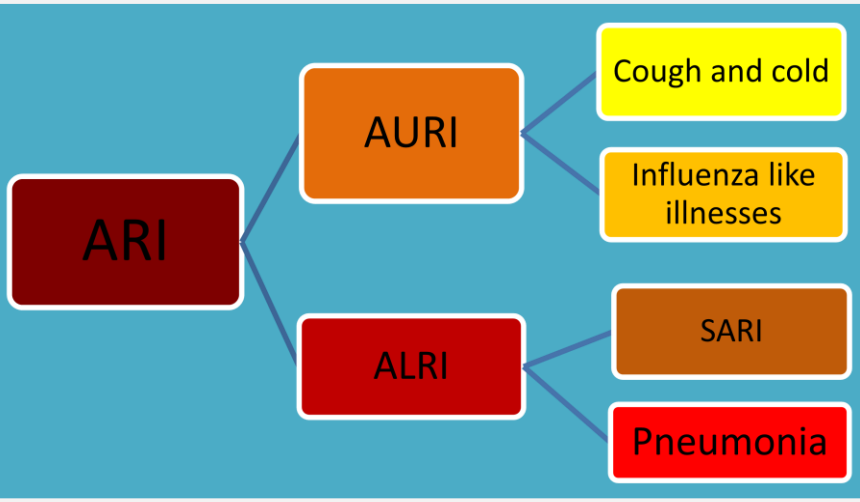
Operational guidelines for Prevention and control of ARI in Afghanistan

2012



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Acknowledgement

The present document has been developed by the Ministry of Public Health (MoPH) of Afghanistan, the World Health Organization (WHO), and other collaborative partners. The currently available guiding documents and standards of the MoPH-Afghanistan, WHO, and UNICEF for Acute Respiratory Infections (ARI) outbreak control and Integrated Management of Childhood Illnesses (IMCI) were used as basis of reference to frame the present document.

This publication brings together the existing relevant guidelines, fills knowledge and operational gaps un-addressed previously, and adapts the information and operational needs to the specific features of Afghan context. The ultimate result is a much needed, ready-to-use, and user-friendly guidance.

We hope the document will be of value by providing quick reference and guidance for field epidemic control teams, namely, clinicians, nurses, vaccinators, and surveillance focal points of health facilities, along with the members of the Provincial Emergency Response teams. Ultimately, it will serve to strengthen the Emergency Preparedness and Response (EPR) capacity of all health sector partners for the benefit of all men, women, and children of Afghanistan.

I am grateful to all team members who joined and shared their expertise to develop these guidelines. Particularly, I would like to thank the MoPH team, WHO and other health cluster partners who added their valuable comments and contributions to the draft and shaped the final document.

In addition, special thanks to the EPR Department of MoPH and WHO/EHA/Health Cluster who initiated and led the process; and the General Directorate of Preventive Medicine/Communicable Diseases Control, EPI, DEWS, Environmental Health and Health Promotion departments that provided substantial technical support throughout the process

I would also like to extend my sincere gratitude to the funding partners supporting the multiple EPR interventions for health. My particular thank goes to the European Commission Humanitarian Office (ECHO) for its contribution to make these guidelines become possible.

Sincerely,

Dr Suraya Dalil
Minister of Public Health - Afghanistan

Acronyms

AR	Attack Rate
ARCS	Afghanistan Red Crescent Society
BPHS	Basic Package Of Health Services
CDC	Communicable disease Control
DEWS	Disease Early Warning System
ERP	Emergency Response and Preparedness
GAPP	Global Action Plan for control and prevention of Pneumonia
HF	Health Facilities
HMIS	Health Management Information System
IV	Intra Venous
MOPH	Ministry of Public Health
NGOs	Non Governmental Organizations
PHC	Primary Health Care
PHD	Provincial Health Department
RRD	Rural Rehabilitation Department
SIA	Supplementary Immunization Activity
SOP	Standard of Procedures
TOR	Terms of Reference
UN	United Nations
UNICEF	United Nations Children's Fund
WHA	World Health Assembly
WHO	World Health Organization

How to find quick reference of the guidelines

While you are reading through the guide line the following icons will help you to make a quick reference of relevant topic of interest.

 = Background information

 = Objectives

 = Definition

 = Alerts

 = Warning

 = Intervention guidelines and procedures at facility level

 = Provincial surveillance Officer/Focal point

 = Intervention Guidelines and procedures for field Intervention teams

 = necessary tools for the intervention procedures

 = Guidance for Management team

 = Go to

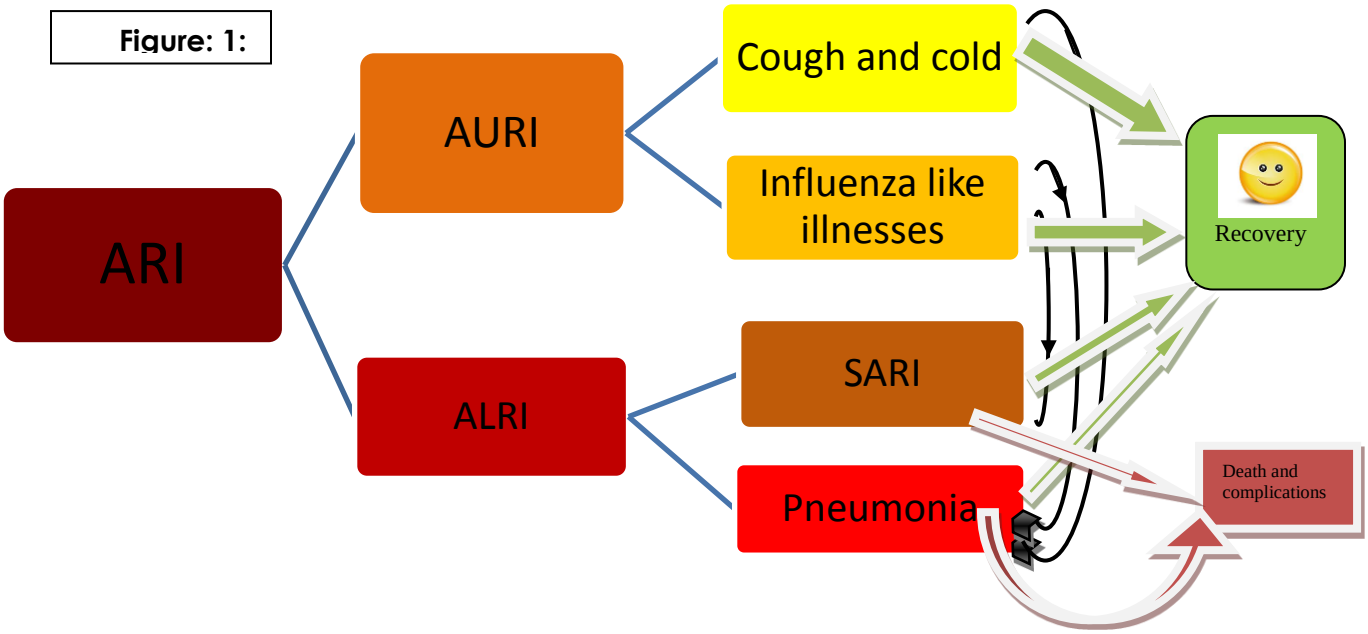
 = Further reference

1. Introduction

1.1 Classification, Worldwide case load and challenges due to Acute Respiratory infections

Acute Respiratory infections (ARIs) may be classified into Acute Upper Respiratory Infections (AURI) and acute lower respiratory infections (ALRI), depending on the main organs affected (nose, sinuses, middle ear, larynx and pharynx in AURI versus trachea, bronchi and lungs in ALRI). AURIs are generally mild in nature and most often caused by viruses, sometimes with a bacterial component as in some cases of sinusitis and Otitis media. The common AURIs can be categorized into Common Cold or Cough and Cold (CC) and Influenza like Illnesses (ILI). The overwhelming majority of ARI deaths and severe illness episodes are due to ALRIs, consisting mainly of pneumonia[1] and Severe Acute Respiratory infections (SARI). Classification and natural course of ARI can be simply described as follow (figure1).

