objectives: To compare the advantages of HPV DNA screening over VIA screening for cervical cancer detection. To assess the sensitivity and specificity of both methods, with a focus on Indian settings.

Methods: This study is a review of existing literature on HPV DNA screening and VIA screening for cervical cancer detection. The inclusion criteria are: studies that compare HPV DNA screening and VIA screening for detecting cervical intraepithelial neoplasia grade 2 or worse (CIN2+) studies that report the sensitivity and specificity of both methods with an emphasis on studies in Indian settings

Results: The results show that HPV DNA testing is more cost-effective, acceptable, and can be more easily integrated than VIA screening for the long term health care programs, as it can Save more resources and lives by preventing cervical cancer and its complications by its superior sensitivity and specificity Increase the access and acceptability of screening for women who face barriers to health care or who prefer privacy, as it can be done with self-collected samples also Provide a comprehensive and synergistic approach to prevent cervical cancer as it can be integrated with HPV vaccination programs. Reduce the expenditure and workload of cervical cancer screening, as it can be done with longer intervals with its high negative predictive value. PCR testing done, which has become more accessible after the COVID-19 pandemic.

Conclusions: HPV DNA screening has more advantages than VIA screening for cervical cancer detection and prevention. India especially Tamil Nadu, with its well rounded health infrastructure is at perfect position to make this paradigm shift.

Keywords: Cervical cancer, HPV DNA screening, VIA screening, Precancerous lesions, Cancer prevention.

Abstracts

Title: Advancing Cervical Cancer Prevention and Elimination: A Systematic Assessment of HPV Vaccination Impact

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Background: Cervical cancer, is among leading cause of cancer-related deaths among women in India, is primarily driven by persistent human papillomavirus (HPV) infection. Vaccination against HPV especially against subtype 16,18 has emerged as a crucial strategy for preventing cervical pre-cancer and, consequently, cervical cancer. However, vaccine coverage remains inadequate, especially in India where the disease burden is highest.

Objectives: This systematic review aims to assess the benefits of HPV vaccination in preventing and eliminating cervical cancers. This study explores both randomized trials and population-based studies to evaluate the impact of vaccination on cervical pre-cancer incidence.

Methods: This study conducted a comprehensive review of relevant literature, including Cochrane reviews, clinical trials, and observational studies. The analysis focused on HPV-naive individuals and assessed the reduction in cervical pre-cancer (CIN2/3) associated with HPV vaccination.

Results: The HPV vaccine is 97% effective in preventing cervical cancer.

Additionally, it is almost 100% effective in preventing external genital warts in adolescent age group girls

Overall Impact on Cancer is that the vaccine has the potential to prevent more than 90% of HPVattributable cancers such as anal canal, oropharyngeal, nasopharyngeal, Hypopharyngeal and vaginal cancers.

Conclusion: Clear evidence from both randomized trials and population-based studies demonstrates that HPV vaccination especially against HPV 16,18 subtype significantly reduces the incidence of cervical pre-cancer. Strategies to enhance both supply (e.g., low-cost vaccines, school-based delivery, single-dose schedules) and demand creation (Expert recommendations, correcting misinformation, public awareness campaigns) are essential for achieving near elimination of cervical cancer. India has already got robust public Vaccination infrastructure in place and with recent budgetary push given by Finance minister of Government of India, it is the optimal time to launch HPV vaccination for younger girls as a part of Routine immunization. Another important aspect is to equally & vigorously push for HPV DNA screening for older women, complementing & covering the whole female population.

Keywords: vaccination, screening, cervical pre-cancer, prevention, elimination, global health.

Abstracts

Title: Scrub Typhus epidemiology and risk factors in Sundargarh District, Odisha, India, October 2023

Arushi Ghai*, Dhanalaxmi Lolach Balaga, Srividya KV, Sushma Choudhary, Kahnu Charan Nayak, et al.

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Background: Scrub Typhus has emerged as a significant public health concern in India. After recent advancements in diagnostics, Odisha reported a rise in cases. In response to a cluster identified in Sundargarh Block in September 2023, an epidemiological investigation was initiated. **Methodology**: A case was defined as resident of, or hospital-admission in Sundargarh-block, with IgM-ELISA positive for Scrub Typhus between 1 July and 20 October. We interviewed cases for socio-demography, exposure to mite-habitats or rodentogenic-conditions, clinical and treatment-seeking. We conducted a 1:1 unmatched case-control study; controls were test negatives enrolled from district-hospital. We calculated odds ratio with 95% confidence interval. Entomological survey assessed rodent infestation and chigger index. We collected rodent sera for Weil-Felix test.

Results: We identified 140 cases (median age=29years, range=12-50years, 55% males) and case fatality rate of 2.8%. Of cases, 30% were pediatric and 63% were rural. Symptoms were fever (100%), headache (64%), cough (37%), myalgia (35%). Delay in time to hospitalization from symptom-onset (median=9days, SD=4 days) were noted among deaths. Of cases, 45% were tested in second week of symptom-onset; testing was available only at district hospital. Among 61 cases and 61 controls, recent forest/farm visit [OR=4.27, 95%CI:1.9-9.1]; house-proximity to bushes [OR=3.03, 95%CI:1.2-7.3]; dampness [OR=2.74, 95%CI:1.2-6.0]; firewood storage [OR=2.50, 95%CI:1.1-5.3]; proximity (100m) to forest/farm/fields [OR=2.30, 95% CI:1.0-5.2]; open drainage [OR=2.23. 95% CI:1.0-4.7] were significantly associated with illness. Rodent infestation rate was 94%. Chigger index was 18.94 (critical value=0.69). For 15 rodents, 33% were positive for scrub typhus antigen OXK.

Conclusion: This laboratory-confirmed case cluster was predominantly rural among adults. Delays in treatment seeking and testing were observed. Higher odds of illness were noted in cases with mite habitat proximity and rodentogenic conditions. We demonstrated abundance of reservoir and vectors near human habitats. We recommended strengthening surveillance and critical case referral, frontline-workers and community sensitization and, interdepartmental rodent control activities.

Keywords: Infectious disease outbreaks, exposure risk factors, mites, Rodentia

Abstracts

Title: Serosurvey of selected viral diseases in North-western region of India

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Background: Viral and transboundary animal diseases impose a huge economic burden on any nation, including India. Livestock such as ruminants and pigs are considered as the major reservoirs for these diseases and pose a potential threat of transmission to humans. Therefore, it offers an opportunity to study these viral pathogens of veterinary and public health concern.

Objectives: To conduct a serological survey on Lumpy skin disease (LSD) and Japanese Encephalitis (JE) in North-western region of India.

Methodology: In this study, a total of 346 cattle sera samples were collected from 14 districts across four states: Himachal Pradesh, Punjab, Rajasthan, and Gujarat and Union Territory of Jammu & Kashmir during March 2022 to December 2022. Additionally, 40 pig sera samples were also collected from Punjab (n=20) and Himachal Pradesh (n=20).

Results: Antibodies against Lumpy skin diseases were detected in 24.5% (85/346) of cattle. Highest seropositivity was observed in Rajasthan (17.6%) followed by Gujarat (5.8%) and Himachal Pradesh (1.1%). However, none of the samples were positive in Punjab and Jammu & Kashmir. Antibodies against Japanese encephalitis were identified in 14 pigs from Himachal Pradesh. None of the pig sample was positive in Punjab.

Conclusions: Lumpy skin disease made its entry into India in 2019, with cases were mostly observed in the Eastern region. Nevertheless, our research reveals that the cattle population in North western region of the country have also been exposed to LSD. Similarly, antibodies against JE in pigs were also detected. These results provide a baseline evidence that implementation of an effective surveillance programme within animal populations could serve as a valuable tool to monitor the spread of these important veterinary and public health pathogens.

Key words: India, Lumpy skin disease, Japanese Encephalitis, Viral diseases.

Title: Assessing Health Care Workers' Knowledge and Preparedness for implementation of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana in a Medical College in Maharashtra **Ashlesha Tawde Kelkar*.**

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Background: The fundamental right to health constitutes a vital aspect of human rights. In 2018-19, the Government of India introduced "Ayushman Bharat for a new India-2022" during the parliamentary budget sessions. This initiative comprises two key components: the establishment of Health and Wellness Centers to bolster primary care and the National Health Protection Scheme, now recognized as the "Pradhan Mantri Jan Arogya Yojana (PMJAY)," aimed at facilitating access to secondary and tertiary healthcare services.

Objectives: This study aimed to evaluate the awareness and preparedness of healthcare personnel of a tertiary care Indian medical hospital in Maharashtra regarding the implementation of PMJAY.

Methods: A cross-sectional survey was conducted at an Indian tertiary care hospital, with a calculated sample size of 323, involving treating consultants and residents as participants. Participants completed a pretested, self-administered, semi-structured questionnaire to gauge their awareness and preparedness levels for implementing PMJAY. Data were analyzed using EPI Info 6 software.

Results: A total of 330 participants were included in the study. The mean score for awareness was 4.7±1.94, and for readiness was 15±4. There was no statistically significant difference in mean scores for awareness and readiness between medical or surgical branches. However, faculty members exhibited significantly higher awareness scores compared to resident doctors. A statistically significant positive correlation among awareness and readiness was observed.

Conclusion: The mean awareness score among doctors was approximately half of the maximum achievable score. Awareness levels were higher among faculty members compared to residents. Additionally, an increase in awareness correlated with an increased readiness in the study participants. Therefore, there is a pressing need to conduct workshops on PMJAY for all the stakeholders to enhance awareness and preparedness.

Keywords: PMJAY, Ayushman Bharat, Awareness, Readiness, Maharashtra

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: Assessment of clinical and social vulnerabilities among newly diagnosed persons with TB in tribal and urban populations settings in India

Ashvini Vyas*, Sripriya Pandurangan, Jyoti Ranjan Mohanty, Sujatha P, et al

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Background: Social and clinical vulnerabilities affect the treatment outcomes of people with TB. While the NTEP records HIV and diabetes, there is a scope for systematic recording and linkage to supportive services for other social and clinical vulnerabilities to achieve higher treatment success rate to achieve the goal of TB elimination by 2025.

Objective: The objective of the pilot intervention was to record different social and clinical vulnerabilities like alcohol use, smoking, malnutrition, migration and living alone among newly diagnosed persons with TB of 18 years or above and linking them to supportive services, keeping the spirit of person-centred care. The pilot intervention was implemented in Chennai (Tamil Nadu) and Mayurbhanj (Odisha).

Methodology: As part of USAID supported ALLIES project, the project trained and engaged 18 TB Champions from the local communities who screened newly diagnosed people with TB after their consent using an assessment tool to record vulnerabilities and linked them to supportive specialised supportive services.

Results: Between November 2022 and December 2023 1866 PwTB (1102 Male and 764 Female) of 18+ years in Mayurbhanj, a tribal district in Odisha and private setting in Chennai, Tamil Nādu. Following vulnerabilities were reported by people with TB Alcohol (27%), Smoking (8%), Malnutrition (BMI less than 18.5) (40%), Migration (13%), living alone (3%). In Mayurbhanj 79% had BMI score less than 18%, whereas in Tamil Nadu, 26% people reported a BMI score of less than 18.5. WHO definitions were used to define malnutrition. All cases were linked to specialised supportive services.

Conclusion: A significant number of persons with TB report different social and clinical vulnerabilities which can negatively affect the treatment outcomes. Therefore, it is critical for making vulnerability assessment a standard part of NTEP diagnosis algorithm to eliminate TB by 2025.

Key words: Vulnerability assessment, Linkage to supportive Services.

Abstracts

Title: Exploring the Role of Community Health Officers in delivering Comprehensive Primary Healthcare: A Mixed-Method study at Ayushman Arogya Mandir in India

Atul Bhanu Rairker*, Srishti Gulati, Delfin Lovelina,,Roopesh Gupta, Atul Kotwal

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Background: The establishment of Ayushman Arogya Mandirs, demanded additional human resource to be placed at the Sub Health Centre (SHC) level to provide comprehensive primary healthcare services (CPHC). To address this challenge, a new cadre of Community Health Officer (CHO) was introduced to be placed at the Ayushman Arogya Mandir. The impact on health outcomes by introduction of this new cadre is yet to be explored fully. There were also numerous factors which tend to influence the performance of CHOs.

Objectives: This study aimed to evaluate the knowledge and performance of CHOs in the delivery of CPHC at Ayushman Arogya Mandir and to understand the perspectives of stakeholders about the CHO.

Methods: A mixed-method study conducted from February to October 2022 involved selected States representing High Focus States, Non-High Focus States, Union Territories, and North-Eastern States. Quantitative data were collected through a cross-sectional survey, surveying 251 CHOs with a structured questionnaire to assess performance and influencing factors. Qualitative data were gathered through in-depth interviews with CHOs, program stakeholders, and FLWs, along with FGDs with the community and auxiliary health workers.

Results: The study reveals that CHOs exhibited robust awareness of the Ayushman Bharat scheme, with proficiency in existing services, and limited knowledge on newer packages. All CHOs demonstrated adept use of IT applications. Stakeholders observed enhanced healthcare services, improved non-communicable disease (NCD) case management, efficient supply chains, referral mechanisms, and diagnostic services.

Conclusion: The study emphasises the pivotal role of CHOs in alleviating human resource shortages and delivering expanded services, thereby reducing the burden on higher-level healthcare facilities and out-of-pocket expenditures. Recommendations include expediting capacity building, ensuring infrastructure compliance, resolving team dynamics, simplifying performance measurement frameworks, and establishing robust monitoring mechanisms.

Keywords: Ayushman Bharat, Ayushman Arogya Mandirs, Community Health Officer (CHO), Mixed-method study, Non-communicable diseases (NCD)

Abstracts

Title: Predictors of Rifampicin Resistance in Western Uttar Pradesh - A Ten-Year Retrospective Analysis

Avijit Kumar Awasthi*, Shiv Joshi, Shailendra Bhatnagar, S.K. Lawaniya, Bharat Bajaj et al *Consultant Microbiologist, Intermediate Reference Laboratory, Agra, Uttar Pradesh. akaa21@gmail.com

Background: Drug-resistant tuberculosis (DRTB) poses a significant public health challenge in India, leading to substantial morbidity and mortality rates. In 2021, the estimated incidence of MDR/RR-TB was 119,000. Despite a reduction in total drug-resistant TB patients during the pandemic compared to 2019, there was a 32% increase in MDR/RR-TB cases detected in 2022. Understanding the resistance profile and trends has the potential to identify intervention areas crucial for combating DRTB as part of the national strategy.

Objectives: To study the age-gender profile and predictors of rifampicin resistance in the 12 linked districts of Intermediate Reference Laboratory (IRL), Agra.

Methods: IRL Agra has been consistently linked with 12 districts of Western Uttar Pradesh since 2014 covering about 8 crore population. Retrospective Laboratory data from 1st January 2014 to 31st December 2023 from Annexure 15A was extracted to a pre-defined set of variables in the spreadsheet. Descriptive statistics were used to summarize the trends. Binomial logistic regression was used to study the independent predictors for the rifampicin resistance.

Results: The mean age of persons affected by tuberculosis was 35.73 ± 16.66 with relatively younger individuals getting DRTB. The gender was found to be significantly associated with rifampicin resistance with a female predominance. The multidrug resistance suspect criteria also had a significant association with rifampicin resistance. The month-wise receipt of sample at IRL was not found to be significantly different. The findings show some variability in the DRTB:DSTB ratio over the years. The trend since 2019 suggests that there was initially a decrease in the relative prevalence of drug-resistant tuberculosis, followed by a slight increase in 2021, and then a notable decrease in 2023.

Conclusion: The findings underscore the ongoing challenges in combatting drug-resistant tuberculosis, necessitating a nuanced understanding of patient profiles and resistance patterns. The study contributes valuable information for refining strategies within the national TB elimination framework, emphasizing the importance of continued surveillance, targeted interventions, and adaptability in response to evolving trends in drug-resistant tuberculosis.

Key words: Multidrug-Resistant Tuberculosis, Public Health, Epidemiology, Health Services Research, Rifampicin resistance.

Abstracts

Title: Assessment of Aedes vectors breeding sources in and around the premises of Lal Bahadur Shastri International Airport, Varanasi".

Awadhesh Kumar Yadav*, Vetrivel Baskar, Prateek Kumar Singh, Awanindra Dwivedi, Jeetesh Yadav et al

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Background: Aedes vectors, notorious for diseases like Dengue, Chikungunya, and Zika, pose a grave public health threat in India. Lal Bahadur Shastri International Airport is spread over an area of approximately 582 acres. We aimed to assess the prevalence of Aedes aegypti and Aedes albopictus in and around the premises of the airport.

Methods: NCDC Varanasi and APHO teams systematically surveyed in and around the premises of the airport, using premises or houses as sampling units. Larval surveys identified water-holding containers, and collected immature larvae were confirmed as Aedes aegypti and Aedes albopictus. Various indices, including the Premises Index, Container Index, Breteau Index, and Pupal Index, were calculated as per World Health Organisation guidelines.

Results: The survey uncovered 79 Aedes immatures from 250 premises & houses and 25 positive containers among the 126 wet containers examined, emphasizing a low risk of disease transmission at the point of entry to the airport.

Conclusion: The building terraces were found to be hotspots, and all breeding areas were targeted for source reduction. Remarkably, prior anti-larval measures for Aedes vectors had been taken by concerned authorities. This study focused on the need for regular surveillance to minimize vector density and disease transmission risk, providing crucial insights for future prevention strategies.

Key Words: Entomological Surveillance, Aedes Mosquitoes, Mosquito Control, Breeding Sources, Airport Vector Control.

Abstracts

Title: Burden of Diabetes and Hypertension in India: A Secondary Analysis of National Surveys and Data Portal

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Background: National Health Policy 2017 envisages expanded packages of care including noncommunicable diseases. Understanding gender, and regional wise distribution of noncommunicable diseases is important to nudge the screening efforts to meet the commitment of reducing NCD-related premature deaths by 25% before 2025.

Objectives:

- 1. To study gender and state-wise trends of raised blood sugar (diabetes) and hypertension from NFHS 4 (2015-16) to NFHS 5 (2019-20)
- 2. To study the progress of diabetes and hypertension screening undertaken by Ayushman Arogya Mandirs (Erstwhile Health and Wellness Centres)

Methods: Secondary data analysis was undertaken to study the trends of raised blood sugar and hypertension in National Family Health Survey rounds 4 and 5. Data on the National NCD-IT application was analysed to assess the progress of diabetes and hypertension screenings using Boxplot and Bar charts.

Results: The study showed increased trends of diabetes and hypertension in all States/UTs among both males and females from 2015-16 to 2019-20. Trends observed more among males as compared to females. Sikkim, Arunachal Pradesh, Assam, Himachal Pradesh, and Haryana revealed high values. The distribution of diabetes and hypertension varies across the States/UTs. Screening progress of diabetes and hypertension has been noted since the inception of Ayushman Bharat. The study recommends regional strategies focusing on quality training, and ensuring availability of medicines and diagnostics for continuum of care. Preventive aspects focusing on nutrition, wellness, and physical exercise need to be promoted and monitored from the state and district level as a short-term intervention. Further intersectoral coordination, convergence, people-centred and holistic care for long-term solutions.

Conclusion: The trends of diabetes and hypertension have increased from NFHS-4 to 5. Distribution of these non-communicable diseases varies across all States/UTs and more among males than females indicating regional strategies for detecting positive cases and putting on treatment.

Keywords: Diabetes, Hypertension, Non-communicable diseases, Population-based screening, Ayushman Bharat, Ayushman Arogya Mandirs, Health and Wellness Centres, Comprehensive Primary Healthcare, NCD-IT application.

Abstracts

Title: Factors associated with anaemia among adolescents in Mannava Primary Health Centre, Guntur District, Andhra Pradesh, India - 2023

Bandi Siva Gopal*, Maramraj Kiran, Mohan Kumar, Ramesh Chandra, Tanzin Dikid et al

*India EIS Officer, Cohort -8, National Center for Disease Control, drsiva.eisc8@gmail.com **Background**: Anaemia affects 21.4% of adolescents in Andhra Pradesh (A.P.), India. We conducted a cross sectional study to assess its prevalence and associated socio-demographic and dietary factors in Mannava PHC, Guntur district, A.P.

Methods: From the 14 villages coming under Mannava PHC, we included adolescents aged 10-19 years through simple random sampling and collected socio-demographic factors and dietary intake using a semi-structured questionnaire: and took anthropometric measurements to calculate body mass index (BMI). We categorised anaemia as mild (Hb% 11-12.9 g/dl), moderate (Hb% 8-10.9 g/dl), and severe (Hb% <8 g/dl). BMI categorised as underweight (<18.5), normal (18.5 -24.9) and overweight (>25). We correlated BMI and gender with severity of anaemia; and compared intake of dietary items with presence of anaemia and calculated odds ratio (OR) with confidence intervals (C.I.).

Results: We enrolled 300 adolescents; with 55% female, median Hb 10.3% and BMI 19. Among enrolled adolescents 86% were anaemic with 20% mild (27% male, 13% female), 64% moderate (56% male, 71% female), and 2% severe anaemia (3% male, 1% female), with significant gender severity correlation (P=0.0122). Anaemia was higher in adolescents aged 15-19 years compared to 10-14 years (90% vs. 82%; p =0.04). Among participants, 53% had normal BMI, 40% underweight, and 7% overweight. Being underweight correlated with anaemia (91%vs. 82%; p =.015). Non-consumers of fenugreek leaves had higher anaemia rates (94%-vs. 83%; p-.018), and consumption of egg (OR: 0.95, p=0.065, CI (0.9 -1.0) and non-vegetarian food (OR: 0.59, p=0.05, CI (0.3 -1.0)) were associated with lower anaemia and

Conclusions: The prevalence of anaemia is high among Mannava PHC adolescents, especially in females, older adolescents and the underweight. We recommend consumption of eggs, non-vegetarian foods, and fenugreek leaves to address anaemia effectively and targeted interventions to raise the weight of the adolescents.

Key Words: Adolescent Anaemia, Body Mass Index, Haemoglobin, Nutritional Interventions, Sociodemographic Factors

Abstracts

Title: Metropolitan Surveillance Unit Leap into Strengthening & Digitalizing Surveillance. **Bhalachandra Pradhan*, Deepak Salunkhe, Surykant Devkar**

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Background: The Integrated Health Information Platform is a recent development in the already existing Integrated Disease Surveillance Programme. It's a revolution in the digitalization of the health sector, launched on a pan-India from 1st April 2021. 'A white paper on Vision 2035 Public Health Surveillance in India' by NITI Aayog said it focused on holistically transforming the delivery of health care services. Traditional public health disease surveillance systems in India have remained fragmented, and limited to few diseases.

Objectives:

1) To improve the Infrastructure, Capacity Building, IT enabled Surveillance System & highquality laboratory services.

2) To improve the existing isolated systems across primary, secondary, and tertiary care levels & across the Public & Pvt. Sector.

3) The integrated solution envisioned a 'One-Health' approach that amalgamates health information from different sources including human, plant and animal surveillance.

Methods: Monitored the Reporting Units of Pune Municipal Corporation with help of data on IHIP & various outbreaks in the year 2023 with respect to time, place and person was studied.

Results: The present architecture of the Public & Pvt. is not equipped fully to handle the challenges posed by pandemics which are essential services of public health. Metropolitan Surveillance Unit (MSU) is the solution for this & also Digitalizing Surveillance Healthcare.

Conclusion: Metropolitan Surveillance Unit (MSU) develops the Surveillance system by enhancing the existing Healthcare System across all fields including Infrastructure, Capacity Building, IT enabled Surveillance System & high-quality laboratory services.

Key words: IHIP, Metropolitan Surveillance Unit (MSU), Digitalization.

Abstracts

Title : Brucellosis in Punjab: A study on seroprevalence and risk factors among male and female livestock farmers and their animals

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Background: Brucellosis, a zoonotic disease that affects both humans and domestic ruminants, is responsible for an estimated median annual economic loss of US \$3.4 billion in India. The International Livestock Research Institute (ILRI) ranks it among the top 13 zoonotic infections that have significant impacts on human and animal health. In India, approximately 80% of the population lives in close proximity to domestic animals and engages in various livestock-related activities. These activities put both female and male farmers at an elevated risk of zoonotic infections.

Objective: To study the influence of various risk factors on the seroprevalence of brucellosis in male and female livestock farmers and their animals in Punjab.

Methodology: A total of 491 farmers (133 female and 358 male) and 512 farm animals belonging to 267 households were sampled from 23 villages in five district of Punjab. The serum samples collected from animals and humans were screened by IgG ELISA to estimate the seroprevalence. One to one interview was conducted to collect information on the potential gender specific risk factors and activities associated with *Brucella* spp. exposure in humans and animals.

Results: The overall seroprevalence of brucellosis in farmers and farm animals was 9.16% and 19.1%, respectively. The seroprevalence was higher in female (9.77%) than in male livestock farmers (8.93%). The moderate difference in gender based seroprevalence could be attributed to the frequent involvement of female farmers in livestock rearing such as farm sanitation, animal feeding, and milking. Additionally, consumption of raw milk and raw milk-based products, history of abortion in the farm was also identified as a significant risk factor for the disease.

Conclusion: Lack of awareness about the disease could be a major factor for the prevalence for the disease. Frequent involvement of female household members in routine animal rearing activities put them at a higher risk of brucellosis as compared to their male counterpart. Its imperative to create awareness about the disease to the high risk groups.

Key words: Brucellosis, livestock farmers, farm animals, seroprevalence, risk factors

Abstracts

Title: Mosquito borne diseases and climate change in Manipur

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Background: Climate change is transforming the environment, leading to increased mosquito proliferation due to frequent intermittent rainfall and rising average temperatures, which accelerate their development cycle. Simultaneously, excessive urbanization contributes to heightened human contact, particularly after severe weather events. This underscores the critical need for implementing vector control programs and enhancing urban planning and public health strategies to safeguard communities. The primary focus of this study is to detail the surveillance of mosquito-borne diseases in the state over the past couple of years and intervene with preventive measures.

Methods: Annual data on mosquito-borne diseases from the last four years were obtained from the State Malaria Office and NVBDCP. The year wise monthly positive cases of the diseases were tabulated and presented in bar chart.

Results: Malaria, Japanese Encephalitis (JE), and dengue have exhibited a notable increase in the state compared to Ukhrul district. Dengue, in particular, experienced a sudden surge from 2022, with a fivefold rise in the state and a threefold increase in Ukhrul in 2023.

Conclusion: Dengue, traditionally treated as an imported disease from metropolitan cities like Delhi, where it is endemic with peaks in October and November, is now sporadically reported in Manipur, primarily in the valley districts. Urgently, there is a need for a comprehensive study of the disease and the development of both short and long-term plans to safeguard lives and the economy in the state.

Keywords: Mosquito-borne diseases, dengue, malaria, Manipur.

Abstracts

Title - Ayushman Arogya Mandir – An Exploration of the Pathway to universal health coverage in India.

Delfin Lovelina*, **Atul Bhanu Rairker**, **Himikakaundal**, **Indu.J**, **Maj Gen**, **et al** *External Consultant, NHSRC, email: delfin lovelina@yahoo.co.in

Background - India's commitment to achieve the goal of Universal Health Coverage is a crucial objective for its healthcare system, aiming to guarantee that every individual and community can avail themselves of necessary healthcare services without enduring financial adversity. This roadmap will examine essential tactics and interventions for promoting UHC in India, considering the distinct obstacles and prospects within the nation's varied healthcare environment.

Objective – The objective is to review Ayushman Arogya Mandir (previously Ayushman Health and Wellness Centre) and its achievements towards universal health coverage in India.

Methods – A thorough analysis of the existing literature on the development and existing facilities at Ayushman Arogya Mandir from its initiation was done. Additionally, the current data of the centres were gathered from the portal to analyse its contribution in comprehensive primary healthcare delivery.

Results - As on 3rd February 2024, a total of 1,64,598 Ayushman Arogya Mandir are operational. They are fully equipped to deliver healthcare services under National Health Mission in urban as well as rural areas covering the last miles areas including tribal and hilly areas through expanded service delivery, capacity building of the primary healthcare team, infrastructure strengthening, availability of free medicines and diagnostics, tele healthcare, community mobilization and health promotion, IT-enabled reporting and data management.

Conclusion - Universal Health Coverage is evidenced by the launch and transformation of Sub-Centres into Ayushman Arogya Mandir to provide secondary and comprehensive primary healthcare to the vast majority of its population. Hence, under Ayushman Arogya Mandir is undoubtedly an establishment which paves pathway to attain universal health coverage in India. **Keywords** - Equality, universal health coverage, comprehensive primary health care.

Abstracts

Title: Evaluation of the Digitization of National Program for Non-Communicable Diseases in Rajasthan, 2023

Dharmesh Arya*

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Background: Non-communicable disease (NCD) causes more than 15 million premature deaths annually worldwide. India accounts for more than 60% of NCD in Southeast Asia Region. National Program for Non-Communicable Diseases (NP-NCD) was launched for screening, early detection, treatment and referral of NCDs like hypertension and diabetes mellitus.

Objective: To assess the implementation of diabetes and hypertension related programmatic activities under NP-NCD program in Rajasthan 2023

Methodology: A cross-sectional was done from June to August 2023 in health facilities of four randomly selected Districts in Rajasthan. We assessed the enrollment of >30 yrs population with screening, risk assessment, referrals, diagnosis, treatment, and follow-up of hypertension and diabetes cases at different levels of health facilities under NP-NCD. We assessed the transitioning of offline records to digital. We analysed digitalized data of the NP-NCD portal from 2019- 2022. We collected data using a facility checklist observation form.

Results: The four selected districts (Bharatpur, Bhilwada, Jaipur and Pratapgarh) achieved enrolment of 72% (1834050/2556522) of target population of \geq 30 age, 84%(992820/1179143) of the enrolled population had undergone risk assessment and 40%(603813/1526297) had undergone screening for diabetes and hypertension. Up to 2022, 7% (43783/639131) of the screened population were referred to health facilities for diagnosis, and 23%(62862/268287) were diagnosed as diabetes and hypertensive. Out of the total diagnosed 88% (55085/62862) were put on treatment and 4% were followed-up.

Conclusions: The four districts of Rajasthan achieved enrolment of about three-fourth of the target population, gaps persist in the continuum of care. These findings underscore the need for targeted interventions to improve the transition from screening to diagnosis and ensure comprehensive management of diabetes and hypertension.

Keywords: Hypertension, diabetes, NP-NCD

Abstracts

Title: Effect of Lifestyle Risk factors on Coronary Artery Disease in University Employees **Digvijay***, Athar Ansari, Asif Hasan, Ali Jafar Abedi

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Background: Coronary Artery Disease (CAD) is a major cause of cardiovascular death worldwide. The prevalence of coronary artery disease is anticipated to increase along with the rise in cardiovascular risk factors in India. Numerous studies have been performed on the prevalence of cardiovascular risk factors in different populations, but inconsistent results have been reported because CAD is a multifactorial disease.

Objective: To Determine the association of Lifestyle Risk factors and Coronary Artery Disease in University Employees, AMU, Aligarh, Uttar Pradesh.

Methods: A cross sectional study is being conducted among university employees, data from 82 participants out of total sample 700 has been collected so far utilizing Rose Angina Questionnaire, Sociodemographic Questionnaire and ECG interpretation by dividing the participants in two groups of teaching and non-teaching staff. IBM SPSS version 20.0 software is used to analyze the data.

Results: A total of 82 participants with a mean age of 47.36 were studied. Of the total participants 60 (73.2%) were males and 22 (26.8%) were females. This study shows prevalence of CAD in Smoker and Nonsmoker was 20% and 11.1% respectively (P=0.648) while in Alcoholics and Non-alcoholics was 33.3% and 11.4% respectively (P=0.254).

Conclusion: Preliminary data suggest that Smoking came out to be potential risk factors for CAD. Smoking, Alcohol, and Sedentary lifestyle came out to be potential risk factors for CAD. Health Education and Behaviour change communication regarding adoption of healthy Lifestyle is needed for prevention as well as management of CAD.

