सत्यमेव जयते

Check-List For Central Rapid Response Team For Disease Outbreak Investigation Including Avian Influenza

2008

GOVERNMENT OF INDIA
NATIONAL INSTITUTE OF COMMUNICABLE DISEASES
(Directorate General of Health Services)
Ministry of Health & Family Welfare
22-Sham Nath Marg, Delhi-110054

Prepared & Edited by:

Dr.Uma Chawla
Joint Director & Head (DPD)

Dr. Avdhesh Kumar
Joint Director (Epidemiology)

Dr. D. C. Jain
Additional Director (PH) & Head (CEPD)

Dr. Shashi Khare
Consultant & Head (Microbiology)

Dr. Shiv Lal
Special DGHS & Director

सत्यमेव जयते

Check-List for Central Rapid Response Team for Disease Outbreak Investigation Including Avian Influenza

2008

GOVERNMENT OF INDIA
NATIONAL INSTITUTE OF COMMUNICABLE DISEASES
(Directorate General of Health Services)
Ministry of Health & Family Welfare
22-Sham Nath Marg, Delhi-110054

Dr. R.K. SRIVASTAVA
M.S. (Ortho) D.N.B. (PMR)
DIRECTOR GENERAL

सत्यमेव जयते
GOVERNMENT OF INDIA
DIRECTORATE GENERAL OF HEALTH SERVICES
NIRMAN BHAVAN, NEW DELHI-110 011
TEL. NO. : 91-11-23061438, 23061063
FAX NO. : 91-11-23061924
E-mail : dghs@nic.in
rakeshsrivastava789@hotmail.com

MESSAGE

Disease outbreaks are public health emergencies which result in increased morbidity and mortality and put acute demands on the health system. To minimize their impact, it is essential that outbreaks are investigated properly so that appropriate and adequate control measures can be initiated in a timely manner. The threat of pandemic influenza has made preparedness for outbreak investigation even more necessary. It was felt that uniform guidelines /check list will be of great help in facilitating outbreak investigation.

In this context, a check list has been developed which gives step-by-step actions required to be taken for undertaking outbreak investigation. The quality of outbreak investigations and response will get a boost with its use, which should contribute towards more effective outbreak control capabilities.

I congratulate, Director, NICD and his team for bringing out this 'Check List' which will be extremely useful for the Rapid Response Teams (RRTs) and all those involved in disease outbreak investigation and management.

(Dr. R.K. Srivastava)

सत्यमेव जयते
Government of India
NATIONAL INSTITUTE OF COMMUNICABLE DISEASES
(Directorate General of Health Services)
22, Sham Nath Marg, Delhi-110054

PREFACE

Dr. Shiv Lal
MD, MBA, FAMS, FIPHA, FISCD
Special DGHS & Director

Many communicable diseases are endemic in India and have seasonal and cyclic trends and potential to cause outbreaks. Outbreaks always can not be predicted or prevented; therefore, timely investigation and applicaton of specific control measures can limit the spread of the outbreak and prevent deaths. The current outbreak of H5N1 Avian Influenza in the South East Asian countries including India merits attention due to increasing evidence to suggest that the avian strains are getting virulent, and have the capacity to infect humans. A total of 60 countries including India have reported outbreak of H5N1 in either poultry or wild birds or both.

Often state governments request central government for technical support for investigation of such outbreaks and subsequently, multidisciplinary Central Rapid Respose Teams (RRTs) are deputed for investigatons. NICD is the identified nodal agency for managing human Avian Influenza and conducting epidemiological and laboratory investigation of a suspected outbreak. Currently, it is a felt-need to have a comprehensive "Check-List" for investigation, data analysis, report writing etc. that can be referred to, by the investigating team.

This document has been designed to help in making appropriate step-by-step investigation of disease outbreaks including Avain

Influenza by the Central Rapid Response Teams (RRTs). It is divided into two parts; Part-I is mainly related to epidemic-prone communicable diseases including new or re-emerging diseases, and steps for investigation of suspected case or outbreak of Avain Influenza are included in Part-II

It is sincerely, hoped that this check-list will help in improving the skills of outbreak investigation and acts as a "Ready Reckoner" technical document in the field. The general understanding and steps of investigation are same, however, it is important to note that each outbreak is unique and may require a different approach.

(Dr Shiv Lal)

ACRONYMS

AI	Avian Influenza
BSL	Bio-Safety Laboratory
CEPD	Centre for Epidemiology and Parasitic Diseases
CO_2	Carbon Dioxide
DGHS	Director General of Health Services
DPD	Department of Parasitic Diseases
EMR	Emergency Medical Relief
H/o	History of
H_2S	Hydrogen Sulfide
HPAI	Highly Pathogenic Avian Influenza
HSADL	High Security Animal Disease Laboratory
ICU	Intensive Care Unit
IEC	Information, Education and Communication
IPD	In-Patient Department
Lab	Laboratory
LPAI	Low Pathogenic Avian Influenza
MDCK	Morbid Darby Canine Kidney
NGO	Non-Government Organization
NICD	National Institute of Communicable Diseases
NIV	National Institute of Virology
OPD	Out-Patient Department
OT	Ortho-Tolidine
PCR	Polymerase Chain Reaction
PH	Public Health
PHC	Primary Health Centre
PPE	Personal Protective Equipment
RRT	Rapid Response Team
WHO	World Health Organization

Part-I
Check-List for Central Rapid Response Team for Disease Outbreak Investigation

1. Introduction

Disease outbreaks are public health emergencies that require urgent actions to investigate and respond to the situation. The number of such events, particularly from outbreaks of infectious diseases, has been increasing in recent years. As per the State Governments request to the Central Government, multidisciplinary Central Rapid Response Teams (RRTs) are deputed for technical support for disease outbreak investigations in the field. In this context, it is felt to have a comprehensive 'Check-List' for steps of investigation, data analysis, report writing, communication etc. that can be referred to, by an investigating team. It is envisaged that this document will help in step-by-step investigation of disease outbreaks by the Central RRTs, to institute appropriate preventive and control measures.