Figure: 1:



It's obvious that, pneumonia is the ultimate complication of most of ARI. Every year about 150 million episodes of pneumonia occur among children in developing countries[2]. Pneumonia kills more children under the age of five years than any other illness in every region of the world. Of the estimated 9 million child deaths in 2007; around 20% or 1.8 million were due to Pneumonia[3]. The situation continues to be more or less same until now. According to the world health report 2010; Pneumonia was the first most cause of death and representing 18% of under the age of five years children worldwide. This would cause burden on families and health the system as well.

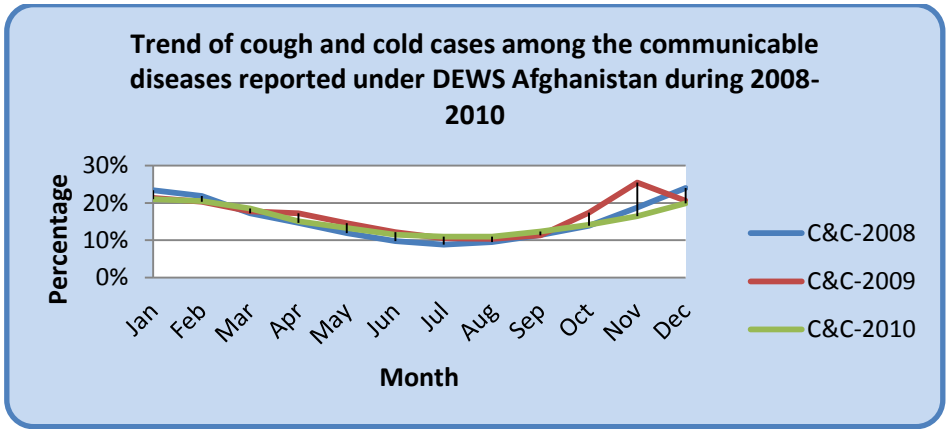
Recent increase of Influenza like illnesses falls under AURI are tending to be increasing the morbidity and mortality rates due to AURI and consequence increase of Pneumonia as well. At the same time newly emerging respiratory infections categorized into Severe Acute Respiratory Infections (SARI) falls under ALRI and develops into severe Pneumonia with high case fatality.

Ultimately ARI has been one of constrains to reach the Millennium Development Goal 4 of reducing two thirds of under the age of five years mortality rate by 2015.

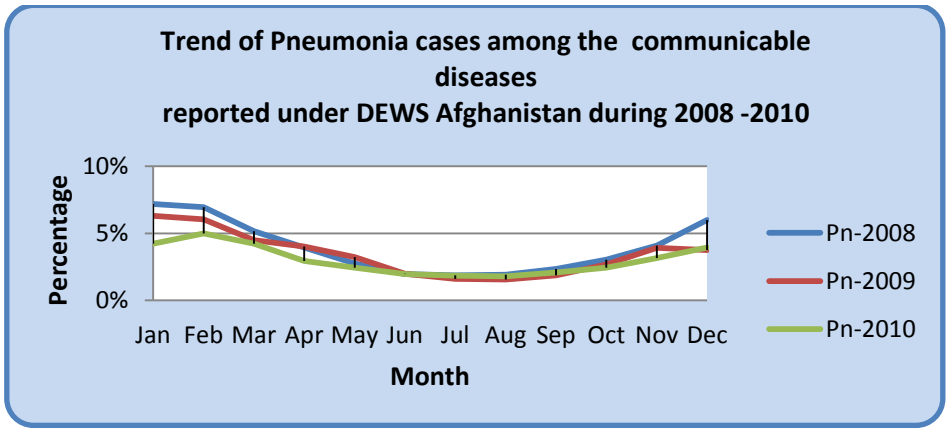
1.2. Current context of ARI control activities in Afghanistan

As per the available notification systems in Afghanistan the AURI is notified as Cough and cold and ALRIs are reported as Pneumonia. There have been 4564066 cough and cold cases and 1554192 Pneumonia cases reported through HMIS in 2010[4]. While DEWS reported 1559815 cough and cold cases with 4 related deaths and 301679 Pneumonia cases with 1625 deaths over the same period[5]. According to the DEWS data for 2010; the case fatality rate for Pneumonia was 5.4/1000cases in Afghanistan and it contributed to 56.8% of deaths among all the DEWS reported communicable diseases.
According to W.H.O's estimation (2008)[6] in Afghanistan; between the age group of 0-14 years 1500 deaths per year occur due to AURI and 68400 deaths are due to ALRI or Pneumonia. At the same time cough and cold became the first and Pneumonia was the third among the top ten disease reported by HMIS of Afghanistan in 2007[7]. In 2008, Pneumonia was the second cause of death among children under 5 in Afghanistan[8]. While we are looking at the monthly incidence of AURI and Pneumonia for the last three years; there is a seasonal relationship all over the country (See graph 1 and 2)

Graph1.



Graph 2

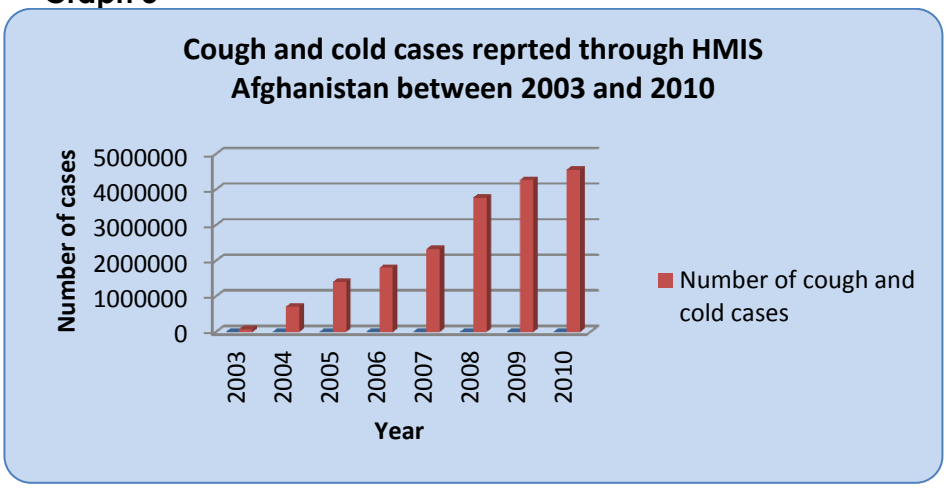


With the seasonal pattern, higher incidence and mortality are reported from northern and central provinces and less in southern provinces of Afghanistan. Although there is a reasonably functional surveillance system in place; the prevention, control and management of AURI and Pneumonia are weak and the diseases are continue to be a burden for the health department of Afghanistan.

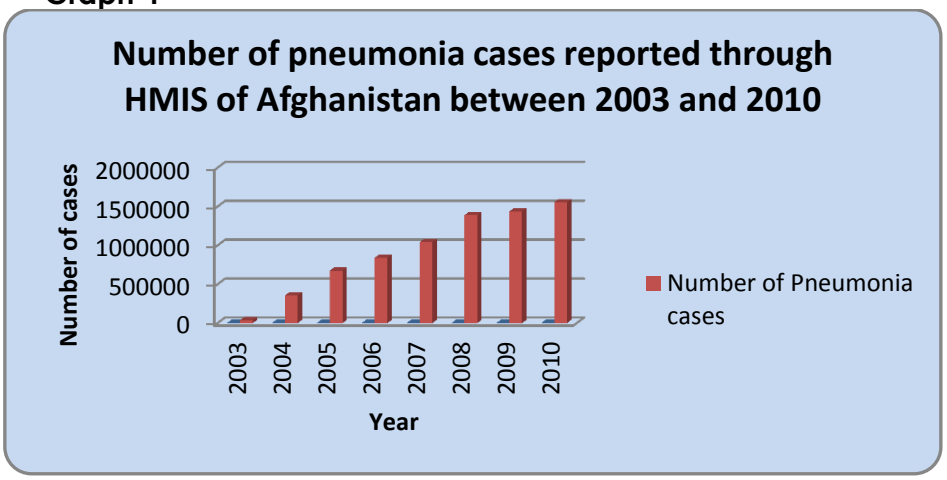
1.3. Importance of prevention and control of ARI in Afghanistan

The following graphs developed from the HMIS data since 2003 show an increasing trend of reported cough and cold cases and Pneumonia.