Keywords: Coronary Artery Disease (CAD), Risk Factors, Prevalence, University Employees.

Abstracts

Title: Building a cadre of TB champions amongst TB survivors of tribal identity to represent at public platforms and drive TB elimination in tribal communities.

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Background: Under community participation and patient centric pillar of "TB Harega, DeshJitega", TB forums are constituted with representation from various stakeholders inclusive of TB champions, civil society, etc. A TB champion is a TB survivor trained using standard curriculum and willing to work and contribute towards accelerating TB elimination in the community. A survey conducted by the project team reported 826 TB champions across 75 tribal districts in 11 states of which only half belonged to tribal population and 63% were active.

Objectives: Identifying TB survivors from tribal communities, encouraging and mobilizing them to undertake TB champion training, facilitate their training and build their capacity to represent at public platforms.

Methods: A list of TB survivors in the last 5 years above the age of 18 was collated from TB units. A tool was designed to assess the willingness of TB survivors to support the program. Those who provided consent, were trained as TB Champion through in-person training at District TB Cell (DTC) and subsequently linked to respective health facilities.

Results: The project team identified 541 TB survivors who were trained as TB champions from August-December 2023. Out of these, 427(79%) were tribal belonging to Gond, Bhil, Korku, Barela, Bhilala, Kol, Monpa, Baiga, Nyishi, Tagin, Bhariya, Mawasi, Mishmi tribes. These tribal TB champions are supporting sputum collection and transport, supporting DTC in events like NikshayDiwas, Ayushman Bharat Campaign, Viksit Bharat Sankalp Yatra through awareness talks and experience sharing.

Conclusion: TB champions from tribal communities are a significant link between health system and community members. They can empathize better by virtue of being tribal and TB survivor that put them in unique position to champion the cause of TB elimination in the community. Thus, they can help in effective dissemination of government initiatives toward TB patients and bring forth health challenges related to tribal communities to public forums.

Key words: TB champion, TB elimination, Tribal TB initiative, End TB by 2025, TB survivor

Abstracts

Title: A data driven approach to estimate measles infections at the sub national level.

D. Kappara*, S. Pandhare, P. K. Sinha, S. Mukhopadhyay, P. Kumar, et all

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Background: Measles is a highly contagious acute viral respiratory disease that can lead to significant morbidity and mortality, especially among young children. It continues to pose a significant global public health threat despite the existence of an effective vaccine. The usual recommendation for a LMIC is a granular (subnational) level analysis of measles cases to fasten the elimination.

Objectives: To model measles effectively, it is important to consider a range of data inputs, including live births, vaccine coverages, catch-up campaigns, and the impacts of events like the COVID-19 pandemic. However, these factors exhibit regional differences that need to be taken into account for a comprehensive understanding. In such cases traditional approaches to studying infectious diseases are unable to fully capture these underlying differences in the inputs. Hence, usage of a data-driven statistical modeling approach is crucial to examine the disease for specific areas or groups, making public health efforts more focused and effective for each region's unique characteristics and challenges.

Methods: A new statistical model capturing the temporal patterns of measles incidence as well as allowing for differences in data inputs at the sub national level is proposed to model measles. Following this, the model is utilized to forecast the disease burden and predict the impact of vaccine interventions, contributing to the process of measles elimination.

Results: The proposed model successfully captures the regional level variations in the measles cases and is able to predict the infections accordingly. It outperforms the existing approaches in terms of mean squared error.

Conclusion: Region specific targeted interventions are effective in achieving the disease elimination target.

Key words: measles elimination, time series, targeted interventions, disease burden, catchup campaigns

Abstracts

Title: Mathematical modeling of the sustained impact of rotavirus vaccination in India.

E. Kashyap*, S. Sen Gupta, V. R. Mohan, B. A. Lopman, S. Mukhopadhyay

*Research associate, National Disease Modelling Consortium, IIT Bombay, 30005012@iitb.ac.in **Background**: Rotavirus infection is the leading cause of diarrhea-related deaths in under five children. Before vaccine introduction, India accounted for 22% of the global rotavirus deaths. In 2016, two indigenous three-dose vaccines: Rotavac and Rotasiil were introduced to the country's universal immunization programme. Though vaccination mitigated the disease burden, the sustained impact of rotavirus vaccination to the disease dynamics is unclear. In this research, an age-structured transmission model is presented to predict the sustained impact of a three-dose rotavirus vaccine in an Indian state.

Objectives: Investigate the sustained impact of a three-dose rotavirus vaccine.

Methods: A deterministic age-structured compartmental model was used to investigate the sustained impact of rotavirus vaccination in India. Our model is based on the generic Susceptible - Infectious - Recovered - Susceptible (SIRS) model structure accounting vaccine interventions. The model estimates the reduction of rotavirus gastroenteritis cases with a three-dose vaccine; it also predicts the long-term impact of vaccination on deaths and disability adjusted life in years (DALYs). The model was run from 2018 to 2045 with realistic coverage scenarios.

Results: The proposed model with a three-dose vaccination schedule demonstrates a substantial reduction in the incidence of rotavirus gastroenteritis cases. Post vaccine introduction, the age-specific death rate among children under five and DALYs too experienced a significant drop.

Conclusion: Vaccination programs cause substantial reduction in rotavirus infection among under five childrens. Our model also suggests significant reduction in deaths and DALYs upon vaccination.

Key words: SIRS model, age-structured population model, infectious disease modeling, vaccine preventable disease, rotavirus infection.
Abstracts

Title: Vishesh Gram Sabha for catalyzing TB Mukt Panchayat Initiative: A pilot from Chhattisgarh, India

Faisal Raza Khan, Abhishek Gupta, Suraj Kumar, Shobha Ekka, Rupesh Singh, et al

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Background: The Ministry of Panchayati Raj has joined hands with the Ministry of Health and Family Welfare to take forward the "TB Mukt Panchayat" initiative in rural India that aims to end TB by 2025. Traditionally, in the state of Chhattisgarh the Gram Sabhas convenes 2-4 times annually. A "Vishesh Gram Sabha," distinct from regular meetings, addresses targeted community concerns within their jurisdiction.

Objectives: Leverage the platform of the Vishesh Gram Sabha to accelerate the convergence between departments of Health, Panchayati Raj and Sports and Youth Welfare at all levels and present the challenges and solutions to achieve TB-free status for their Gram Panchayat.

Methods: Gram Panchayat members were oriented on TB-Mukt Panchayat initiative at the Vishesh Gram Sabha. A dedicated Gram Panchayat committee was formed for monitoring TB related activities. The Rajeev YuvaMitaan Club was mobilized and trained on TB disease, schemes, services, mitigating stigma and need for periodic active case finding with the support of District TB cell. TB screening was taken up thereafter by a team of key community influencers, youth volunteers and ASHAs with logistics being provided by the respective District TB cells.

Results: A total of 414 Vishesh Gram Sabha meetings were held in nine tribal districts across 404 Gram Panchayats to sensitize 2763 PRIs, 223 tribal healers, 1159 youth, 74 TB champions, and 8831 community members. Overall, 7 active case finding drives were conducted in 23 Gram Panchayats, from which 765 TB presumptive were tested and 2 TB positive cases were diagnosed.

Conclusion: The self-driven initiative has empowered Gram Panchayats to own TB elimination in their Panchayats by mobilizing human resources like youth and funds from Panchayat Development Plan.

Key words: TB Mukt Panchayat, TB elimination, Vishesh Gram Sabha, Active case finding, Panchayati Raj Institution

Abstracts

Title: Chhattisgarh Model: Fostering Community driven awareness on climate change and its link with Health

G. Jagannath Rao*, Ranveer Singh Baghel, Achyutananda Das Mohapatra, Prafull Kumar Sharma, KajokEngtipi et al.

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Background: The National Programme for Climate Change and Human Health (NPCCHH) strives to boost community awareness and drive climate action through impactful campaigns, utilizing platforms like schools, communities, healthcare workers, local governments, and partners. In collaboration with USAID-NISHTHA-Jhpiego, Chhattisgarh NPCCHH cell actively raises awareness about climate change and its impact on human health, implementing innovative strategies and creating pre-tested tailored communication materials for positive health outcomes.

Objective: Raise awareness and prompt collective action against climate change through various community-based platforms.

Method: Chhattisgarh showcases adept climate change governance by aligning with NPCCHH and implementing proactive initiatives. Utilizing diverse platforms, including Jan Arogya Samitis, PRI, VHNSC, health facilities, schools, pollution control board, and disaster management authority, impactful campaigns ran from June to December 2023. These initiatives, centered on key days, aimed to heighten public awareness, mobilize communities for pollution prevention, mitigate disaster risks, and foster a resilient response to climate action.

Results: Across four campaigns, a total of 6,352 events were reported, underscoring health and environmental awareness across the state. These events featured a diverse range of activities such as health talks, first-aid training, rallies, plays, plantations, clean-ups, and competitions, collectively involving 98,012 participants. Significantly, 3,387 events specifically targeted vulnerable groups, including infants, children, elderly, pregnant women, and adolescents. The engagement of 859 stakeholders, including NGOs, CBOs, and SHGs, further enriched these initiatives. Additionally, 52 social media digital campaigns were launched to enhance awareness. Notably, in the National Pollution Control and Disaster Risk Reduction campaigns, 987 health facility events, 1,085 community events, and 473 school events were reported, engaging 9,349, 7,321, and 6,600 individuals, respectively.

Conclusion: Chhattisgarh's impactful climate action model involves robust campaigns, strategic partnerships, and community engagement, with facility-level activities notably standing out as effective measures in addressing environmental challenges.

Key words: Climate Change, Chhattisgarh, NPCCHH, Community awareness

Abstracts

Title: Facilitators and Barriers Affecting Adherence to Antiretroviral Therapy Among People Living With HIV/AIDS: A Qualitative Study

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Background: With significant advances in antiretroviral therapy (ART), improved immunity, viral suppression, and improved health-related quality of life has been seen. High degree and sustained levels of adherence to ART is necessary for optimal suppression and prevention of drug resistance among the people living with HIV/AIDS (PLHA). Adherence to ART is a dynamically complex behaviour influenced by socioeconomic as well as cultural factors.

Objectives: To identify the barriers and facilitators for adherence to ART

Methods: A total of 50 patients were approached for an interview using a semi-structured questionnaire. Open-ended questions were preferred to provide them with a maximum opportunity to express their views and help in gaining a deeper understanding of issues. Probing questions were also used to get a more thorough understanding of the issue involved.

Result: Most of the respondents were females (60%). Half of the respondents were married while 24% were separated /divorced and 14% were unmarried. Strong religious beliefs and positive family and social support were identified as facilitators of HIV retention. Fear of HIV disclosure due to associated stigma and discrimination, forgetfulness in taking medicines, side effects of drugs, switching to another form of traditional therapy, lack of family support, individual irresponsibility, cost of transportation due to unavailability of nearby ART centres were identified as barriers in HIV care.

Conclusion: In this study, we concluded that a coordinated approach including different stakeholders is required to facilitate patient retention in HIV care and consequently improve the clinical outcomes of PLHA. Quality health-care outcomes of any given program depend upon adherence to treatment, while non adherence is a pervasive threat to health and overall wellbeing.

Key words: HIV, ART, adherence, facilitators, barriers

Abstracts

Title: Enablers and Barriers to digital adoption among Accredited Social Health Activists (ASHA) in Haryana and Uttar Pradesh -A Qualitative Study.

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Background: ASHAs are community health volunteers who act as an interface between the community and the public health system. Covid 19 pandemic with its associated mobility restrictions has highlighted the role of technology use to reach out to people. Digital Empowerment of ASHA's aims to transform primary healthcare and hence is regarded as a Digital Disruptor considering the huge scale of ASHAs available for every 1000 population across the country.

Objectives: The objective is to understand the perspective of ASHAs on the use of technology in delivery of Primary Health Care through the digital platforms they are currently using and how these applications impact their experience and quality of services provided by them.

Methods: The study qualitatively explores factors affecting ASHAs' digital tool adoption, including challenges and facilitators. Participants comprise ASHAs using digital platforms for over 6 months, ASHA facilitators, District ASHA coordinators, and Medical Officers. Convenience

sampling was employed until data saturation, involving Focused Group Discussions and Personal Interviews. This study is grounded in the Technology Acceptance Model (TAM), developed by Davis in 1989, which aims to predict an individual's acceptance, adoption, and utilization of new technologies.

Results: The focus group discussions revealed that the ASHAs face numerous barriers to digital adoption, including work burden, limited access to smartphones, digital divide, and a broader gender gap in mobile phone access. This study shed light on the complex and multifaceted nature of IT/Digital adoption among ASHAs. Recommendations for policy and programmatic interventions include enhancing technology access, providing training and support, addressing privacy concerns, and continually improving user interfaces.

Conclusion: This study highlights the complex nature of IT/Digital adoption among ASHAs, stressing the need for supportive infrastructure, training, and ongoing assistance. By doing so, policymakers can empower ASHAs to improve healthcare services in the region.

Keywords- ASHA, Digital Adoption, Technological barriers, Community health workers, IT in Health.

Abstracts

Title: Screening vulnerable populations using artificial intelligence aided handheld X-ray machine in three districts of Himachal Pradesh, India

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Background: Community-based screening efforts with artificial intelligence (AI) aided portable Xray devices have the potential to identify people very early in their disease course and to substantially increase tuberculosis (TB) detection rates. Vulnerable communities in resource limited high burden difficult geographies need improved access to health care and are at a high risk for TB. Lack of access to health care services in these communities' results in higher burden of the disease for patients and their families. Therefore, a portable X-ray machine with an AI tool for interpretation facilitates screening of active TB cases in these vulnerable populations and contributes to early diagnosis of TB in hard-to-reach hilly geographies of Himachal Pradesh, India.

Objective: To screen vulnerable populations in three districts of Himachal Pradesh namely, Una, Hamirpur and Kinnaur using artificial intelligence aided handheld X-ray machine.

Methods: In 2023, a battery-operated X-Ray machine (model REMEX-KA6 with Flat Panel Detector and AI) was used for screening active TB cases in districts Una, Hamirpur and Kinnaur of Himachal Pradesh. Vulnerable population of industrial zones, migrant population and urban slums were screened for TB. Standard program algorithms were supplemented with operational definitions to analyse the interim parameters on MS office i) early detection, ii) break in transmission cycle of the disease, iii) expanded clinical coverage iv) test turnaround time and v) impact on potential expenditure incurred by TB patients.

Results: Out of 15623 people screened with the handheld X-ray device in the year 2023, AI tool showed 8.2% (1290) chest X-rays as presumptive TB. Further evaluation with NAAT gave an additional yield of 5% which would have been otherwise missed given the present geography and resource setting constraints. The entire process from registration to AI interpretation of the X-ray image was completed within sixty seconds. The intervention showed significant improvement in access to service delivery and reduction in potential expenditure incurred by patients (p<0.5%). **Conclusions**: A portable X-ray machine equipped with AI tool engenders positive program outcomes while promoting equitable access to TB care in vulnerable communities across difficult resource limited geographies. Operational feasibility and effectiveness of the device has expanded the clinical coverage of the program in high-risk resource limited communities. **Key words**: Tuberculosis, Handheld X-ray, Vulnerable populations

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: STUDY OF SCRUB TYPHUS IN TAWANG DISTRICT, ARUNACHAL PRADESH

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Background: Scrub Typhus is caused by the bacterium Orientia Tsutsugamushi that enters human body through the bites of chiggers. It remains a significant public health concern in regions where its vector, the chigger mite, proliferates. Arunachal Pradesh in 2023 had witnessed a surge of Scrub Typhus cases (473). Early diagnosis of Scrub Typhus is a big challenge as it mimics other febrile illness. The rough mountainous terrain and lack of diagnostic kits further complicates the identification of the outbreak. Different hospitals from Shillong and Itanagar reported the first cases of Scrub Typhus from Tawang District in July, 2023.

Objective: To understand epidemiology of Scrub Typhus outbreak in Tawang from 13th June to 4th October, 2023. To frame recommendation for future prevention and control.

Methods: We defined a case as anyone having fever≤7 days from 13th June to 4th October, 2023. We conducted house to house search and reviewed records of CHC Lumla, PHC Dudungarh and District Hospital Tawang. We collected data by interviews and facilities record for socio-demography, clinic features and exposure history. A total of 130 samples were collected for RDT. We also collected mites.

Results: Identified 223 suspects, Median age =25 Years (0-70), Attack Rate was 2.47% (223/8995) death was recorded in 0.9% (2/223) cases. Out of these 79% (177/223) had fever≤7 days, Fever with rash=6, Cough with fever was 11% and Cough without fever was 7%. On testing 0.04% (6/130) were positive. Spatial analysis indicates clustering of all positive cases under Lumla Block, suggesting localized transmission hotspot as none among the confirmed cases had any travel history for the last more than three months.

Conclusion: We confirm a scrub Typhus outbreak under Lumla Block in Tawang that occurred from 13st July to 4th October, 2023. Entomological link couldn't be ruled out as the specimen were damaged by the time it reached laboratory.

Abstracts

Title: Interim findings from an ongoing Kyasanur Forest Disease outbreak, Uttara Kannada, Karnataka, India. 2024

Gudadappa S Kasabi*, Mohammed Sharrif, B V Niraj, Harshavardhan K J, Prashanth Bhat, Rajesh Suragihalli, Manoj V Murhekar

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Background: Kyasanur forest disease (KFD), a tickborne viral hemorrhagic fever, was endemic in 5 districts in Karnataka. In recent years, KFD emerged in neighbouring districts of Karnataka, and neighbouring states of Kerala, Tamil Nadu, Goa and Maharashtra. On 12 Jan 2024, Koralkai PHC of Uttara Kannada district reported upsurge of acute febrile illness patients. We investigated this cluster to identify the aetiology and describe it by time, place, and person.

Methods: We stimulated the passive surveillance system in public and private hospitals to identify and report suspected KFD cases, defined as sudden onset of fever, headache, and myalgia among residents of Uttara Kannada. Additionally, health workers conducted fever surveys among residents within 5 km of monkey deaths or lab-confirmed cases to detect additional cases. Serum samples were tested for KFDV by RT-PCR at Virus Diagnostic Laboratory, Shimoga. We analysed the data to describe the disease by time, place, and person.

Results: 233 suspected KFD cases (mean (SD) age: 43 (18) years, 51% males, no deaths) were identified during Jan 2024. Most case-patients 59% (n=138), were from 6 villages within Korlakai PHC on the banks of Sharavathi river. Cases started occurring from 1 Jan, peaked from 15 Jan and still continuing. 185 (80%) suspected case-patients were agricultural workers, working in arecanut plantations. Eight monkey deaths were reported in the district in January 2024 (first death on 5 Jan 2024).

Conclusion: A large outbreak of KFD is ongoing in Uttara Kannada, mainly affecting areca nut plantation workers. Clustering of cases in villages near the waterbody suggests such areas as potential high-risk areas for KFD, possibly due to the migration of infected monkeys. In the absence of KFD vaccine, district health authorities have been educating plantation workers to use tick-repellents. Analytical studies to identify risk factors for KFD are planned.

Key words: Kyasanur Forest disease, Uttara Kannada, vector-borne infections, tick, areca nut plantation.

Abstracts

Title: Exploring Human Brucellosis: Symptomatic Diversity, Diagnosis Modalities, and its Complications

Haleema Ahmad*, Hiba Sami, Lubna Zafar, Aamir Bin Sabir, Parvez A Khan, et al

* Department of Microbiology, JNMCH, AMU, ALIGARH, sheikhzaaraahmad@gmail.com Introduction: Brucellosis, a zoonotic infectious disease caused by various species of the genus Brucella, exhibits a wide spectrum of clinical manifestations. This study aims to investigate and compare the different symptoms associated with Brucellosis, focusing on categorization into Brucella-related Pyrexia of Unknown Origin (PUO), Brucella Arthritis, and Neurobrucellosis. The diversity in symptomatology necessitates a comprehensive exploration to enhance our understanding of the disease and improve diagnostic strategies.

Materials and Methods: An observational study was conducted from April 2023- Jan 2024 at JNMCH, Aligarh involving 126 patients from diverse outpatient (OPD) and inpatient (IPD) settings. Clinical data were collected using a pre-designed questionnaire from individuals presenting with suspected brucellosis, and thorough examinations were performed to categorize them into distinct clinical forms. Bacterial Culture, antigen, and antibody-based diagnostic approaches, including serological tests, and RT-PCR were employed to confirm the presence of Brucella DNA. Results: Among the 126 cases included in the study, 53 (42%) manifested as Pyrexia of Unknown Origin (PUO) or fever, 50 (39.6%) exhibited symptoms consistent with Brucella arthritis, and 23 (18.2s%) displayed clinical features indicative of Neurobrucellosis. In the PUO cohort, a substantial 74.4% reported anorexia, followed by 53.3% with sweating, 48.8% experiencing body aches, and 27.9% displaying pallor. Within the Brucella arthritis group, joint pain prevailed in 80.9%, accompanied by fatigue (66.6%), anorexia (35.7%), raised C-reactive protein (CRP) levels (28.5%), and body aches (9.5%). The Neurobrucellosis cases demonstrated diverse symptomatology, with 57.1% presenting sweating, 57.1% vomiting, 47.6% altered sensorium, 28.5% palsy, and 23.8% displaying altered cerebrospinal fluid (CSF) levels. Out of 126 cases, 58 patients (46.0%) were found Brucella positive by either of the tests.

Conclusion: The observed diversity in symptoms and diagnostic outcomes underscores the complexity of brucellosis. Categorizing patients into specific clinical forms is crucial for targeted treatment and improved patient outcomes.

Keywords: Human Brucellosis, Brucella Arthritis, Fever, Neurobrucellosis, PUO

Abstracts

Title: Food borne outbreak of Staphylococcus aureus among wedding attendees in Udaipurwati, District Jhunjhunu, Rajasthan, May 2023

Harish Kaushik*, Kuldeep Singh, Chhote Lal Gurjar, Rajkumar Dangi, Deepa Meena et al. * Microbiologist, IDSP, Jhunjhunu, Rajasthan, India iphl.jhunjhunu@gmail.com

Background: There are no estimates of foodborne disease burden in India, but acute diarrheal diseases and food poisoning account for about 40% of all outbreaks reported by India's integrated disease surveillance programme. On May 11, 2023, the community health center (CHC) in Udaipurwati reported clustering of acute gastroenteritis cases. We investigated to describe the epidemiology and recommend prevention and control measures.

Methods: We defined a suspect case as "anyone having ≥3 stools in 24 hours or vomiting in a person who attended a wedding ceremony in Khedawala-kua, Udaipurwati on May 10, 2023 between May 10-18, 2023". We did a house-to-house survey and reviewed the records of CHC Udaipurwati. We interviewed cases using a semi-structured questionnaire for variables such as clinical history, sociodemography and exposures. Stool, blood, water and food samples were sent for laboratory investigation. We collected information on food preparation and storage practices. **Results**: We identified 365 cases with an attack rate of 45% (365/800) among wedding attendees; the median age was 28 years (range: 5–76), and males were 58% (n/365). All had diarrhoea along with abdominal cramps 87% (n/365), vomiting 65% (n/365), and fever 21% (n/365). Food was served from 06:00–11:00 PM on May 10, 2023 and the index case showed symptoms at 11:30 PM. The last case was on May 13 at 8:30 a.m. Consumption of Gulab Jamun was 98% (n/365), Dahi-Vada 95% (n/365), and Halwa 70% (n/365). 8/12 (67%) stool samples tested positive for Staphylococcus aureus. The water sample was potable. Halwa, dahi-vada and Gulab Jamun were prepared 20 hours prior to serving and kept at room temperature until the time of serving.

Conclusion: We confirmed an outbreak of food poisoning among wedding attendees in Khedawala-kua, Udaipurwati on May 10, 2023. Based on the clinical presentation and laboratory evidence, it was possibly caused by Staphylococcus aureus due to the storage of specific food items at room temperature. The leftover food was discarded, raising awareness regarding storage and hygiene.

Keywords: Food poisoning, acute diarrhoeal diseases, Outbreak, Staphylococcus aureus, IDSP

Abstracts

Title: Detecting Hotspot Cluster of Moderate and Severe Anaemia Among the Anaemic Children and Predictive Features using Explainable AI for Healthcare Policy Making

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Background: Anemia remains one of the global health challenges engulfing both developing and developed nations with India holding a substantial share among the developing nations. Around 1.62 billion global population is affected with the highest prevalence among preschool children. Leveraging Explainable Artificial Intelligence (XAI) techniques presents a promising approach to detect the predictive features contributing to anemia prevalence facilitating more effective healthcare interventions.

Objective: The primary objective of the study is to employ XAI methods to analyze the predictive features contributing to the prevalence of moderate and severe anemia. Therefore, an automated prediction model is proposed for anemia among children aged 6-23 months using a machine learning approach. By elucidating the underlying determinants of anemia prevalence, this research aims to inform more effective healthcare interventions tailored to high-risk populations.

Methods: This study has used the fifth round of National Family and Health Survey (NFHS-5) data. A total of 39,037 children are taken into consideration. We used ML algorithms such as Logistic Regression, Support Vector Machines (SVM), Naive Bayes (NB), Decision Trees, Random Forest, Gradient Boosting, Penalized Regression, and a combination of approaches called Ensemble Learning to predict the anemia status. Further, explainable AI has been integrated using techniques like LIME, and SHAP for individual predictions and highlighting which features influenced the predictions and how. The transparency and interpretability offered by XAI facilitate a deeper understanding of the complex relationships between predictor variables and anemia prevalence. This was followed by the assessment of algorithms in terms of sensitivity, specificity, and F1 score.

Results: The prevalence of severe anemia is highest in Leh (Ladakh) whereas Burhanpur in Madhya Pradesh has moderate anemia among anemia. Achieving a receiver operating characteristic value exceeding 72% during training and an accuracy rate surpassing 69% during testing provides strong grounds for asserting that nutrient intake, including Iron, Vitamin A, Vitamin B12, and other complementary foods, significantly contribute to identifying anemic conditions in children. Additionally, determinants such as the mother's anemic condition, the child's age, maternal age and education, and religion are pivotal factors in this identification process.

Conclusion: By integrating XAI insights into healthcare decision-making processes, stakeholders can prioritize resources effectively and tailor interventions to address the specific needs of highrisk populations. Moving forward, continued research efforts aimed at refining predictive models and expanding data sources will further enhance our understanding of anemia dynamics and inform targeted interventions to alleviate its burden on global health systems.

Keywords: Anemia, Nutrition, NFHS-5, Machine Learning, Explainable AI

Abstracts

Title: Data Analysis of Crimean-Congo Hemorrhagic Fever Cases in Gujarat (2011-2023): Implications for Future Strategies

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Background: Crimean-Congo Hemorrhagic Fever (CCHF) remains a significant public health concern in Gujarat, necessitating a comprehensive approach for effective control. Understanding the epidemiological trends and patterns of CCHF cases is crucial for developing targeted interventions.

Objectives: To analyze CCHF cases in Gujarat from 2011 to 2023 and identify key epidemiological trends to inform future strategies for disease control. Additionally, to highlight the importance of a sector connect approach involving collaboration between different departments for effective disease management.

Methods: A database analysis of CCHF cases in Gujarat was conducted, spanning from 2011 to 2023. The analysis focused on the distribution of cases across months, districts, and demographic characteristics. Additionally, data on case fatality rates, locations of deaths, and tick samples collected by the veterinary department were included.

Results: The analysis revealed a seasonal pattern, with a higher incidence of CCHF cases observed from July to October each year. Approximately 50% of districts and corporations in Gujarat reported cases during the study period. The highest number of cases was recorded in 2019, with Ahmedabad district being the site of India's first reported case in 2011. Kutch, Amreli, and Bhavnagar districts consistently reported the most cases, while Kutch, Rajkot, and Bhavnagar exhibited the highest case fatality rates. 70% deaths occurred at PDU Hospital in Rajkot and Sir T Hospital in Bhavnagar. Furthermore, the analysis indicated a higher prevalence of cases among males. Tick samples collected by the veterinary department were found positive for CCHFV by NIV Pune laboratory.

Conclusion: The data analysis provides valuable insights into the epidemiology of CCHF in Gujarat and highlights the need for targeted interventions. Future strategies should focus on zero mortality, early detection of cases, and prompt treatment. Collaboration between sectors, informed by data-driven insights, is essential for effective disease control. A sector connect approach involving healthcare, veterinary services, public awareness, research, government, and community engagement is crucial for addressing the multifaceted challenges posed by CCHF.

Keywords: Crimean-Congo Hemorrhagic Fever, Gujarat, Epidemiology, Data Analysis, Disease Control, Sector Connect Approach

Abstracts

Title: Consecutive point prevalence survey of antimicrobial usage at a tertiary care facility of India, to drive antimicrobial stewardship program.

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Background: Antimicrobial resistance is a major health challenge worldwide. Antimicrobial stewardship program (AMSP) is one among the globally accepted strategies for decreasing AMR without hampering the patient safety. Point prevalence survey is a validated method for collecting and measuring the antibiotic prescribing data and other information relevant to management of infectious diseases and identifying targets for intervention.

Objective: To mark the start of antimicrobial stewardship program via point prevalence survey of antimicrobial usage at a tertiary care facility of India,

Methods: Consecutively two PPS were conducted in December 2021 and January 2023 using a predesigned and pretested PPS questionnaire in google form. All the admitted patients present in the hospital from morning 8 AM to next day morning 8 AM at tertiary care hospital in central India were included.

Results: 1622 patients were surveyed at 7 different days of conduction of the study in two phases December 2021 and January 2023. A total number of 739 (year 2021-433(45%) and year 2023-357(52%) patients were on antibiotics. 590 units of antibiotics were consumed of 1.65 in 2023 and 1.8 per patients in 2021 and average consumption of 0.86 units among the total 1622 number of patients. In 2023, 590 units of antibiotics consumed among the total 65% WATCH,43% ACCESS and 2% from the reserve category and in 2021,818 units of antibiotics consumed among the total 55% WATCH,43% ACCESS and 2% from the reserve category. 93% patients were given empirical antimicrobial therapy in 2021 and 87% patients were given empirical antimicrobial therapy in 2023.

Conclusion: At the time of Point prevalence survey hospital antibiotic policy were non-existent, and antibiotics were mostly prescribed by consultants as per national/international guidelines. Presently, the hospital has antimicrobial policy, and has adopted an antimicrobial stewardship program (AMSP). Practiced properly, AMSP have been found to reduce unnecessary usage of antibiotics and hence reduce AMR.

Key words: Antimicrobial, Point prevalence survey, Antimicrobial stewardship program, Empirical, Resistance.

Title: Evaluating Serum C - reactive protein and Lactate Dehydrogenase as Biomarkers of Hemotoxicity in Patients with Vasculotoxic Snake Bites

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Background: Snake bites are a major public health issue in tropical regions, causing significant underreported morbidity and mortality, particularly in South East Asia and sub-Saharan Africa. This study examines serum CRP and LDH levels to assess their effectiveness as markers for the severity and prognosis of snake bite envenomation, especially in hemotoxic cases.

Methods: This research was conducted at Mahatma Gandhi Mission Medical College, Navi Mumbai, from March 2021 to December 2022, the study involved 70 patients with suspected or confirmed snake bites, excluding those with bleeding disorders or Vasculitis history. Patients were assessed upon admission and underwent various lab tests, including serum CRP and LDH, with data analysis using IBM SPSS Statistics 26.0, focusing on the relationship between envenomation severity and biomarker levels.

Results: The majority of snakebite patients were young adult males, primarily bitten on the lower limbs. CRP and LDH levels were significantly higher in severe envenomation cases and those with bleeding manifestations, increasing with envenomation severity. Both CRP (>5 mg/I) and LDH (>300 U/L) were effective predictors of bleeding manifestations post-snake bite, with CRP showing 75% sensitivity and 54% specificity, and LDH 77.3% sensitivity and 50% specificity.