2. Outbreak

An outbreak is the occurrence of cases of an illness, specific heath related behavior or other event, clearly in excess of normal expectancy in a community in a specific time period. An outbreak is limited or localized to a village, town or closed institution. However, the magnitude could involve wider geographic areas, even beyond one district, thus called an epidemic [(1).]

3. Diseases requiring investigations

Diseases requiring investigations are broadly classified into following four groups:

(i) Endemic diseases with a potential of causing focal or large outbreaks, e.g. malaria, cholera, measles, viral hepatitis, meningococcal meningitis, etc.

.....

[(1)] Source: A dictionary of Epidemiology, 4th Edition, 2001, John M Last

(ii) Diseases under eradication or elimination phase; even a single case of such disease may be treated as an outbreak, e.g. poliomyelitis

(iii) Rare but internationally important diseases with high case fatality rate and with the potential of importation due to existence of conducive epidemiological conditions e.g. yellow fever, avian influenza etc.

(iv) Outbreaks of unknown diseases/syndromes

4. All efforts should be made to investigate such outbreaks at the earliest to prevent further spread. The usage of the following check-list may be helpful in ensuring completeness of investigation and rapid containment of the outbreak.

1. Preparation for field
2. Make provisional diagnosis and develop working case-definition
3. Confirm existence of an outbreak
4. Line-listing of cases
5. Management of cases
6. Rapid household/community survey for case finding
7. Entomological and environmental investigations
8. Laboratory investigations
9. Data analysis
10. Institution of control measures
11. Interim report
12. Final report
13. Follow-up of outbreak
14. Testing of hypothesis
15. Evaluation of outbreak management including investigations
16. Documentation and sharing of lessons learnt

4.1. Preparation for field: The team leader (and members) should ensure the following:

- Before leaving for field, verify rumors and collect preliminary information about the episode from the State or Central Health Authorities working in the affected area over telephone or through e-mail.
- Make necessary technical, administrative and logistics arrangements
- As per the preliminary information, prepare an "Outbreak Management Kit" **(Annexure-1).**
- Brief members of RRT on purpose and their roles, responsibilities and methods of self protection during outbreak investigation

4.2. Make provisional diagnosis and develop working case-definition

- On reaching the affected area make a provisional clinical diagnosis by examining (including history taking and review of case records) a few current reported cases / recovered cases
- To arrive at provisional diagnosis, 'Syndromic Presentation' of some of the common epidemic-prone communicable diseases are placed at **Annexures-2 to 8**.
- On the basis of clinical profile and case records, develop a 'working case-definition' which may specify area, population affected and duration of episode
- To help in establishing the diagnosis, collect adequate number of approprite clinical samples of current/ recovered cases and their contacts. Record the details on "Laboratory Form" **(Annexure-9)**.

4.3. Confirm existence of an outbreak
Discuss with local authority and check for:

- Clustering and or increase of cases / deaths

- Recent changes in the surveillance system such as increase in number of reporting units or change in case-definition etc.
- Recent changes in the population due to population movement in the affected areas e.g., fairs, festivals, harvesting season, major construction activities etc. should be considered.
- Any significant new health related event in the affected areas such as flood, displacement of people (over crowding), rat-fall, poultry deaths, mosquito menace, mass immunization, mass drug administration, community meals, drinking water status and climate change etc. should be taken into account.
- Compare the current situation (data) with the available data of the corresponding period of past 2-3 years
- Epidemiological linkages of suspected cases of "similar in nature" should be worked out.
- Review clinical and laboratory records of the current and recoverd cases
- The possible day(s) of exposure to infection, onset of symptoms and occurrence of secondary cases should be recorded. Work out possible cause of disease by observing/noting the effect of period of communicability of the disease. Refer to **Annexure 17** for incubation period and period of communicability of some communicable diseases.

4.4. Line-listing of cases

- Using "working case-definition" record name, address, age, sex, status of immunisation, symptoms, date of onset, recent travel history, treatment / hospitalization, outcome of each case or other variables as may be required etc. in the 'line-list' format **(Annexure-10).**

4.5. Management of cases

- Manage cases appropriately with the help of local clinical facilities to prevent deaths. If indicated, cases should be managed in isolation to prevent further transmission of infection.
- Ensure medical logistics i.e. sufficient quantities of essential drugs and supplies etc.

4.6. Rapid household/community survey for case finding

- Search more cases in the community by using working case-definition
- Record information on survey formats **(Annexures- 11 & 12)**

4.7. Entomological and environmental investigations

- Assess the type and density of vector(s) for the possibility of vector-borne disease outbreak
- Collect data on:
  - Rainfall
  - Humidity
  - Temperature
  - Drinking water supply
  - Environmental sanitation
  - Man-made situations like developmental/irrigation projects etc.
  - Any health activity (intervention) taken up in recent past

4.8. Laboratory investigations

- Ensure proper collection, labelling, transportation and storage of clinical samples
- Wherever rapid diagnostic tests are available, use them in the field or send the specimens to the concerned laboratory for testing.

- Follow bio-safety precautions during collection and handling of specimens
- Follow national and international guidelines for transportation of specimens.

4.9. Data Analysis

- Plot 'Epidemic Curve' to describe the outbreak in terms of 'time' (Time-analysis)
- Make maps and tables for describing place and person (Place and Person analysis)
- Determine population at risk of infection
- Analyze rapid household survey data and calculate population-based attack rates by age and sex groups
- Formulate a hypothesis which should include characteristics of affected population, cause of disease, mode of transmission, incubation period, genesis of outbreak etc.

4.10. Institution of control measures

- Based on clinical, epidemiological and entomological findings, implement appropriate control measures to prevent further spread of the disease
- **Institution of control measures and management of cases should not be delayed pending laboratory confirmation of diagnosis**

4.11. Interim report

- Daily appraise the Director, EMR/NICD, Delhi about the episode
- Write an interim report and debrief the local health authority and recommend immediate actions to be taken by them
- Request local health authority to send daily feedback to "Central team" till the outbreak is over

4.12. Final report

- Write final report including entomological and laboratory results and suggest short and long term preventive and control measures including preparedness for prevention and control of such outbreaks in future.
- Formats for writing report and preparedness activities are placed at **Annexures-13 & 14**.