Graph 3



Graph 4



The rising trend of reported cough and cold (AURI) cases and Pneumonia (ALRI) in Afghanistan might be attributed to real reflection increasing incidence and also the improving reporting system as well. Here we can observe that the number of Pneumonia cases is about 1/3 of Cough and cold cases; this is an indication of inadequate care of AURI (cough and cold) cases.

But the increasing trend of both cough and cold and Pneumonia indicating that, we have to pay more attention on prevention and appropriate care of AURI and better management of Pneumonia. This can be achieved through fill the gaps of vaccine preventable AURIs, Improving the nutritional state and housing facilities of low income communities, better surveillance and community case management activities with better referral and management of complications.

The operational guidelines for prevention and control of ARI and in Afghanistan would address the practical issues of such preventive and control measures that might be faced in the field.

1.4. Objectives of the guideline

- To briefly describe the basic facts, risks, burden and preventable nature, morbidity and mortality trends of ARI
- To operationally guide the health care service providers and management teams to prepare, detect, verify, identify and control ARI in time, in order to reduce the morbidity and mortality of pneumonia
- To improve the capacity of community based volunteers and health service providers to efficiently manage Pneumonia cases and reduce the mortality rate due to pneumonia
- To guide the health service providers on prevention of spread of ARIs and create community awareness
- To improve the technical capacity of managerial level staffs of MOPH of Afghanistan through providing necessary technical guidance, in order to efficiently manage and coordinate the ARI control programs.
- To guide the management teams to capitalize the lessons learned from the past and improve their plans and activities
- To guide all the health stake holders to clearly understand their responsibilities of ARI control program, cooperate and collaborate with the national coordination mechanism

1.5. Key facts of ARI:

- About 20% of all deaths in children under the age of 5 years are due to Acute Lower Respiratory Infections (ALRIs - pneumonia, bronchiolitis and bronchitis); 90% of these deaths are due to pneumonia[9].
- Most cases of pneumonia among children occur sporadically, not in outbreaks[2].
- Low birth weight, malnourished and non-breastfed children and those living in overcrowded conditions and infected with HIV are at higher risk of getting pneumonia. These children are also at a higher risk of death from pneumonia
- Improved hygiene, nutrition and promotion of breast-feeding, and reduction in exposure to indoor air pollution with adequately ventilated housing facilities might reduce the risk of AURI and Pneumonia
- Early recognition and prompt treatment of pneumonia is life saving.
- Conjugate vaccines for Hib and pneumococcus offer the best opportunity to prevent morbidity and mortality of AURI and Pneumonia

1.6. Causative organism, signs and symptoms and communicability

Causative organisms may be bacterial (most commonly Streptococcus pneumonia and Homophiles influenza b) or viral. Neonates and malnourished children are prone to infected with Staphylococcus aureus and other gram negative bacteria. However, it is not possible to differentiate between bacterial and viral AURIs based on clinical signs or radiology. Acute Respiratory tract infections can be mild or severe. Mild cases may present with runny nose mild fever and cough. But severe acute Respiratory tract infections (SARI) May present with high fever with one or more of the signs and symptoms of pneumonia (Abnormal breath sounds, tachypnoea, cough, productive sputum, haemoptysis, chest pain, sore throat, shortness of Breath)
Pneumonia, is inflammation of the lung, is characterized by cough and fast, difficult breathing, Fever, muscle aches and above features of SARI as well. Most of the situations, AURI precede ALRI or Pneumonia, so better prevention of AURI shall reduce the burden of acute respiratory infections. AURI and Pneumonia are seen throughout the year but the peak incidence are occurs primly during winter in Afghanistan (see graph 1&2).
Person-to-person transmission may occur by air born droplets and direct contact with infectious secretions. Secondary infection of the respiratory tract of a person suffering from AURI, (with other air born bacteria and fungi) may cause severe complicated pneumonias. About 1% of pneumonia cases result in sequelae or after-effects of the condition (e.g., damaged airways), which increases the risk of recurrent infections[2]

Risk factors

Nearly 75% of pneumonia deaths occur among infants under 1 year old. Risk also increases with low birth weight, malnutrition, malaria, and suppressed immunity. The burden of pneumonia among children with HIV infection is comparatively high.

2. Guiding framework for MoPH for prevention and control of ARI

Ultimate goal of prevention and control of ARI is to reduce morbidity and mortality due to pneumonia. Global action plan for prevention and control of pneumonia (GAPP) was developed by WHO and UNICEF and released in 2009[3]. The technical consensus statement of the plan included the following,
"In the context of child survival strategies, countries should address pneumonia control. The key strategies for treating, preventing and protecting from pneumonia are:

- Case management at all levels Vaccination
- Prevention and management of HIV infection
- Improvement of nutrition and reduction of low birth weight control of indoor air pollution"[3]

The strategic framework has been modified here, in order to draw a frame work for Prevention and control of ARI for Afghanistan context and described in figure2.

Figure 2

Review and update the strategic plan every five years period according to Afghani context and decentralize implementation and monitoring authorities to Provincial Health department

2.1. Strategy for protection from ARI

Although the protection part is a cross cutting issue and influenced by several factors; the health department should take all necessary initiatives to address at least the following four issues

- Ensure there is better neonatal care is provided in all maternity service centers, in fact this can be achieved through better antenatal care and skilled birth attendance. This would prevent low birth weight and birth asphyxia and the consequence of neonatal acute respiratory infection and complications

- Encourage mothers and ensure to continue exclusive breast feeding at least for first six months from birth. This has been proved to reduce around 15 to 23% reduction in Pneumonia incidence[3].

  This can be achieved through regular postnatal follow up and nutritional support to the mother for the first six weeks continued with follow up during scheduled vaccination of the infant at least until 6 months

- Ensure provision of adequate nutrition at least throughout the first five years of children, including adequate micronutrient intake

- Guide the public through social service department and community based organizations to use simple improved techniques to reduce indoor air pollution which is another predisposing factor for complicated respiratory tract infections proven (75% relative risk reduction in Pneumonia incidence in specific settings shown with improved solid fuel stoves comparing to liquid fuel stoves[3])

- Improve personal hygiene, particularly appropriate hand washing habit

- Advocate infrastructure and housing development authorities to develop basic standard housing plans (site, size, ventilation and spacing) using locally available materials and encourage the low income group people to construct good basic housing facility. Which would prevent the chance of respiratory tract infections and spread among low income group of public

2.2. Strategy for prevention from ARI

Prevention of AURI and pneumonia can be made through using relevant, feasible and available vaccines to prevent AURI with regular Vitamin A supplementation and better diarrheal disease treatment with Zinc.

- Currently under Afghani context; vaccines against measles, Pertussis and Haemophilus Influenza B (HIB) are the available and pneumococcal vaccine to be introduced from 2013. At least 90% coverage of these vaccines could reduce the incidence of Pneumonia by 22-34%[3]. Thus it's better to implement the following best practices of vaccination.

Recommended best practices of immunization

- Periodically review and draw rational national immunization strategies and include appropriate vaccination schedule
- Ensure all necessary resources needed for implementation the strategy
- Engage political commitment and supportive leadership at all levels
- Establish coordination structures at all levels to contribute to proper planning, monitoring and implementation of routine vaccination
- Accurately estimate of the target population conversion factor for under-five children as well as emphasis on screening mechanisms to avoid stock outs
- Develop of communication messages based on an analysis of information gaps and concerns of the community
- Diverse methods of communication to achieve high turnout e.g., regular house to house canvassing with the help of community health workers to encourage parents on regular vaccination
- Improve and ensure logistic capacity to ensure timely distribution of supplies at all levels including involvement of the zonal level to confirm logistic needs and technical capacity for maintenance of the cold chain during distribution
- Ensure better training of human resource on vaccination activities including supervision
- Train the cold chain assistance and officers on best cold chain maintenance practices and ensure necessary equipments supplies and continuous power supply are provided to maintain the cold chain
- Establish mechanisms for regular vaccination, recording, reporting, analyzing, and monitoring and evaluation of the routine vaccination process
- Regularly review, assess the achievement and setbacks and fill the gaps
- Maximize and sustain mechanisms created or strengthened through the routine EPI and SIAs, e.g. National and Regional Task Forces, supervision, review meetings, focus on high risk areas