Conclusion: The study concluded that serum CRP and LDH levels are reliable indicators of hemotoxicity in snake bite patients, with their levels correlating with envenomation severity and effectively predicting bleeding manifestations.

Keywords: Snake Bite, Hemotoxicity, CRP, LDH, Envenomation Severity

Abstracts

Title: Epidemiological description of Suspected Malaria Casesin Anjaw District, Arunachal Pradesh, India, January 2019 to December 2023

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Background: Malaria is an Acute Febrile Illness caused by Plasmodium Parasite spread to people through the bites of infected female Anopheles mosquitoes. The vision of WHO and the State of Arunachal Pradesh is a world free of malaria.Confirmed Malaria cases has not been detected in Anjaw District, Arunachal Pradesh, India since 2019 despite Surveillance.

Objectives: Epidemiological description of Suspected Malaria Cases to confirm the elimination of malaria in Anjaw District, Arunachal Pradesh,India.

Methods: The definition of Malaria was according to Integrated Disease surveillance program (IDSP) case definitions.Data collected passively from Integrated Health Information Platform(IHIP), National Vector Borne Disease Control Programme (NVBDCP), Out-Patient Department(OPD), In-Patient Department(IPD), Laboratory register and actively from Entomological survey &house to house search operation for1 January 2019 to 31 December 2023. Investigation of cases was done to determine the source of infection. Data analysis was done using spot map, bar graphs, tables and epicurve.

Results: Out of 11,967 Suspected Malaria cases reported in OPD & IPD, tests were conducted for 54.39% cases of which52.74% were done by Rapid diagnostic Test (RDT) and 47.26% by microscopy.

All tests were confirmed negative except one case in 2020 and another in 2022, both with travel history from outside district. Both were symptomatic prior entering Anjaw District. The highest numbers of suspected cases were reported in June.

Entomological surveys were conducted thrice. The tested mosquito species were mostly subfamily Culicinae and few Culex with single sample of Anopheles maculates.

Conclusion: Anjaw remains malaria free between 2019 till 2023. Effective surveillance, Entomological survey, syndromic reporting along with smear microscopy and RDT tests remain the backbone of it.

Keywords: Elimination, Vector Surveillance, Entomological Survey, Malaria

Abstracts

Title: Serological investigation of neglected bacterial zoonoses: Q- fever and brucellosis in bovine population of Northern west states of India

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Background: Brucellosis and Q fever are neglected zoonoses which impacts both veterinary and public health. These diseases are recognized as emerging issues in South-East Asia, correlating with the expansion of animal trade and production, thereby imposing significant challenges on health systems and economies. However, their prevalence remains inadequately elucidated in numerous regions spanning diverse states within India. This knowledge gap offers an opportunity to explore these underappreciated diseases, which hold significance in the realms of both veterinary and public health.

Objectives: To conduct a serological investigation of brucellosis and Q-fever in North-western states of India.

Methodology: In this study, a total of 739 for brucellosis and 698 for Q-fever, bovine sera samples were collected from 13 districts across four states: Punjab, Himachal Pradesh, Rajasthan, and Gujarat and Union Territory of Jammu & Kashmir. Serum samples were screened using Enzyme-Linked Immunosorbent Assay. Using descriptive statistics risk factors related to disease were analysed.

Results: Antibodies against brucellosis and Q-fever were observed in 7.44% (55/739) and 7.16% (50/698) of bovine samples, respectively. In case of brucellosis, highest seropositivity was observed in Himachal Pradesh 21.42% (9/42), followed by Punjab 17.17% (17/99) Rajasthan 5.93% (19/320) and Gujarat 4.5% (10/222). However, none of the samples were positive in Jammu & Kashmir. Whereas, in case of Q-fever, highest seropositivity was observed in Rajasthan 13.43% (43/320) followed by Punjab 8.62% (5/58), Jammu & Kashmir 1.78% (1/56) and Gujarat 0.45% (1/222). However, none of the samples were positive in Himachal Pradesh.

Conclusions: This study suggests 'One Health' approach-based surveillance system and widespread awareness targeting high risk groups is essential for effective implementation of diseases control strategies.

Key words: Northern west states, Brucellosis, Q-Fever, Neglected zoonotic diseases.

Abstracts

Title: Comprehensive Healthcare in Challenging Terrains: Gujarat's Sickle Cell Anemia Control Program

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Background: Gujarat's Sickle Cell Anemia Control Program, initiated in 2006, addresses the healthcare challenges posed by the hilly and forested tribal areas. The geographical complexity of these regions makes it difficult to provide constant medical services, exacerbating the lack of awareness about hereditary diseases like Sickle Cell Disease (SCD) among the community.

Method: The program's best practices involve collaborative efforts with various districts, covering 14 districts through targeted screenings in educational institutions and community gatherings. Training programs for healthcare professionals focus on identification, diagnosis, counseling, treatment, and follow-up activities. Primary screening using the DTT* test for Sickle Cell, coupled with confirmatory HPLC tests, ensures accurate diagnosis. Activities: Testing services extend beyond identification to encompass marriage counseling, treatment, routine follow-ups, and specialized management of Sickle Cell crises. Referral services, prenatal diagnosis, new birth screenings, free blood transfusions, and yearly medical camps contribute to a comprehensive healthcare approach, Learning; Laminated color-coded cards provided to screened individuals facilitate marriage counseling based on genetic compatibility. The program underscores the necessity for intensive Information, Education, and Communication (IEC) efforts, actively involving Non Governmental Organizations (NGOs) and building the capacity of government and NGO staff. Sickle Cell Counselors play a pivotal role in counseling and follow-up activities. Integration with various departments, including Education and Tribal Departments, showcases a multi-faceted strategy.

Conclusion: Gujarat's Sickle Cell Anaemia Control Program represents a commendable effort to provide comprehensive healthcare solutions in challenging geographical terrains, demonstrating the importance of collaboration, awareness, and integrated healthcare approaches. **Keywords:** SCA, Sickle cell Anemia, Tribal Health, ANC Care, NGO,

Abstracts

Title: Leveraging Technology and Mobile Healthcare Units for Effective Pandemic Response: A Case Study of ITIHAS and Dhanvantari Rath in Gujarat

Jayesh Solanki^{*}, Jayanti Ravi, Jayesh Katira, Nilam Patel, Harshad Prajapati et al.

*Department of Health & Family Welfare, Government of Gujarat, India drjayesh75@gmail.com **Background:** The COVID-19 pandemic demands innovative strategies for containment and management. This abstract explores the integration of the ITIHAS (IT-enabled Integrated Hotspot Analysis System) and Dhanvantari Rath initiative in Gujarat, showcasing a holistic approach that combines cutting-edge technology with on-ground healthcare services.

Objectives:

- To examine the role of ITIHAS in contact-tracing and hotspot analysis.
- To evaluate the integration of Dhanvantari Rath with ITIHAS for on-ground pandemic response.
- To assess the impact of this combined approach on breaking the chain of COVID-19 transmission.

Methods: ITIHAS, a contact-tracing tool, monitors the movement of COVID-19 patients by leveraging mobile contacts over a 15-day period. Trained senior officers conduct daily analyses using Google Maps for hotspot localization. Nodal Officers in each district ensure effective coordination. Dhanvantari Rath, a mobile healthcare unit, provides doorstep services, integrating with ITIHAS and prioritizing Pink and Amber hotspot areas.

Results: The integrated approach demonstrates proactive measures based on real-time data. Senior officers monitor ITIHAS hotspot surveillance through video conferences, facilitating swift decision-making. Daily analyses of emerging hotspots enable targeted interventions. Dhanvantari Rath's prompt response in hotspot areas contributes significantly to breaking the chain of transmission.

Conclusion: The collaboration between ITIHAS and Dhanvantari Rath underscores the importance of adaptability and innovation in pandemic response. This integrated strategy not only mitigates the immediate impact of COVID-19 but also establishes a resilient framework for future public health emergencies. The Gujarat model serves as a valuable case study for regions seeking effective strategies against infectious diseases.

Keywords: ITIHAS, Dhanvantari Rath, Pandemic Response, Contact-Tracing, Hotspot Analysis

Title: Comparison of Self Medication Practices af Rural And Urban Adults of Western Uttar Pradesh, India

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Background: Self Medication (SM) is a common practice around the world. There are many disadvantages of SM, including wrong treatment, wrong diagnosis, wrong dose, unfavourable drug interaction, toxicity, risk of dependence and antimicrobial resistance. However, many people resort to SM due to various reasons. There are differences between rural and urban areas in terms of access and availability of health care, which may thus affect the practice of SM.

Objective: Determine the differences in prevalence and practices of SM between rural and urban areas.

Methods: A community-based cross-sectional study conducted in the rural and urban areas of Aligarh in 2021-2022. 424 study participants were selected using simple random sampling. Study participants were interviewed using a self-designed, pretested and structured questionnaire. SPSS version 26 was used for data analysis and chi-square test was applied.

Results: 52.2% of rural and 52.8% or urban participants were found to have used SM in the preceding one year. There was no significant difference between rural and urban participants in terms of percentage of study participants practicing SM (P=0.9). However, antibiotic use for SM was higher in rural areas (28.2%) as compared to urban areas (6.5%). In both rural and urban areas, pharmacist was the most common source of information for SM.

Conclusion – SM is not a mainly urban phenomenon, as indicated by earlier studies. Our study shows that SM is prevalent in all areas and age groups. Pharmacist is the main source of information regarding SM, thus they should be sensitized about the perils of SM, specially antibiotic misuse.

Key words – Self Medication, Pharmacist.

Title: Role of Health Information Helpline in monitoring and support of TB patients: A pilot to complement Aashwasan, an active case finding campaign in Jharkhand, India

Juhi Kumari*, Vishal Kumar, Debashish Sinha, Rohit Sharma, Shobha Ekka et al

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Background: To ensure adherence to treatment by the patients and enhance positive treatment outcomes, it is essential to provide regular follow-up and support to individuals with TB. The 104 Health Information Helpline (HIHL), an initiative of National Health Mission (NHM)-Jharkhand, is implemented as a public-private partnership model. This mode of information and communication technology (ICT) is an efficient method of resource utilization and can play a significant role in enhancing the reach and effectiveness of healthcare services.

Objectives: To complement TB healthcare services in Jharkhand in collaboration with HIHL, NHM for counselling on treatment adherence, encourage contact screening and grievance addressal.

Methods: In 20 districts of Jharkhand, a 100-day active case finding campaign (Aashwasan) was conducted from January-June 2022. The field team shared a detailed line-list of every new confirmed TB case weekly with the 104 HIHL team for follow-up. Fifteen structured calls were scheduled for each TB patient, of which eight calls were made in intensive treatment phase, while the remaining were made during the continuation phase. An outcome was assigned to each valid call, based on which necessary action was taken.

Results: Of 2659 new TB cases identified in Aashwasan, 1166 were reached and registered in HIHLA total of 922 grievances were reported to appropriate authorities for redressal, 169 symptomatic contacts were advised for testing, 201 non-compliant TB patients were counselled, and 243 emergency and general referrals were made.

Conclusion: All states have their own HIHL, and leveraging the platform for follow-up of TB patients is critical not only for ensuring treatment completion but also for reducing morbidity, mortality, and interrupting further disease transmission.

Key words: Health information helpline, TB elimination, Treatment adherence, TB patients, contact screen

Abstracts

Title: Technical assessment of the functioning of Nutrition Rehabilitation Centres on Public-Private Partnership mode in Jhabua and Betul districts, Madhya Pradesh

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Background: Nutrition Rehabilitation Centres (NRCs) in India were established to address Severe Acute Malnutrition (SAM) in children. NRCs have played pivotal role in reducing SAM prevalence. Despite progress, overall NRC efficiency is suboptimal.

Objective: To identify the gaps and replicate the positive findings by comparing Public-Private Partnership (PPP) and Public NRCs, aiming to enhance the overall efficiency of NRCs throughout the region.

Methods: The study is cross-sectional comparative analysis of services offered by NRCs operating under PPP mode versus those operating under public mode in Jhabua (Meghnagar vs Padhar NRC) and Betul (Ranapur and Ghodadongri NRC) districts, utilising both quantitative and qualitative research methods. Quantitative data assessed using bed-occupancy, average number of days of stay, average weight gain, follow-up visits in the community, and the quality of service delivery – in terms of adherence with FSAM guidelines while in the NRC. Qualitative data were analysed thematically by conducting a series of key informant interviews – interviews with beneficiaries and service providers.

Results: There were notable differences observed and NRCs operating under Public mode were found to be more efficient than those by PPP mode. Themes identified were trust on the NRC/Institution, financial compensation of caretakers, seasonal migration, financial support to the mothers, community liaison, operationalisation of Facility- based management of SAM (F-SAM) programme in the community setting – CSAM programme, utilisation of Village Health and Nutrition Days (VHNDs) for providing extra support and counselling, adherence to NRC guidelines, job satisfaction, physical distance.

Conclusion: Organising timely external audits to keep a track on its finances, instituting joint supervisory meetings, ensuring proper implementation of CSAM by AWWs, ASHAs, and ANMs, utilising VHNDs, refresher training could play a crucial role in improving the quality of services. **Keywords:** Madhya Pradesh, Severe Acute Malnutrition, Nutrition Rehabilitation Centre,

Operational efficiency, Assessment

Abstracts

Title: Descriptive Epidemiology of JN.1 Variant Cases of COVID-19 in Gujarat State: A Comprehensive Analysis

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Background: The emergence of the JN.1 variant, a sub-lineage of Omicron, has raised concerns due to its heightened immune escape capabilities. Designated as a "variant of interest" (VOI) by the World Health Organization (WHO), JN.1 exhibits rapid spread, surpassing other variants, and has been identified as the fastest-growing variant by the US Centers for Disease Control (CDC). In India, Kerala detected the first instance of JN.1, signifying its national spread. In Gujarat, proactive genome sequencing efforts have identified 80 cases of JN.1, highlighting the necessity for detailed epidemiological analysis to comprehend its dynamics within the state. Gujarat state, located in western India, has witnessed a significant burden of COVID-19 cases and thus serves as an essential setting for studying the epidemiology of JN.1 variant cases.

Objective: This study aims to comprehensively analyze the descriptive epidemiology of JN.1 variant cases of COVID-19 in Gujarat state. Specifically, it seeks to characterize the demographic profile, geographic distribution, hospitalization and vaccination status of JN.1 variant cases.

Methods: A retrospective observational study using data received from the Gujarat Biotechnology Research Centre (GBRC) Gandhinagar was analyzed, and then the state surveillance unit of IDSP collected the data on vaccination status, comorbidity status and travel history of JN.1 cases. Descriptive epidemiological methods, particularly percentage and proportion, were used to analyze demographic characteristics, geographic distribution and patient outcomes of the JN.1 case.

Results: The analysis of JN.1 variant cases in Gujarat shows seven affected districts, with Ahmedabad and Vadodara most affected. JN.1 accounts for 76% of cases, with males comprising 55%. The middle-aged group (30-60 years) represents 64% of total positive cases. Only 6% required hospitalization, with successful recovery for most of the reported cases. No deaths occurred among those in home isolation. Sixty percent received booster doses, and only 10 had international travel history.

Conclusion: In conclusion, the descriptive epidemiological analysis highlights the significant burden of JN.1 variant cases in Gujarat, primarily concentrated in certain districts. Despite a low hospitalization rate and successful outcomes for hospitalized individuals, continued vigilance in surveillance and vaccination efforts, mainly targeting middle-aged males, remains crucial to mitigate further transmission and ensure effective control of the variant's spread within the state.

Keywords: COVID-19, SARS-CoV-2, JN.1 variant, epidemiology, descriptive analysis, genomic sequencing

Abstracts

Title: Integrating nutritional supplementation as a One health approach to develop host-directed therapy to impede tuberculosis infection

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Background: Tuberculosis (TB) claims ~1.6 million lives/yr. Poor nutritional health, and elevated oxidative stress in the host contributes significantly to immune dysfunction and poor drug efficacy during TB. Despite this knowledge, clinical approaches targeting improvement of host nutritional status and redox status remain an unexplored approach to TB management.

Aims & Objectives: We aim to evaluate the impact of selenium (Se) supplementation, an essential micro-nutrient which is often deficient in TB and TB/HIV patients to develop hostdirected therapies against mycobacterial infections. Our study introduces a novel approach by exploring the impact of selenium supplementation not only on individual health but also on the interconnected nutritional aspects that influences disease dynamics.

Materials and Methods: We performed Se-supplementation and infection studies using Sesupplementation as prophylactic (prior to infection) and therapeutic (post-infection) approach. We performed in vivo studies using C57BL/6 mice model of infection with Mtb H37Rv and scored for bacterial burden and ROS levels. We performed host bioenergetic health using XF metabolic flux analyser, and profiled macrophages and T cells in infected mice using flow cytometry.

Results: We observed a significant reduction in bacterial burden in Se-supplemented cells during infection in in-vitro model. To investigate the mechanistic basis, we next cultured mycobacterial cells in the presence of Se and did not observe any growth inhibition supporting that the protective effects of Se are host-mediated. Estimation of GSH/GSSG, bioenergetics and ROS levels revealed that Se-supplementation significantly improved redox status and host mitochondrial health during infection. M.tb infection studies in pre-clinical C57BL/6 mice model revealed a significantly reduced bacterial burden, an improved T-cell response and macrophage function in Se-supplemented mice.

Conclusion: Our findings highlight the potential of selenium supplementation as a host-directed adjunct therapy against mycobacterial infections and underscores the broader implications for One Health, emphasizing the interdependence of human health and nutrition.

Key words: Tuberculosis, One Health, Bioenergetic health; Selenium; Redox homeostasis

Abstracts

Title : Identification of Hotspot Clustering of Tuberculosis and its Predictors for the Improvement of Healthcare Intervention and Policy Making in Northeastern States, India

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Backgrounds: In the northeastern part of India, as per the State-Level Disease Burden Initiative report (ICMR, 2016), TB's rank fifth in Arunachal Pradesh in the state, seventh in Assam in the state, sixth in Manipur, third in Meghalaya, fourteenth in Mizoram, sixth in Nagaland, twelfth in Sikkim and eighteenth in Tripura among the leading cause of disability adjusted life year's in 2016. Understanding of spatial patterns of tuberculosis coupled with a knowledge of the demographic and socioeconomic characteristics in this region allows more efficient targeting of valuable population health intervention.

Objective: Identification of hotspot clustering and its predictors variables.

Methods: This study used the fifth round of National Family Health Survey. In the survey, the questions were asked from any usual resident of household suffers from tuberculosis (n= 3,88,478). We investigated spatial hotspot clustering of prevalence of tuberculosis using Getis-Ord Gi* statistics. In addition to logistic regression, we also applied Multiscale Geographically Weighted Regression to show spatial clusters in relationship between predictor variables and suffering from tuberculosis.

Results: Assam showed the highest people living with tuberculosis (TB) among all northeastern states. Papum Pare district (50.23) in Arunachal Pradesh has the highest TB prevalence per 10,000 and the lowest in Tamenglong (1.68) district of Manipur. We found spatial hotspot clustering mostly in all clusters of districts of Sikkim; Arunachal Pradesh, Meghalaya, Nagaland; few district in Manipur and Mizoram. The risk of contracting tuberculosis among the male is 1.65 times with compare to female and among the population that belonged to the poorest category is 2.49 with compare to the richest category. Besides, MGWR results showed adult age 60 and above, male and the poorest wealth quintile were significant determinants of suffering from tuberculosis and regression coefficients highly vary by districts in this region.

Conclusions: This study showed rate of suffering from tuberculosis vary by clusters of the districts of northeastern states. Implementing quality improvement in tuberculosis programme particularly in the host spot area will improve population health in northeastern region, India.

Keywords: Tuberculosis, hot spot clustering, healthcare, regression coefficients and northeastern

Title: Assessing the Socioeconomic Predictors and Spatial Clustering of Missed Measles Vaccination in India: Evidence From the Fifth Round of National Family Health Survey

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Background: Measles is one of the most infectious disease in humans. Globally, Measles deaths increased by 50 percent in last three years (2016-2019). India ranks second in number of unvaccinated children for two doses of measles vaccine.

Objectives: To assess the socioeconomic and demographic predictors of missed measles vaccination in India. Identification of spatial clusters of missed measles vaccination in districts of India

Methods: We used fifth round of the National Family Health Survey. In the survey, a question was asked "Was the child ever given a measles or MMR injection - that is, a shot in the arm at the age of 9 months or older - to prevent (him/her) from getting measles?" We used bivariate analysis and logistic regression to show the prevalence and odds of taking measles vaccine among children, respectively. In addition, we applied fairlie decomposition analysis to identify the variables contributing to higher variation in missed measles vaccination between high performing and poor performing districts in India.

Results: We found nearly 11 percent of children order than 2 years remain unvaccinated with measles vaccine. Prevalence of unvaccinated children were higher among children of four and above birth order and female children. In addition, mother's education, religion, caste, wealth quintile was identified significant covariates of missed measles vaccine. Health card found to be a significant contributor (60%) in explaining variation between high and poor perfroming districts in terms of measles vaccinated children. Result of spatial analysis showed 26 out of 36 states and UTs have prevalence of missed measles vaccine above 20 percent. Odds of getting measles vaccine was higher among children with educated mothers, richest household and household with health card.

Conclusions: Health managers should strengthen all integral components of the national immunization program, particularly in districts where lower coverage of measles vaccine was observed.

Keywords: Measles, NFHS-5, Logistic Regression, Decomposition Analysis, LISA map

Abstracts

Title: Advancing One Health through Antimicrobial Textiles: A Strategy to Mitigate Zoonotic Risks in Healthcare Environments

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Background: Contaminated textiles within healthcare settings, such as lab-coats, scrubs, and bedsheets, serve as reservoirs for various microorganisms, contributing to the dissemination of infections, including zoonotic agents and hospital-acquired infections (HAIs). Recognizing the significant risks posed by HAIs to patient safety, prolonged hospital stays, and increased healthcare costs, our study emphasizes the importance of functional fabrics with antimicrobial properties to curtail the transmission of infections.

Objectives: Aligned with the One Health framework, our objective is to develop long-lasting functional fabrics with potent antimicrobial actions targeting a spectrum of clinically relevant pathogens, including those with zoonotic potential.

Methods: In collaboration with IIT-Delhi, we have developed a proprietary antimicrobial solution that is evaluated and tested against WHO-priority pathogens responsible for HAIs, emphasizing the interconnectedness of human, animal, and environmental health. The coated textiles undergo rigorous testing, including multiple wash cycles (0-100 times), exposure to various pathogens, and assessment of bacterial recovery, growth kinetics, and biofilm formation to establish the fabric's long-lasting antimicrobial efficacy.

Results: Our proprietary antimicrobial solution provided a long-lasting anti-microbial action against ESKAPE pathogens. Even after 100 washes, the coated cloth could kill ~95% of the bacilli indicating the potential of medicated clothing in reducing HAIs. Growth kinetics, biofilm formation and minimum inhibitory concentration of surviving colonies confirmed that the protective coating did not lead to the development of drug resistance and resulted in attenuation of bacterial virulence.

Conclusion: By preventing infections, our anti-microbial coating not only contributes to improved health outcomes and but also reduces the environmental impact of excessive use of antibiotics. By adopting a One Health approach, our study supports healthier lives by minimizing infection-related risks in healthcare settings, mitigating the potential transmission of zoonotic agents, and contributing to the global effort to reduce antimicrobial resistance (AMR).

Key words: HAIs, AMR, One Health Approach, ESKAPE, Anti-microbial agent

Title: Operation Kaveri: Sharing Experience in Managing Evacuated Indian Passengers From Yellow Fever Affected Country of Sudan at Ahmedabad International Airport During 2023

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Background: Airport Health organisation is the designated Point of Entry operating at Ahmedabad Airport to implement IHR 2005. One of the components is verification of Yellow Fever Vaccination (YFV) status of passengers arriving from endemic countries as India is non endemic. Indian government decided to evacuate Indian citizens from war affected Sudan which is YF endemic country, through Operation Kaveri.

Objectives: The objective is to effectively identify and quarantine passengers originating from Sudan, so as to mitigate the risk of yellow fever entry into our country.

Methods: Directives received from CIHD regarding evacuees arriving at Ahmedabad airport under Operation Kaveri and quarantining of the passengers not having valid card. Immediately, APHO Ahmedabad coordinated with stakeholders at airport, along with State Health Department. Sensitization meeting with all stakeholders at state level, site inspection at airport for establishing screening areas, developing SOP, reporting mechanism, identification of quarantine facility, was discussed. Decided not to allow anyone to immigrate unless verified by APHO team. Passengers segregated into categories based on Vaccination status.

Results: A total of 423 passengers arrived at Ahmedabad international airport. APHO team verified the YFV status of all passengers. Segregated 47 passengers. 28 of them were not having YFV cards. 6 were having invalid yellow fever cards. 13 were parents of children not having valid card. All the identified passengers sent for quarantining to identified quarantine centres in mosquito proof transportation. All were monitored at quarantine centre. No one developed symptoms. Prevented a potential spread of Epidemic in the country.

Conclusion: Effective co-ordination from central health division and stakeholders at state level proved pivotal in effectively managing the situation to prevent yellow fever from entering our country. Quarantine facilities plays crucial role in containing the potential spread of the disease. **Key Words:** APHO, Operation Kaveri, Quarantine, Stakeholder Co-ordination, Yellow Fever.

Abstracts

Title: Barriers in medical record digitization at level of health care workers under Ayushman Bharat Digital Mission

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Background: Benefits of digital health records include improved decision making, healthcare delivery and data sharing across healthcare professionals.[1] The Ayushman Bharat Digital Mission, a transformative initiative launched by the Government of India, aims to revolutionize healthcare delivery through the comprehensive digitization of medical records.[2] In this qualitative study, we explored the challenges faced at the level of healthcare workers in the digitization of medical records in a government setup.

Objectives: The primary objectives of the study were to identify barriers in digitization of medical records by health care workers under the following three theme headings:

1. Digitization of medical records: Perspective in terms of digital literacy, manpower and infrastructural capabilities.

2. Knowledge: Regarding the program Ayushman Bharat Digital Mission.

3. Privacy of medical records: Views regarding data sharing and accessibility.

Methods: The study was conducted in a government-run tertiary health center. A qualitative study involving face-to-face in-depth interviews were conducted on the themes of desired objectives among 67 health care workers. Line-by-line analysis was performed using a qualitative data management software.

Results: Lack of trained clerical staff and equipment for data entry were highlighted by majority of healthcare workers. Experience in digital literacy was varied across different levels with resident doctors more comfortable with data entry and accessibility. Some individuals expressed concern over the high daily data entry count which ultimately hampers feasibility. Majority of individuals across all levels were aware about the program and its intended benefits. While most individuals viewed medical record sharing as beneficial for the patient, preventing unauthorized access was a major concern.

Conclusion: Feasibility and accuracy concerns regarding data entry need to addressed. Easy availability of records at all levels of healthcare while preventing need to be ensured. Training of staff should be addressed with sufficient manpower to handle high load at government centers. **Keywords:** Digitization; Medical record; feasibility; privacy; Ayushman Bharat

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: Prevalence and Distribution of Dengue Virus in field-caught Aedes mosquito inTamil Nadu, India: Molecular Identification and characterization

Kumaresan A*, Priyanka A, Devi Arthy , Selvavinayagam T.S., Raju Sivadoss et al

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Background: Dengue fever is highly endemic in several countries, with all four serotypes (DENV1– 4) circulating at different periods and locations. Preventing dengue and other vector-borne diseases requires sustainable and improved virological and entomological surveillance as the only tool. Vector control measures play an important role in preventing and reducing dengue virus (DENV) transmission.

Objective: The objective of this surveillance is to determine the presence of Dengue virus and the spread of the serotypes and genotypes concurrently co-circulating in filed collected Aedes mosquitoes and patients, by reverse transcriptase-polymerase chain reaction in endemic regions of Tamil Nadu, India.

Method: Collection of Aedes Mosquito Pools from 700 peripheral units covering both rural and urban areas in Tamil Nadu from 2018 to 2023 for the detection of DENV by RT-PCR Method. Analysis was performed to capture the distribution of positive mosquito pools and the circulation of serotyping.

Results: We tested a total of 24161 adult Aedes Mosquitoes, 8% of the 1390 female Aegypti mosquitoes tested positive for DENV. The presence of DENV in the mosquitoes was evident in 2018(6.61%), 2019 (43%), 2020(8%), 2021(6%), 2022(5%) and 2023(4%), prevalence of DENV in mosquitoes was staggeringly high in 2019 with an astonishing 43%comparedto2016 (14%) and 2018 (6.61%). Serotyping done in 766 Positive samples our identificationofDENV-1(6%), DENV-2(46%), DENV-3(6%) and DENV-4(19%) in the mosquitoes collected in the field, a mixed infection also found in DENV serotyping thesy are DENV1&2 (5%), DENV 1&3 (3%) was consistent with the serotypes found in infected patients.

Conclusion: These findings reinforce the importance of proactive arbovirus surveillance in mosquito populations to prevent and control the disease. Vector control strategies must be prioritized. The goal should be to eliminate the source of mosquito larval reproduction. In addition, identify the Potential Hot Spots and to initiate appropriate preventive and control measures. Detection of Early Warning Signals (EWS) of Impending Dengue Outbreaks in the community. Mapping of Dengue Viruses and their Serotypes its help us to Continuous monitoring of DENV circulating in Tamilnadu and will aid to correlate it with the disease burden in State. **Keywords:** Vector surveillance, Aedes aegypti, RT-PCR, Serotyping

Title: Protocol optimization and analysis of community based AMR in wastewater from the Delhi-NCR region

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Background: Environmental surveillance is recognized as an essential tool for informing public health and policy decisions in the post-pandemic era. Wastewater from open drains and community water treatment plants is a vital reservoir of pathogens and antimicrobial resistance (AMR) genes that frequently comes in contact with humans. Environmental DNA is frequently fragmented and of low molecular weight, particularly so with horizontally transferred AMR genes. While several methods of tracking AMR from the environment have been established, isolating good quality low molecular weight DNA at high yields from heterogenous environmental samples remains a challenge. Additionally, while temporal clinical surveys have been carried out, we have little or no idea for the AMR presence and its interaction with the bacterial community in our local environment.

Objectives:

(a) To develop a low-cost and effective protocol to extract low molecular weight DNA from heterogenous environmental samples

(b) To establish a database for environmental antimicrobial resistance patterns in the Sonipat and Delhi-NCR regions, and correlate with bacterial community presence and diversity

Methods: We used high throughput NGS sequencing, specifically 16S Miseq, NGS based AMR panels and shotgun sequencing in addition to standard qPCR techniques to analyse our data.

Results and conclusion: We have optimized a protocol using specific PEG-NaCL based preprocessing to enrich low molecular weight DNA from heterogenous water samples. While our NGS analysis is still underway, preliminary data indicate niche specific bacterial communities and the presence of constant AMR patterns even while the bacterial community changes. Comparison with clinical data is still underway.

Keywords: AMR, community surveillance, wastewater, NGS, metagenomics

Abstracts

Title: Review of roadmap to end Neglected Tropical Diseases in India by 2030: Strategies, Challenges and Opportunities

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Background: Globally, more than billion people are infected with at least one Neglected Tropical Diseases (NTD), causing an estimated 534000 deaths and a loss of 57 million disability-adjusted life years (DALYS) annually. India, along with other countries of South Asia, bears the highest burden of neglected tropical diseases. These countries account for approximately one-quarter of the world's soil transmitted helminth infections, one-third or more of the global deaths from rabies, and one-half or more of the global burden of lymphatic filariasis, visceral leishmaniasis, and leprosy. WHO has developed roadmap to end NTDs globally by 2030.

Objectives: To review the current strategies adopted to end various NTDs in India by 2030 and to explore its challenges and opportunities.

Methods-This study is based on review of WHO adopted roadmap to end NTDs by 2030 and various studies published in reputed journals.