4.13. Follow-up of outbreak

Follow-up visits are important during the declining phase of an outbreak to:

- Detect last case(s)
- Detect and treat late complications (if any)
- Complete the documentation of the outbreak

4.14. Testing of Hypothesis

- If justified, plan further study to test the formulated hypothesis in the field

4.15. Evaluation of outbreak management including investigations

Once the outbreak is over, request the local health authority to evaluate following aspects:

- Genesis of the outbreak
- Early or late detection of outbreak
- Preparedness for the outbreak
- Management of the outbreak
- Control measures undertaken and their impact

4.16. Documentation and sharing of lessons learnt

- Organize post-outbreak seminar
- Provide feedback to State and district RRTs
- Develop case studies on selected outbreaks for training RRT members

Part-II

Check-List for Central Rapid Response Team for Investigation of Suspected Outbreak of Avian Influenza

Introduction

Avian influenza or "bird flu" is a contagious disease caused by viruses that normally infect only birds and less commonly pigs (or other animals). The disease in birds has two forms; the first causes mild illness (LPAI-Low Pathogenic Avian Influenza) and the second, known as "highly pathogenic avian influenza" (HPAI) is of great concern, which is characterized by sudden, severe illness and rapid death with high mortality that can reach upto 100 percent. The case definition of Avian Influenza is placed at **Annexure- 15**

Since mid-December 2003, human infections with Influenza Type A (H5N1) have attracted attention of public health professionals. Keeping in view the above problems, efforts should be made to investigate the suspected outbreaks of Avian Influenza expeditiously. Some of the salient points which need to be considered for an effective investigation are as follows:

1. Preparation for field

- Before leaving for field, collect preliminary information about the episode
- Make necessary technical, logistics and administrative arrangements
- Prepare an "Outbreak Management Kit" **(Annexure – 1)**
- Ensure adequate supply of Personal Protective Equipment (PPE).
- Initiate chemoprophylaxis for personal protection
- Ensure networking and availability of facility of Intensive Care Unit (ICU) in the affected area(s).

2. Make provisional diagnosis

- Make provisional clinical diagnosis by examining a few suspected human currently reported cases. To arrive at provisional diagnosis, "Syndromic presentation" of avian influenza in humans is given in **Annexure - 16**
- Collect adequate number of representative clinical samples of suspected cases. Record the details on "Laboratory Form" **(Annexure – 9)**

3. Confirm existence of an outbreak of avian influenza

Discuss with local authority and review the following:

- Out Patient Department (OPD) / In-Patient Department (IPD) data from local hospital/ health facilities for acute respiratory distress cases/deaths.
- Acute respiratory distress syndromes and/or unexplained deaths due to acute respiratory illness in the community.
- Unexplained deaths due to acute respiratory illness in health care worker (s) of the reported area (s).

4. Line-listing of cases

- Prepare a line-list of human cases of suspected avian influenza with detailed history of travel, occupational exposure, exposure to affected poultry, wild/domestic animals, and possible human case(s) etc. Format **(Annexure-10)** may be modified for recording details of such cases.

5. Management of cases

- Ensure appropriate management of cases to prevent deaths
- Ensure enough quantities of antiviral drugs, medicines and supplies etc.

- **Take infection control precautions for seven days after resolution of fever for adults; and twenty one days after onset of illness for children (below 12 years).**
- **Do not use aspirin, ribavirin and corticosteroids.**

6. Other public health measures to be implemented in coordination with other departments such as Department of Animal Husbandary, Civil Administration and local health authority

- Quarantine and social dispencing measures in 0-3 kilometre
- Identify 'contacts' of the cases and advise them to check their body temperature twice a day for one week. Report immediately, if temperature rises
- Chemoprophylaxis and health monitoring of cullers etc.
- IEC and risk communication
- Initiate and implement the contingency plan for management of human cases of avian influenza.

7. Rapid household/community survey for case finding

- Search for more cases in the community by using working case-definition in 0-3 and 3-10 kilometre area
- Record information on survey formats

8. Laboratory investigations

- Collect clinical samples from suspected human cases of avian influenza and transport in sterile screw-capped unbreakable containers under cold chain (2-8^{0}C) in viral transport media (Hank's balanced salt solution supplemented with protein, such as bovine serum albumin or gelatin as stabilizer to a final concentration of 0.5-1% along with antibiotics to prevent microbial growth)

- Do not store or transport samples in dry ice (CO_2) unless the samples are sealed in glass and kept in a sealed container and then taped in double plastic bag
- Ensure proper collection, labeling, transportation and storage of clinical samples

9. Data analysis

Same as Serial No. 4.9 of Part-I

10. Institution of control measures

- Based on clinical and epidemiological findings, implement control measures to prevent further spread of the disease
- **Institution of control measures and management of cases* should not be delayed for want of laboratory confirmation of diagnosis**
- Take appropriate precautions for droplet and airborne infections
- Avoid close contacts (less than one meter) with other persons. Cover nose and mouth while coughing and sneezing. Use disposable masks and dispose them as per waste disposal protocol. Immediately wash and dry hands.
- Use Personal Protective Equipment (PPE) such as gloves, mask (high-efficiency mask), long-sleeved cuffed gown, protective eyewear (goggles/visors/face shields), cap (may be used in high risk situations where, there may be increased aerosols), plastic apron (if splashing of blood, body fluids, excretions and secretions is anticipated).