- Although Vitamin A supplementation has been provided with the routine vaccination campaign; pay special emphasis on regular implementation, monitoring and evaluation.
- Ensure that Zinc supplements are given for childhood diarrheal disease management (Zinc supplementation, shown 14-15% reduction in Pneumonia incidence[3] among children affected by diarrheal disease)

- If the HIV/AIDS prevalence go high in future; attention must be paid on prevention of HIV/ AIDS and prophylactic treatment of respiratory tract infections with recommended antibiotics

2.3. Strategy for early detection and treatment of ARI

- Establish better routine surveillance system to detect increasing incidence, and identify seasonality, vulnerable groups and underlying causes thus strengthen protection, prevention and treatment to those communities at risk

- Improve health care seeking and demand generation within communities, through regular community awareness programs

- increase access to appropriate care through community based case management

- Ensure better Health facility based case management for very severe cases and vulnerable groups such as newborns, HIV-infected and malnourished children

3. Guidelines for routine surveillance and early detection of ARI

Early detection of increasing incidence of AURI and pneumonia with an efficient surveillance system is the corner stone of enhanced prevention and control activities. Current Disease Early Warning System in Afghanistan has a reasonable capacity to detect increasing incidence at early with its regular reporting from sentinel sites. There is a structure and trained staff to collect, compile and analyze surveillance data and identify the seasonal variations and causative factors in time and also start early response initiatives at provincial and national levels. This would enable us to identify the emerging Severe Acute Respiratory Infections (SARI) or Influenza like illnesses (ILI) as well.

Guidelines for routine surveillance and early warning can be described in depth with the help of sets of definitions, standards and procedures. The following sub topics endeavor to guide us to understand the steps of surveillance activities, detection of increasing incidence of pneumonia and probable SARI/ILI outbreaks and necessary control measures at different levels.

3.1. Case definitions

For any surveillance system there should be a defined uniform case definition to detect the cases. The case definitions for common cold[10], ILI, SARI[11] and Pneumonia[12] are defined as follow.

- **Common cold/Cough and cold**
  Acute onset of at least one of the following four respiratory symptoms:
  Cough, sore throat, runny or blocked nose with or without fever and clinician's judgment that the illness is due to an infection.
- **Influenza-like-illness (ILI)**
  An acute respiratory illness with onset during the last 7 days with:
  Measured temperature ≥ 38°C, AND cough.
- **Severe Acute Respiratory Infections (SARI)**
  An acute respiratory illness with onset during the previous 7 days requiring overnight hospitalization that includes:
  History of fever or measured fever of ≥ 38°C, AND cough, AND shortness of breath or difficulty breathing
- **Pneumonia**
  Symptoms of Cough or difficult breathing with fever, chills, chest pain; **and**
  Signs of Breathing 50 or more times per minute in infants aged 2 months to 1 year Breathing 40 or more times per minute for children aged 1 to 5 years; **and** No chest in-drawing, stridor or general danger signs.
- **Severe Pneumonia**
  Symptoms of Cough or difficult breathing and any general danger sign **or**
  Chest in-drawing or stridor in a calm child

General danger signs: For children aged 2 months to 5 years; unable to drink or breast feed, vomiting, convulsions, lethargic or unconscious.
In infants under 2 months of age the presence of any of the following indicates severe pneumonia; cough or difficult breathing and breathing 60 or more times per minute or grunting or nasal flaring or fever or low body temperature or any general danger sign.

3.2. Guideline for the surveillance focal point of sentinel sites and clinicians/ primary health service provider

Objective: To ensure that, the quality data is produced and promptly notified from the health facilities

- Be aware of diagnosis of ARI, ILI, SARI and Pneumonia/ severe pneumonia based on the standard case definition above in 3.1
- Record vaccination history of all the patients particularly for children <5years
- Be aware of importance of notification of above cases and be familiar with the notification modes, alert forms and weekly reporting forms

Annex: B1, 2&3 incidence chart, Alert notification format and DEWS weekly reporting format

- Regularly maintain weekly incidence data of new cases of all AURI and ALRI/Pneumonia

Be aware of alert threshold of seasonal respiratory tract infections cases.

Alert threshold for ARI/ILI/SARI and related Pneumonia

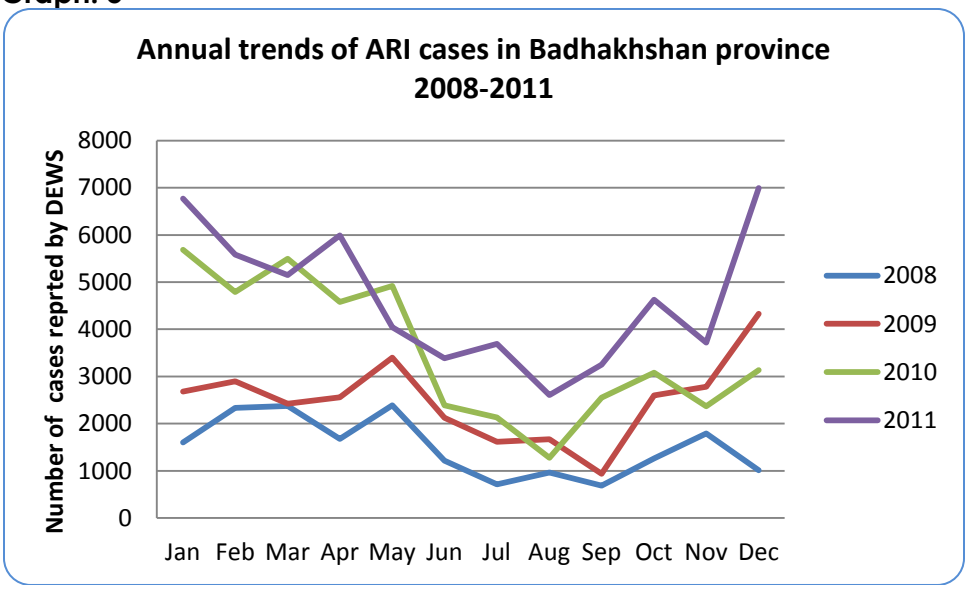
Worldwide, there is a seasonal increase of respiratory tract infections observed and is the same in Afghanistan as well.

Alert threshold for these infections can be different in different districts/provinces/countries
Each districts and provinces have to maintain weekly incidence rate charts and calculate the base line from the mean value of the past years, from the available data.
For example
If we take the ARI case trend reported by DEWS in Badakhshan province;

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1603	2334	2377	1677	2392	1218	717	967	687	1261	1792	1013
2009	2682	2901	2426	2561	3402	2126	1615	1673	937	2602	2783	4327
2010	5683	4791	5492	4580	4921	2389	2130	1279	2552	3084	2366	3136
2011	6770	5581	5151	5990	4047	3386	3694	2604	3252	4629	3715	6993

The graph made out of this data will be like the one on graph 5

Graph: 5

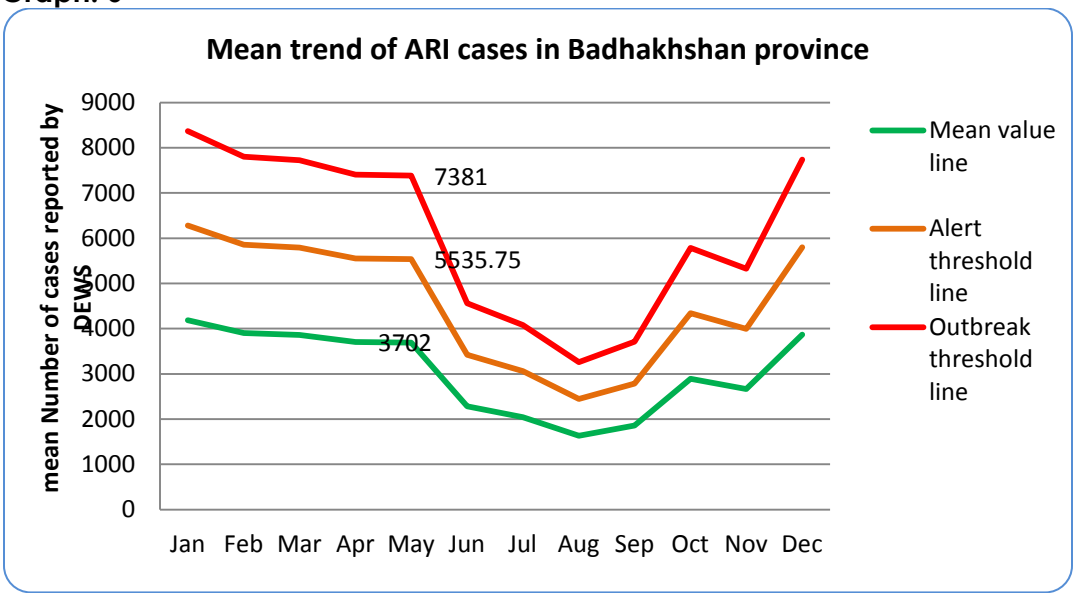


Now we have to calculate the mean (average) value for each month for all four years, and 150% value of mean value for alert threshold and 200% value for outbreak threshold this will be like the following table