Results: Preventive Chemotherapy, Water, sanitation and hygiene (WASH), Vector control, Veterinary public health and Disease management and rehabilitation are the five key strategies to beat NTDs. Operational problems, lack of basic sanitation & safe water, stigma & discrimination, geographic & climatic diversities, zoonotic diseases, monitoring & surveillance, community mobilization, sustaining political commitment are the major challenges. However political commitment, supporting programme such as Swachh Bharat Abhiyan, availability of diagnostic tools & treatment and strengthened primary health care system are the opportunities to achieve the target.

Conclusion: A robust roadmap with integrated approach, multisectoral coordination, universal health coverage and strengthened One Health approach is very much imperative. Accelerated programmatic action, intensifying cross-cutting approaches and changing operating models and culture to facilitate ownership are required to end NTDs.

Keywords: Neglected Tropical Diseases, One Health, Roadmap, Universal Health Coverage

Abstracts

Title: Active Case Finding activities In Evening Hours for detecting hidden Male Leprosy cases **Manoj Singh*, Vinita Rajgar**

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Background: The national data from 2012 -2018 showed an average of 39% females and 61% males among new cases of Leprosy. This was in contrast to what has been observed in Dadra & Nagar Haveli (approx. 58% females and 42% males). Contrary to the female proportion among new Leprosy cases in Dadra & Nagar Haveli, the analysis showed more Grade 2 Disability among the males.

Objective: To cover the majority of males and some working females who are not available at home during day time.

Method: As an intervention, the survey timing was modified (from the erstwhile 9:00 am – 5:00pm) to 9:00am to 01:00 pm in the first half and 5:00 pm to 8:00 pm in the second half. During first half, the team comprising of one male & one female visited the houses to screen households. The houses with unavailable males/females were noted and their probable time of availability is recoded. The male volunteer/Multi-Purpose Worker started visiting those houses in evening hours after 5 pm to screen the missing males/females. The female accompanied the team till 6 pm only to screen females missed during first half. This innovative approach was started for the first time in May 2016 and is continued till date.

Results: In the year of implementation itself, the proportion of males increased from 45% (in surveys prior to 2016) to 55% in 2022-23. That indicated the presence of hidden male cases in the community. This **conclusion** was further reinforced by the fact that 62.5% of Grade 2 Disability cases at diagnosis were males. In the year 2016 -17, the female proportion of new cases decreased from 60% in 2015-16 to 45% in 2022-23.

Conclusion: Males and Females both are equally susceptible to Leprosy provided all other factors are similar. After this intervention, perceptible increase in male proportion of new Leprosy cases found in Dadra and Nagar Haveli after the year 2016.

Key words: Evening survey, Male and Female Leprosy cases, Grade 2 disability, proportion of leprosy cases.

Title: Identification of Spatial Hotspots Clustering of Cesarean Section Delivery and Its Predictors with Varying Space for The Improvement of Intervention Programmes and Policy Making in Northeastern States, India

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Backgrounds: It is difficult to achieve health related Sustainable Development Goals when a higher proportion of pregnant women chose cesarean section over vaginal delivery without considerable medical benefits.

Objectives: To identify the spatial hotspot clustering and its predictors with varying space

Methods: This study used the fifth round of National Family Health Survey. In the survey, the questions were asked from the mothers who delivered live births (n=34222) in last five year of the survey. We investigated spatial hotspot clustering of prevalence of cesarean section using Getis Ord Gi* statistics. In addition, we applied Multiscale Geographically Weighted Regression to show spatial clusters in relationship between predictor variables and cesarean section delivery with varying space.

Results: We found spatial hotspot clustering mostly in all clusters of districts of Sikkim, western and southern districts of Tripura, eastern and western region of Assam as well as central region of Manipur. Besides, MGWR results showed maternal age 30-49 years, child's first birth order, highest educational level; high body mass index and the highest wealth quintile are significant determinants of cesarean section and regression coefficients highly vary by districts in this region.

Conclusions: This study showed cesarean section rate vary by clusters of the districts in each state. Piloting of educational intervention for pregnant mothers and regular monitoring of cesarean section facilities may be used as initial strategy to further understand why trends of cesarean section was higher in few districts of northeastern states of India.

Keywords: Cesarean Section, Spatial Analysis, Geographically Weighted Regression, Hotspot clustering, Northeastern States

Abstracts

Title: Comprehensive screening programme for early diagnosis of chronic respiratory diseases. Meenakshi Bhakare*, Radha Munje, Gajanan Sakhare, Shardul Joshi,

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Background: Chronic respiratory diseases are a growing public health concern in India. According to the ICMR study, Chronic Respiratory Diseases (CRDs) such as Chronic Obstructive Pulmonary Diseases (COPD) and asthma contribute to 11% of all deaths in India.

The challenges in achieving early screening and diagnosis of CRDs in primary health are the unavailability of 1. Spirometry system 2. Spirometry technicians 3. Chest physicians.

Objective: To check the feasibility of Project "SAVE[™] – Spirometry Assisted Virtually Early" uses make In India point of care technology - SpiroPRO[®] and makes quality spirometry possible at community and primary healthcare level.

Methods: (i). Door to door assessment using Community Based Assessment Checklist (CBAC) survey (ii) Spirometry screening using SpiroPRO[®] (iii) Diagnosis with Pulmonary Function Test (PFT) test using SpiroPRO[®], expert teleconsultation. Project SAVE[™] was successfully executed in Dindori, Nashik, Maharashtra in 2023.

Results: During the initial three-month period - 15602 people surveyed, 4937 (31.6%) identified as high-risk, 2859 (57% of high risk) administered spirometry screening test, 1847 (64% of spirometry screened) marked as possible CRD's, 1539 (83%) had PFT test, 1231 (80% of PFT test patients) were marked as presumptive CRD probable candidates based on SpiroPRO[®] derived LHS[™] (Lung Health Score), and 1154 (93% of presumptive CRD) patients were confirmed CRD diagnosed with expert tele consultation.

Conclusion: SAVE[™] presents a unique approach for early screening and diagnosis of CRDs at community and primary care level. The challenge of technology was addressed with Point of Care technology SpiroPRO[®], the challenge of unavailability of technicians was addressed with PFT As A Service model and the challenge of unavailability of pulmonologists was addressed through AI First CDSS, training local Medical Officers and providing tele-confirmation support by experts.

Key words: Asthma, chronic obstructive pulmonary disease, chronic respiratory disease, diagnosis, Point of Care technology

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: Evaluating reporting system of viral hepatitis B and C under the National Viral Hepatitis Control Program in Namsai district, Arunachal Pradesh, India, 2022-23

Michi Monya*, Sandhya Kabra, Preeti Madan, Tanzin Dikid, Dr Partha Rakshit et al

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Background: Viral hepatitis is recognised as a public health problem globally. In India, the National Viral Hepatitis Control Program (NVHCP) was launched in alignment with Sustainable Development Goal (SDG) 3.3 "...combat hepatitis". Under the program treatment sites are established across country for provisioning free drugs and diagnostics for hepatitis B and C. The program has developed system for capturing cases and linking to treatment. Increased cases of Hepatitis B and C were reported from Namsai district, Arunachal Pradesh in December 2022.

Objective: To understand and assess reporting of viral hepatitis B and C under NVHCP in Namsai district.

Methods: The selected attributes of reporting system were evaluated within reference period of November 2022-January 2023 using US-CDC MMWR guidelines, record review, observation and interview of stakeholders using pre-designed questionnaire; and conducted SWOT analysis of the system.

Results: Reporting of viral hepatitis B and C was assessed using monthly reporting formats and online management information system (NVHCP-MIS). The reporting system had strengths in timeliness (100%), representativeness (80.8%) and data quality (74.8%); but was found poor in simplicity (33.3%). Presence of a well-developed implementational framework in the district was observed as a strength. Low awareness about the program among stakeholders and poor reporting rate among reporting units were identified as weaknesses; whereas, internet issue and poor community awareness about the disease were recognized as threats to smooth implementation of the system.

Conclusion: We recommended training of all stakeholders on reporting system to improve simplicity. Advocacy about the program among stakeholders and awareness generation regarding the disease among community was a felt need. We recommended sensitization sessions among all stakeholders and IEC and awareness generation among community by display of IEC at various sites like the OPD, laboratory, pharmacy, Anti-retroviral therapy (ART) centers, dialysis units, blood banks etc. to increase screening and reporting.

Keywords: Viral hepatitis B, hepatitis C, National Viral Hepatitis Control Program, evaluation study, Arunachal Pradesh

Abstracts

Title: Self-medication with Antibiotics: The pivotal Role of Community Pharmacists in Promoting Rational Medication Use by Consumers

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Background: Self-medication with antibiotics poses a global health challenge, fostering antimicrobial resistance (AMR). Community pharmacists, as frontline healthcare professionals, play a crucial role in addressing the risks associated with inappropriate self-medication.

Objectives: This study aims to highlight the multifaceted role of pharmacists in addressing self-medication with antibiotics.

Methods: Relevant literature on the topic of study has been searched and the latest and secondary data published between 2010 and 2020 has been collected as per the inclusion criteria from different sources like Scopus, PubMed, Google Scholar, etc. using relevant keywords like community pharmacists, Self-medication, antibiotic resistance, consumers, etc.

Results: The study emphasizes the crucial role community pharmacists play as frontline healthcare professionals in mitigating the adverse effects of antibiotic self-medication. Through active engagement at the point of purchase, pharmacists can impart valuable information, guide consumers toward responsible medication practices, and discourage inappropriate antibiotic use. Drawing on insights from various studies, the study will underscore the need for pharmacists to engage in proactive measures to support public health initiatives and advocate for the prudent use of non-prescription medications. Furthermore, the study addresses the challenges and opportunities associated with transforming the role of pharmacists from traditional "dispensers" to patient-centered healthcare providers.

Conclusion: The study emphasizes the implications of the study findings for pharmacy practice and public health measures, highlighting the urgency of collaborative efforts to combat AMR and ensure the responsible use of antibiotics.

Keywords: Antibiotic Resistance, Self-Medication, Community Pharmacists, Consumers, Responsible Medication Use, Public Health Initiatives.

Abstracts

Title: Knowledge, Attitude and Practice towards antibiotic use and resistance among veterinarians in india: A cross-sectional study

Neha Singh*, Arti Bahl, Suneet Kaur, J. Swaminathan, Jaseela Majeed

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Background: AMR has been widely acknowledged as a global health concern. The widespread and indiscriminate use of antibiotics in veterinary sector has given rise to a pressing global concern: antibiotic resistance. AMR in veterinary sector can have direct implications on human health as humans, animals and environment are interlined and bacteria with resistant genes can circulate between them.

Objectives:

- 1. To assess the knowledge, attitude and practice regarding antibiotic use and resistance among veterinarians including veterinary interns in the country
- 2. To know the top antibiotics prescribed by the veterinarians
- 3. To know the top ailments for which veterinarians prescribed antibiotics

Methods: The study was conducted from April to August 2023. It included 343 participants through snowball sampling using Google form. Statistical analysis was done using MS Excel and SPSS software.

Results: Less veterinarians were aware about the causes of AMR. Nearly half of the participants felt that antibiotics can be used as growth promoter and prophylactic medicine. Mastitis, GIT disorders and infectious diseases were the top ailments for which participants prescribed antibiotics. Top antibiotics used were Penicillin, Oxytetracycline, Enrofloxacin, Amoxicillin and Gentamicin.

Conclusion: Our findings underscore the need for targeted educational interventions to improve awareness and knowledge regarding antibiotic use and resistance especially in interns. Regular training sessions should be conducted for them starting from the grass root level so that they prescribe antibiotics with utmost care.

Key words: antibiotic use, antimicrobial resistance, KAP, veterinary sector, India
Abstracts

Title: First Evaluation of Antimicrobial Consumption Surveillance Network under the National Programme on AMR Containment, India, 2022

Ngurang Radha*, Suneet Kaur, Arti Bahl

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Background: Antimicrobial Consumption Surveillance is an important component of 'National Programme on AMR Containment'. National Centre for Disease Control (NCDC) monitors antibiotic consumption at enrolled tertiary health care facilities.

Objectives: To evaluate antimicrobial consumption surveillance under the National Programme on AMR Containment

Methods: 29 sites were evaluated by conducting stakeholder interviews using a pre-designed questionnaire and reviewing records. CDC's updated guidelines for evaluating public health surveillance used to assess simplicity, acceptability, timeliness, usefulness, representativeness, stability, flexibility, data quality and sensitivity. Timeliness assessed at five sites selected randomly. System was graded using scores from very good to poor (Very good=81-100%; Good=61-80%; Average=41-60%; Poor≤40%).

Results: Simplicity, acceptability, flexibility, data quality and sensitivity were very good; usefulness, timeliness and stability were good. Majority of the stakeholders (98%) knew about WHO AWaRe classification and 85% could classify antibiotics. All were aware of Defined daily doses and 96% knew how to calculate DDD/100 bed-days. 79% found using WHO-AMC Tool simple; all sites used latest version. Only 44% sites shared consumption data with physicians reducing the usefulness. Timeliness was 46%. System was not representative for the sites as data was collected for in-patients only. The system was flexible in accepting addition of variables in reporting formats (100%). 74% of reports checked were complete and valid. System was sensitive (100%) and captured consumption of reserve antibiotics.

Conclusion: This is the first national level evaluation of NAC-NET surveillance system in India. The system is simple, acceptable, sensitive and provides good quality data. Sharing data with physicians and Stewardship Committee (if any) will lead to improved usefulness. Inclusion of outpatient AMC data will lead to better representativeness. Timeliness and stability can be improved by electronic data collection.

Keywords: Surveillance system evaluation, Surveillance system evaluation India, Antimicrobial consumption, National Programme on AMR Containment, Antimicrobial resistance

Abstracts

Title: A Surveillance study on effects of dual pandemics on AMR in ESKAPE pathogens Nisha Goyal*, Seema, Malika Grover, Shukla Das

*Associate Professor, Department of Microbiology, University College of Medical Sciences & Guru Teg Bahadur Hospital, Delhi. drnishagoyalucms@gmail.com

Background: The effect of COVID-19 pandemic on the antimicrobial resistance pattern of ESKAPE pathogens is largely unknown. The present study provides crucial insight into it.

Methods: This surveillance study extended over three years from January 2020 to December 2022. This period also witnessed the three waves of COVID-19 pandemic. The Resistance patterns to various commonly used antibiotics were assessed in light of co-existent COVID-19 pandemic.

Results: Even during the COVID-19 era regardless of intense infection control practices, the prevalence of ESKAPE pathogens persisted high. However, in approximately 45% of individually tested antimicrobials a reduction in resistance was documented. Besides that, an alarming trend of increasing resistance to broad spectrum last-resort antimicrobials like carbapenems was observed.

Conclusion: This research provides crucial understanding into the recent trends of AMR among ESKAPE pathogens that may prove useful in the configuration of an impactful and sustainable stewardship programs to limit the spread of these superbugs.

Key words: AMR; Resistance in COVID-19; ESKAPE; Superbugs; Antimicrobials

Abstracts

Title: To strengthening public health surveillance: Waste-water Surveillance as an early warning of COVID-19

Nivedita Rai*

*Bioinformatics Specialist, national Centre For Disease Control Delhi, bioinfonivedta@gmail.com **Background:** On 1st April 2021, India inaugurated the updated surveillance program, known as the Integrated Health Information Platform (IHIP). Under which, various communicable and noncommunicable diseases like, Dengue, Chikungunya, Malaria, Severe Acute Respiratory Illness (SARI), pneumonia, cholera, Anthrax, etc., are under surveillance. On 2022, wastewater surveillance program has been incorporated for early detection of SARS-COV-2. Using wastewater-based surveillance, the temporal trends of the SARS-CoV-2 virus in communities are monitored. The presence of viral RNA particles in wastewater samples may be a sign of an outbreak in the catchment area. We outline the viability of employing a sewage network to track the current trend of COVID-19.

Objectives: The present study was carried out to demonstrate the usefulness of surveillance of wastewater for early epidemic prediction in managing the COVID-19 pandemic by comparing the concentration of SARS-CoV-2 RNA found in wastewater from different areas of the city with the COVID-19 clinical cases.

Methods: From 11 states, 17 laboratories with different collection sites are being reporting on IHIP Waste-Water Surveillance. Weekly monitoring all the submission done by various labs on IHIP and comparing their positivity with total number of testing. In this study we have mainly taken the data deposited from 1st Jan 2023 to 31st Dec 2023. A total of 6,124 testing has been done during this period among which 1,990 positive cases are reported.

Results: During the surge, sample positivity uprises which clearly reflected by weekly analysis of wastewater surveillance reported on IHIP portal.

Conclusion: Finding SARS-CoV-2 in sewage is an extremely helpful technique with major implications for public health. It can serve as an early warning system for the existence of sickness and help with preparation for it.

Key words: Integrated Health Information Platform, Waste-water Surveillance, COVID-19

Abstracts

Title: Dengue Chikungunya Co-infections: Serological study from tertiary care centre in North India

Noorul Aysha K*, Parakriti Gupta, Varsha Gupta

*PGJR, Department of microbiology, GMCH Chandigarh, noorulayshakottilingal@gmail.com **Background:** Dengue and chikungunya viruses cause substantial morbidity and mortality in India. Owing to the common vector of transmission, Aedes mosquito, co-infections can be noted. The clinical presentation of both infections are almost identical making the diagnosis challenging. However, accurate care requires a precise diagnosis.

Objectives: The present study aimed to determine the co-infections of dengue and chikungunya, from our tertiary care centre.

Methods: This was a retrospective study which includes samples tested between September 2022 to December 2023. All the samples were subjected to serological testing for dengue and chikungunya, using IgM capture ELISA kits (National Institute of Virology, Pune). Samples that tested positive for both dengue and chikungunya IgM antibodies were included. Detailed clinical history were collected.

Results: A total of 8174 dengue and 2635 chikungunya tests were done and 20.9%)(1713) and 25.6%(676) samples tested positive for dengue and chikungunya respectively. of these, 2.4% of samples(n=56) tested positive for both dengue and chikungunya. Mean age was noted to be 31.89 years, with majority being males. 28 cases were excluded due to insufficient data. Majority of cases were noted during September-November. Fever was the commonest symptom (n=25), followed by arthralgia(n=19). Thrombocytopenia noted in 9 patients. All patients were symptomatically managed and improved.

Conclusion: This study shows 3.2% seroprevalence of dengue-chikungunya co-infections. Lack of clinical suspicion and overlapping presentation, causs delayed diagnosis, which is imperative for management to prevent life-threatening complications. The increasing number of co-infections necessitates active surveillance and preventive measures in endemic regions.

Keywords: Dengue, chikungunya, co-infection, ELISA

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: COVID Deaths among COVID-19 Patients in Nagaland, India, July 2020- March 2022 Nyanthung Kikon*, Takujungla Jamir, J Kemp, L. Lemtur, E. Phesao, I. Jamir,

*State Surveillance Unit, IDSP, Directorate of Health & Family Welfare, Nagaland, India E-mail ID: nyandr@gmail.com

Introduction: India reported a high number of deaths due to COVID-19. In Nagaland, burden of COVID deaths is likely underestimated because of limited resources. We investigated to estimate the burden of COVID deaths among COVID-19 patients attending all district hospitals in Nagaland, India, an area with 7.5% COVID-19 positivity.

Methods: We reviewed records of COVID-19 patients available at the State Surveillance Unit (SSU) from May 1, 2020 to March 31, 2022. We defined a COVID death as one resulting from a clinically compatible illness in a confirmed COVID-19 case, unless there is a clear alternative cause of death not related to COVID disease e.g. trauma, without any period of complete recovery from COVID-19 between illness and death and not attributing to other pre-existing comorbidities. We reviewed death reports received from district hospitals at SSU. We analysed data using EpiInfo 7.1.

Results: Among 35474 COVID-19 patients from May 25, 2020 to March 31, 2022, there were 755 (2%) COVID-19 deaths. Median age of COVID deaths was 55 years (range: 9 days- 104 years). Among 755 COVID deaths, 71% were males, and 41% were older adults. Over half (63%) had at least one or more comorbidities. Major presenting comorbidities were diabetes (51%), hypertension (48%), chronic kidney disease (16%) and cardiovascular disease (11%). Patients mostly died during May 2021 (38%) and June 2021 (15%). Most COVID deaths were from Dimapur district. More than half (61%) sought treatment six days after symptom onset.

Conclusion: Most COVID deaths were males, older adults, had atleast one or more comorbidities and sought delayed treatment. We recommended intensifying awareness in the community especially for people with comorbidities and older adults to take necessary precaution to avoid getting infected and if symptoms develop to seek immediate medical care.

Key words: COVID deaths, Comorbidities, Nagaland, India

Abstracts

Title: Seroprevalence of Scrub typhus at a tertiary care hospital in Andhra Pradesh

P. Madhava*, K. Sireesha, P. Madhavi Latha, P. Prakash, Anju verma, et al

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Background: Scrub typhus, or tsutsugamushi fever, is a zoonotic disease that is caused by a rickettsial organism named Orientia tsutsugamushi and is transmitted to humans through the bite of chigger larvae. Delay in diagnosis can be fatal. IgM ELISA is considered the gold standard method for the diagnosis of scrub typhus. In this context, the present study focuses on the seroprevalence of scrub typhus in south-eastern Andhra Pradesh.

Objectives: The qualitative detection of scrub typhus antibodies (IgM) in human serum samples by using IgM by enzyme linked immunosorbent assay (ELISA).

Methods: The study was conducted at Sri Venkateswara Institute of Medical Sciences, a tertiary care hospital in Tirupati, Andhra Pradesh. The samples from patients with clinical symptoms like fever, headache, chills and Eschar-cigratte burn like soreness were collected and tested for Scrub typhus IgM using a micro well ELISA test kit from J.Mithra& Co. Pvt. Ltd. as per manufacturer protocol. This is a prospective study in which 10,116 serum samples from clinically suspected cases collected over a period of 3 years were processed for the detection of IgM antibodies for scrub typhus.

Results: The total number of samples processed was 10,116 serum samples, 1,901 were found positive, 8,087 were negative. Out of 1,901 positive samples, 1,463 were with eschar formation and 438 were without eschar formation. Out of 1,901 positive samples, 1,327 were below 5 years old, 235 were 5-10 years old, and 339 were more than 10 years old.

Conclusion: Scrub typhus, along with dengue, malaria, and leptospirosis, should be considered in the differential diagnosis of fever of unknown origin in this region. The prevalence rate of scrub typhus is higher in suspected cases with eschar formation and children under 5 years.

Key words: Acute febrile illness, Scrub typhus, Orientiatsutsugamushi, Eschar and IgM ELISA.

Abstracts

Title: Determinants of Isoniazid Preventive Therapy Completion among HIV infected individuals attending ART Centre at Pune: A Cross-Sectional Study

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Background: People living with HIV (PLHIV) are at high risk of developing Tuberculosis (TB) and account for nearly 9% of new TB cases and nearly 300,000 TB-related deaths globally. The National AIDS Control Programme recommends isoniazid prevention therapy (IPT) for all PLHIV which treats latent TB infection thus preventing development of active TB disease. IPT entails use of antiTB drug, Isoniazid (INH) for at least six months and is a proven public health intervention to reduce TB disease among PLHIV. The effect is more when IPT is used in combination with antiretroviral therapy (ART).

Objectives: To understand determinants of IPT completion among HIV infected individuals attending ART centre in Pune.

Methods: Cross-sectional secondary data analysis was conducted among PLHIV attending ICMR-National AIDS Research Institute ART centre. PLHIV who were initiated on IPT between 2017 and 2022 were included. Primary outcome was IPT completion; defined as documentation of receipt of 6 months of isoniazid within 9 months period in treatment registers. Binary logistic regression was performed for data analysis.

Results: A total of 1876 adult PLHIV were initiated on IPT. Those currently on IPT (17.5%, 329/1876) were excluded. Of total 1547 PLHIV, 92.4% (1429/1547) PLHIV completed IPT within eight months and 7.6% (118/1547) discontinued the treatment. Reasons for IPT non completion were side-effects (n=89, 75.4%), death (n=20, 16.9%), loss to follow-up (2, 1.7%) and transfer out (7, 5.9%). ART regimen substitute/switch (1318/1399) and occurrence of TB after IPT initiation (6/11) was significantly associated with IPT completion. Baseline and current CD4 count, and ART duration were not associated. The median duration of IPT completion was 6 months.

Conclusion: Most of the PLHIV completed IPT. Those who required switch/substitution of ART regimen either due to side-effects or virological failure need to be counselled for IPT completion and strategies are needed for enhancing IPT adherence.

Key words: Isoniazid preventive therapy, IPT completion, ART center, PLHIV

Abstracts

Title- Chromosomal point mutations in pmrB gene: A reliable molecular marker for detection of colistin resistance in *Klebsiella pneumoniae*

Pallavi Sinha*, Dhirendra Kumar, Madhumita Barua, Lata Kapoor, NARS- Net team

Centre for Bacterial Disease and Drug Resistance, NCDC, New Delhi, latakapoor@yahoo.co.in **Background-** Overuse of colistin has led to the spread of colistin-resistant pathogens by different mechanisms which are associated with either chromosomal or plasmid mediated (*mcr-1 to mcr- 10* genes) mutations. Chromosomal mediated resistance is predominantly reported in *pmrA*, *pmrB*, *phoP*, *phoQ*, and *mgrB* genes involved in lipopolysaccharide modification. Colistin being one of the last resort antibiotics for treatment of severe infections with Gram negative bacteria, development of reliable molecular marker/s for rapid detection of colistin resistance is necessary.

Objective- Detection of plasmid mediated and chromosomal mediated colistin resistant genes in clinical isolates of *K. pneumoniae*

Methods- A total of 32 colistin resistant *K. pneumoniae* clinical isolates with minimum inhibitory concentrations (MIC) $\ge 4 \mu g/mL$ received as AMR alerts at the National Reference Lab for AMR at CBDDR from sites under the National AMR Surveillance Network (NARS-Net) were selected for this study. All 32 phenotypically confirmed isolates were confirmed by 16S rRNA sequencing. The MIC of the colistin was confirmed by microbroth dilution method as per Clinical and Laboratory Standards Institute (CLSI) guidelines. All isolates were screened for mcr-1 to mcr-10 by conventional PCR using specific primers and subsequently tested for mutations in chromosomal genes (*pmrA*, *pmrB*, *phoP*, *phoQ*, and *mgrB*) through amplification and sequencing.

Results- Out of 32 *K. pneumoniae* isolates, 11 (11/32; 34.4%) isolates were positive for *mcr-9* gene, 4 (4/32; 12.5%) isolates for *mcr-1* gene, and 1 (1/32; 3.1%) isolate for *mcr-7* gene. Sequence analysis of chromosomal genes revealed that most of the *K. pneumoniae* isolates (31/32; 96.5%) had mutations in *pmrB* gene, 2 (2/32; 6.25%) isolates had mutations in *pmrA* gene. Dual mutations in addition to *pmrB* gene were seen in 3 (3/32; 9.3%) isolates with mutations in *phoP* gene, 5 (5/32; 15.6%) isolates with mutation in *phoQ* gene and 12 (12/32; 37.5%) isolates with mutation in *mgrB* gene. One isolate in addition to presence of *mcr-9* showed mutation in *mgrB* gene.

Conclusion- The present study indicates that mutation in pmrB gene being the predominant finding can be a reliable molecular marker for colistin resistance detection. Also, colistin resistance due to chromosomal mediated resistance in the absence of plasmid-mediated resistance implies a lower risk of transmission among members of *Enterobacteriaceae* family as well as other gram-negative bacteria.

Keywords (5)- Chromosomal mediated resistance; plasmid-mediated resistance; colistin resistance; pmrB gene; *Klebsiella pneumoniae*.

Abstracts

Title: Green and climate resilient healthcare facility development in Uttarakhand Pankaj Kumar Singh*, Akhilesh Tripathi, Ankita Dhaondhiyal, Amrita Gupta.

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Background: As climate change escalates, health facilities face increasing risks, compromising their ability to safeguard against climate hazards. Uttarakhand, with its diverse topography and fragile ecosystems, faces multifaceted challenges stemming from climate variability and extreme weather events, which directly impact public health infrastructure. The Green and Climate-Resilient Healthcare Facilities were developed in Rudraprayag, prioritizing measures like energy audits, LED lighting, solar panels, and water conservation.

Objectives: i) To develop environmentally sustainable and climate-resilient healthcare facilities.

ii) To strengthen stakeholder's engagement to address the intersection of healthcare infrastructure and climate change

Methods: The gap analysis was conducted in District Rudraprayag and three health facilities i.e. District Hospital, Community Health Centre Augastymuni and Primary Health Centre Ukhimath, were identified for developing green and climate resilient measures. The interdepartmental collaboration between Health department, Uttarakhand Renewable Energy Development Agency (UREDA), and Water Board was established. The State and District Health Department taken necessary steps at pre-identified health facilities. Energy audit of the health care facilities was conducted by UREDA in coordination with District Health Department.

Results: The LED bulbs/lights were replaced to non-LED bulbs/lights. The solar panels along with the batteries were installed for energy efficiency as per the requirement of the health care facilities. Installation of Rain water harvesting system at the health facilities by Water Board in coordination with District Health Department.

Conclusion: By integrating this intervention into healthcare facility development, this initiative aims to catalyse a paradigm shift towards more sustainable and climate-resilient healthcare infrastructure. Through collaborative efforts involving government agencies and healthcare stakeholders, the project endeavours to build a healthier, more resilient future for the people of Rudraprayag, Uttarakhand, where healthcare facilities serve as pillars of environmental stewardship, public health resilience, and community well-being.

Keywords: Green measures, climate resilient, energy audit

Abstracts

Title: Determinants of Delayed Treatment seeking among Snakebite Victim in India: A Review of Existing Literature

Pankaj Prasad*, Deepti Dabar, Vikas Yadav

*Associate Professor, Department of Community and Family Medicine, AIIMS, Bhopal, MP, India **Background**: Snakebite is a global but a neglected health problem. World Health Organization (WHO) in 2017 has included snakebite envenoming in the list priority list of 'Neglected Tropical Disease'. India accounts for nearly half of the global snakebite deaths. Delay in coming to the hospital may be because of the availability of alternative and traditional methods of cure which actually acts as barriers to early treatment snake Envenoming.

Objective: Our review aims to focus on identifying the determinants of Delayed Treatment seeking among Snakebite Victim in India.

Materials and Methods: We conducted a literature review systematically to identify the various determinants delayed treatment seeking among Snakebite Victim in India by thorough search on various electronic databases (PubMed, CINHAL) from date of inception to 26th January 2026 excluding all non-english articles, reviews, editorials and letters to editor. Following keywords were used after employing suitable Boolean operators: "snakebite, "delayed treatment", "anti-snake venom", "snake-bite victim", "barriers and facilitators," "Envenomation", "traditional healers" and "India". Systematic study selection and data extraction procedures were followed. Titles and abstracts of the relevant publications screened, followed by reading the full texts. Rayyan software was used for screening of titles and abstracts by the study team.

Results: The existing literature review showed that visit to traditional healer before going to healthcare facility, organizing transport, distance from healthcare facility, and absence of Anti-Snake venom were the main reasons for the delays in taking care or treatment at any Healthcare facility.

Conclusion: Our review showed that most common challenges faced while seeking treatment for snakebite victim is visit to traditional healer for treatment due to more faith in them mostly among rural population. This could easily be resolved by sensitizing and caring out IEC activities among the people living in snakebite predominate areas.

Keywords: Snakebite, delays, traditional healers, Envenomation

Title Harnessing the Potential of Polyvalent Lytic Phage STWB21: A Dual Approach for Improved Food Safety and Therapeutic Intervention against Salmonella Typhi

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Background: Enteric bacteria Salmonella is the causative agent for gastroenteropathy and typhoid fever. The population of multi-drug-resistant (MDR) bacteria has considerably expanded over the past several years due to the overuse and misuse of antibiotics; consequently, developing an alternative antibacterial therapy to treat MDR bacterial strains is of utmost importance. Bacteriophages are viruses that can kill their host bacteria without affecting other microflora and co-survive and evolve with their host bacteria. Therefore, bacteriophages have been proposed as an alternative biocontrol agent for bacterial pathogens.