11. Interim report

Same as Serial No. 4.11 of Part - I

12. Final report

Same as Serial No. 4.12 of Part -I

13. Follow-up of outbreak

Same as Serial No. 4.13 of Part - I

*** For details, please refere 'Contingency plan for management of human cases of avian influenza'**

Annexure -1

Generic "Outbreak Management" kit

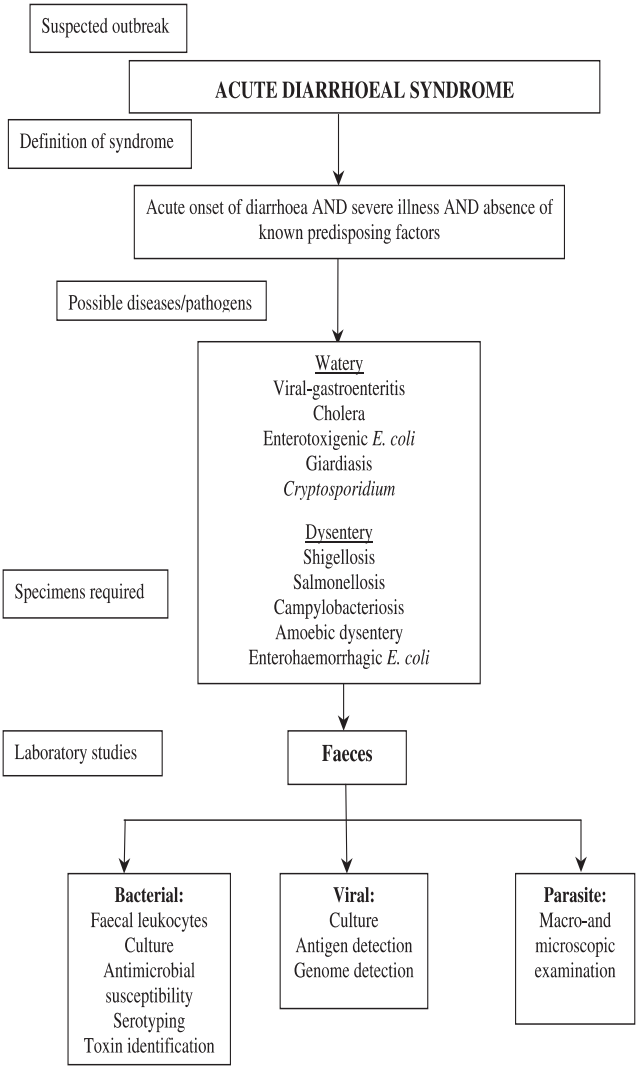
Proposed components of the kit	
• Disposable storage vials (5ml)	• Scissors, Scalpel/ blade, Spatula, Forceps, Loop holder
• Disposable sample collection vials	• Pasteur pipettes/ pipettes and pipette aids (rubber teats)
• Stool culture bottles & Alkaline peptone water	• Rapid diagnostic kits as per expected diseases
• Throat swabs	• Sodium hypochlorite concentrates (4%)
• Blood culture bottles	• Labels-specimen / address
• Viral transport medium	• Stationery (writing pads, pens, pencils, erasers, sharpeners, Glass marking pen etc.)
• Cary Blair medium/ Stuart's transport medium	• Calculator
• Vacutainer (plain and with EDTA)	• Torch with spare batteries/ rechargeable batteries.
• Disposable syringes (5ml) and needles	• OT test kit and H_2S water testing kit
• Tourniquet	• Ziploc plastic bags
• Gloves, Masks (triple layer surgical mask)	• Hand disinfectant / waterless hand sanitizer
• Biohazard Bag (s) , Band-aid	• Spirit swabs/ alcohol
• Vaccine carrier with ice-packs	• Slides and cover slips
• Spirit lamp/ gas lighter, Match-box	• Adhesive tape, Rubber bands
• Lancets	
• Test tube rack, Centrifuge tubes	
• Absorbent material (tissue paper, cotton wool, newspaper)	

contd...

contd...

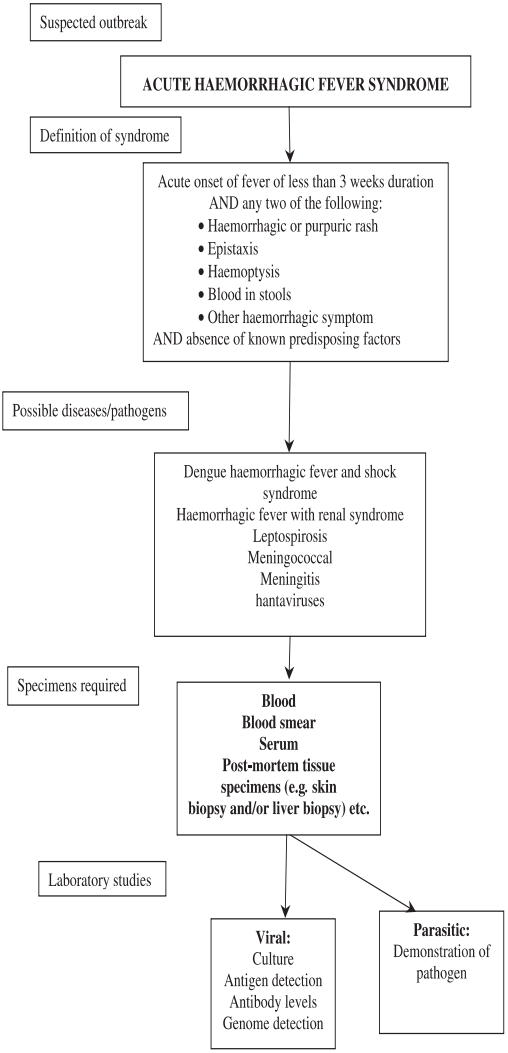
Forms and formats
• Epidemiological survey formats
• Laboratory request forms
• Epidemiological investigation report formats
Reference reading material
• Outbreak investigation guide/ module
• Other related material
Kit for Avian Influenza (in addition to above)
• Contingency plan for management of human case of avian influenza
• Action plan of animal husbandary for preparedness, control and conainment of avian influenza
• Personal Protective Equipment
• Sample collection vials for RT-PCR (RNAs / DNAs free)
Selected entomological equipment
• Aspirator and flashlight for indoor/ outdoor mosquito collection
• WHO insecticide susceptibility kit for adult & larvae with reagents
• Kit for outdoor mosquito collection
• Bioassay kit
• Ladle bottles for keeping larvae, strainer, dropper, trays and funnel net for wells
• Vector dissection equipment
• Synoptic keys for identification of vectors
Others
• As per the requirements of the outbreak