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	4184.5	3901.75	3861.5	3702	3690.5	2279.75	2039	1630.75	1857	2894	2664	3867.25
150%	6276.75	5852.625	5792.25	5553	5535.75	3419.625	3058.5	2446.125	2785.5	4341	3996	5800.875
200%	8369	7803.5	7723	7404	7381	4559.5	4078	3261.5	3714	5788	5328	7734.5

A graph made out of the values will give the trend lines for alert and outbreak threshold

Graph: 6



If there is >50% increase of cases than the expected number of incidence (beyond the mean value) of the particular week in the past; then it can be

taken as alert threshold and necessary action to be taken for further investigations, standard case management and prevention.
For example from the graph 6; if the number of cases in May 2012 goes > 5500 it's an alert point

If the number of cases are **beyond double** of the expected number of cases for the week; you should take it as an outbreak and initiate necessary enhanced surveillance and improved case management arrangements.
Example in graph 6; number of cases exceeding 7300 in May 2012

If you observe clustering of clinical ARI cases (number of cases more than the **outbreak threshold**[1]) in your facility and if there is a suspicion of ILI ; it must also be communicated to the surveillance focal point as early as possible, do not wait until the end of the week.

- Take samples (nasopharyngeal swab) from suspected cases of any ILI during an epidemic or pandemic of influenza or SARI and necessary severe pneumonia; before giving any treatment and properly transport them for isolation of organism and drug sensitivity tests

See annex C for sample collection and transport procedures

- A hard copy of the notification form should be sent to the surveillance focal point as early as possible

Annex-D updated details of provincial surveillance focal point

- Recheck and confirm that, the notification reached the surveillance focal point In addition to the notification procedure; actively try to find out any related cases and Prepare the facility with an isolation unit for manage more cases (Details in section 4)

[1] The outbreak threshold is a pre-determined number of reported cases or a reported incidence rate above which the situation is defined as an outbreak. The specific threshold must be developed on the basis of local epidemiology. The outbreak threshold may and should change as the incidence of cases and the program objectives changes.

3.3. Guideline for Provincial surveillance focal point (DEWS/Focal point of Contracted out agency)

Objective: To ensure efficient routine surveillance activities for timely detection of outbreaks and epidemics

- Ensure as a provincial surveillance focal point, you are well capacitated with surveillance procedures, computerized analyzing techniques and sound knowledge on communicable disease control activities
- Train all clinicians and surveillance focal points of the health facilities on case definition, health facility based new case recording, daily summarization and maintenance of daily new notified cases summary chart and proper notification methods
- Also prepare the relevant departments and community organizations to assist in surveillance and control activities
  Ensure all the tools and supplies (Updated Case definitions, Manuals, guidelines, Forms, Charts with median trend curves for each year, records/registers, sample collection kits and carrier mediums, cool boxes and necessary medical supplies) for diagnosis, notification, sample testing and collection are available at each facility.
- Update them with on job trainings and regular mentoring during supervision visits
- Ensure regular notifications are received from all facilities under the province, if not remind, visit and rectify the issues related to notification
- Regularly compile the data collected from the surveillance focal points or the clinician or the health care provider of the health facilities and analyze (by time, place and person) to detect any alerts or outbreaks or epidemic alerts at provincial level
- If any significant alerts are detected during data analysis; clearly verify the same from the source of data
- Timely share the compiled data and weekly analysis reports and any alert notification with provincial epidemic response committee.

- Forward the same to MOPH in time as softcopy and all hard copies to be filed at provincial surveillance office

- Take the lead and provide necessary technical guidance to the outbreak investigation and early response team of the provincial emergency response committee under the instruction of Provincial Health Director.

3.4. Guideline for Provincial Emergency (Health) Response and Preparedness Committee (ERP)

Objective: To manage rapid case investigation, control and enhanced surveillance

Once the Provincial Surveillance focal point shared the details (Time, place and person) of the suspected alert or outbreak with the provincial emergency response committee (see table 1 of chapter 6); it should call for an emergency meeting and plan its activities with the following steps.

- Deploy a pre trained ***Outbreak investigation and early response team*** (For the composition of the team; see table 1 of Chapter 6) with necessary investigation tools and emergency response medical supplies to visit and investigate relevant sites (Health facility/village/camp and find the epidemiological information with vaccination coverage, nutritional level and their housing and ventilation facilities) to verify surveillance data and find out the source and nature of the alert or outbreak

- Get the daily feedback on details of daily new cases from the Outbreak investigation and early response and do an epidemiological analysis

- If the morbidity and mortality are on the rise; enhance the surveillance activities through the available surveillance system and relevant control activities of outbreak investigation and early response Update/report the MOPH regularly on progress

- If the situation is out of control of provincial Emergency Response Committee and the attack rate and case fatality rates are double than the usual in the area; then call for national assistance and the situation might be handled by national ARI epidemic task force, on the contextual based expert committee advice.

3.5. Guideline for outbreak investigation and early response teams

Objective: to verify and enhance the surveillance and control of ILI, SARI And related Pneumonia

- The team should verify the alerts with the help of alert verification form and also examine the suspected cases; collect necessary information from cases, care takers or family members, villagers and clinicians.

Annex E Sample general outbreak investigation form
Annex F Sample case investigation summary form for suspected ARI

Before visit to the location for rapid assessment and response;

- be clear about the alert message
- Plan and collect all the contacts to be met and investigated
- Prepare and take necessary investigation (forms, sample collection materials), recommended antibiotics and Vitamin A doses with necessary emergency medicine supplies for health facilities where there are no prepositions etc.

During visit to the suspected cases and health facilities;

- Collect evidence of more cases or contact history particularly travel or movements
- Collect information on vaccination history and coverage in the area
- Collect samples from suspected contacts or index cases
- provide health education and necessary hygiene promotion supplies(Soaps, masks and Vitamin A) to the family members and neighbors who share households and compounds(The details of prevention of spread are described in chapter-5)
- In the health facilities; check diagnostic criteria in use (case definition), classification of cases (This would improve the quality of data from the facilities) and case management procedures (Details of case management procedures are mentioned in chapter-3)
- Also find out about any shortages of necessary medical supplies and support the clinical teams with urgent supplies.