Objectives: This study focuses on the isolation, characterization, and application of the novel lytic bacteriophage.

Methods: A Salmonella bacteriophage was isolated from a lake water sample in the outskirts of Kolkata using the standard enrichment method. Then, the morphological characterization, host range assay, and stability assay (at different pH and temperatures) were performed. For proteomic and genomic analysis, the phage protein and DNA were isolated respectively. An invitro assay was performed to evaluate the capability of this phage for therapeutic purposes. In food samples (e.g. milk, and onion), the phage STWB21 was applied to treat a 24h biofilm formed under controlled laboratory conditions. Further, the effectiveness of phage STWB21 was investigated in preventing S. Typhi from invading mouse liver and spleen tissue and providing a therapeutic advantage for salmonellosis in a mouse model.

Result: A novel polyvalent, lytic Salmonella Typhi phage STWB21 was isolated. It was also able to infect both typhoidal and non-typhoidal Salmonella spp. and a few other bacterial species such as Sh. flexneri 2a, Sh. flexneri 3a, and ETEC. The phage belongs to the Siphoviridae family and was found to be stable under various environmental conditions (pH 4 to 11) and temperatures 4°C to 40°C). The genome sequencing of the phage confirmed the existence of lytic genes and the absence of lysogeny or toxin genes. Since Salmonella is a foodborne pathogen, it was found that bacteriophage STWB21 treatment significantly reduced biofilm on food samples. Moreover, the phage showed reduced colonization in the liver and spleen in both the treatment and prevention groups after introducing phage treatment to the infected mice.

Conclusion: This comprehensive study underscores the biocontrol potential of phage STWB21 against Salmonella spp., advocating its application in food industries and as a promising therapeutic agent. The findings contribute crucial insights into the evolving landscape of phage-based interventions for bacterial infections.

Keywords: Salmonella spp., bacteriophage, lytic, Biofilm. Therapy.

Abstracts

Title: Cumulative Antibiogram of a Tertiary Care Hospital at New Delhi for the Year 2023 shows low susceptibility to several antimicrobials.

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Background: Prompt and accurate preparation and discussion of annual cumulative antibiogram are crucial for distributing the latest susceptibility trends to clinicians. This, in turn, assists in making well-informed decisions regarding selection of antimicrobials not only in our own hospital but also similar community health centers and hospitals which do not have their own antibiograms.

Objectives: To present annual AMR data for priority pathogens for year 2023 that will be helpful in designing antibiotic policy.

Methods: All clinical specimens submitted to Department of Microbiology from January to December 2023 for bacteriological culture were processed using standard microbiological techniques, including conventional and advanced techniques like MALDI-TOF. AST was performed by disc diffusion/ agar dilution/ broth microdilution methods/ VITEK[®] 2 compact system following CLSI guidelines. Data for priority pathogens was entered and analysed using WHONET software.

Results: Over a period of one year, 15,690 pathogenic bacterial strains were isolated from clinical samples, considering only first isolate per patient. These included 14,342 priority pathogens such as E. coli (31%), Klebsiella (17.4%), Pseudomonas aeruginosa (9.5%), Acinetobacter sp. (9.7%), Staphylococcus aureus (17.1%) and Enterococcus sp. (6.1%); while 67, 42 and 11 isolates were of typhoidal Salmonella, Shigella sp. and Vibrio, respectively. E. coli and Klebsiella showed poor susceptibility to 3rd generation cephalosporins (17.3-31.9%), ciprofloxacin (13-17%) and cotrimoxazole (34-35%). Less than one-third Acinetobacter sp. were carbapenem susceptible. Colistin resistance was highest in Klebsiella at 1.3%. We report high rate of MRSA (69.2%) and Vancomycin resistant Enterococcus (84.7%). Overall susceptibility was much lower in specimens from ICU followed by in-patients and out-patients.

Conclusion: Current study highlights limited susceptibility to nearly all drugs, with only few lastresort options remaining for treatment. This underscores the necessity for well-executed process of preparing, disseminating, and presenting annual antibiograms. Ultimately, this process enhances patient outcomes by minimizing adverse effects and reducing resistance.

Key words: Antibiogram, Antimicrobial Resistance, carbapenems, colistin, bacteria.

Abstracts

Title: Lessons from a tribal district in Maharashtra can pave the way for future disease control initiatives- the Gadchiroli COVID-19 vaccination experience

Prajakta Kadale*, **Megha Mamulwar, Kedar Padhye, Suvarna Sane, Leyanna George, et al.** *Division of Disease Elimination Sciences, ICMR- National AIDS Research Institute, Pune-411026, Maharashtra, India. pkadale@nariindia.org,

Background: Implementation of disease control measures in a geo-culturally diverse India, need to respect community needs and mores. Gadchiroli district in Maharashtra, with 38.17% tribal population, plagued by naxalism and challenging geography, demonstrated the highest uptake of COVID-19 precaution dose.

Objectives: To understand the interactions between public health system and the local tribal community in Gadchiroli to learn lessons for future disease control

Methods: Key informant interviews of district health officer (DHO), PHC medical officer (MO), ASHA/ANM (7); in-depth interviews of villagers(N=4) and four focus group discussions were conducted in Kurud and Zinganoor PHCs of Gadchiroli.

Results: The main theme upon analysis was 'close interaction between healthcare staff and community'. A villager said, 'Sarpanch got vaccinated in front of us' this followed by narration of post-vaccination experience by village head was seen as an act of endorsement of vaccine. Despite pre-exiting rapport of PHC staff with community, additional door-to-door visits & interactions with families led to feeling of inclusion, and led to trust and acceptance of vaccination against COVID-19. The MO said 'Vaccination at convenient time, early morning or late evening, encouraged more people to get vaccinated without losing daily wages'. Logistics were managed to ensure that the camp-sites were close to the villagers pre-empting transport hassles. The DHO highlighted 'Support of administrative bodies, panchayat raj in reaching the grass root level and helping the health system to conduct vaccination camps was very important', emphasizing the significance of inter-sectoral coordination. Additionally, the religious and cultural programs were leveraged for conducting awareness campaigns.

Conclusion: The administrative innovations, intersectoral coordination, door-to- door outreach, 'leading by example' and organizational responsiveness to tribal's needs were key strategies in the Gadchiroli success. These strategies can be leveraged for future medical counter measures and not only in emergencies.

Keywords: Tribal population, public health system, health care, Maharashtra

Abstracts

Title: Responding to Public Health Emergency of International Concern: Perspective of a new Point of Entry Health unit.

Pranil Kamble*, Basavarajeshwari, Trishan Mohanty

*Airport Health Officer, Airport Health Organisation Pune. apho.pune-mohfw@gov.in **Background:** As per the International Health Regulations (2005), public health measures at international points of entry (POEs) are a statutory necessity. Primary objective of Airport Health Organizations is preventing entry and transmission of infectious diseases across international borders and ensuring a safe environment for travellers. After identification of COVID-19 cases worldwide, screening of international arriving passengers was initiated at Pune International

Objectives:

airport.

- 1. To effectively implement IHR and Indian Aircraft Public Health Rules at Pune International Airport for managing PHEIC
- 2. To implement public health measures to contain COVID-19 at PoE.

Methods:

- 1. Thermal screening of international arriving passengers and 2% random RT-PCR testing.
- 2. Screening through Self Reporting Form.
- 3. Isolation and transfer of symptomatic passengers to designated hospital.
- 4. Establishment of diagnostic facility for COVD-19.
- 5. Training of key personnel and stakeholders.
- 6. Establishment of BMW management system during the screening.

Results: APHO Pune screened 149548 passengers from 862 international flights (March 2020-December 2023) with 21 Covid-19 positives. The mean age of positives was 36 years. Fishbone analysis of barriers for effective implementation of screening protocol revealed manpower shortage, sudden shortage of logistics, frequent update in guidelines, uncooperative passengers, which were timely overcome by ways of communication, training, planning, liaising and use of newer technology.

Conclusion: Implementation of screening protocol at PoE evolves with the pandemic. Successfully Setting up the screening, isolation and diagnostic facilities at PoE involves intersectoral efforts. Incorporation of newer technology and IT benefitted to overcome the barriers.

Key words: COVID-19, PoE, Screening, International Health, PHEIC.

Abstracts

Title: A clinicomicrobiological profile of leptospirosis and scrub typhus in children with acute undifferentiated febrile illness in a tertiary care hospital in North India

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Background: Leptospirosis and scrub typhus are bacterial zoonotic diseases causing high morbidity and mortality. However, there is limited data available regarding burden of these pathogens causing acute undifferentiated febrile illness in children.

Objectives: To determine clinico-microbiological profile and association of various socioeconomic, demographic and clinical factors of leptospirosis and scrub typhus in children with Acute undifferentiated febrile illness (AUFI).

Methods: This is a prospective study that enrolled hospitalized children of age group 1-12 years of both genders presenting with fever >5 days duration without an apparent focus of infection after initial clinical evaluation. Blood samples from the enrolled children were collected and tested for leptospirosis and scrub typhus by IgM ELISA & PCR.

Results: Out of 130 patients, 57 were females & 73 were males. Fifty-four patients belonged to 1-5year age group & 76 patients belonged to 6-12year age group. Hundred and three belonged to urban area & 27 belonged to rural area. The mean duration of fever at the time of presenting to the hospital was 10.5 days. Other presenting symptoms included vomiting (48.4%), abdominal pain (50.7%), headache (13%) and jaundice (6.1%). Of 130 cases, 43 were diagnosed with leptospirosis and /or scrub typhus. 33(25.4%) patients were positive for leptospirosis & 5(3.8%) were positive for scrub typhus and 5(3.8%) were positive for both leptospirosis & scrub typhus by serological assays. In PCR analysis, all 130 cases were negative for leptospirosis. Similarly, the vast majority, 129 cases were negative for scrub typhus PCR, with only 1 case positive for this PCR.

Conclusion: Significant number of patients being diagnosed with leptospirosis and/or scrub typhus highlights the need for regular screening for these diseases in our setting.

Key words: Zoonotic, leptospirosis, scrub typhus, AUFI, PCR

Title: Outbreak Investigation of COVID-19 in a University Campus, Karnataka, March 2021 Prashant Bhat*, Mohan Kumar R, Veenita Anand, Premanand K, Ravikumar K

*Vector Borne Disease Control Officer, Udupi, Department of Health and Family Welfare, Government of Karnataka, India, prashant@drbhat.co.in

Background: After the declining COVID-19 trend in February 2021, the educational institutions reopened in Karnataka State. A cluster of 20 COVID-19 cases was reported between 11th and 15th March 2021 in one of the University campuses. We investigated this outbreak to guide actions for mitigation.

Methods: We defined the suspected COVID-19 case as a student who resided or visited the campus and either had contact with a confirmed case of COVID-19 or presented one of the following symptoms - fever, cough, breathlessness, anosmia, ageusia, or diarrhoea from February 25 to March 02, 2021. The confirmed cases were suspects with a Real-Time Polymerase Chain Reaction test or rapid test positive for COVID-19. We conducted an active case search and collected data electronically. The findings, combined with discussion with stakeholders, led to hypotheses. A retrospective cohort study was followed to test the hypotheses.

Results: Of 7254 students on campus during the outbreak, 6541 (90%) responded. Of them, 3856 (59%) were suspects, of whom 3030 (79%) were tested. Of the tested, 688 (23%) were positive for COVID-19. While more than 85% (587) cases were diagnosed between March 17 to 26, the first case was confirmed on 1st March and the last on 1st April 2021. The overall compliance for mask-wearing was 85% (5647), and for social distancing, 72% (4766). The highest attack rate (26%, 313/1331) was noted for the 2nd year engineering students who had exams in late February 2021. The post-exam students were less compliant to mask (RR: 1.4; 95% CI: 1.2-1.7) and social distance (RR: 1.5; 95% CI: 1.3-1.7). They carried a higher risk for COVID-19 (RR: 3.41, 95% CI: 2.92-3.99).

Conclusion: The COVID-19 outbreak in educational institutions highlighted the need for additional screening measures and enforcement of strict masks and social distancing on campuses. The students need to be monitored for post-examination get-togethers.

Key Words: COVID-19, SARS-Cov-2, Outbreak Investigation, Air-borne Disease, Pandemic

Abstracts

Index Page (Poster Presentations)

Title: Achievements towards Malaria Elimination in Udupi, Karnataka, 2011-23; where we are and way forward

Prashant Bhat*, Mohammed Sharif, Veenita Anand, Premananda K, Mukta Achar et al.

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Background: In line with Sustainable Development Goals, India aims to end Malaria by 2030. Dakshina Kannada and Udupi are the two most malaria-affected districts in Karnataka, which is an essential contributor to the national burden. However, Udupi has curtailed the Malaria burden drastically over the past decade.

Objective: We examined the secondary data to study the trend and the strategies of the district to curtail Malaria in Udupi district, Karnataka

Methods: In a secondary data analysis, we collected program data from 2011 to 2023. We conducted a time-place-person analysis to see the distribution and the trends, discussed with the key informants to understand the strategies that worked and drew speculations based on these findings.

Results: Overall, the district screened 13-18% (163251 to 242252) of the population annually from 2011 to 2023 consistently. While the Annual Parasite Incidence decreased from 1.9 (2217 cases in 2012) to 0.01 (16 cases in 2023), the distribution was limited to the Udupi urban wards in 2023. There were a few strategies which worked – Migrant screening, covering the overhead tanks on boats during Mansoon when they are parked for 2-3 months, destroying unused fish dryer tanks, periodic inspection of overhead tanks in Urban wards during Mansoon, screening of destitute in morning clinics with food as an enabler, and deploying malaria volunteers for early detection and treatment were few interventions which gave dividends. However, the challenge is to mop-up the last mile and to sustain the zero status, given the tropical climate and the influx of migrants.

Conclusion: Focused strategies and innovative interventions could reduce the incidence of malaria in the Udupi district. However, the last mile zeroing of cases may require much-coordinated effort. More resources may be provided to the district to zero down Malaria as per the State Strategic Plan.

Key Words: Malaria, Vector Borne Disease, Mosquito-Borne Disease, Sustainable Development Goal, Infectious Disease

Abstracts

Title: Outbreak Investigation of Foodborne Illness among Death Anniversary Attendees in a Village of Telangana State, October 2023

P Kongaleti *, Shashank Bassi, Nivethitha N, Sushma Choudhary, Tanzin Dikid et al.

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Background: Unsafe food causes 600 million illnesses and 0.4 million deaths globally. In 2022, Telangana reported 42,159 acute diarrheal cases. On October 7, 2023, a Primary Health Centre in Village Mendapally, Telangana, issued an alert for acute diarrheal illness.

Objectives: To confirm the outbreak, describe epidemiology and identify exposures.

Methodology: We collected previous year's data from PHC, Mendapally. Case-patient was resident of the village with ≥ 3 loose stools within 24 hours or vomiting or abdominal pain between October 1-14, 2023. A house-to-house and environmental survey was conducted. We did a retrospective cohort study, including attendees of the October 6, 2023, death anniversary event. We inspected food preparation areas, questioned food handlers for illness, and collected stool and water samples for laboratory testing. Risk ratios (RR) calculated for exposures.

Results: Of the total village population of 297, 128 attended the ceremony. We confirmed the outbreak with 84 case-patients with a village attack rate of 28% (84/297), median age was 38 years (range:23-49). Food was prepared around 3 pm and served at 4 pm. The Median incubation period from food consumption to first symptom was 16 hours (range:1hr-48.5hrs). Symptoms included stomach pain (90%) and loose stools (76%). No common toilet or water supply found. RR for eating a prefixed menu at death anniversary was 111 (95%CI:15-792). The RR of consuming food after 7:00 pm was 2.7 (95% CI:1.6-4.5). No significant association found with specific food items. Water sample was potable and three stool samples negative on culture and sensitivity. Food handlers were healthy.

Conclusions: This is a point source outbreak of acute gastroenteritis among death anniversary attendants in Village Mendapally. Causative food/organism remains unidentified. Clinical symptoms and median incubation period suggest toxin-induced acute gastroenteritis. We recommended collecting an adequate number of stool samples as per guidelines.

Keywords: Foodborne, investigation, outbreak, food poisoning

Title: Implementation of "Integrated Climate Learning and Action Network (I-CLAN) in the State of Jharkhand"

Praveen Kumar Karn*

*State Epidemiologist, National Health Mission, Jharkhand, praveenkarn29830@gmail.com, **Background:** Climate Change is a crucial public health challenge of the present times. India is vulnerable to climate risks. We have been experiencing increasing early and prolonged heatwaves which are projected to intensify with increased global warming. Chronic air pollution exposure impacts health and reduces average life expectancy. On the other hand, changes in transmission and geographical expansion of vectors of dengue and malaria are observed. Globally by 2050, climate change is expected to cause rise in additional deaths per year from malnutrition, malaria, diarrhea and heat stress alone as per WHO.

Objective: To address gaps in climate-health data through collaborative research and knowledge exchange with relevant research institutes and ministries/departments.

- Provide technical expertise to NPCCHH for implementation of surveillance of climatesensitive diseases and development of green and climate resilient health systems.
- Provide support at state and district level for NPCCHH implementation and augment its efforts to build climate-resilient healthcare systems.

Methods: National Program on Climate Change and Human Health (NPCCHH) is a flagship program of the Ministry of Health and Family Welfare (MoHFW) launched in 2019, for strengthening health system response with the goal to reduce morbidity, mortality, injuries, and health vulnerability to climate variability and extreme weather events. Integrated Climate Learning and Action Network (I-CLAN) aims to bring together technical institutions and experts from across the country to create a unified front in addressing the critical intersection of climate change and healthcare through NPCCHH. I-CLAN aims to foster collaboration across sectors—health, energy, water, waste, and climate resilience—to build resilient, sustainable health systems, addressing climate challenges comprehensively and establish a platform for collaboration, knowledge exchange and research.

Results: NCDC, through NPCCHH will play a leadership role at national level in constitution and functioning of the I-CLAN with technical assistance from USAID. I-CLAN has been formed at State level through voluntary basis or formal nomination by State. All I-CLAN activities have been guided by the I-CLAN framework developed in collaboration with NPCCHH HQ.

I-CLAN member institutions/organizations have been represented by a nodal officer appointed by the respective institute/organization. The nodal officer has been supported by a team comprised of other faculty members/postgraduate students and administrative staff, nominated by the respective institute/organization.

Conclusion: To increase general awareness, Capacity of health care workforce and strengthen health sector preparedness to climate sensitive illnesses and extreme weather events through implementation of relevant climate adaptation and mitigation measures. Heat and air pollution related illnesses, and green and climate resilient health care facilities have been priority health aspects being focused under NPCCHH.

Key words: Climate Change, Action network, Climate adaptation, mitigation measures, resilient healthcare facilities.

Title: Containment of Dengue Outbreak in Jamshedpur city of Jharkhand **Praveen Kumar Karn***

*State Epidemiologist, National Health Mission, Jharkhand, praveenkarn29830@gmail.com **Background**: Dengue is a vector borne viral infection which spreads from mosquitoes to humans. Globally, the incidence of dengue has grown significantly in recent years. In India, the number dengue confirmed cases have increased more than two-fold from 2018 to 2022. In recent years, Urban part of city Jamshedpur, East Singhbhum district of Jharkhand has reported increasing number of dengue cases. The district has reported sudden surge in the number of dengue cases in July 2023.

Objective: To investigate and contain the dengue outbreak in Jamshedpur city of Jharkhand.

Methods: A baseline methodology was used where the principles of public health were followed for outbreak investigation and containment. Continued testing and surveillance, strengthening reporting from private sector and community awareness for self-reporting were important steps towards improving the dengue surveillance. IDSP team has used mapping to understand the distribution of the cases and high incidence zones. The measures for dengue containment include vector management strategies like spraying larvicides, regular fogging, community awareness on using bed nets, maintaining cleanliness, and clearing stagnant water from surrounding, involvement of Mahila Arogya Samiti for awareness generation and active collaboration to engage private providers and development partners.

Results: Number of dengue cases reported in July 2023 were 62 with a positivity rate of 17%. Considering this alarming situation, state has placed all possible surveillance and containment measures to control the outbreak. The positivity rate remained high in August (14%) and September (12%) with 297 and 566 positive cases respectively. Active surveillance and engagement of private providers has helped in reporting of the cases. The positivity rate started declining in October 2023 (6%).

Conclusion: Early identification of outbreak, identification of high incidence zones, engaging communities in applying the preventive measures and engaging the private providers in strengthening the reporting of the cases are the critical steps in containing the outbreak.

Key words: Outbreak, Community engagement, Surveillance, Mapping

Abstracts

Title: Exploring Gaps in Measles Vaccination in India: An Obstacle in the Path of Measles Elimination Goal

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Background: Measles remains a critical public health concern causing significant morbidity and mortality globally. In India, challenges in measles vaccination programs persist and according to National Family Health Survey-5 (2019-21), measles-containing vaccine-1 (MCV) coverage was 88.6% and 58.6% for MCV-2.

Objectives: Study aims to investigate dose-wise critical gaps mapped against sociodemographic variables and provide evidence for targeted actions and explore spatial distribution of zero-dose measles vaccination and identify states, districts, and clusters with high zero-dose burden.

Methods: NFHS-5 served as data source and study analyzed information from 43,864 children aged 24- 35 months. Sociodemographic variables — birth order, wealth quintile, gender, social group, religion, residence, mother education, delivery, and media exposure were considered. Weighted-estimates, chi-square tests, multivariate-multinomial logistic regression, and spatial analysis was conducted.

Results: Study revealed challenges in achieving optimal measles vaccination coverage. Sociodemographic-factor analysis highlighted disparities in coverage with variations in zero dose prevalence across states and districts. Percentage of zero-dose children was significantly higher with 11.5% of children in India remaining to receive any measles vaccination and factors influencing vaccine coverage included birth order, age, wealth quintile, social group, religion, maternal education, etc.

Conclusion: Measles zero-dose children pose a significant obstacle to achieving elimination goal. Study aligns with Immunization Agenda 2030 emphasizing equitable vaccine access and discusses how India can tailor its strategies. Lessons from polio eradication efforts stress importance of high-quality data and surveillance. Spatial analysis identifies clusters of unvaccinated populations and spatially targeted interventions informed by sociodemographic factors can enhance immunization coverage. Achieving measles elimination requires sustained efforts and leveraging lessons from successful vaccination campaigns. Study findings can potentially contribute to informed decision-making, supporting India's roadmap for the measles elimination goal.

Key words: Measles, Vaccine, Zero-Dose, Elimination, Coverage

Abstracts

Title: Epidemiological Investigation of Leptospirosis Outbreak in Amravati city, Maharashtra **Priya Lalji Singh, Subhash Dhole**

*District Epidemiologist, Integrated Disease Surveillance Program, District Health Office, Zilla Parishad, Amravati. drpriyasingh33@gmail.com.

Background: Leptospirosis is a bacterial disease that affects humans and animals. Leptospirosis causes a substantial health burden in the developing world and is one of the oldest endemic diseases. A suspected case of Leptospirosis was admitted in private hospital of Amravati city. It was the first known outbreak of leptospirosis in Amravati. Hence, the objective of the study was to investigate and describe the descriptive epidemiological characteristics of the outbreak.

Methodology: An observational descriptive study was conducted. The outbreak started on 21st July 2023. Rapid Response Team was deployed on the same day in the affected area. Active search for cases in the area was done. 07 cases were observed. Description of the outbreak by time, place and person was done. 07 blood serum samples were collected from all suspected cases and were tested for Leptospirosis IgM Elisa and 5 water samples were tested for portability. **Results**: Incidence among >5 years was 0.93% (7/752). The highest attack rate was observed among the females (1.1%) in comparison to males (0.7%). Overall attack rate was 0.93% (7/752). 02 cases were positive for Leptospirosis IgM Elisa.

Conclusion: Highest risk environment was potential exposure to the water contaminated by animal urine as the case was engaged in cleaning of sewage line activities. Increase in rodents (rats) population was also observed in affected area. Preventative strategies include the use of personal protective equipment to cover the mouth and nose, eyes, and all skin breaks, creating awareness among population regarding signs and symptoms of leptospirosis, and prompt treatment of cases with antibiotics. There was progressive decrease in number of cases and successful control of outbreak was achieved due to implication of short- and long-term curative and preventive measures and management.

Key words: Leptospirosis, Descriptive analysis, Outbreak, Epidemiological investigation

Abstracts

Title: Environmental surveillance on mosquito source reduction and its impact on Dengue case reduction in West Bengal

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Background: Dengue is the vector-borne disease with major public health importance and thrust on continuous vector surveillance can lessen the incidence.

Objective: This study aimed to find link of actions taken in the environmental surveillance and its impact on dengue case reduction.

Methods: Data from Vector Borne Disease Monitoring System (VBDMS) portal of Department of Health and Family welfare, Govt. of West Bengal was collated for five consecutive years. VBDMS portal is fed with data from Vector Surveillance Teams (VST). VST-s perform periodic house-to house survey for current and potential mosquito breeding sources, both indoors and outdoors. Indoor mosquito breeding sites include containers having mosquito larvae and outdoor sources include areas like low lands having stagnant water, construction sites, blocked drainage systems, pile of garbage, etc. A descriptive ecological data mining study was conducted using the portal data from 2019 to 2023 on the surveillance and correlated transmission of dengue.

Results: This study revealed that the most affected districts were North 24 Parganas, Murshidabad and Nadia with favourable bioclimatic zones for breeding of dengue vector mosquito (Aedes). VBDMS portal generates alerts on quality gaps of the environmental survey and on the mosquito larval indices as well. Monitoring of the alerts, mid-course corrections and targeted intervention on the breeding sources had impact on dengue transmission. It was reflected by reduction of test positivity rate from 9.9% in 2019 to 4.1% in 2023.

Conclusion: We can effectively curtail dengue transmission by identification of vector breeding pockets and management of those sources. It would need intersectoral and interprofessional collaboration with Urban Development, Irrigation, Panchayati Raj, Public Health Engineering etc. Moreover, community participation is a actor of paramount importance. This holistic public health approach can have a long-term impact on vector borne disease control in our country. **Key words**: Environmental surveillance, Dengue, Mosquito, Source reduction, West Bengal

Abstracts

Title: Prevalence of antimicrobial resistance in Enterobacterales due to production of AmpC in clinical isolates of patients attending KCGMC, Karnal

Priyanka Saini*, Ashima Katyal, Deepinder Singh, Vikas Chandra Yadav, Prerna Aggarwal

*Department of Microbiology, KCGMC, Karnal author email id: spriyanka1973@gmail.com **Background**: Enterobacterales are among the most common causes of bacterial infections in the community and among hospitalized patients. Multidrug-resistant (MDR) strains have emerged as a major threat to human health. Resistance to third-generation cephalosporins is typical of MDRs, being mainly due to the production of extended spectrum β -lactamases or AmpC-type β lactamases.

Objective: To study the prevalence of antimicrobial resistance (AMR) in Enterobacterales due to production of AmpC in clinical isolates of patients attending KCGMC, Karnal.

Methodology: This is a retrospective study undertaken in the Department of Microbiology, KCGMC, Karnal. Over a period of 6 months (1st August, 23 – 31st January, 24) clinical isolates which were positive for Enterobacterales were processed and antimicrobial susceptibility testing (AST) of the isolates was performed according to the CLSI guidelines. Phenotypic detection of AmpC was performed using cefoxitin cloxacillin- double disc synergy test (CC-DDS).

Results: Over a period of 6 months (1st August, 23 – 31st January, 24) 152 clinical isolates were positive for Enterobacterales . Among positive samples, 108 (71%) were positive for Escherichia coli, followed by 35 samples (23%) positive for Klebsiella spp., followed by 7 samples (4.6%) positive for Proteus spp. and 1 sample (0.6%) positive for Citrobacter koseri and Enterobacter spp. each. Among 152 positive samples, 21 samples (14%) were positive for CC-DDS test indicating AmpC production. Out of these 21 samples, 17 samples (81%) were positive for Escherichia coli, followed by 4 samples (19%) of Klebsiella pneumoniae. Among these 21 clinical isolates, 11 samples (52%) were of pus, 7 (33%) of urine, followed by 2 samples (10%) of high vaginal swab and 1 sample (5%) of tissue culture.

Conclusion: The field of AMR is dynamic and rapidly evolving, and the treatment of antimicrobial resistant infections will continue to challenge clinicians. So, its important to identify AmpC producing Enterobacterales as treatment modalities changes in AmpC producing Enterobacterales and non AmpC producing Enterobacterales.

Abstracts

Title: Utilization of Integrated Road Accident Database system at the Primary Health Centers, North Goa, India, 2022 – A mixed Methods cross-sectional study

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*MPH Scholar, ICMR-School of Public Health, ICMR-National Institute of Epidemiology, Chennai, India. Medical Officer, NVBDCP, Directorate of Health Services, Goa. punam902@gmail.com **Background:** Globally, 1.3 million people die annually due to road traffic accidents (RTAs). India ranks first among fatal RTAs. Government of India launched Integrated Road accident Database (iRAD) application to improve the documentation and management of RTAs with the goal of 'safe roads for all'. Our objectives were to assess the readiness of the Health Officers and Medical Officers, to use iRAD application at the PHCs and to explore the barriers and facilitators towards its utilization.

Methods: We conducted a cross-sectional study using a mixed methods approach. We adapted the e-health assessment questionnaire (a six-point Likert scale) for assessment of readiness. Percentage of average readiness was calculated for each domain and subdomain of the assessment. We adapted a combination of Fit between Individual, Task and Technology (FITT) framework for IT adoption and Capability, Opportunity and Motivation-Behaviour change (COM-B) model for the individual component of FITT framework. In-depth interviews were conducted, followed by manual coding of the transcripts and segregating the codes into themes of FITT framework. We triangulated the quantitative and qualitative results.

Results: Overall, 50-70% readiness was observed among study participants. Least readiness was observed for the domains of need prioritization (46%), speed and quality of ICT (50%), and interinstitutional communication (51%). Higher readiness was observed for need identification (75%) and sociocultural factors (70%). Lack of awareness and monitoring of iRAD, lack of ICT support, unfavourable settings, non-complying features of the app were identified as barriers. Key facilitators included digital awareness, simplicity of the app and dedicated device availability. **Conclusions:** There is a moderate level of readiness for the use of iRAD app among healthcare providers at PHCs in North Goa. The identification of barriers and facilitators point towards a multifaceted approach of behavioural and structural interventions for improving the utilization of the iRAD app at primary care level.

Key words: Integrated Road Accident Database (iRAD), FITT framework, COM-B model, mixed method, Road traffic accidents, e-health

Abstracts

Title: Sensitization Posters Created engaging the air pollution impacted communities through community engagement for identifying the sources and impacts of air pollution for Chhattisgarh State.

Punita Kumar*

*Program Coordinator, State Health Resource Centre, Raipur punitagenesis@gmail.com **Background:** Chhattisgarh popularly known as 'Bowl of Rice' have its 75% of the rural population depends on forest, agriculture, and sericulture for their livelihood and most of the urban or semiurban population depends on daily wages in the mining / industrial districts apart from other professions & occupations. The people are exposed to both ambient air pollution and indoor air pollution especially due to the easy access to firewood/coal and its byproducts

like chena etc. Updated estimations reveal an alarming death toll of 7 million people every year caused by ambient (outdoor) and household air pollution.ⁱ

Objectives: To facilitate behavioral change among the air pollution-impacted communities in Chhattisgarh, by identifying the problem, and its impact, but also preventive intervention on the health of different groups of the population through community engagement.

1. To create relatable sensitization material through community engagement. 2. To exercise the process of identifying the problem, its impact, and preventive interventions

3. To emphasize citizen science and social action.

Methods: Tools used for developing content for the posters;

1. Identifying the air pollution impacted districts and specific groups for intervention in women's / children's / youth / old age in Chhattisgarh.