Annexure -2



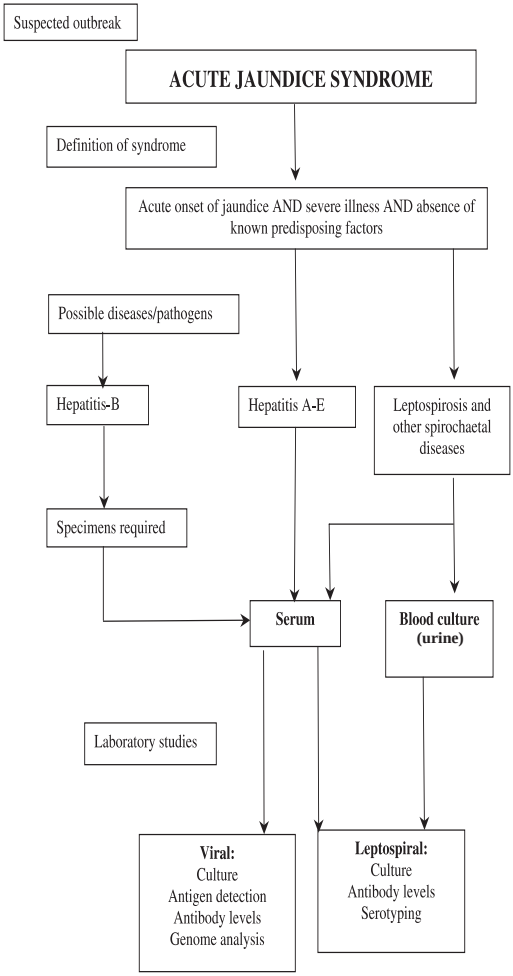
Source: WHO/CSD/CSR/EDC/2000.4

Annexure -3

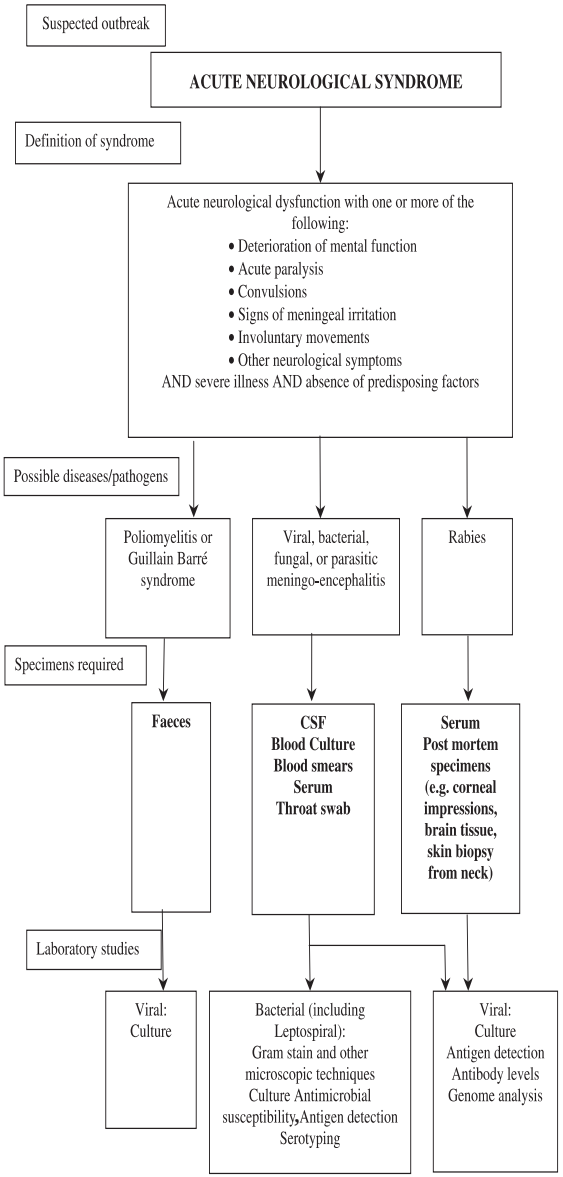


Source: WHO/CSD/CSR/EDC/2000.4

Annexure -4

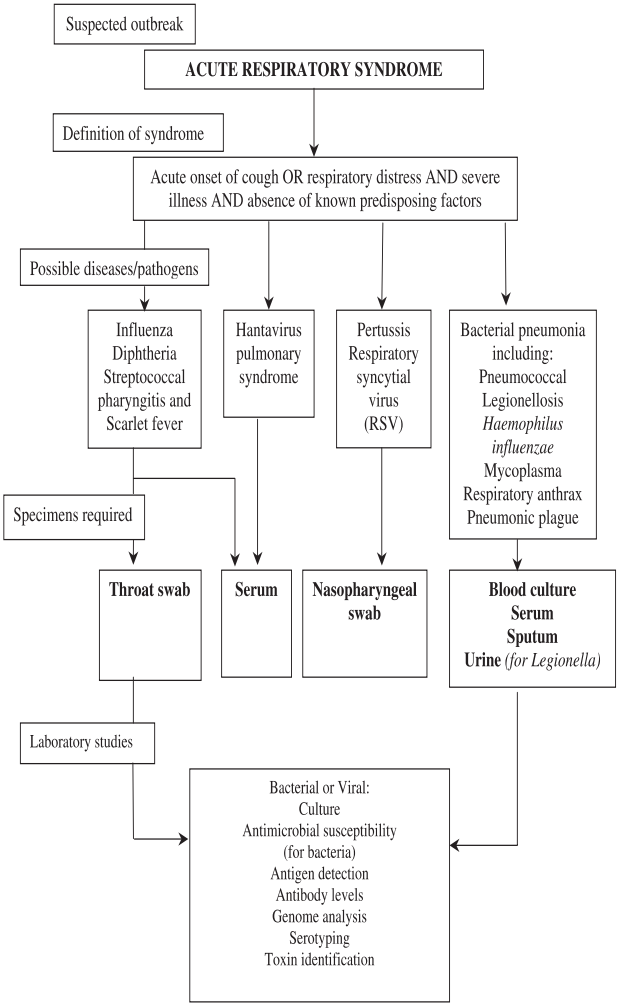


Source: WHO/CSD/CSR/EDC/2000.4



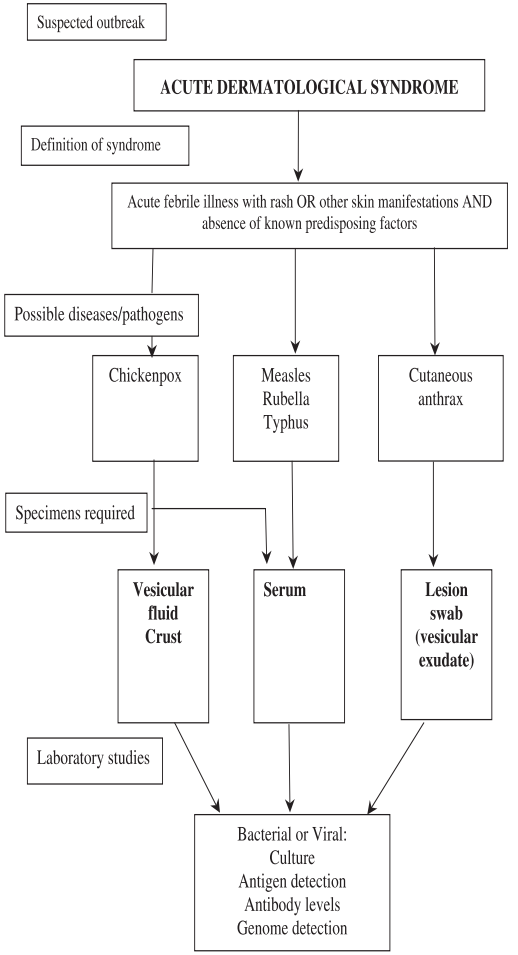
Source: WHO/CSD/CSR/EDC/2000.4

Annexure -6



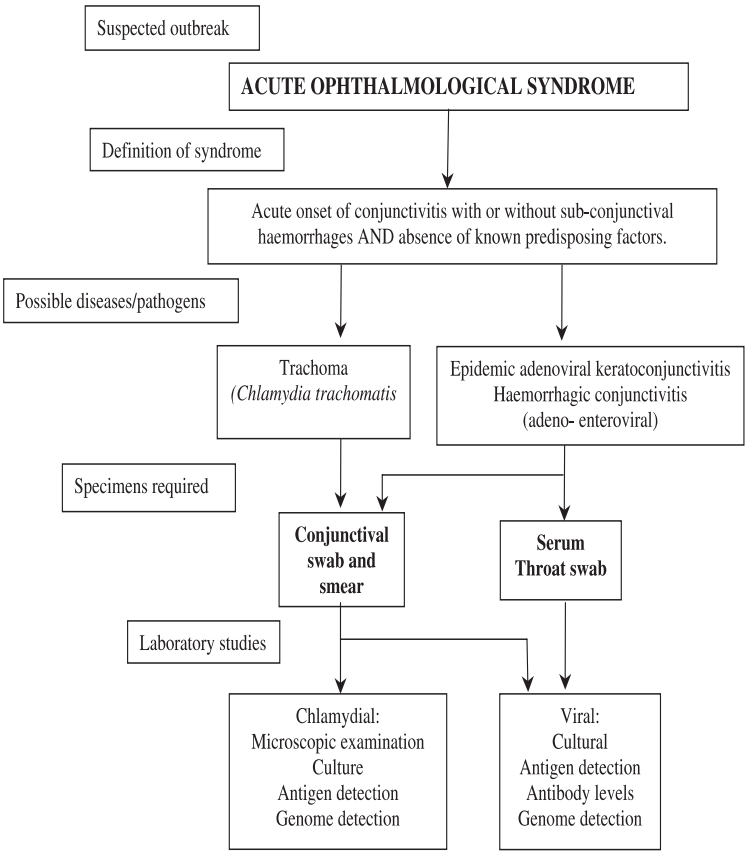
Source: WHO/CSD/CSR/EDC/2000.4

Annexure -7



Source: WHO/CSD/CSR/EDC/2000.4

Annexure -8



Source: WHO/CSD/CSR/EDC/2000.4

Annexure-9

Suggested Laboratory Formate

Section – I

1. ID No. of Patient:
2. Name of patient Age Sex
3. Address (with telephone Nos.):
4. Date of onset of symptom(s):
5. A brief clinical history:
6. History of vaccination (if applicable):
7. Provisional diagnosis:
8. History of antimicrobials taken before collection of specimen: No/Yes (If yes, details....)
9. Type of specimen: Acute /Convalescent
10. Date and time of collection:
11. Date of receiving specimen in lab:
12. Result of the specimen:
13. Type of test(s) done:
14. Date of reporting the result:

Section –II

In addition to the above, following information are required for suspected avian influenza human cases:

i. Occupation of the patient:

ii. Exposure to poultry/ dead bird/ others, in the last two weeks: Yes/No

iii. Laboratory worker/ Health care worker: Yes/No

iv. Exposure to infected cases in the last two weeks: Yes/No

v. History of visit abroad within last two weeks: Yes/No

vi. If Yes, name the country and city

Annexure -10

Suggested Format for Line Listing of Cases*

Sl. No.	Name of Patient	Father /Husband's Name	Address	Age	Sex	H/o recent travel to other place	Immunisation (if applicable)	Date of onset of illness	Symptoms	Treatment taken	Outcome of illness (still ill/ died/ recovered)

*More number of columns may be added as per the type of outbreak.

Suggested Format for Rapid Household Survey for active case finding

Name of Village Sub centre PHC District

Date

Surveyor's Name

Family No.	Family members		H/O illness during last 2 months * If yes, fill up Annexure-12		Death within last three months if yes, ask the following *		
	Total	Sex/ Age	Sex/ Age	Date of onset (Approximate)	Sex/Age	Date	Cause of death

*Duration may vary from disease to disease under investigation.