After visit, when you are back from the field

- Send the samples to the laboratory as early as possible and track the progress according to scheduled time period
- If you are very clear the cases are very severe and spreading fast; do not suspend/await the response and control operations until receiving the lab results
- From your confirmed findings; line lists the cases according to the case investigation format, summarize the relevant findings related to time place and person and identify the clustering of cases and sources

- Analyze needs and gaps to response the outbreak
- Discuss the findings with the (provincial) emergency response committee and make a preliminary decision until the laboratory report arrives.
- Send the feed back to the facility within 24 hours with instructions of standard case management, control measures with ensuring availability of necessary supplies from Provincial health department.
- Keep in touch with the facility and gather updated morbidity and mortality data related to the different stages of the Respiratory tract infections and also implement an enhanced surveillance with the help of community based focal points/ organizations via daily SMS reporting of above details needed for line listing(Take care on duplication of information from community bases enhanced surveillance and assign only one source of information from one location, If any case has been referred to nearby health facility; it should be clearly mentioned separately with identification details of the cases)
- If the team recognizes the outbreaks are grouping into an epidemic or the spread is immense (acute increasing number of cases (Attack rate>1%) and deaths from different locations); inform and request ERP to mobilize more resources.
- Revisit the sites of spread and continue to investigate, and coordinate control activities

During re-visit

- If the cases are like ILI or SARI; assist the facility to organize Isolation units and prepare locations to establish IUs (If necessary prepare the neighboring facilities and districts as well)
- Plan and implement a catch up vaccination campaign and Vitamin A supplement distribution which would help for enhanced surveillance as well

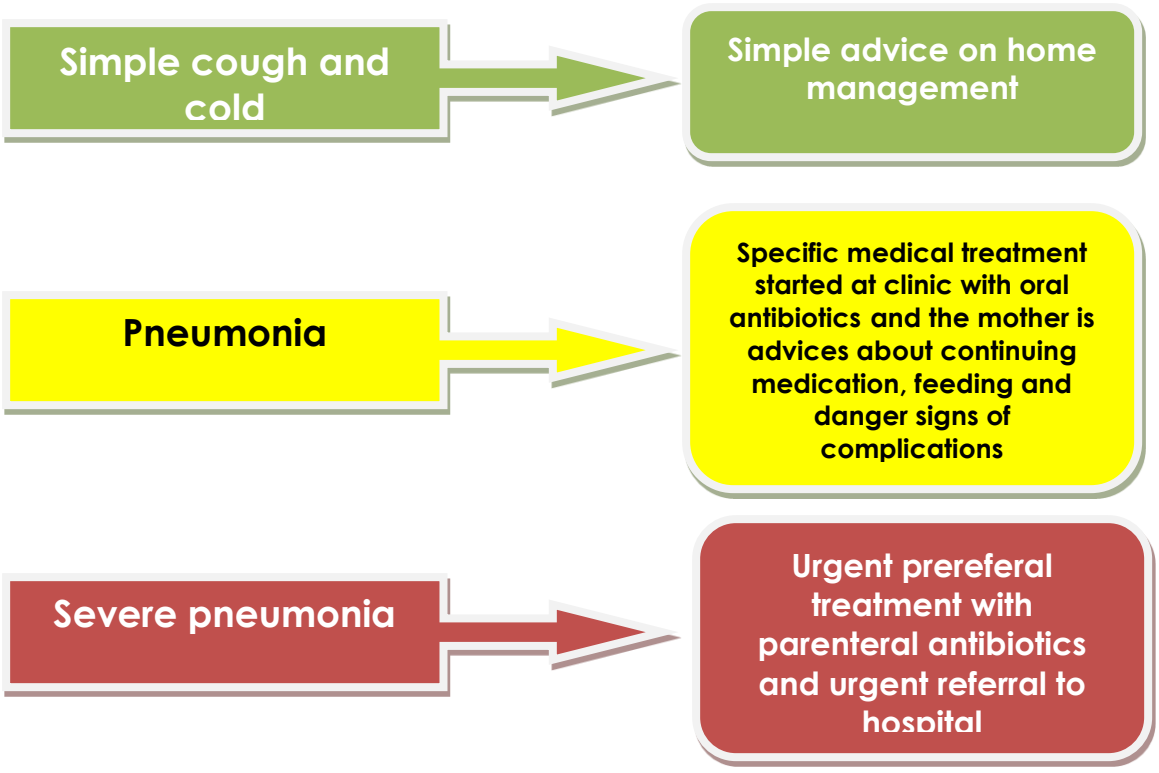
Follow up

- Once the laboratory confirmation is available from different locations and still the cases and deaths are on rising (Doubling) trend; then the situation should be discussed with the provincial emergency response committee and expanded control measures should be organized at provincial/regional/national level.

4. ARI case management guide lines for Clinicians

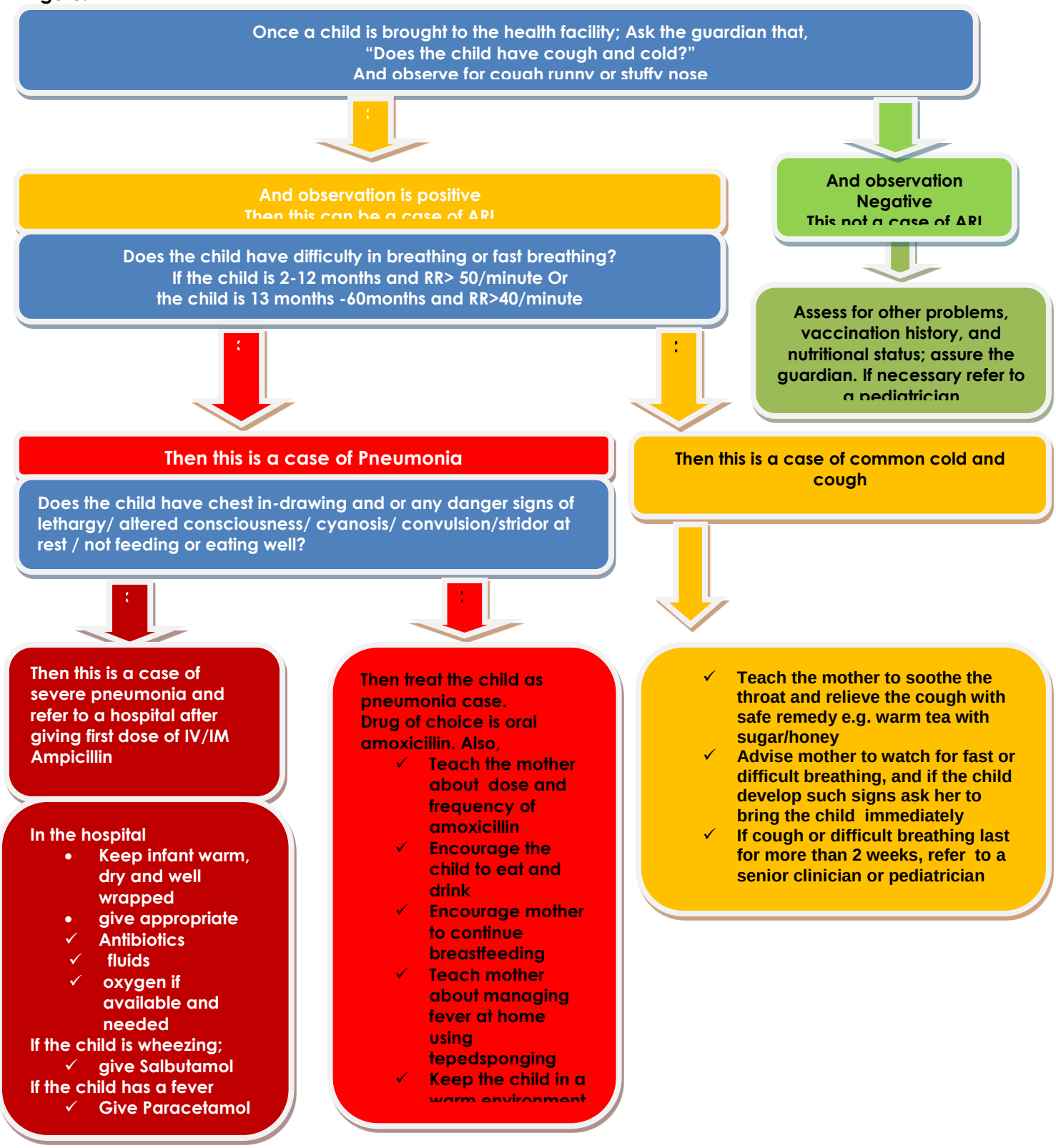
- Case-fatality rate due to ARI and its complications can be reduced by effective case management
- Proper case management must be encouraged and facilitated through standard case management trainings, follow up of standard protocols and ensuring adequate staffs and supplies.
- Case management should address four components such as: clinical assessment, diagnosis, identification of severity status, and treatment.
- A modified flow chart for triage at a clinic center is given in figure 3
- An elaboration of classification and management of cough and cold[13]; given in figure 3 of subheading 4.1 and simply describes the assessment and management steps and tips
- At the same time final diagnosis of ARI should be relevantly fit to the standard case definitions given in 2.1.