2. Community engagement through solidarity and FGDs for a period of about one year.

Results: Created six posters in two languages (English and Hindi) focusing on:

- 1. Air Pollution and its sources.
- 2. Air pollution and its impact on the human body
- 3. Air pollution and Children's Health
- 4. Air Pollution and Old age
- 5. Air pollution and maternal health
- 6. How to prevent from Air Pollution

Conclusion: Relatable and relevant IECs were developed through community engagement, solidarity, and citizen science for logical social action.

Keywords: Air pollution / Community Engagement/Relatable/ Prevention

ⁱ Christian Lindmeier W. 9 out of 10 people worldwide breathe polluted air, but more countries are taking action. Saudi Med J 2018;39(6):641

Abstracts

Title: Strengthening Healthcare Connectivity: Utilization and Unifying Integrated Health Information Platform through API linkage with other related portals.

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Background: In the era of digital healthcare, IHIP stand as pivotal tool for consolidating communicable and neglected tropical diseases data. This study explores the current uses of IHIP. The user feedback and non-availability of dedicated data entry operators envisioned the opportunities for improvement through the integration of IHIP with related portals. This study focuses on the incorporation of reports from various portals to enhance healthcare connectivity, streamlining of processes to improve timely decision-making.

Objectives: Primary objectives are to assess the current uses of IHIP, identify areas for improvement, and explore the benefits of amalgamation of these platforms to create a more comprehensive and cohesive healthcare information. To streamline information flow, and empower healthcare professionals with real-time, case-based report.

Methods: Study is done through analysis of user feedback. The above said objectives can be achieved by integration of IHIP with various related portals like E-Health, Central Bureau of Health Intelligence (CBHI), National Institute of Epidemiology (NIE), Vaccine Preventable Diseases Surveillance Information and Management System (VSIMS).

Results: Study reveals diverse uses of IHIP, emphasizing detection of early warning signals of an impending Outbreak, monitoring of disease trends and Special surveillance. Enhanced integration of these platforms demonstrates potential synergies, fostering a holistic approach to healthcare and benefits such as quality reporting, timely decision-making, improved public health responses and optimized resource allocation may be achieved.

Conclusion: Integration of portals with IHIP, coupled with reporting of present status and outcome of case, represents a significant advancement in healthcare connectivity. The study concludes by highlighting importance of sharing of API, optimal utilization of Human Resource, addressing technical challenges, fostering collaboration etc that will benefit in timely decision-making and improved public health response.

KEYWORDS: IHIP, Integration, API, E-Health, CBHI, NIE, VSIMS

Title: Tribal Tuberculosis (TB) Initiative Accelerating Towards Ending Tuberculosis in India Raghuram Rao*, Nishant Kumar, Sophia Khumukcham, Ranjani Ramachandran, Sumitha Chalil et al

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Background: India's National Tuberculosis Elimination Programme (NTEP) has identified tribal communities as vulnerable to Tuberculosis (TB), marked by barriers like geographical constraints, social determinants, malnutrition, and health system limitations. To overcome these challenges, and to address these factors, a multi sectoral response is required.

Method: Joint Tribal TB Initiative is an inter-ministerial collaborative effort by the Ministry of Health and Family Welfare (MoHFW) and Ministry of Tribal Affairs (MoTA) with diverse capabilities to address multi-dimensional issues prevalent in Tribal areas. It includes collaboration to strengthen primary health care service delivery from a health system's perspective at community level and provide support to the health workforce. The initiative was launched in March 2021 for a four year duration.

Objectives include identifying missing TB cases, enhancing diagnostic infrastructure, leveraging resources from both ministries, and aligning with India's vision to end TB, particularly in tribal hotspots.

Result: In 2022, the initiative screened 1.03 crore individuals, identifying 3.82 lakh persons with presumptive TB. Of those tested, 10,249 were diagnosed with TB, with 9,588 initiated on treatment. In 2023, 42,603 community influencers were sensitized, referring 8,753 individuals for testing, resulting in 303 TB diagnoses. Moreover, 1,660 TB survivors from tribal communities were trained as TB champions, contributing to community-based activities and stigma reduction. **Conclusion:** The Joint Tribal TB Initiative serves as a noteworthy model of a multi-sectoral approach, pooling resources to address gaps faced by vulnerable tribal populations. By accelerating efforts through shared resources, the initiative contributes significantly to India's goal of becoming TB-free. This collaborative strategy showcases the effectiveness of interministerial efforts in combating TB within marginalized communities, emphasizing the importance of a comprehensive and coordinated approach for public health initiatives.

Key words: Tuberculosis (TB), tribal, Ministry of Health and Family Welfare (MoHFW) Ministry of Tribal Affairs (MoTA), National Tuberculosis Elimination Programme (NTEP)

Title: Enhancing Public Health Emergency and Disaster Management in India: A Five-Tiered Approach

Raju Thapa, Akshay Dhariwal, Himanshu Chauhan, Rajeev Sharma, Surya Parkash, Harjeet Kaur *Senior Technical Officer-Emergency Management, The Voluntary Health Services, Green Park Extension, New Delhi, 110016, India, Email: drrajuthapa@vhsprojects.org;

Background: The incidents of public health emergencies and disasters continue to be reported in the country compounded by various natural and human-made factors making the population susceptible and area vulnerable. The challenges posed by COVID-19, H1N1, Zika pandemics, Nipah outbreak in Kerala etc. underlined the pressing need to integrate Public Health Emergency and Disaster Management (PHEDM) seamlessly. Recognizing this, the ever-evolving demand for effective management of such crises is being addressed through PHEDM which aims to fortify global readiness and response capabilities.

Objectives: This initiative aims to enhance the emergency and disaster management framework by improving the preparedness of the public health workforce, focusing on swift and efficient crisis response, fostering interdisciplinary collaboration, and promoting effective risk communication among responders.

Methods: A systematic and iterative approach to public health emergency and disaster management training has been adopted. The Need Assessment, planning to enhance preparedness for effective response, safeguard public health, and minimize community impact was done. Evaluation matrix was developed and based on observations refinement, review and revision highlighted the dynamic nature of the process, promoting continuous improvement and adaptability to evolving challenges.

Results: The development of capacity building is underway, employing a comprehensive five-tier framework designed for training individuals from community to policy levels in PHEDM. The PHEDM-PDP Tier-III training has been piloted in Tamil Nadu, validated in Uttarakhand, launched in Rajasthan and partially implemented in Gujarat and Maharashtra. This systematic five-tier approach aims to facilitate the acquisition, reinforcement, adaptation, and sustainability of capacities across people, institutions, and societies.

Conclusion: Implementation of the PHEDM-PDP Five-tier approach ensures meticulous planning, pilot testing, refinement, scaling up, and ongoing sustainability. Such nationwide implementation aims to cultivate a resilient public health workforce and stakeholders, ready to respond effectively to emergencies and disasters, safeguarding health, ensuring safety, and fostering community resilience and recovery.

Keywords: Capacity Enhancement, Public Health Emergency and Disaster Management, Five-Tiered Approach, Resilience, India

Abstracts

Title: Epidemiology of Animal bites and rabies post-exposure prophylaxis- A cross-sectional study in Tiruvallur district, Tamil Nadu, India, 2019-2022

Ramya Murugesan, Jeromie Wesley Vivian Thangaraj, Devika Shanmugasundaram, M Karthikeyan, Muthusamy Santhosh Kumar et al

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Background: India contributes about 36% of global rabies deaths. National action plan for dogmediated rabies elimination aims to reduce human deaths to zero by 2030. We described reported animal bites and coverage of anti-rabies vaccine post-exposure prophylaxis (ARV-PEP) in Tiruvallur district, Tamil Nadu.

Objectives: Describe animal bites reported by block, age, and gender in Tiruvallur district, 2018-2022. Describe coverage and delay in receiving ARV-PEP in a rural and urban PHC, 2022

Methods: We did cross-sectional analysis of animal bites in Tiruvallur district between 2019-2022. We used aggregated data of number of animal bites, category and type of biting animal from monthly reports of government health facilities. We also abstracted age, sex, date of bite, and dates for ARV doses (0,3,7,28) from an urban and rural primary health centre (PHC) register. We estimated animal bites reported per 1000 population by block and year during 2019-22 and by age and sex in 2022. We described bites by category and type of biting animal. We calculated proportion of individuals completed all four doses, delay in receiving ARV doses.

Results: Animal bites reported per 1000 population ranged between 14.6 in 2019 and 14.9 in 2022. Of 13 blocks, 3 blocks in easter region consistently reported higher animal bites. Bites reported by month were high during October-May across years. 88.5% of animal bites were due to dogs, and 74.6% were category I. Reported animal bites per 1000 by age and sex differed in rural and urban PHC. Individuals who completed four doses were 67.7% in urban PHC and 94.3% in rural PHC. The delay was high for doses '0' and '3' among the vaccinated.

Conclusion: Animal bites reported remained same across years and were consistently higher in three blocks. Reasons for low four-dose ARV-PEP coverage in urban areas need to be explored. **Keywords**: rabies; post-exposure prophylaxis; India

Abstracts

Title: Determination of an optimal diagnostic regional cutoff of Scrub typhus ELISA in Northeast India

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Background: Scrub typhus, an important zoonotic disease is being increasingly reported from the Northeast India. The disease is caused by the bacterium Orientia tsutsugamushi and transmitted to the community through bite of the larval stage of infected Leptotrombidium deliense, the principal vector of scrub typhus disease. Amongst all available laboratory based tests, the IgM ELISA-is considered the most reliable test. A cut off OD value of 0.5 is used based on a DHR-ICMR study or as per the kit manufacturer's instruction. However, India being a vast country with diverse ecological niches and endemic foci, this value can have regional variations. Moreover, Northeast India is in the easternmost part bordering Myanmar, China and Bangladesh and so far there is no consensus on a cut off Optical Density (OD) value for IgM ELISA for our region.

Objectives : To determine the geographically relevant cut off value using ELISA kits of InBios (InBios International Inc.,Seattle WA,USA) and by performing Receiver Operating Characterictic (ROC) curve analysis.

Methods: This study was conducted in the department of Microbiology, RIMS, Imphal with serum samples collected from states of Manipur and Tripura in Northeast India,. Serum samples from three categories- 1) normal healthy adults, 2) unrelated febrile illness and 3) clinically suspected and laboratory confirmed scrub typhus cases were screened by rapid card test and confirmed by ELISA as per the manufacturer's instruction.

Results: Taking the OD values of the ELISA, a Receiver Operating Curve (ROC) was drawn to determine the cut off value. The ROC demonstrates a high accuracy rate of the study with area under curve >0.900 indicating an excellent model of a significant study. The outcome reveals two possible cut-off values-

1. Cut off value = 0.3309 with Sensitivity of 0.990 and Specificity and 0.135

2. Cut off value= 0.5617 with Sensitivity of 0.970 and Specificity of 0.000

Conclusion: Of the two values, 0.5617 can be considered a significant value as it has better sensitivity and specificity. Hence while conducting IgM based ELISA technique for diagnosis of scrub typhus, reading of the test can be done assuming a cut off OD of more that 0.56 as positive. **Key words**(5) - Scrub typhus ELISA, ELISA cut off, ROC curve

Abstracts

Title: Preliminary findings from a community-based surveillance for adverse events following immunization with BCG vaccine

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Background: WHO reports the incidence of severe adverse events following immunization (AEFI) with BCG as 1:1000 – 1:10000 for lymphadenitis and 1: 230 000- 1:640 000 for BCG-osis. Adverse event following immunization (AEFI) with live vaccines might be the first manifestation of underlying inborn errors of immunity (IEI).

Objective: We are conducting a community-based study to determine the incidence of AEFI with BCG vaccine in the Indian population, and develop a referral system for immunological work-up of these patients.

Methods: Our study is being implemented within the framework of the immunization program and AEFI surveillance in Mumbai. We follow-up for AEFI at routine immunization visits at 6, 10, 14 weeks and 9 months of age and among those who seek care for AEFIs. All cases of severe BCG complications are referred to ICMR-NIIH for immunological investigations comprising of lymphocyte subset analysis with extended naïve and memory B and T cell analysis, Nitroblue Tetrazolium test, serum immunoglobulin, specialized investigations depending on findings on initial evaluation followed by next generation sequencing. Histologic and microbiological examination of the axillary lesion are also done.

Results: A total of 7289 children were followed-up in the last year. A total of eight BCG adenitis cases were reported, of which five resolved and three persistent cases were referred to ICMR-NIIH for immunological investigations. Two of the patients had no abnormality on immunological and molecular work-up. One of these two patients had *M.tb* detected on microbiological workup and was started on anti-tubercular treatment. One patient had abnormal STAT1 expression, however was lost to follow-up.

Conclusion: We found incidence of 1:1000 for BCG adenitis. Underlying IEI could not be ruled out in one patient. This study will help establish a referral system for immunological work-up for the patients with BCG AEFI for early diagnosis of patients with underlying IEI. It will also help in strengthening of the AEFI surveillance system.

Keywords: surveillance, BCG, adverse events, inborn errors of immunity, immunology

Abstracts

Title: Initiatives taken to increase TB Case Notification in Uttar Pradesh.

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Background: - India has 27% Incident TB Cases as stated in Global TB 2023 report and Uttar Pradesh has 21% of it means every 5th TB Notified Pt is from UP. Our Honorable PM has committed to end TB by 2025 with Incident of TB Cases to be reduced to 44/lakh and reiterated TB Mukt Panchayat and Community involvement through Pradhan Mantri TB Mukt Bharat Abhiyaan.

Objective: - To take initiatives for increasing TB Case Notification with goal of TB Elimination by 2025.

Methods: - Following steps were taken to increase Notification from Screening all types of Presumptive TB Cases in Population with target of 2000/Lakh Population.

- 1. Involvement of Departments like Panchayat raj, Transport, Postal, Ayush, Homeopathic, Ayurvedic and Unani, ICDS, Defense (Ex Service men)
- 2. Sensitization of Community Health Workers in Health and Wellness Centers about screening of Presumptive TB Pts
- 3. Screening of at least 5 % of Pts in all OPD in all Health Facilities
- 4. Active Case Finding Campaign.
- 5. Community Involvement of Politicians, NGO, Corporate Sector, in adopting TB Pts as Nikshay Mitra for Providing monthly Nutritional, Emotional and some Financial Support to TB Pts through treatment

Result: - In yr 2023, in UP, a total of 29,13,865 OPD in Health and Wellness Centers Pts 3,29,045 (11%) Presumptive TB Case were screened and out of it,6372 (4%)were found to have TB.

2,23,132 TB pts were Notified from Pvt Sector against target allotted by Central TB Division of 1,85,700 (120%) and 4,08,754 TB Pts were Notified against target allotted of 3,64,000 (112%) in Public Sector.

Conclusion: - If Multi Sectorial Department, Community Involvement along with Vigilant Screening from Asha, Anganwadi and CHO to Tertiary care Center, TB Can be Eliminated.

Abstracts

Title: Development and Validation of the Motivation for Healthy Eating Behavior Scale (MHEBS) in adults of Bangladesh and India

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Background: The Motivation for Healthy Eating Behavior Scale (MHEBS) is the first developed and validated scale to measure the motivation for healthy eating in the adult population of Bangladesh and India.

Objectives: The study aimed to develop a validated instrument that can assess the motivation for healthy eating as well as the motivating factors.

Methods: The scale was developed by conducting a literature review for generating the items as an initial step. Content validity of the questionnaire was evaluated by an expert panel and the face validity was performed by conducting a pilot study. The construct validity of the scale was assessed by performing Exploratory Factor Analysis (EFA). A total of 220 participants both from Bangladesh and India participated in the study via Google forms.

Results: The scale demonstrated excellent psychometric properties. The content validity index of the items (i-CVI) and the scale (s-CVI) were at acceptable levels of 0.79 and 0.8 respectively. The scale also showed acceptable reliability with Cronbach's alpha value of 0.820. EFA suggested a three-factor scale structure, namely, benefits of healthy eating, external regulation, and affordability. Among the three factors, the maximum number of factors (n=9) loaded into the "benefits of healthy eating" domain.

Conclusion: Motivation for Healthy Eating Behavior Scale (MHEBS) -15 items 5-points Likerttype scale - is a valid instrument to measure the motivation for healthy eating behavior in the Bangladeshi and the Indian adult population.

Keywords: Motivation; Healthy Eating Behavior; Validation; Bangladesh; India

Abstracts

Title: Machine learning based breast cancer screening technique for early detection.

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Background: Though breast cancer is the most common cancer as per ICMR National Cancer Registry Report 2020 in women, it's screening rate is very low in India. Early detection of breast cancer, when effective treatment is possible, is the best protection against it.

Conducting mammography in community and primary health settings is very difficult, painful, expensive. Other screening devices using either thermal indicators or breast lesion identifying electronic sensors are expensive and comes with significant maintenance and management overheads. Clinical Breast Examination (CBE) & monthly Breast Self-Examination (BSE) is one of the most suitable screening techniques which helps in detecting if there is any deviation from normal breast. Quality of CBE depends on the skills and experience of the person conducting it.

Objective: BreastPRO[™] (easy to use Infrared Light device) and machine learning model-based Breast Health Score (BHS[™]) was studied for any benefits in improving the efficiency and quality of CBE at community and primary healthcare settings in a cost-effective way.

Methods: Clinical correlation of Briota's BreastPRO[™] device and BHS[™] was studied based on previously published studies using similar Infrared Light device and the personal experience of screening over 5000 women with the help of clinically safe infrared light devices in the past 20 years.

Results: The process and methodology developed for improving efficiency and quality of CBE was clinically validated. BHS[™] is a good indicator of breast health and can provide guidance to the medical officer on deciding next level of screening.

Conclusion: Using BreastPRO[™] device with machine learning models for patient stratification for further screening can help improve the efficiency and quality of clinical breast examination at community and primary healthcare settings in a cost-effective way.

Key words: Breast Cancer, Clinical Breast Examination, BreastPRO[™], Machine Learning Model, Breast Health Score

Abstracts

Title: SARS-CoV-2 RNA concentrations in Waste water anticipate dynamics of COVID-19 cases in a population: One-year study in Delhi

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Background: During the COVID-19 pandemic, there have been efforts to establish a method that can give an early warning so that public health interventions can be started at the earliest. SARS-CoV-2 (RNA) is shed in excreta and respiratory secretions from asymptomatic, pre symptomatic and symptomatic COVID-19 cases. Waste-water Based Epidemiology (WBE) has been advocated by researchers all over the world as a method for Environmental Surveillance of COVID-19.

Objectives: To evaluate WBE as a tool to give early warning signal of rise or fall in COVID-19 case in a community.

Methods: Sewage samples were collected (Grab Method) from each of the seven identified sites in Delhi on a weekly basis in the period 1st January to 31st December 2023. Samples were concentrated by PEG precipitation method followed by RNA extraction. SARS-CoV2 titres (gene copies per litre of sewage, g.c./L) were determined by plotting standard curves for Positive controls of N1 and N2 genes by qRT-PCR. The obtained viral titres were compared with average number of active clinical cases.

Results: A total of 364 samples were tested, out of which 176 samples tested positive for at least one of the two primers for SARS-CoV-2 (N1 and N2). The viral titres ranged from 1.37×10^{-1} g.c./L to 4.96 x 10⁶ g.c./L in positive samples. The SARS-CoV-2 titres gave an early warning sign of impending rise in clinical cases by 7-14 days. The falling titres also indicated the impending decrease in cases in the following week.

Conclusion: SARS-CoV-2 RNA could be successfully detected from sewage samples and the titres could give an early warning for rising infections in the community. WBE can serve as an important complementary tool for public health interventions such as encouragement for increased testing in the community, preparation of hospitals, introduction/ release of restrictions.

Key words: Environmental Surveillance, Waste-water Based Epidemiology, N1, N2, SARS-CoV-2.
Abstracts

Title: Inspection of the Galley of a Ship with a Checklist – A Case Study

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Background – The galley of the ship is where food for the crew is cooked. Checking the sanitary conditions of the galley is of utmost importance to prevent spread of enteric diseases among the crew and into the country through Point of Entry.

Objective – To use a checklist for sanitary inspection of galley of MV Samudera

Methods – An observational checklist was prepared after extensive literature review and the sanitary conditions of the galley of MV Samudera was matched with it.

Results – The checklist was segregated into different segments - documents needed to be checked, Hygiene of the cook and mess crew, food storage practice of segregation of different types of foods, presence of vectors, general cleanliness of the galley, pantry and the food storage and the standards maintained in MV Samudera was matched with it. Most practices in MV Samudera were up to the mark except absence of a fully equipped first aid box in the galley and absence of colour coded knifes for different foods. In the food storage room, though the temperature was strictly maintained, there were some expired provisions in there.

Conclusion- Using a Checklist makes the inspection of a galley streamlined, exhaustive and standardized throughout all ports of entry. It can be a very useful tool to prevent spread of disease among the crew of the ship as well as entry of disease in the country through point of entry.

Key Words – Point of Entry, Ship, Galley, Sanitary Inspection, Hygiene

Abstracts

Title: Automation of drug resistance TB surveillance reports: Learnings from India toward humanmachine interaction

S. Chauhan*, V. Shah, S K Mattoo, M. Parmar, S. Arunachalam et al.

* WHO NTEP National Consultant-Drug Resistant TB, Central TB Division, chauhans@rntcp.org, **Background:** Despite the improvements in treatment outcomes of drug resistance TB cases, owing to the advancement in diagnostics and treatment regimen, a need for robust monitoring and evaluation system was quintessential as a way forward. Internalizing the findings of the National Anti-TB drug resistance survey, which provided prevalence of drug resistance, establishing a robust drug resistance surveillance system, was much needed.

Objective: Semantically conceptualize DRTB surveillance, leveraging on disjunct yet intricately related data points within the existent surveillance system, to develop case based automated reporting system, which is effective, efficient, addressing dynamic data and meeting global case definitions.

Methods: Until 2021, information on DRTB was analyzed based on aggregate number of cases reported from 760 odd reporting units. The details from 2019 and 2020 suggest a mean turnaround time for aggregate data to be ~45 days per district each quarter. Data validation was limited due in part to the aggregate nature of the data. To avert the mammoth human effort estimated to be around 135000 person hours every quarter (2 hours a day for 2 persons for each of the 760 odd reporting units for a period of 45 days), leveraging on the potential of relational database, a scheduled job is set to run every night based on a novel concept of "case" which accounts for only definitive treatment outcome and dynamically adapts to the frequent and inevitable data updates. The construct of "case" incorporates global definition of universal drug susceptibility testing.

Results: With the introduction of the automated reports in DRTB surveillance it is feasible to get almost real time updates on nearly 60k DRTB cases reported annually.



Conclusion: The automated case finding report suggests the immense potential of technology towards public health surveillance while underlining the import of human cognition and vigilance for continual improvements, ultimately serving humanity

Key-words: Tuberculosis, drug-resistance, surveillance, case finding, technology

Abstracts

Title : Mapping the prevalence of soil-transmitted helminths in northeastern states of India before and after deworming interventions

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Background: Soil-transmitted helminths (STHs) pose a significant health challenge in tropical and subtropical regions globally, impacting 1.5 billion people. Within the category of STHs, four intestinal nematode species—roundworm (*Ascaris lumbricoides*), whipworm (*Trichuris trichiura*), and the hookworms (*Necator americanus and Ancylostoma duodenale*)—are prevalent. The highest burden of STH infections worldwide is observed in Sub-Saharan Africa, East Asia, China, India, and South America. A lack of comprehensive data on STHs in the northeastern states led to the initiation of a study.

Objectives: Generate an assessment of the current prevalence and intensity of STH in the northeastern states. This information will aid in determining the frequency of deworming initiatives.

Methods: Data collection followed the WHO-recommended Sentinel site Approach. In randomly selected primary schools, 50 students aged 5-12 years were targeted for fresh morning stool sample collection. Samples were processed using the Vestergaard Frandsen Kato-Katz kit. To ensure accuracy, 10% of slides underwent rechecking by an independent expert.

Results: We surveyed 1,116 people, collected and examined 1,071 (96%) fecal samples. The most common infection was *A. lumbricoides*, affecting 50.21% overall, followed by *T. trichiura* at 8.47% and Hookworm at 4.76%. In Arunachal Pradesh, 56% had ascariasis, 12.4% had whipworm infection, and 6.8% were infected with hookworm. In Manipur, *A. lumbricoides* was found in 45%, *T. trichiura* in 3%, and Hookworm in about 4%. Meghalaya had the highest whipworm prevalence at around 20%, while ascariasis and hookworm affected cases were 46% and 5.3% respectively. In Mizoram, *Ascaris* infection was at 51%, whipworm at 5.66%, and hookworm infection (6.36%). In Tripura, *A. lumbricoides*, *T. trichiura*, and Hookworm had a prevalence of 42%, 8%, and around 4%, respectively. Following deworming in Tripura, the prevalence of these STHs decreased to 1.2%, 0.09%, and 0.55% for *A. lumbricoides*, *T. trichiura*, and Hookworm, respectively.

Conclusion: The study highlights the need for bi-annual school-based deworming in Northeast states, coupled with health and hygiene education in primary schools. The rapid decrease in STHs prevalence in Tripura post-deworming reinforces the effectiveness of such interventions. Achieving complete STH eradication requires long-term government strategies to enhance community drinking water and sanitation, alongside sustained deworming programs.

Keywords: Soil-transmitted helminths, Roundworm, Whipworm, Hookworm, Deworming

Abstracts

NPHICON 2024

Index Page (Poster Presentations)

Title: Health Promotion for Youth Sanjaya Kumar Bhoi*

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Background: India has one of the youngest populations in the world. The National Youth Policy 2014 defines 'youth' as persons in the age-group of 15-29 years. The National Youth Policy, 2014 reiterates the commitment of the entire nation to all-round development of the youth of India, so that they can realize their full potential and contribute productively to the nation-building process.

As per the Repot of Technical Group on Population Projections, youth in the age group of 15-29 years comprise 27.2% of the population for year 2021. it is necessary that the youth are in good health and their health behaviour have a direct effect on their health and the quality of life which needs to address through health promotion. youth mortality and morbidity show worrying trends in priority areas, such as mental health, sexual health, and cardiovascular risk and road accidents etc. Intervention for youth should focus on increasing self-esteem and self-empowerment leading health promotion.

Objective: To Increase awareness of the youth regarding Health Promotion with a holistic approach. To prepare the youth as role model of Health Promotion through volunteer, motivator and champion for the society.

Methods: The mandate of Central Health Education Bureau is to promote health through Awareness Generation, Capacity building, development of IEC materials and research, The need of the hour necessitates the conversion of CHEB to an all-encompassing institution for Health Promotion. Health Promotion requires comprehensive approaches using all five Ottawa strategies being the most effective i.e. a combination of building healthy public policy, creating supportive environments, strengthening community action, developing youth's personal skills and re-orienting health services. The following activities are being undertaken for health promotion of youth: Training in Health Education and Health Promotion to medical, nursing and paramedical students. 562 participants were oriented. Developed Booklet on Health Promotion for Youth; Healthy Children, Healthy India and Mental Health Promotion. Participation in various Health Exhibitions: Interactions with youth for information dissemination on health promotion.

Conclusion: The youth could be promoted as role model & change agents (as Volunteer, motivator and champion) for health promotion. The five pillars of health promotion can be used for central tool to create awareness and sensitization of youth on various aspects of health promotion.

Key words: Youth, Health Promotion, Health Education, Health Behaviour, Awareness

Abstracts

Title: Prevalence and genetic characterization of the emerging enteric parasite E. moshkovskii in eastern India

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Background: The significance of Entamoeba moshkovskii is increasing as a potential enteropathogen in the occurrence of diarrheal incidents. However, research on its accurate identification and characterization within endemic areas remains limited. This study aims to investigate the role of E. moshkovskii in diarrheal incidents in eastern India and aims to characterize the most potentially pathogenic genotypes of E. moshkovskii.

Objectives: The goal is to conduct identification and molecular characterization of E. moshkovskii in diarrheal patients from Eastern India.

Methods: A three-year surveillance study was conducted among diarrheal patients in eastern India, with a focus on detecting E. moshkovskii using nested PCR targeting the 18SrRNA locus. Positive samples underwent sequencing. Multilocus sequence typing (MLST) was employed to characterize isolates, assessing the role of genetic variation in pathogenic potential. KERP1, amoebapore C (apc), and chitinase were utilized as genetic markers. Genetic and phylogenetic structures were analyzed using DnaSP v5, PopArt, and MEGA-X. Statistical analysis was performed using GraphPad Prism (v.8.4.2), based in CA, USA.

Results: The study revealed that 4.84% of samples tested positive for Entamoeba spp, with 3.12% infected specifically with E. moshkovskii. E. moshkovskii infection exhibited a significant association with age groups (X2=26.01, P<0.0001) but showed no significant correlation with gender (P<0.05). A distinct seasonal pattern was identified for E. moshkovskii infection. Furthermore, 46.56% of cases represented sole E. moshkovskii infections, which were significantly linked to diarrheal incidence (X2=335.5, df=9; P<0.0001). Local E. moshkovskii strains closely matched the prototype (GenBank: KP72260.51) with 99.59%-100% identity. Variations at positions 1345T/G (p=0.0424) and 1361A/G (p=0.0424) in the 18SrRNA locus correlated positively with sole E. moshkovskii infections. Population analysis indicated ongoing expansion after a bottleneck event or selective sweep and/or purifying selection. MLST analysis identified 17 distinct genotypes (M1-M17) across all tested samples. Significantly, genotype M1 exhibited the highest pathogenicity and a strong association (p=0.0394) with diarrheal symptoms. Several SNPs in the studied loci were also identified as potential genetic markers for recognizing highly pathogenic E. moshkovskii isolates.

Conclusion: The study identifies E. moshkovskii infection in Eastern India, the first such report in the region, signifying its potential emergence as an enteric pathogen in the country. **Keywords**: Amoebiasis, Entamoeba moshkovskii, MLST, Genotypes, SNPs

Abstracts

NPHICON 2024

Title: Inspection of medical facilities in a ship: A case study

Satyabrata Maity*, Ranjan Das, Nisith Ghosh, Arunabha Naskar, Rabindra Nath Mandal *Public Health Specialist, PHO Kolkata, smaity090@gmail.com

Background: On board medical care plays a key role in the prevention, surveillance and control of communicable diseases. There are some prerequisite to reduce public health risk on board like training of dedicated staff, maintaining SOPs, timely notification to the competent authority etc. So this oral case presentation has immense importance in International Health Regulation(IHR)

Objective: To find out the areas and standards to minimize the risk of spread of disease that are associated with medical facilities

Methods: The inspection of ship named MT Express Ganges has been done on 26.01.2024 with a predesigned checklist. Additional some areas are like document verification, checking of water flushing system etc. are also done.

Results: Inquiry about must check areas like easy accessibility, cleanliness, well ventilation etc. are done. The in charge of hospital has lack of confidence in doing basic lifesaving procedures like to get ready arrange the oxygen supply to ill crew etc. In medical log most of the records are incomplete in nature. The knowledge of basic first aid care among crews should be improved.

Conclusion: Maintaining the hospital and other medical facilities in a ships per standard regulations like ILO Maritime Labor Convention 2006, ILO, IMO, WHO International guide for ships 2008(IMGS), IMO-STCW 95 is a dynamic and continuous process. Regular training of all sea farers regarding basic life support skills like ACLS BLS, first aid skills is required and strengthening of training programs are the key. Continuous keeping touch with authorized/company appointed doctor under telemedicine consultation should help the preventive and curative management more accurate and timelier.