Suggested Format for Case Investigation for Suspected Disease/Syndrome

1. Name Age Sex Address (with telephone Nos.)

2. Date of onset of illness

3. Symptoms during the illness Tick mark (√)

(i) Fever	(vii) Yellowness of eyes
(ii) Chills / rigors / or both	(ix) Itching
(iii) Rash	(x) Abdominal pain
(iv) Running nose	(xi) Cough
(v) Watery eyes	(xii) Convulsions
(vi) Vomiting	(xiii) Unconsciousness
(vii) Loose motion	(xiv) other (specify)

4. Any treatment received Yes/No
   If, yes, details (if available)

5. Outcome: Still ill/Recovered/Recovered with complications

6. Provisional diagnosis:

7. Specimen(s) collected: Nil/Throat swab/Blood/Urine/ Stool/Any other (*specify*)

8. Comments (if any)

Annexure-13

Suggested Format for Writing Outbreak Investigation Report

(I). General information

State : District : Town / PHC:

Ward/Village: Population :

(II). Background information

Person reporting the outbreak :
Date of report :
Date investigation started :
Person (s) investigated the outbreak :

(III). Details of investigation

Describe how the cases were found: (may include: (a) house-to-house searches in the affected area; (b) visiting blocks adjacent to the affected households; (c) conducting record reviews at local hospitals; (d) requesting health workers to report similar cases in their areas, etc)

(IV). Descriptive epidemiology

Cases by time, place and person (attach summary tables and relevant graphs and maps)

Age-specific attack rates and mortality rates

High-risk age-groups and geographical areas

(V). Description of control measures taken

(VI). Description of measures to be taken by local health authority for follow up

(VII). Brief description of problems encountered

(VIII). Factors which, in your opinion, contributed to the outbreak (genesis of outbreak)

(IX). Conclusions and recommendations

Date

(Name and Designation)

Note: The report should be submitted by the investigating officer/team to the next higher authority within a week of completion of investigation. Tables and Graphs should be included wherever appropriate.

Preparedness for Prevention and Control for Future Outbreaks

To prevent the occurrence of outbreaks, subsequently in future, a district / state should be well prepared to meet the eventualities. Some of the important preparedness actions are given in the box:

RECOMMENDED PREPARATORY ACTION
• Strengthen routine surveillance system
• Identify a nodal officer at the state and district levels
• Constitute an inter-disciplinary Rapid Response Team (RRT) at state/district levels
• Train medical and other health personnel
• List the laboratories at regional /state/district levels
• List the hospitals (government/private/NGO) with level and type of services available in the area
• List 'high-risk' pockets in the rural / urban areas
• Establish a rapid communication network
• Undertake IEC activities for community participation
• Ensure that essential supplies are available at the peripheral health facilities and buffer stocks are maintained at the district level
• Set-up an inter-departmental committee, including Non-Government Organizations (NGOs) for inter-sectoral coordination

Case Definitions for Human Infections with Influenza A (H5N1) Virus

(i). Person Under Investigation

A person whom public health authorities have decided to investigate for possible H5N1 infection.

(ii). Suspected H5N1 case

A person presenting with unexplained acute lower respiratory illness with fever (>38 ºC) and cough, shortness of breath or difficult breathing. **AND** one or more of the following exposures within seven days prior to symptom onset:

a. Close contact (within one metre) with a person (e.g. caring for, speaking with, or touching) who is a suspected, probable, or confirmed H5N1 case

b. Exposure (e.g. handling, slaughtering, defeathering, butchering, preparation for consumption) to poultry or wild birds or their remains or to environment contaminated by their faeces in an area where H5N1 infections in animals or humans have been suspected or confirmed within the last month

c. Consumption of raw or undercooked poultry products in an area where H5N1 infections in animals or humans have been suspected or confirmed within the last month

d. Close contact with a confirmed H5N1 infected animal other than poultry or wild birds (e.g. cat or pig)

e. Handling samples (animal or human) suspected of containing H5N1 virus in a laboratory or other setting.

(iii). Probable H5N1 case (notify WHO)

Probable definition 1:

A person meeting the criteria for a suspected case **AND** one of the following additional criteria:

a. infiltrates or evidence of an acute pneumonia on chest radiograph plus evidence of respiratory failure (hypoxemia, severe tachypnea) **OR**

b. positive laboratory confirmation of an influenza A infection but insufficient laboratory evidence for H5N1 infection.

Probable definition 2:

A person dying of an unexplained acute respiratory illness who is considered to be epidemiologically linked by time, place, and exposure to a probable or confirmed H5N1 case.

(iv). Confirmed H5N1 case

A person meeting the criteria for a suspected or probable case **AND** one of the following positive results conducted in a national, regional or international influenza laboratory whose H5N1 test results are accepted by WHO as confirmatory:

a. Isolation of H5N1 virus

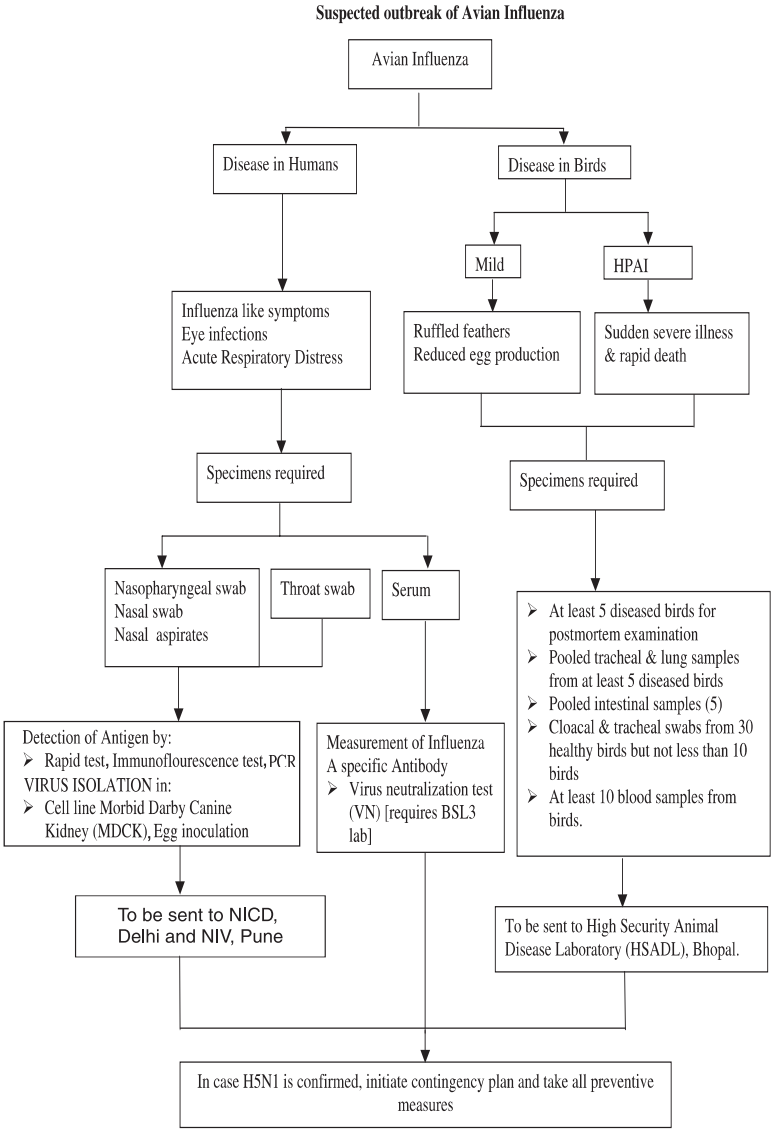
b. Positive H5 PCR results from tests using two different PCR targets, e.g. primers specific for influenza A and H5 HA (Haemagglutinin)

c. A fourfold or greater rise in neutralization antibody titer for H5N1 based on testing of an acute serum specimen (collected 7 days or less after onset of symptom) and a convalescent serum specimen (paired

sera). The convalescent neutralizing antibody titer must also be 1:80 or higher

d. A micro neutralization antibody titer for H5N1 of 1:80 or greater in a single serum specimen collected at day 14 or later after symptom onset and a positive result using a different serological assay, for example, a horse red blood cell haemagglutination inhibition titer of 1:160 or greater or an H5-specific western blot positive result.

Annexure -16


Suspected outbreak of Avian Influenza
Avian Influenza
Disease in Humans
Disease in Birds
Mild
HPAI
Influenza like symptoms
Eye infections
Acute Respiratory Distress
Ruffled feathers
Reduced egg production
Sudden severe illness
& rapid death
Specimens required
Specimens required
Nasopharyngeal swab
Nasal swab
Nasal aspirates
Throat swab
Serum
At least 5 diseased birds for postmortem examination
Pooled tracheal & lung samples from at least 5 diseased birds
Pooled intestinal samples (5)
Cloacal & tracheal swabs from 30 healthy birds but not less than 10 birds
At least 10 blood samples from birds.
Detection of Antigen by:
Rapid test, Immunoflourescence test, PCR
VIRUS ISOLATION in:
Cell line Morbid Darby Canine Kidney (MDCK), Egg inoculation
Measurement of Influenza A specific Antibody
Virus neutralization test (VN) [requires BSL3 lab]
To be sent to NICD, Delhi and NIV, Pune
To be sent to High Security Animal Disease Laboratory (HSADL), Bhopal.
In case H5N1 is confirmed, initiate contingency plan and take all preventive measures

Annexure -17

Incubation Period and Period of Communicability of Some Common Diseases

S. No.	Disease	Incubation Period Average (Range)	Period of communicability
1.	Chickenpox	14-16 days (7-21 days)	1-2 days before and 4-5 days after appearance of rashes. Not infective after crusting of lesions.
2.	Measles	10 days (7-14 days)	4 days before and 5 days after appearance of rash. Highly infective during prodromial period and at the time of eruption of rash.
3.	Rubella	18 days (15-21 days)	Probably 1 week before and one week after rash
4.	Mumps	18 days (15-21 days)	4-6 days before appearance of symptoms and one week after that
5.	Influenza	18 hrs. to 72 hrs.	1-2 days before and 1-2 days after symptoms. Virus is present in Nasopharynx
6.	Meningococcal Meningitis	2-4 (2-10 days)	Till Meningococci are present in discharge from nose and throat
7.	SARSNew strain of corona virus	3-5 (2-7days)	———
8.1	Viral Hepatitis A	25-30 days	Virus excreted in faeces and urine about 2 weeks before the onset of jaundice and 1 week thereafter.
8.2	Hepatitis - B	100 days (45-100 days)	Virus present in blood one month before the onset of jaundice, during incubation period and lasts for several months or till disappearance of HBAg and appearance of antibody.
8.3	Hepatitis – C	40-120 days	Till disease lasts.
8.4	Hepatitis – E	15-50 days	———
9.	Cholera	1-2 days (Few hours to 5 days)	Infectious for 7-10 days, convalescent carriers infective for 2-3 weeks and chronic carrier state may last upto 10 years
10.	Typhoid	10-14 days (3days to 3 weeks)	As long as bacilli appear in stool. Convalescent carriers are infectious for 6-8 weeks, some may continue beyond one year and be called chronic carriers
11.	Food poisoning		
	Salmonella	12-24 hrs.	
	Stapholococcal	1-6 hrs.	———
	Botulism	12-36 hrs.	
	Cl. perfringens	6-24 hrs.	
	B.cereus	1-6 hrs.	
12.	Malaria		
	P.falciparum	12 days (9-14 days)	
	P.vivax	14 days (6-17 days)	
	P.malariae	28 days (18-40 days)	
	P.ovale	5-6 days	———
13.	Dengue4 serotypes Den 1,2,3,4	(3 -10 days)	———
14.	Japanese encephalitis Group B Arbovirus Flavi virus	Not exactly known. Probably varies from 5-15 days after the mosquito bite	———
15.	Trachboma C.trachomatis	5-12 days	Infective as long as lesions continue.

Acknowledgments

The contribution by all concerned faculty of National Institute of Communicable Diseases for preparation of this document is greatly acknowledged.