Figure 3: Triaging Of ARI



4.1. Clinical assessment classification, and treatment

Figure: 4



- Under normal circumstances, uncomplicated AURI only requires supportive therapy, with access to further care if ALRI or other complications develop.

- If the child or an infected patient had complications with severe **respiratory distress and other danger signs such as lethargy, altered consciousness, convulsions and stridor at rest**; then the patient should be referred to a health facility preferably with intensive care facilities. This could help to provide a better case management of Severe Acute Respiratory illnesses and emerging Influenza like illnesses.

- During any outbreaks or epidemics of ILI; if appropriate vaccine is available and recommended by the health authorities, then vaccinate susceptible contacts according to updated instructions.

- In case of ILI possible isolation and preventive personal hygiene practices would prevent spread of infection by droplets. During such situations we have to organize and manage an isolation unit with available resources

Isolation units

Isolation units are preferable to prevent hospital born infection and spread of ARI particularly severe acute respiratory infections and emerging influenza like illnesses to the other sick and immune suppressed patients

- Usually isolation units for air born infections have separate/common rooms for patients with necessary treatment facilities (supplies and trained staff) with centralized oxygen supply, mechanized negative pressure ventilation or at least better natural ventilation structures.

- All the staff, patients and care takers should always wear a mask and follow appropriate hand washing procedures after handling patients and articles in the unit

4.2. Recommended treatment regimes[14]

Further management of pneumonia has to be based on following recommended treatment regime but the decisions should to be made by the physicians caring the case, depending on whole case scenario.

- **Treatment of non-severe pneumonia with wheeze**
  Antibiotics are not routinely recommended for children aged 2–59 months with non-severe pneumonia (i.e. fast breathing with no chest in-drawing or danger sign) with a wheeze but no fever (< temperature 38 °C), as the cause is most likely to be viral.

- **Antibiotic treatment for non-severe pneumonia with no wheeze** Children with non-severe pneumonia (i.e. fast breathing with no chest in-drawing or danger sign) should be treated with oral amoxicillin. The exception is in patients with HIV:
  - With low HIV prevalence, give amoxicillin at least 40mg/kg/dose twice daily for 3 days.
  - With high HIV prevalence, give amoxicillin of at least 40mg/kg/dose twice daily for 5 days.

  Children with non-severe pneumonia who fail on the first line treatment with amoxicillin should have the option of referral to a facility where there is appropriate second line treatment.

- **Antibiotics treatment for severe pneumonia**
  Children aged 2–59 months with severe pneumonia (chest in-drawing) should be treated with oral amoxicillin at least 40mg/kg/dose twice daily for 5 days.

  In HIV/AIDS infected children, specific guidelines for treatment of severe pneumonia in the context of HIV should be followed.

- **Antibiotic treatment for very severe pneumonia**
  Children aged 2–59 months with very severe pneumonia should be treated with parenteral Ampicillin (or penicillin) and gentamicin as a first line treatment.
  - Ampicillin: 50 mg/kg, or Benzyl penicillin: 50,000 units per kg IM/IV every 6 hours for at least 5 days
  - Gentamicin: 7.5 mg/kg IM/IV once a day for at least 5 days

  Ceftriaxone should be used as a second line treatment in children with severe pneumonia with failure on the first line treatment.

- **Inhaled salbutamol for treatment of acute wheeze/asthma and bronchoconstriction**
  a) Children with acute wheeze/asthma and broncho-constriction should be treated with inhaled salbutamol using a metered dose inhaler (MDI) with spacer devices to relieve broncho-constriction.

b) Oral salbutamol should not be used for treatment of acute or persistent wheeze except where inhaled salbutamol is not available. Oral salbutamol is not useful in testing response to bronchodilators.

5. Prevention and control of morbidity and mortality of ARI

Common cold and mild AURIs

Most of the ARIs are mild and self limiting and not notified or treated at health facilities. So the community must be aware of how to prevent, treat the mild cases at home and how to identify the danger signs and make an early referral
(See the flow chart under 4.1)

Influenza like illnesses

But influenza and Influenza like illnesses **(ILI)** have an outbreak tendency. Once there is an outbreak of ILI; it may affect the susceptible personals and the spreading nature might be vary with the infectivity and incubation period of the disease. If we practice proper isolation at household and community level with improved hand washing habits; chance of spread can be reduced.

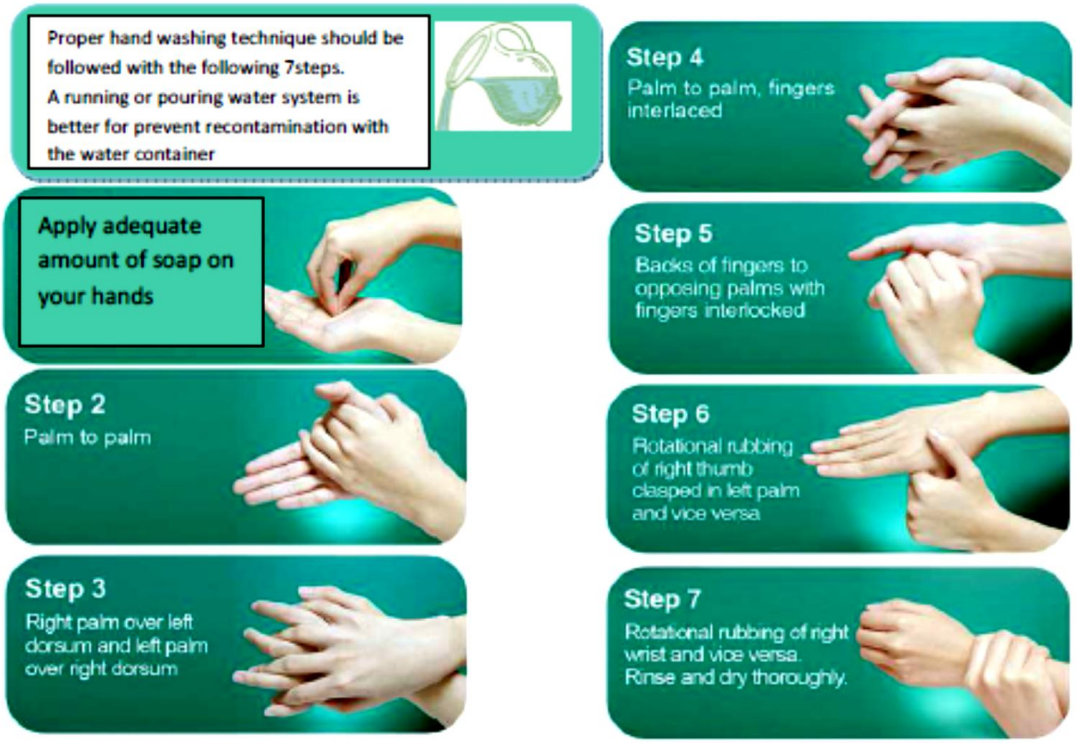
To do this educate the community through appropriate media on the following practices

- Isolate the case from all the susceptible members of the household and restrict their movement out of the house
- Prevent susceptible visitors to the house
- Prevent the susceptible contacts going to school or any other common place
- Request patients and contacts to wear a protective cloth around nose and mouth or wear a mask
- Follow proper hand washing procedures after handling the patient or any articles used by the patient
- If there is a vaccine available for particular influenza in the country; ensure that the vaccine are given prior to the outbreak in their location particularly to all vulnerable groups (Children, elderly and immune deficient patients.
- Aware of the outbreak and seek health care as early as possible
- Follow the update instructions given by health authorities time to time

Proper hand washing procedures

- Wash your hands after handling a patient and the articles used by him/her
- Always use clean water for washing your hands
- Wet and wash your hands with clean water
- Then always use soap or any locally accepted relevant detergent agent to enhance the effect of hand washing
- Thoroughly apply the hand washing agent to all the surface of hand
- Scrub all the surfaces, particularly tips, webs and mid palm using the other hand or using locally available and clean scrubs/brush
- Thoroughly wash your hands again with clean water and dry up with a clean and dry towel/cloth or let it to dry under air