Key words: On board medical care, surveillance and control of communicable diseases, WHO International guide for ships 2008, life support skills,

Abstracts

Title: Evaluation of a rapid field method of testing coliforms and other pathogens in drinking water

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Background:- Coliforms in drinking water come from fecal contamination. They can be total coliforms or fecal coliforms. Existing tests for detecting coliforms are time-consuming and need specialized equipment like incubator. Hence there is urgent need of new tests and methods or media that circumvent these problems, especially in times of dire need like floods and other natural calamities. In these situations, there is high probability of drinking water supply system being compromised and contaminated, and consequently bacteriological water quality testing becomes imperative. So, we tried to test 2 new media, TSI broth and Peptone water with methylene blue, to test bacteriological water quality at room temperature.

Materials and Methods:- Study period was November 2023 to January, 2024. A total of 50 water samples were tested by conventional multiple tube test (or Presumptive coliform test) and in the 2 new media. Ten drops (200 μ I) of drinking water were added to 2 ml each of TSI broth (containing inverted small Durham's tube) and PWMB (2 ml Peptone water with 5 μ I of 0.1% Methylene blue, and incubated at room temperature.

Results;- The findings of TSI broth and PWMB matched and correlated well with those of Presumptive coliform test. Coliforms yielded yellow colour in TSI broth and reduced methylene blue. Proteus spp. and Salmonella spp. produced black colour in TSI broth. Sensitivity and specificity were 100% when compared with Presumptive coliform test.

Conclusion:- TSI broth and PWMB can be used for surveillance of bacteriological quality of drinking water in field settings with confidence. This methodology can also be modified to check fecal coliforms as well, in subsequent studies.

Abstracts

Title: Sociodemographic determinants of measles vaccination among children aged 12 to 23 months in India: Analysis of the NFHS-5 data.

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Background: Measles is a highly contagious and vaccine-preventable disease that causes 1,28,000 deaths per year globally. Immunization activities have prevented 23.2 million deaths globally between 2000-2018. However, large measles outbreaks continue to occur in India and other countries. To eliminate measles, the World Health Organization has endorsed the Global Vaccine Action Plan. Aligned with these efforts, India is also working towards the elimination of measles with a target date of December 2023. To achieve this goal, it is important to understand the socio-demographic determinants of vaccination status among children in India.

Methodology: This study was a secondary analysis of data from the National Family Health Survey (NFHS-5) in India.

Objective: To assess how selected socio-demographic factors influence vaccination status with the first dose of measles-containing vaccine (MCV1) in children aged 12-23 months in India during 2019-2021.

Data Collection, Analysis, and Management:

Data was collected by the NFHS-5 during 2019-2020 in two phases. Information was collected using pretested questionnaires in local languages, after obtaining informed consent. We analysed the data using stata and applied sample weights to adjust for over-sampling or under-sampling. For women empowerment we developed two scales. We calculated odds ratios and adjusted odds ratios for the selected variables.

Results: Our analysis reveals significant findings: lower birth order is associated with higher vaccination rates, emphasizing the importance of targeted interventions. Maternal age, with mothers aged 25-34 showing higher proactive vaccination behaviour, warrants tailored efforts for different age groups. Maternal education positively influences vaccination, with a peak at secondary education. More antenatal care visits correlate with higher vaccination rates, and institutional delivery and urban residence are associated with increased vaccination. However, disparities exist among wealth index and religion, highlighting the need for culturally sensitive strategies and support for disadvantaged communities. Understanding these dynamics is crucial for equitable vaccination access and the goal of measles elimination in India.

Abstracts

Title: Patterns and Predictors of Cytomegalovirus Infection Among People Living With HIV/AIDS Shaily Bhakuni*, Rohit Chawla , S Anuradha , Vikas Manchanda, Sonal Saxena

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Introduction: HIV-infected individuals are almost universally co-infected with CMV and both viruses are associated with inflammation-related morbidities. CMV infection among HIV-infected individuals may cause end-organ disease, which is an AIDS-defining condition. This study aims to determine the frequency of CMV infection among people living with HIV/AIDS and its association with various socioeconomic, demographic, clinical factors and absolute CD4+ T lymphocyte count.

Materials & Methods : This observational cross-sectional study, conducted in the Department of Microbiology, MAMC, and associated hospitals enrolled HIV positive adults attending Integrated Counselling and Testing Centre, Department of Microbiology, MAMC or ART Centre, Lok Nayak Hospital, New Delhi. Serum of study subjects was tested for IgM and IgG antibodies to CMV by ELISA; and plasma was quantified for CMV DNA by qPCR. Absolute CD4+ cell count on whole blood was performed by flow cytometry.

Results :The study was conducted from September, 2022 to October, 2023. The mean age of 150 enrolled subjects was 39.86 years, with majority being males (59.33%). Seven cases (4.6%) were positive for IgM antibody to CMV by ELISA and 150 (100%) were positive by CMV IgG ELISA. The mean CD4+T cell count was 533 cells /µl. 0.66% (n=1), 0% (n=0), 2% (n=3), 18% (n=27), 26.66 % (n=40), 52.66% (n=79) had CD4+T cell count <50, 50-99, 100-199, 200-349, 350-499 and \geq 500 cells/µl, respectively. The mean CD4+T cell count among CMV IgM positive and negative cases was 452 and 537 cells/µl, respectively, which was found to be statistically insignificant (p=0.30). None of the plasma samples were found to be positive for CMV DNA by PCR.

Conclusion: This study indicates low prevalence of primary or active CMV infection among HIV infected individuals. However, high CMV IgG seroprevalence suggests ubiquitous prior exposure to CMV. Though the mean CD4+T cell count was lower in CMV IgM positive cases, the difference was not found to be statistically significant. Negative plasma CMV DNA by qPCR could be attributed to the fact that the majority of cases (n=149, 99.33%) had CD4+T cell counts \geq 100 cells/µl.

Abstracts

Title: Identification of Spatial Hotspots Clustering of Non- Coverage of Hepatitis-B a Vaccine Preventable Disease Immunization among Children in Northeastern States and Geographically Weighted Regression Analysis to Assess its Associated Factors

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Background: Hepatitis B is a viral infection and a major public health issue. It is a vaccinepreventable disease, and child Immunization is one of the most effective ways to reduce the chronic burden of Hepatitis B. The Universal Immunization Programme (UIP) stands as one of the largest public health initiatives, aiming to reach nearly 2.67 crore newborns annually. In 2007-08, the Hepatitis B vaccine was introduced into the UIP in 10 states of India

Objectives: (i) Identification of the Spatial Hotspots Clustering and (ii) Geographically Weighted Regression Analysis to assess the associated factors with varying space

Methods: This study used NFHS-5 data. Our investigation focused on identifying spatial hotspot clustering related to the non-coverage of Hepatitis-B, a vaccine preventable disease, immunization using the Getis-Ord Gi* statistics. Additionally, we applied Multiscale Geographically Weighted Regression (MGWR) to assess the associated factors and non-coverage of Hepatitis-B immunization among children aged 12-23 months with varying space.

Results: Hotspot analysis results showed that spatial hotspot clustering of non-coverage of Hepatitis B immunization. found in the majority of districts in Nagaland, Manipur, Eastern and Central region of Meghalaya, Cachar valley and lower part of Assam along with few districts in Arunachal Pradesh. Besides, MGWR result showed that the proportion of lowest wealth quintile, children of birth order four and above, awareness about immunization services, private healthcare facility were significant factors for non-coverage of Hepatitis B immunization.

Conclusion: This study showed that non-coverage of Hepatitis B vary by districts of northeastern states. Piloting an intervention for the community about significance of immunization and regular monitoring of immunization services may be used as an initial strategy to improve the Hepatitis-B immunization coverage in northeastern states in India.

Keywords: Hotspot clustering; Hepatitis B; Immunisation; Vaccine Preventable Diseases; Northeastern states

Abstracts

Title: MIDAS: Revolutionizing Health Research in India through Medical Imaging Datasets for Oral Lesions

Shivangni Rajoria*, Varun Surya, Debnath Pal, Harpreet Singh, Anubhuti Sood et al.

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Background: Medical imaging plays a crucial role in the diagnosis, treatment planning, and monitoring of oral cancer. With the advancement of imaging technologies, researchers and clinicians have access to a plethora of imaging datasets that provide valuable insights into the pathophysiology and progression of oral cancer. Such imaging data collections can be primarily utilized for Oral cancer screening for high-risk individuals and has been shown to significantly improve quality-adjusted life years and substantially reduce intervention costs.

Aims and Objectives: This project aims to develop a comprehensive medical imaging dataset focused on oral cancer. By creating a curated dataset encompassing various imaging modalities and clinical data, we aim to facilitate advancements in oral cancer research, enhance diagnostic accuracy, and improve patient outcomes.

Methods: Compilation of diverse imaging including clinical, radiographical and histopathological microphotographs of proven cases of oral cancer, oral potentially malignant disorders (OPMD) and benign lesions along with comprehensive clinical and demographic data with the integration of relevant metadata. Standardization and annotation protocols are employed with expert evaluation and maintenance of the consistency and reproducibility of quality control measures are been done. The workflow adheres to ethical guidelines and obtains appropriate institutional review board approval. The establishment of mechanisms for data sharing and collaboration with other research institutions is been done.

Results: The creation of a comprehensive medical imaging dataset for oral cancer has the potential to drive significant advancements in the understanding, diagnosis, and treatment of this disease.

Conclusion: Creating a robust medical imaging dataset for oral cancer represents a crucial step towards accelerating research efforts in this field. By leveraging the collective expertise and resources of multidisciplinary stakeholders, we aspire to create a valuable resource that empowers researchers to unravel the complexities of oral cancer, ultimately leading to improved diagnosis, treatment, and prognosis for patients worldwide.

Keywords: Oral cancer; Imaging datasets; Health research; Medical imaging; Oral health

Abstracts

Title: Impact of Social Mobilization on Mass Drug Administration (MDA) Under Elimination of Lymphatic Filariasis(ELF) Programme of Odisha

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Background: It was for the 1st time in Odisha, triple drug therapy i.e. DEC, Albendazole and Ivermectine was used for Mass Drug Administration programme in 197 IUs of 11 districts in August 2023. Despite several years of intervention with two drugs, the supervisory drug compliance was low. In order to improve the drug compliance at desired level with an eye of triple drug therapy, robust social mobilization initiatives were accelerated for August MDA round of 2023

Objectives: The basic objective of the study was to assess the impact of social mobilization initiatives for improving the supervisory drug compliance among the people.

Methods: Investigations were done to assess the extent of social mobilization that has reached the maximum people and leading to improved drug compliance. The data base of the study were mainly taken from the study conducted by three independent organisations i.e. Coverage Evaluation Survey(CES) by Govt. Medical Colleges, Evaluation of World Health Organisation(WHO) and assessment by Project Concern International. Key Questions were on IEC, BCC, Social Mobilization, Supervised drug Consumption.

Results: Information and education about benefits of MDA drug compliance were given through various print and electronic media. Social media platforms were used extensively. Schools, Colleges, Offices, PRI members, SHG federations were reached out extensively. Internal report of the department has 87% reported coverage of MDA drug against 78% and 80% by WHO and Medical Colleges respectively.

Conclusions: The study shows very positive correlation between supervisory drug compliance with relation to awareness, social mobilization and community participation. The drug compliance in the schools, offices, institutions, industrial houses was more than previous years. There is also need of further improvement in effective and efficient community participation to address the refusal cases. A flexible model of social mobilization and community participation will further improve the programme.

Key Words: Social Mobilization, Mass Drug Administration, Elimination of Lymphatic Filariasis.

Abstracts

Title: First report of Sero-molecular detection of *Bartonella henselae* infection among Dogs and Veterinarians in India and assessment of risk factors

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Background:- Bartonellosis (Cat Scratch Disease) is an emerging bacterial zoonosis of worldwide distribution. Zoonotic Bartonellosis caused by *Bartonella henselae* is transmitted mainly through scratches of cats and dogs and bites of fleas. However, bartonellosis remains grossly underreported and underdiagnosed in India.

Objectives:- To assess *Bartonella henselae* infection and risk factors of contracting the infection in dogs and humans, including veterinarians from selected Indian cities

Methods:- 835 clinical samples from 577 dogs and 532 clinical samples from 278 humans, including 70 Veterinarians from three Indian states, were screened for *B. henselae* infection by PCR targeting *ribC* gene of the pathogen and IFAT for anti-*B. henselae* IgG antibodies. Risk factors associated with bartonellosis were analyzed in both cases based on a questionnaire survey.

Results:- Dogs:- 3.09% and 29.87% of dogs were tested positive in PCR and IgG-IFAT, respectively. Male dogs, dogs which were improperly housed, infested with fleas, in contact with stray dogs, owned by agriculture or animal husbandry farmers (p= 0.0007), impaired liver (p= 0.0356), and kidney function showed a higher risk of contracting bartonellosis.

Humans- 7.48% and 29.87% of humans were tested positive in PCR and IgG-IFAT, respectively. Compared to the general public, veterinarians had a significantly higher risk (p= 0.0006) of contracting bartonellosis. Peoples with disturbed liver functions, received recent cat scratch (p=0.0007) and flea bite (p=0.0015) also showed a higher seropositivity for bartonellosis.

Conclusion:- The observed high positivity of this hidden threat in humans has unravelled its occupational zoonotic risk and warrants a realistic assessment of the prevalence and risk analysis of bartonellosis among high-risk groups in India, including endocarditis and hepatic peliosis cases,

Keywords: Bartonellosis, Dogs, Humans, India, Risk factor Assessment

Abstracts

Title: Breaking Barriers- Understanding Organ Donation Perceptions in the Indian Transplant Community

Sourabh Sharma*, Dr Himanshu Verma, , Dr Vivek Kute

*Assistant Professor, Department of Nephrology, VMMC and Safdarjung Hospital, New Delhi **Background:** Organ donation is a critical aspect of healthcare, playing a pivotal role in enhancing patient outcomes for individuals suffering from organ failure. This study aimed to assess the perception and pledge for organ donation among transplant professionals in India, shedding light on their attitudes, knowledge, and practices. The investigation is aligned with the Government of India's commitment to promoting organ donation, particularly highlighted by the declaration of the National Organ Donation Day on August 3rd.

Methods: A comprehensive questionnaire was administered to 218 transplant professionals via Google Forms. The survey covered aspects of awareness, knowledge, attitudes, and personal experiences related to organ donation. The data collection took place in accordance with ethical standards.

Results: The demographic analysis of 218 respondents revealed a median age of 34 years, indicating a predominantly middle-aged participant pool. Among them, 169 were male, and the majority held positions as transplant coordinators, senior residents, faculty, or medical officers. Additionally, a significant portion (174/218) reported having < 5 years of experience in field of transplantation. The study uncovered a commendable level of familiarity with the concept of deceased organ donation, with 184 out of 218 respondents acknowledging their understanding of this field. Furthermore, a substantial portion (163 out of 218) indicated their awareness of process involved in taking a pledge for organ donation. The study also noted that 176 out of 218 respondents were informed about new National Organ Donation Day, as declared by the Ministry of Health and Family Welfare, Government of India. When asked to identify barriers to organ donation, respondents cited lack of trust in the medical system as the most prevalent factor (81/218). Cultural or religious beliefs and lack of awareness followed closely, with 62 and 31 respondents respectively pointing them out as significant obstacles. The study shed light on the real-world impact of organ shortages, with 197 out of 218 respondents affirming that they had encountered situations where the lack of available organs adversely affected patient outcomes. Regarding strategies to encourage individuals to pledge for organ donation, respondents emphasized effectiveness of education and awareness campaigns (147/228). Personal testimonials and success stories were also identified as influential, garnering agreement from 60 out of 228 participants...

Conclusion: This study provides crucial insights into the perceptions and practices of transplant professionals in India regarding organ donation. The findings highlight the need for targeted interventions to address barriers, enhance awareness, and foster open conversations within the professional community. The willingness of transplant professionals to actively advocate for organ donation offers promising opportunities for future initiatives. By understanding the dynamics surrounding organ donation, this research contributes to ongoing efforts to cultivate a culture of donation in India, ultimately improving organ donation rates and saving lives.

Keywords: Organ donation; Transplantation; Transplant professionals; Deceased organ donation; Non-communicable diseases; Chronic kidney disease

Abstracts

Title: Insights from the piloting of verbal autopsy tool to assess the determinants of mortality among snake bite victims

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Background: Snakebite envenoming, a priority neglected tropical disease causes an estimated 1.4 million deaths globally. India accounted for 81% of global snakebite deaths in 2019.

Objective: To assess the determinants of the snakebite deaths using verbal autopsy tool **Methods**: We obtained the line list of snake bite deaths from state/district nodal officers in three districts of Madhya Pradesh. We piloted the verbal autopsy tool developed by the Centre for One Health in three districts of Madhya Pradesh from December 13 to 17, 2023 for snakebite deaths. Interview with affected family members was conducted using the tool, and we reviewed their respective medical records. The quantitative data was described as median, and the qualitative data as frequency and percentage.

Results: We analysed 15 snakebite death cases. The median age of the victims was 32 (IQR 15-60) years. The victims were residing in rural 93.3% (14/15), kutcha house 73.3% (11/15) and involved in farming related activities 46.7% (7/15). Incidents occurred within houses 86.7% (13/15), with victims sleeping on the floor 73.3% (11/15). Bites were predominantly on the lower limbs 46.7% (7/15) and tourniquet was tied on 26.7% (4/15). Immediately after the bite, 60% (9/15) sought care in government healthcare facilities and 33% (5/15) approached traditional healers. Anti-snake venom was administered to 71.4% (10/14). The median distance and time to reach the final treatment level were 28 km (IQR 17.5-32.5) and 3 hours 45 mins (IQR 2 Hours 30 minutes- 5 hours), respectively. Median time from snakebite to victim death was 7 hrs (IQR 5.5-10).

Conclusion: Most of the deaths happened in rural areas. Belief in traditional healers, wrong practise of first aid, and delayed time to reach hospitals were the factors that influenced mortality. It is essential to strengthen the interventions to raise awareness about first aid, sensitise traditional healers, facilitate timely transport to prevent snakebite deaths.

Keywords: One Health, Snakebite, Snake Envenomation, Traditional Medicine Practitioners, Verbal Autopsy, First Aid, Neglected tropical Diseases.

Abstracts

Title: Control of dengue outbreak in a persistent dengue hotspot in UT Puducherry using Integrated Health Information Platform

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Background: Puducherry has experienced dengue outbreaks during the post monsoon season almost every year since 2003. In border fishing hamlets, a known hotspot for dengue all prevention activities including IEC/BCC activities are taken up even during summer months. Though dengue infection is preventable, presence of breeding sources throughout the year makes it endemic to Puducherry. Socio – economic conditions along with favourable geographic and climatic conditions makes it vulnerable to the presence of vector (Aedes egypti), active public participation in preventing mosquito breeding sources is the key to prevention and control of dengue and early detection and intervention are important to prevention of loss of life.

Objectives: To contain dengue outbreak

Methods: Augmenting reporting mechanism through Integrated Disease Surveillance Program – Integrated Health Information Platform (IDSP –IHIP) to include even small labs conducting rapid tests to lab confirm Dengue.Enumeration and follow up of fever and dengue cases as reported through IDSP –IHIP, by state and Public Health facility Rapid Response Teams Active door to door case search in affected areas. Active dengue vector source reduction activities Monitoring and modification of field activity plans using IDSP – IHIP daily inputs.

Results: There were three episodes of dengue outbreaks in 2023, two in Pillayarkuppam village and one in Panithittu Village. Each episode took three weeks or more to be contained in spite of strenuous efforts by the field level rapid response teams. Totally eighty eight dengue ELISA confirmed cases from these villages and no loss of life to dengue in any of the episode.

Conclusion: Presence of sources, especially due use of Tarpaulin on roof tops of Kuccha house observed to be associated with aedes mosquitoes.

Key words: Public Participation, Prevention, Behaviour change, Daily reporting, Tarpaulin, Kuccha house.

Abstracts

Title: Mumps Outbreak in a Closed Cantonment Area, Kolkata, West Bengal, India 2023 Subhendu Kumar Ray*, Shahnawaj Khan, Kevisetuo Anthony Dzeyie

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Background: Mumps, a highly contagious vaccine preventable disease, causes inflammation of salivary glands and may lead to severe complications like pancreatitis, encephalitis, meningitis and orchitis. In December 2023, cantonment area hospital, Kolkota reported increase in mumps cases, no previous outbreak reported, and sought support for investigation.

Objective: We investigated to confirm etiology, describe the epidemiology and provide evidencebased recommendation for prevention and control.

Methods: We defined a suspect case as acute onset of unilateral or bilateral tender, swelling of the parotid or other salivary gland lasting ≥2days in cantonment area during 5 October 2023-20 January 2024. Confirmed case was a suspect case with isolation of mumps virus by culture or reverse transcription-polymerase chain reaction. We searched cases by reviewing area hospital register and interviewed them using a semi-structured questionnaire for information on demographics, clinical presentation and immunization history. We interviewed key informants (teacher and medical officer) on management, control and prevention activities. Serum and buccal swab samples were tested for mumps virus.

Results: We identified 129 cases (52% male) between 30 October 2023-20 January 2024. The median age 6 years (range: 3-7 years); 54% cases among 5-10 years age, five cases (4%) were hospitalized and five (4%) were immunized with mumps containing vaccine. Initial cases were not isolated and there was get-together event for the lower classes; classrooms accommodating 30-40 students had no cross-ventilation. From 25 cases, we collected only serum sample from eight cases, both serum and buccal swabs from 17 cases. Eighteen tested positive (14 by serum only, three both by serum and buccal swabs and one by buccal swab only).

Conclusions: We report a confirmed mumps outbreak among children with low vaccine coverage and with no proper isolation policy and poor ventilation classrooms. We recommended early case reporting, ensure case isolation and proper ventilation.

Key words: Mumps, Disease outbreak, Kolkata, India

Abstracts

Title: Impact of climate anomalies on health determinants in states with co-endemicity of Leprosy and other NTDs

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Background: Seven states contribute more than 75% of the total leprosy cases in India every year. In most of these states, Leprosy, Lymphatic Filariasis, Kala-azar, and Tuberculosis are co-endemic. At least 70% of the districts across seven states are vulnerable to extreme weather events, which puts at risk their nutrition security and sanitation safety—prerequisites for disease prevention and ending community transmission.

Objectives: Understanding the impact of climate anomalies on social determinants that influence health outcomes in people affected with leprosy, living in areas with co-endemicity of NTDs.

Methods: It is a mixed methods study that involved semi-structured interviews with persons affected by leprosy and their families across two states, and an analysis of the existing government data on disease prevalence, climate vulnerability and multidimensional poverty. The study also drew insights from peer-reviewed literature and media reports.

Results: Identified 30 districts with high number of at-risk populations having the triple burden of high leprosy prevalence, climate vulnerability and multidimensional poverty. Demonstrated that large concentration of tribal population, recurring droughts and floods, and poor adaptive capacity are some of the risk factors for leprosy, which vary from state to state.

Conclusion: The study points to a need for a multi-dimensional assessment of vulnerability in areas co-endemic for leprosy and other NTDs while prioritising efforts towards health systems strengthening and climate adaptation & mitigation. What emerges is the scope for implementing a holistic One Health approach towards leprosy elimination that goes beyond only the clinical aspects of the disease. It highlights the importance of intersectoral co-ordination between departments of health, social justice, tribal affairs, agriculture, etc. to reach the target of elimination.

Key words: health determinants, disease prevention, vulnerability assessment, climate adaptation and mitigation, One Health approach

Abstracts

Title: Major Public Health Activities and its impact in Biju Patnaik International Airport, Bhubaneswar in last four years (2020 to 2023)

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Background: Airport Health Organization (APHO) Bhubaneswar, unit is started in 2015. This organization is a Subordinate office under the Directorate General of Health Services, Ministry of Health and Family Welfare, Govt. of India and established for the implementation of policies of the Government of India. The major activities conducted at APHO Bhubaneswar are Surveillance and quarantine of International Passengers in case of need, Vector surveillance (for Vectors of Aedes Mosquito mainly) both inside and 400-meter perimeter area of Airport, Containment of Public Health Emergencies of International Concerns (PHEICs) and implementing IHR 2005.

Objective: Analysis of major public Health activities (Surveillance of international passengers including crews and vector surveillance activities) in last four years (2020-2023) and impacts.

Methodology: Month-wise data of flight passenger screening and vector surveillance activities along with indices were tabulated in Excel sheet & analyzed using simple statistical methods.

Results: Total of 321 international flights had arrived from different countries to Bhubaneswar airport and 47001 passengers with crews were screened for diseases. Majority of passengers belongs to UAE (46.7%), Thiland (20.7%), Singapore (18.3%) rest are from Malaysia (4.4%), Kuwait and Oman (3%) and other countries. A total of eleven vector surveillances conducted in Airport and its premises within 2020-23, the analysis shows there was seasonal variation of container index and House indices but there is gradual decline in Indices in 2023 as compared to 2020.

Conclusion: Bhubaneswar International airport is newly functional airport, there are good numbers of flights coming during and after COVID but APHO office is alert enough to do public health activities as per IHR rule. Vector surveillance initiatives and repeated meetings on public health measures, create awareness among State Government as well as Airport staffs which helps in recent reduction of Vector Indices compared to 2020.

Abstracts

Title: Paradigm shift in distribution of leprosy cases in High and Low endemic districts of Maharashtra state, India

Suchitra Surve* ,Sunil Gitte, Ramji Adkekar, Sunita Golhait, Shivaji Aladar, et al

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Background: Despite significant reduction in prevalence of Leprosy to elimination levels, there is need to devise targeted interventions in endemic areas to achieve Leprosy Mukt Bharat by 2027. Attaining zero child cases is crucial as childhood leprosy determines the efficiency of ongoing disease control programs. This paper highlights the pattern of distribution of leprosy in high and low endemic districts in Maharashtra.

Objective: To study trends and distribution of leprosy cases in Gadchiroli (high endemic) and Sangali(low endemic) districts in Maharashtra.

Material and Methods: Retrospective record-based study was conducted among population affected with leprosy between 1st April 2016 -31st November 2022 in Gadchiroli and Sangali district of Maharashtra. The data was recorded using the ULF1 proforma. Disability classification was based on the severity of impairments in the hands, feet, and eyes, with grades ranging from 0 to II. The data analysis was conducted for describing proportions, mean values, and tests of significance(ANOVA, Chi square) were applied as applicable.

Results: The Prevalence of leprosy was significantly higher in Gadchiroli compared to Sangali. A significant difference was observed between group mean of 9-14 years age group with respect to high endemic (11.81 ± 1.527) and low endemic area(11.25 ± 1.626) by applying analysis of variance (f= 4.665, p=0.031).Overall, males (58.3%) were significantly more affected in high endemic region (p<0.001). Multibacillary cases (63.1%) and grade I deformities (16.7%) were significantly higher in low endemic settings whereas paucibacillary presentation was more common (58%) in high endemic settings(p<0.001).

Conclusion: The findings indicate higher load of leprosy cases among children (9-14 years) underlining need of strengthening surveillance strategies in early age group. Relatively higher proportion of Multibacillary cases along with deformities in low endemic settings necessitate Focused Leprosy Campaign (FLC) with emphasis on strategies for better surveillance and timely intervention in children.

Keywords: Leprosy, Child leprosy, Elimination, Multibacillary, Paucibacillary

Abstracts

Title: Typical and Atypical Manifestation of Scrub Typhus In Children At a Tertiary Care Hospital In Eastern Odisha

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Background-: Scrub typhus is grossly under-diagnosed or lately diagnosed in India because of its non-specific clinical presentation, a limited awareness about the disease, a low index of suspicion among clinicians, and a lack of diagnostic facilities. Absence of typical features may create diagnostic dilema among physicians. which may lead to complications & high mortality.

Objective: To asses the clinical profile, complication and outcome of scrub typhus in children. To correlate the severity of clinical presentation with duration of symptoms & laboratory evidence of infection.

Methods : A hospital based Cross sectional study which was conducted in the Department of Paediatrics, And Department of Microbiology PRMMCH, Baripada, Odisha from January 2022 to January 2024. Children from 1 month to 14 years of age presenting with fever in whom rickettsia infection is suspected included. All children who are found to be Elisa or IgM positive for scrub typhus even if admitted for other disease included.

Result-: Out of 254 clinical samples male child are the most affected. The total leukocyte count was elevated in 30.6% of the cases. An elevated serum creatinine level or a change in the serum creatinine level greater than 0.3 mg/dl, which is a diagnostic of AKI, was observed in 28% of cases.

Conclusion-: Pediatric scrub typhus is a common infection and should be suspected in cases with fever for more than 5 days and non-specific signs and symptoms. Early detection and timely management lead to a higher recovery rate.

Keywords- Scrub typhus, Rickettsia, Lymphadenopathy, Eschar, Hepatosplenomegaly, pallor

Abstracts

Title: A Study of Hypertension Prevalence and Risk Factors in Rural and Tribal Areas of Poyanje, Raigad District, Maharashtra

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Background: In rural India, where 25% grapple with hypertension, only 12% manage it, contributing to one-third of deaths. Aligned with India's "25 by 25" goal, our study in Raigad District employs a community-based approach to address challenges in demographics, culture, and healthcare access. The aim is to provide data for tailored public health interventions.

Objective: To investigate the prevalence, management, control, and associated factors risk factors of hypertension in Poyanje area of Raigad District.

Methodology: A cross-sectional study in Poyanje from Dec 2022 to July 2023 included 302 participants aged 30 and above. Sampling used house numbers from the Property Card Register. Data collection involved a questionnaire, physical measurements, and blood pressure readings. Ethical approval was secured, and analysis used Stata 16 and MS Excel 2021. The study examined sociodemographic, physical, and lifestyle factors, along with participants' awareness and knowledge about hypertension.

Results: Overall prevalence for hypertension in Poyanje is 29.8%. Hypertension prevalence increases with age. Women exhibit a slightly higher prevalence (19.2%) compared to men. Hypertensive awareness is low at 9.93% individuals. Fewer hypertensive individuals (16.23%) measure their BP at government health facilities. Age and socio-economic status significantly associate with hypertension. BMI categories and waist circumference risk levels show significant (p = 0.002) and Dietary habits, including a mixed diet, red meat consumption, and frequent pickle consumption, significantly associate with hypertension (p < 0.01). Smoking (p = 0.011) and frequent alcohol consumption show a higher prevalence of hypertensive cases.

Conclusion: High hypertension rates, especially among the elderly and lower-income groups, call for urgent public health measures, including improved screening, awareness campaigns, and fair healthcare access. A holistic approach involving healthcare, lifestyle changes, and awareness is vital for reducing hypertension's impact and improving community well-being.

Keywords: Body Mass Index, Community-Based Assessment Checklist, India Hypertension Control Initiative, Hypertension, Non-communicable diseases.

Abstracts

Title: Use of Web and Mobile Applications to combat Covid-19 pandemic in Karnataka.

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Background: Amidst the exponentially spreading Covid-19 pandemic, the Department of Health and Family Welfare in collaboration with Bhoomi Monitoring Cell - Department of Revenue found innovative solutions to manage the situation effectively. This involved suite of Web and Mobile Applications that addressed critical aspects of pandemic management including Triaging, Bed blocking, Ambulance service, Contact Tracing, Quarantine Watch, Home Isolation Support, Reporting and Analytics. The state relied on 5Ts of tracing, testing, tracking, treatment and technology with the aid of Web and mobile applications to tackle COVID-19.

Objectives: To assess the utilization and impact of War Room's Web and Mobile Applications during the Covid-19 pandemic in Karnataka. Specific objectives included streamlining of Patient Testing data for Patient Management in various healthcare units facilitating efficient Contact Tracing, monitoring Quarantine adherence, providing Home Isolation support ensuring effective Reporting for data-driven decision-making.

Methods: Study was done through user feedback from all district Covid war room.

Results: More than 50,000 patients per day were managed efficiently from treatment to discharge, >2 Crore contacts were traced, >3 crore quarantined people were watched. Furthermore, the applications empowered the health department in decision-making through robust Reporting, Dashboarding, and Analytics.

Conclusion: War Room's Web and Mobile Applications have been instrumental in Karnataka's Covid-19 response, showcasing their adaptability and effectiveness during evolving crisis. Their successful utilization underscores in crisis management, offering a blueprint for future pandemic responses. These applications have not only enhanced operational efficiency but also contributed significantly to the overall public health response.

Keywords: Covid-19, Web and Mobile Applications, Triaging, Bed blocking, Ambulance service, Contact Tracing, Quarantine Watch, Home Isolation.

Title: Study Report: Effect of Malathion 5% for Tick Control in Kyasanur Forest Disease Endemic districts of Karnataka during Transmission Period

Sunanda M*, Bhuvaneshwari, Manjushree, Rajesh Kulakarni, Jyothsna Kairanna, Muktha Achari et al.

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Background: Kyasanur Forest Disease (KFD) is an Arthropod borne viral disease transmitted by an KFDV infected tick (nymph stage) bite and occurs as seasonal outbreaks in Karnataka during December-June with peak. In the KFDV transmission, when an infected monkey (amplifier host) dies, ticks will detach from the carcass and crawl away creating 'Hot spot'. Malathion (5% or 25%) is being used to control ticks in hotspots. In the present study, effect of Malathion 5% for tick control is evaluated, using different application method.

Objectives: Evaluate the effectiveness of Malathion 5% for tick control in hot spots. Identify the best application method for the insecticide. Calculate the required insecticide and inert material for a 50-ft radius hot spot.

Methods: A prospective Case-Control Study was conducted in Sagara and Thirthahalli taluks of Shivamogga district, covering a total of 28 sites. The study assessed 2-g and 1-g Malathion (5%) deposits using various application methods: manual dusting, spraying and mist blowing. Tick density was measured before and after (24-hrs) application. All the studies were conducted in vivo.

Results: The results demonstrated the effectiveness of Malathion in reducing tick density. Spraying with Malathion (2-g deposit/sq.m) showed the significant mortality of nymph averaging 71% reduction. Manual dusting and mist blowing also exhibited reductions, albeit with variations influenced by other factors. The study provided insights into the advantages and disadvantages of each method, with spraying considered the most effective method for nymph control and is cost-effective.

Conclusion: In the study, spraying with Malathion (2-g deposit/sq.m) emerged as the most effective application method. It can be recommended for framing uniform guidelines for tick control in hotspots due to its results, cost-effectiveness and operational ease.

Keywords: Hot Spot Management, Monkey Death, Malathion 5% Spraying, Vector Surveillance,

Abstracts

Title: Viksit Bharat@2047- Voice of the future healthcare force Supriya Dhakne Palwe*

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Background: The vision of Viksit Bharat@2047 campaign encourages gathering ideas and seeking participation and commitment from the youth for building a developed nation. It is important to align the healthcare policies with the perceptions of young students, the future healthcare providers.

Objectives: To assess the perceptions of healthcare students about the healthcare aspect of Viksit Bharat@2047

Methods: A survey was conducted among 8404 UG and PG students of affiliated colleges of the state health sciences university, using a structured and pre-validated Google form, inclusive of the consent. A total of 16 questions were asked on the perceptions and attitudes regarding the healthcare aspect of Viksit Bharat@2047.

Results: Out of the 8404 participants, 89.7% were UG students. 38.8% were from Ayurveda, 26.8% form Dentistry, 13.3% were from medical colleges. 90.6% of the participants could correctly define the concept of 'One Health'. The perception of 'Developed nation' for 53.6% students was about Quality and equitable healthcare delivery system, followed by literacy rate (18.9%). Affordable healthcare (38.9%) was perceived as the biggest strength of India to become the healthcare hub of the world followed by advanced technology (25.1%), healthcare manpower (21.7%). 57.2% felt that equitable healthcare delivery is achievable among the rural and urban India by 2047. 39.7% felt that public health insurance in India should be universal followed by 37.3% saying that it should be based on socio-economic status. 56.7% stated that quality of healthcare delivery in India may improve if healthcare professionals venture into public health administration.

Conclusion: The proportion of students willing to join private and public healthcare sector was comparable. Most of the students expressed their desire to contribute towards Viksit Bharat@2047 by providing healthcare services to the under-served sectors, research and innovations, by integrating the Indian knowledge systems with modern medicine.

Key words- Viksit Bharat, Insurance, Health, Delivery of healthcare

Abstracts

Title: A concurrent mixed-method study on the utilization of Lab Technicians in Public Health Facilities of two states of India.

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Background: Laboratory services and Lab Technicians (LTs) are vital for diagnosis and surveillance of diseases. Availability of LTs and their optimal utilization are challenges in provision of lab services, especially in the absence of integration of human resources. As policymakers, it is imperative to document on-ground utilization of LTs in different models of labs services. **Objectives**:

1. To assess models of laboratory services; availability, and caseload-based utilization of LTs.

2. To explore barriers and facilitators of Human Resource optimization.

3. To compare the utilization of LTs in different models of engagement.

Methods: A concurrent mixed method study was conducted in two states of Uttarakhand and Telangana with different models, i.e, PPP mode, and in-house lab services, respectively. Two districts per state were selected based on HMIS caseload. Each type of facility from District Hospital to PHC was visited. Annual quantitative data was collected using observation checklists and for qualitative interviews, LTs were the primary respondents. Data triangulation was done by interviewing key stakeholders at state, district, facility, and beneficiary level. Ethics approval was received from IEC, NHSRC.

Results: Ninety-three LT interviews were conducted in Telangana. The Telangana Diagnostic Services' (TDS) hub-and-spoke model has been a 'game-changer' in the provision of free-of-cost, high-quality lab services. Overall, there was a gap of 883 (38.5%) LTs in-place against requirement. Utilization of LTs varied from 22.8 (SD 6.1) tests/LT/day in PHCs to 2500 (SD 388) in TDS-hub. Lack of integration, coordination between three Directorates, high demand for TDS were identified as main barriers to optimal utilization of LTs. Data entry and analysis is ongoing for Uttarakhand.

Conclusion: Telangana should rationally deploy LTs based on caseload, fill vacancies, and promote integration for optimal LT utilization.

Keywords: Lab Technicians, Laboratory Services, Hub-and-spoke model, Human Resources for Health, Utilization of LTs

Abstracts

Title: A Study on Foot Care Practices among Leprosy Affected Persons Living in a Leprosy Colony in Bankura, West Bengal

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Background: Leprosy, caused by Mycobacterium leprae, remains a chronic infectious disease, and despite a decline in its prevalence, individuals affected by leprosy continue to experience neuropathic foot impairments. The National Leprosy Eradication Programme (NLEP) addresses this concern by providing self-care practices and microcellular rubber footwear to mitigate further complications. Given the propensity for complications such as ulcers and infections in leprosy patients due to nerve damage, proper foot care becomes imperative.

Objectives: To assess the self-care practices related to foot among leprosy-affected persons with grade 1 and grade2 disability of foot; living in a leprosy colony of Bankura and to explore the barriers of proper self-care practices related to foot among the study population.

Methods: The current study was a community-based observational study with a mixed-method study design. Quantitative data were collected from 106 Leprosy-affected persons using predesigned and pre-tested schedules while qualitative exploration for barriers to foot care practice was conducted as seven in-depth Interviews.

Results : According to the World Health Organization (WHO) disability grading, 31.13% of the study population exhibited grade 1 disability, while a substantial 68.87% displayed grade 2 disability. Notably, 66.9% of participants diligently examined their feet twice daily for indicators such as redness, blisters, wounds, and cuts. Furthermore, 77.4% adhered to the practice of resting when redness or blisters were observed, and 83% covered cuts or wounds with cloth. Additional positive practices included soaking feet in water (57.54%), scraping away hard skin (69.8%), applying oil and massaging feet (95.3%), and engaging in ankle, feet, and toe exercises (31.3%). Despite these commendable practices, barriers to proper foot care, such as lack of knowledge, willpower, and lower socio-economic status, were identified through interviews

Conclusion: Targeted education, improved resource access, customised footwear solutions, and community support are crucial. Further research into culturally appropriate interventions and healthcare worker involvement policy and implementation can empower patients and prevent complications, building a healthier future for this vulnerable population

Keywords- Leprosy affected persons, Disabilities, Foot care practice, Barriers, Interventions

Abstracts

Title: Outbreak Investigation of Chemical Pneumonitis cases-Hyderabad, India, June 2023 Swetha Rajeshwari*, Reddy Surendra, Dhuria Meera, Pasam Guru Vijay Kumar, Dikid Tanzin et al.

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Background: On July 29, 2023, tampering with an abandoned unmarked industrial gas cylinder in an open area, led to leakage of gas. Inhalation of the gas resulted in sudden onset of breathlessness, cough among workers and residents in the vicinity of this densely populated industrial area in Hyderabad city. We investigated to describe the epidemiology of the outbreak and understand clinical profile of the cases.

Methods: We conducted a cross-sectional study, where a case was defined as one with sudden onset of shortness of breath or cough or chest pain or loss of consciousness or eye irritation/watering or vomiting in a resident/worker on 29th July 2023 residing within 50 meters radius of the accident. We identified cases by door-to-door survey and reviewed clinical records of those admitted to hospital.

Results: Of the 54 interviews conducted, 41 (78%) were present in the area on the day of incident and 34 (81%) developed symptoms with a median age 34 years (IQR 26.5- 48 years). Of these, 21 (62%) had visited the hospital for treatment, and 10 (48%) admitted in the hospital. Cough followed by eye irritation was reported by 28 (82%) and 23 (68%) of the cases. Mean duration of admission was 8.5 days among those hospitalized. X-ray and HRCT of all the patients showed reticular patchy infiltrates with bilateral opacities on suggesting chemical pneumonitis. Fifty two percent said, the gas was greenish yellow and smelled like

bleaching powder. There were no human deaths, while 4 deaths among hens were reported in vicinity on that day.

Conclusions: This was a case of inhalation of unknown gas probably chlorine. We recommend safe disposal of unused cylinders and training of workers and residents around precautions to be taken during such an incident.

Key words: Chemical Pneumonitis, Chlorine Gas, Gas leakage, Chemical Hazard; Industrial waste disposal

Abstracts

Title: Entomological Surveillance for the vector of Yellow Fever, Dengue, and Chikungunya at Chennai International Airport: A Comprehensive Analysis of Findings from January to December 2023

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Background: The International Health Regulations (IHR) emphasize the critical importance of vector control at international transportation hubs, including airports, to mitigate the global spread of vector-borne diseases. In line with these recommendations, Chennai International airport conducts regular vector surveys to assess the risk and prevalence of disease vectors on their premises. This study involves a secondary data analysis of findings from routine vector surveys conducted at the airport from January to December 2023.

Objectives: The primary objectives of this research are to analyze and interpret the findings of routine vector surveys at the airport premises over the specified period. Specifically, the study aims to assess the adherence to IHR recommendations, identify patterns in the prevalence of vectors and evaluate provide valuable insights to optimize vector control strategies at Chennai International airport.

Methods: This research adopts a secondary data analysis approach, utilizing data collected during routine vector surveys conducted at the airport and 400-meter perimeter. From the field data, various indices like Premises index, Container index and Breateu index were calculated.

Results: The findings from the secondary data analysis reveal a declining trend in vector prevalence throughout the year. It was found that all the indices were below the critical level. The results contribute to a comprehensive understanding of the vector surveillance at the airport and its alignment with International Health Regulations.

Conclusion: This analysis of vector surveys at Chennai International Airport (January to December 2023) affirms adherence to International Health Regulations. Findings indicate a declining trend in vector prevalence, underscoring the success of ongoing control measures and emphasizing the significance of routine surveillance for sustained health security.

Abstracts

Title: Meeting clean air targets could reduce the burden of hypertension among women of reproductive age in India

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Objective: Air pollution is a prominent cardiovascular risk factor globally and poses a significant concern in low- and middle-income countries. This study shows the association between hypertension among women of reproductive age (WRA, 15–49 years) and exposure to PM2.5, a key pollutant. The aim of this study is to bridge the gap in epidemiological evidence, particularly within the context of India's hypertensive demographic.

Materials and Methodology: Utilizing data from the National Family Health Survey-5 (NFHS-5) and satellite-driven PM2.5 exposure, we examined the links between hypertension and PM2.5 constituents. Logistic regression, adjusted for socioeconomic indicators, including age, smoking, residence, education, and cooking fuel. Multiplicative interactions explored the moderating effects of variables such as smoking, BMI, and residence on PM2.5.

Results: The adjusted odds ratio for hypertension increased by 1.05 (95% CI: 1.04–1.06) per 10 μ g/m³ rise in ambient PM2.5, derived from satellite and MERRA-2 reanalysis (OR 1.04, 95% CI: 1.01-1.09). Notably, smokers exhibited a higher risk (OR 1.11, 95% CI: 1.10–1.16) compared to non-smokers (OR 1.05, 95% CI: 1.04–1.06). The economically vulnerable showed increased susceptibility (OR 1.07, 95% CI: 1.06–1.08). Dust and black carbon displayed stronger associations with hypertension (ORs 1.27 and 1.21, respectively). District-scale analysis suggested a potential 2.42% reduction if districts meet NCAP air quality targets, and a 4.21% reduction in prevalence of hypertension if WHO guidelines are met.

Conclusion: Addressing SDG 3, the study emphasizes a positive association between PM2.5 exposure and hypertension in WRA, shedding light on critical health challenges in developing countries. From the perspective of the Indian Hypertension Control Initiative, emphasizing the potential impact of policy interventions in mitigating cardiovascular risks associated with air pollution in India.

Abstracts

Tite: A point prevalence study of anti-microbial use in a tertiary care hospital

Triveni M*, Chandrakala K, Mubishera Begum, Kavita Rajesh Gudibanda, Suneet Kaur et al *Associate Professor, Guntur Medical College, Guntur, triveni.manchu@gmail.com

Background: As per WHO (2019), Antimicrobial resistance (AMR) is among the top ten global public health threats facing humanity. Surveillance systems are the cornerstones of successful implementation of sustainable antimicrobial stewardship programs and thus reduce AMR. This Point Prevalence survey (PPS) was conducted to observe antimicrobial use in a tertiary care facility of India.

Objectives: To estimate prevalence of antibiotic use, most commonly prescribed antimicrobials and assess antibiotic usage as per WHO AWaRe classification

Methods: A cross sectional PPS (on a single day in December 2021) was conducted at a tertiary care hospital with prior ethical approval. All admitted eligible patients in the ICU/ wards admitted before 9.00 am on the day of data collection were included. Data collected using two structured case record forms: ward level and patient level data. The outcome measures were analyzed & represented in percentages.

Results: Of 450 eligible patients, 278 were prescribed antibiotics. Total antimicrobials prescribed were 429. 55.1% (145) prescriptions were on single antibiotic, 32.8% (118) on two antibiotics and 12.1% (15) on 3 or more antibiotics. Most commonly used antimicrobial was Metronidazole (21.44%) followed by Ceftriaxone (19.11%). As per WHO AWaRe classification, 43.5% (187) were from Access, 55.4% (238) from Watch & 0.1% (4) from Reserve category. Community acquired infection (38.5%) followed by Surgical prophylaxis (28.4%) was the most common indication of prescribing. 8.6% (24) & 16.5% (46) patients were receiving double anaerobic cover & double gram negative cover respectively.

Conclusion: To preserve the future effectiveness of antibiotics, it is imperative to rationally scrutinize and improve prescribing practices. This PPS survey has generated baseline data for identifying strategies directed at reducing antimicrobial use & develop evidence based antimicrobial prescribing guidelines.

Keywords: AMR (Antimicrobial resistance), PPS (Point Prevalence Study), Antibiotic consumption, AMSP (Antimicrobial Stewardship Programme), AWaRe classification

Title: Air conditioning units as potential source for contaminating healthcare environment – Need to educate Healthcare establishments.

Uday Kelkar*

* Associate Professor PBMAs College of Optometry, Mohamadwadi, Pune, udakelkar@gmail.com Introduction: Air conditioning/ cooling is provided in health care establishments (HCEs) for comfort of patients. People accessing Health care facilities are most likely to be having decreased immunity as compared to healthy population. Contaminated environment could be potential source of hospital acquired infections (HAI). Air conditioners/coolers which are not maintained properly could act as a nidus for growth and dispersal of microorganisms. Several HCE's could be facing this problem and be unaware of the same.

Methods: The most vulnerable places in HSE's are Operation theaters / ICUs/ NICUs. The operation-theaters were chosen as study area for this research. Forty-one hospitals from Pune were inducted into study consisting of evaluating the environment for fungal contamination. The environment and filters of the air conditioning devices in operating rooms of hospitals in study group were evaluated once in three months for three years.

Results: This study demonstrated that the incidence of fungal contamination of the filters in the forty-one hospitals studied varied from 3% to 18% depending upon the season and humidity. On further evaluation air conditioner's filters were found to be grossly contaminated in some cases. Aspergillus and Mucor Spp. were the predominant fungi isolated.

The rate was more after the monsoon months as often humidity and temperature are both higher than ideal normal. The results of this study were used to educate the hospitals about need for routine cleaning and disinfection of gadgets like air conditioners/ coolers/ dehumidifiers etc.

Conclusion: The Air conditioners, coolers, dehumidifiers and similar gadgets in HCEs should be meticulously disinfected and environmental surveillance carried out to minimize the chances of proliferation and dispersal of potentially pathogenic fungi contaminating environment.

KEY WORDS – Environment, Surveillance, Infections, Gadgets, Patients

Abstracts

Title: Assessing Adolescent Health Literacy skill to Non-Communicable Disease Prevention: A Multi-State Survey in India.

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Background: It is reported that Low to moderate health literacy significantly impacts noncommunicable diseases (NCDs). Poor health literacy correlates with poorer health status, hinders disease self-management and adherence to healthy behaviours, resulting in delayed diagnosis, treatment, and worsened outcomes. This is the first Indian study among adolescents assessing health literacy skills in one each district of five Indian states.

Objective: To evaluate the health literacy levels (skills) of adolescents attending both English and vernacular medium schools in one district from each of five selected Indian states to non-communicable disease prevention.

Methodology: To investigate health literacy among school-going adolescents, a survey was conducted in one district each from Madhya Pradesh, Karnataka, Kerala, Andhra Pradesh and Tamilnadu using the HLSAC survey tool. We adopted the Health Literacy for School-Aged Children (HLSAC) survey tool which was translated and validated in five languages for vernacular medium schools, while the English version was used for English medium schools. A sample size of 424 per language medium in each district was calculated assuming 50% had high health literacy level with 95% Confidence level.

Results: The survey included 4237 adolescents aged 12-15 years, with 52.5% males and 50.1% studying in English medium schools. Majority had nuclear families (63.1%) and parents with high school education (53.5%). Most participants demonstrated moderate health literacy (72.6%), followed by high (20.8%) and low (6.6%) levels. Karnataka had the highest high health literacy scorer (6%), and Tamilnadu had the highest moderate health literacy level (17%).

Conclusion: Addressing the rising burden of NCDs requires assessing and enhancing adolescents' health literacy to promote health-seeking behavior and combat lifestyle diseases. Disparities in health literacy across states highlight the need for state wise health literacy survey and tailored interventions to improve health literacy leading to better health outcomes among adolescents.

Key words: Health literacy, Non-communicable diseases, Adolescents, State-wise survey, disease prevention

Abstracts

Title: Inception and Evolution of Smart Phone Based Mosquito Larval Surveillance in Airport Health Organisation, Tiruchirappalli, Tamil Nadu, December 2020- January 2024

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Background: Mosquito larval surveillance (MLS) in and around 400m perimeter of Tiruchirappalli Airport is a core activity of Airport Health Organisation (APHO), Tiruchirappalli. Since its Inception, APHO Tiruchirappalli was carrying out MLS which was paper based. In this digital age, paper based surveillance had to be replaced by latest technology in digital data collection and compilation.

Objectives: To describe the inception and evolution of smart phone based mosquito larval surveillance (SPMLS) in APHO Tiruchirappalli from December 2020-January 2024.

Methods: Retrospective record based descriptive review was conducted at the office of APHO, Tiruchirappalli, Tamil Nadu from December 2020-January 2024. Records reviewed included; surveillance proformas, MLS reports, project file, correspondence and meeting minutes.

Results: The project proposal for SPMLS by using free mobile & web application for data collection (Epicollect 5) was considered by APHO Trichy in December 2020. From January 2021, APHO Trichy started implementation of SPMLS. The SPMLS collected data on date and time of survey, geographic coordinates and address of premises/household, number and type of dry, wet containers and mosquito larval presence in wet containers, type of control activities/health education given by APHO team and public health action required from other responsible authorities to destroy or remove remaining water containing containers/water collections. With the implementation of SPMLS, data could be collected on a real time basis which could be easily stored and retrieved, compiled and analysed on a daily basis to identify hotspots of mosquito breeding which required targeted intervention from other stakeholders like Airport Operator, Corporation Health Department and Public Works Department. Currenlty, Central International Health Division (CIHD) is developing an android based SPMLS application in collaboration with National Centre for Disease Control, New Delhi in line with APHO Trichy SPMLS.

Conclusion: The SPMLS implementation at APHO Trichy and its adoption by CIHD serves as a good example for use of newer technologies for data collection for public health action.

Key words: Public Health, Surveillance, Point of Entry, Data, Mosquito

Abstracts

Title- Strategies to prevent Hepatitis B vertical transmission

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* Professor PGIMS, Rohtak, drparveenmalhotra@yahoo.com/ drvanimalhotra@gmail.com **Background:** HBV infection is a global problem with nearly 350 million chronic carrier and over 50% of these carriers are believed to have acquired their infection vertically from their mothers, i.e. through mother - to - child transmission (MTCT).

Objectives: i) To prevent MTCT of HBV by administrating antiviral drugs, as per indication to Hepatitis B positive pregnant mothers and mandatory HBV Vaccine and Hepatitis B immunoglobulin (HBIG) to newborn. ii) To evaluate vertical transmission to neonate

Methods- It was a prospective study conducted at PGIMS, Rohtak over a period of five years. Seven hundred and fifty (750) HBV pregnant patients were enrolled in the study. Out of these 750 patients, ten patients had miscarriage and were excluded from the study. Out of remaining 740 patients, 148 (20%) were found to be having high HBV DNA and/or HbeAg positivity, hence were started on tablet Tenofovir from 28 weeks of pregnancy. All the newborns were given zero dose of HBV vaccine and HBIG (0.5 ml) within few hours of birth and next three doses of HBV at 6,10 &14 weeks of life. All the newborns were followed till 12 months of age and HbsAg and HBV DNA quantitative was done at one year of age. Out of these 740 patients, data of 450 newborn who attained one year of age and were tested for HbsAg positivity was collected and analyzed.

Results: Out of 740 patients who were followed, till date 450 newborns have attained one year of age and out of them 449 (99.77%) are HbsAg and HBV DNA quantitative negative and only one patient (0.22%) was found to be HbsAg and HBV DNA quantitative positive.

Conclusion: Our study clearly highlights the success associated with timely intervention at different stage of pregnancy in HbsAg positive mother can lead to prevention of vertical transmission to great extent.

Keywords: Hepatitis B, Vertical transmission, Hepatitis B immunoglobulin, Hepatitis B Vaccine, HBV DNA quantitative

Abstracts

Title: Measles and Rubella Outbreak in Malappuram, India (2022-23): Epidemiological Analysis and Public Health Implications

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Background: Globally, measles is a major cause of child mortality, and rubella leads to birth defects, and the country is working to eliminate this disease. In 2022-23, Malappuram district, Kerala, India, experienced a measles and rubella outbreak.

Objective: To describe the epidemiology, clinical presentation, and vaccination status of cases reported during this time period.

Methodology: A suspect case was defined as one with fever and rash in a resident of Malappuram district from 20 June 2022 – 9 March 2023. Laboratory confirmation was done by measles/rubella specific IgM antibody by ELISA or measles virus by PCR. We identified cases through active and passive surveillance. Clinical information, vaccination status, and reasons for non-immunization from the mother/caregiver using a semi-structured questionnaire were also collected.

Results: We identified 1,402 suspect cases, with 103(n=434) and 46(n=186) laboratory-confirmed cases of measles and rubella, respectively. The median age (n=1341) was 4 years (IQR 1-7), with 47% females. Under-fives were 58%, yielding an overall attack rate of 1.9/1000. Unimmunized cases had a rate of 4.6/1000 whereas immunized had 0.6/1000. Among suspect cases (n=977), 73% unimmunized and 27% received either measles-rubella-containing vaccine (MRCV) 1, or MRCV2. Clinical presentations (n=40) included cough 98%, conjunctivitis 85%, and coryza 73%, and vitamin A (n=35), 80% received two doses of post-rash, and 9% received one dose. Non-immunization reasons(n=40) were lack of awareness 50% misinformation 43%, contraindications 35% and resistance from family 28%.

Conclusions: A mixed outbreak of Measles and Rubella with more than half of cases in underfives, particularly those unimmunized with Measles and Rubella Containing Vaccine (MRCV). Recommendations include immunizing susceptible children with two MRCV doses, vitamin A supplementation, and sustained surveillance. Strategies to address vaccination barriers, such as rumours and lack of faith, are crucial for improving coverage

Keywords: Outbreak, Measles, Rubella, Vaccine Coverage, Kerala
Abstracts

Title: Outbreak Investigation of Dengue in a coaching area Talwandi, District Kota, Rajasthan, India, July 2023-January 2024.

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Background: In India , More than 94000 people are infected with DENV and 91 dies from severe DENV infection in 2023. On July 22, 2023, Information received from IDSP L form by MBS hospital. **Objective**: We investigated to describe a dengue outbreak in the Coaching area Talwandi of Kota District, Rajasthan from July 2023-January 2024 and to suggest evidence based preventive and control measures.

Methods: We defined a suspect case as anyone having acute febrile illness of 2-7 days with any one of the following: Nausea, vomiting, rash, headache, retro orbital pain, myalgia or arthralgia in a resident of Talwandi area, Kota from 22 July 2023- 19 January 2024. We conducted house-to-house survey and reviewed facility records from Talwandi UPHC. Blood samples were collected and sent to Microbiology department for dengue NS1 antigen and IgM antibody ELISA testing. Vector surveillance was conducted for calculating vector indices.

Results: A total of 401 cases, with 302 (75%) males, and median age of 46 years (range: 01-91) were found among Talwandi. The attack rate was 0.83% (401/47822). Out of the 15 samples collected two tested positive for IgM Antibody ELISA. Out of 41541 houses, 5290 were larva positive. HI was 12.73 and BI was 23.42. One death due to Dengue shock syndrome- dengue induced encephalopathy was observed.

Conclusions: We confirm a dengue outbreak in Talwandi from July 2023-January 2024. Public health action taken such as reduction of 19060 breeding sources, temiphos dropped in 30835 containers and pyrethrum sprayed in 32319 rooms and fogging done in 212 area in high-risk area. Continuous vector surveillance and strengthen fever surveillance in at risk areas was recommended along with the ongoing awareness activities.

Keywords: Dengue outbreak, Epidemiology, Prevention, Control, Talwandi.

Abstracts

Title: Effective implementation of vector surveillance system of Aedes mosquito at Visakhapatnam Seaport.

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Introduction: Point of Entries (POEs) in India is obligated to meet requirements under the WHO International Health Regulation 2005, to prevent the spread of vectors/reservoirs and vector borne diseases from one country to another. As Asia is considered vulnerable for the potential introduction of the virus, due to the presence of a large susceptible human population and presence of the mosquito vector, Aedes aegypti, routine entomological surveillance has been carried out at all POE in India

Objectives: To monitor the implementation of vector surveillance inside and within the 400 perimeters of Visakhapatnam Seaport. To compare the indices before and after the effective implementation of Vector Surveillance

Methods: A retrospective study was done at PHO Visakhapatnam through secondary data collection from the records from January 2023- December 2023. A field survey was being conducted regularly within the 400 perimeters of the Visakhapatnam seaport. From January to June 2023, random vector surveillance of Aedes was carried out. From July 2023, mapping of the seaport was done; health staff were trained by following the proper measures in identification of potential breeding sites and assigned with specific areas for the surveillance every day. Surveillance was done by inspecting the potential breeding sources of the Aedes.

Results: Data was collected and the indices were calculated and compared. Before the training, the premise/house index (PI/HI), container index (CI) and breateu index (BI) were found to be higher when compared to after the training. Container index was found to be statistically significant at inside and outside the port premises (p= 0.01, 0.03)

Conclusion: Vector surveillance was found to be effective by increased manpower, repeated training sessions, assigning specific job responsibilities of the staff, regular monitoring of the field activities and intersectoral coordination.

Keywords: Vector surveillance, implementation, seaport, Aedes, points of entry

Abstracts

Title: Serological profile of Scrub typhus in Regional Institute of Medical Sciences (RIMS) hospital, Imphal.

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Background: Scrub typhus is an acute infectious disease of variable severity caused by Orientia tsutsugamushi. It is one of the emerging infectious diseases in India. Manipur, a hilly region, with favourable environment for its vector, there have been increased rise in the cases in recent years. Keeping this in mind, a retrospective study was conducted to understand the serological profile from samples received in our hospital.

Objectives: To estimate the Scrub typhus seropositivity in patients attending RIMS hospital, Imphal.

Methods: Samples sent for Scrub typhus serology in the Microbiology department of RIMS was analysed for 2years (2022 and 2023). Rapid testing using ICT kit were done to detect the cases and ELISA(IgM) were put up for some of the cases to compare the sensitivity and specificity of these two testing methods.

Results: Out of 4747 samples tested for scrub typhus, 96 were found to be positive. The incidence is found to be 2%. District wise distribution of the positive cases showed maximum in Imphal West district. Higher prevalence was seen in males compared to females. Surprisingly, out of 11 samples which were sent for other serological test other than scrub typhus, 2 samples were showing scrub typhus positive.

Conclusion: Though the overall prevalence is low compared to other regions, there might be many other undetected cases due to lack of awareness. Undiagnosed cases may have variable severity, sometimes resulting in death of patients. Male preponderance may be due to higher exposure to the susceptible environment.

Key words: Orientia tsutsugamushi, emerging infectious diseases

Abstracts

Title: Pilot for testing strategies to engage with the private sector for reporting on IHIP **Yogesh Kaurav*, Pramod Pathak , Veena Sinha, Mahendra P.S, Sanjay Goyal, et al** *Deputy Director, Hospital Administration, Directorate of Health Services

Background: In Madhya Pradesh approximately 60-70% of the population seeks care in the private sector. Given the high patient burden, any endeavor for disease surveillance is incomplete if it excludes private facilities. With only 4.1% of the total private facilities in Madhya Pradesh reporting on IHIP, there is a major need to engage with this largely unrepresented section for effective public health surveillance.

Objective: Test and pilot multiple strategies to enroll new private health facilities and improve the consistency and quality of reporting among registered facilities on IHIP.

Methods: Thorough profiling and baseline assessments for strategic selection of private facilities basis factors such as facility type (lab/clinic/hospital), burden, specialization. Identification of 118 focus facilities spread across 3 districts for deployment of multiple interventions.

Under a two-pronged approach involving, development of standardized process flows for onboarding of new facilities and experimenting with interventions across four categories – improving awareness, standardizing data collection processes, improving monitoring and valuation, and setting up non-monetary incentive/recognition systems, to increase consistency and quality of reporting from focus facilities

Results: All focus facilities were successfully onboarded onto IHIP. There was an evident increase in the quality of reporting as measured across various KPIs – frequency, quantum of reporting, and number of unique diseases reported, . A significant increase in performance was noticed as a result of successful intervention strategies compared against a control group of facilities.

Conclusion: The pilot has been instrumental in building evidence for incentive structures and strategies that affect change in the behavioral patterns of actors in the private healthcare space, especially without a monetary push. Furthermore, the increase in data visibility has proven that it is imperative to engage with the private sphere for reporting on IHIP to drive meaningful evidence-based decision-making on public health surveillance.

Key words: Integrated disease surveillance program (IDSP), Integrated Health Information Portal (IHIP), Private Sector, Data Reporting, Disease Surveillance

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