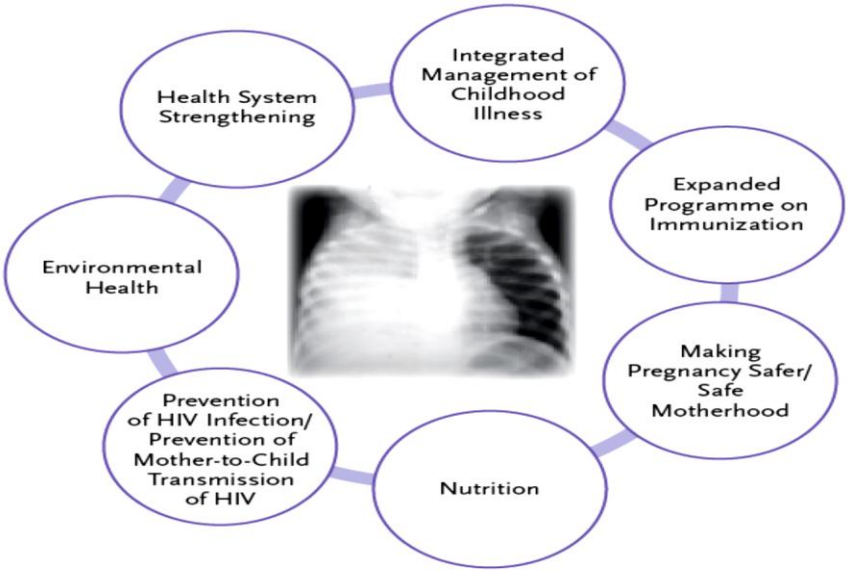
Figure: 5 Seven steps of hand wash



6. Coordination and Management of ARI prevention and control

Further to the strategic frame work; best way to prevent and control respiratory tract infections is to have integrated and collaborative program activities towards the targets and goals. This is described in GAPP as follows,

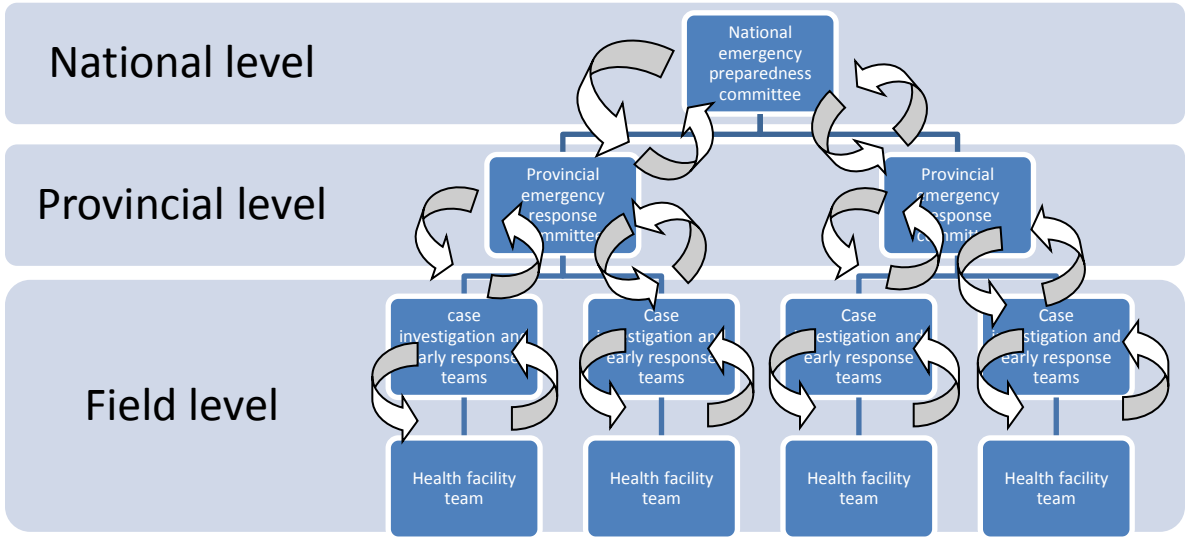
Figure: 6



The management and coordination structures at different level should integrate and collaboratively adapt the above programmes into their prevention and control plans and activities.

6.1. Management and coordination structures and governance

Under the current coordination system in Afghanistan; epidemics within the provinces could be managed by provincial emergency response and preparedness committee. The organizational structure of national, provincial and field level epidemic control task force is described here with two way communication (command and feed back) channels this would prevent duplication of commands and feedbacks during epidemics.



6.2. Members of the National and Provincial emergency response committee, and case investigation and early response team (table: 1)

Position	National emergency response and preparedness commission	Provincial emergency response and preparedness committee	Outbreak investigation and early response team
Chairman	Deputy minister of health	Director of Provincial Health Department	DEWS/ CDC officer
Committee members	ERP directorate	Provincial DEWS officer or CDC officer	One Medical doctor from the health facility
	Director of DEWS	NGOs (BPHS implementer)	One Nurse from HF
	Preventive medicine directorate	UNICEF	One Lab technician
	Curative medicine directorate	WHO (regional health coordinator, regional health cluster coordinator or provincial polio officer)	
	WHO/UNICEF and NGOs	ARCS	
	RRD and other related ministries	RRD and other related directorate	

Annex H- Roles and responsibilities of different stakeholders at different levels

6.3. Major steps for planning and response of ARI prevention and control

Before seasonal outbreaks
Make a preparedness plans for the peak seasons of ARI (winter, floods etc)

Plan should be included the following activities

- Provincial preparedness planning based on available historical data and resources
- Review the plan and ensure the plan is implemented properly
- Prepare the community with awareness programmes
- Establish the surveillance system with refresher trainings and community based networking
- Train the health facility staff and community based organizations on early diagnosis, management and referral
- Create outbreak response teams and train them on early detection and response
- Launch necessary vaccination campaigns well before the season (winter/floods)
- Ensure the necessary supplies are prepositioned in difficult to reach areas

- Establish referral health facilities with necessary supportive structures and equipments
- Ensure availability of back up transport means during harsh weather or worst case scenario

During the outbreaks

- Ensure rapid assessment and reporting by the outbreak investigation and early response team
- Analyze, Identify and prioritize necessary interventions
- Reinforce the response team with necessary, leadership, HR with specific TORs and supplies (Adequate prepositioning of oxygen and other necessary antibiotics of choice) and logistic support
- If there are recommended vaccines available in the country for the specific outbreak/epidemic; then vaccinate as per the updated recommendations.
- Regularly review the interventions and outcome (preferably weekly) with the help of an updated response matrix (Table 3)

Table 2: Sample emergency response committee management response matrix

Problems identified	Recommendations of the Rapid assessment team	EPR's comments/ amendments	Action to be taken	Responsible person/unit	Resources needed and provided	Time frame	Status

Communicate the updates and outcome of the epidemic control activities to the higher authorities and the public through appropriate channels

7. Post epidemic activities

Continuation of enhanced surveillance and health awareness activities

It's mandatory to continue the enhanced surveillance until complete control of seasonal outbreak or epidemic

The health awareness creating teams should continue to make awareness among the community on recommended measures like vaccination, isolation and hand washing.

Actions to be taken from the lessons learned

Once the epidemic is under control; review all the control activities under each management level and consolidate information about constrains faced by the teams and identify the gaps at field level.

Discuss the constrains and gaps faced by technical teams and identify means of preventing such constrains and filling the gaps and make recommendations to the appropriate authorities dealing with such epidemics in future

Identify the gaps and weakness of resources and find the means to rectify them through a priority based capacity building plans and implement them in order to successfully face epidemics in future

The lessons learned could be used to establish a better epidemic control mechanism in country as well as in countries under similar context

The identified gaps and recommendations could be used to bring the focus of the donors towards the practical constrains and gaps and plan a better epidemic control mechanism in future

Long term plans should be developed from the lessons learned, particularly to improve healthy living standards in ARI prone areas with better housing standards

Review the routine immunization program and SIA and recommendations to be made to strengthen the current vaccination program based on cost effectiveness

In revising policy, priority should be given to maintaining immunization coverage of recommended vaccines at greater than 90% in all communities. Review should particularly focus on the identification of high risk populations and the selection of appropriate activities to immunize those populations

Continue with regular evaluations and strengthen surveillance, vaccination and case management capacity at all levels.

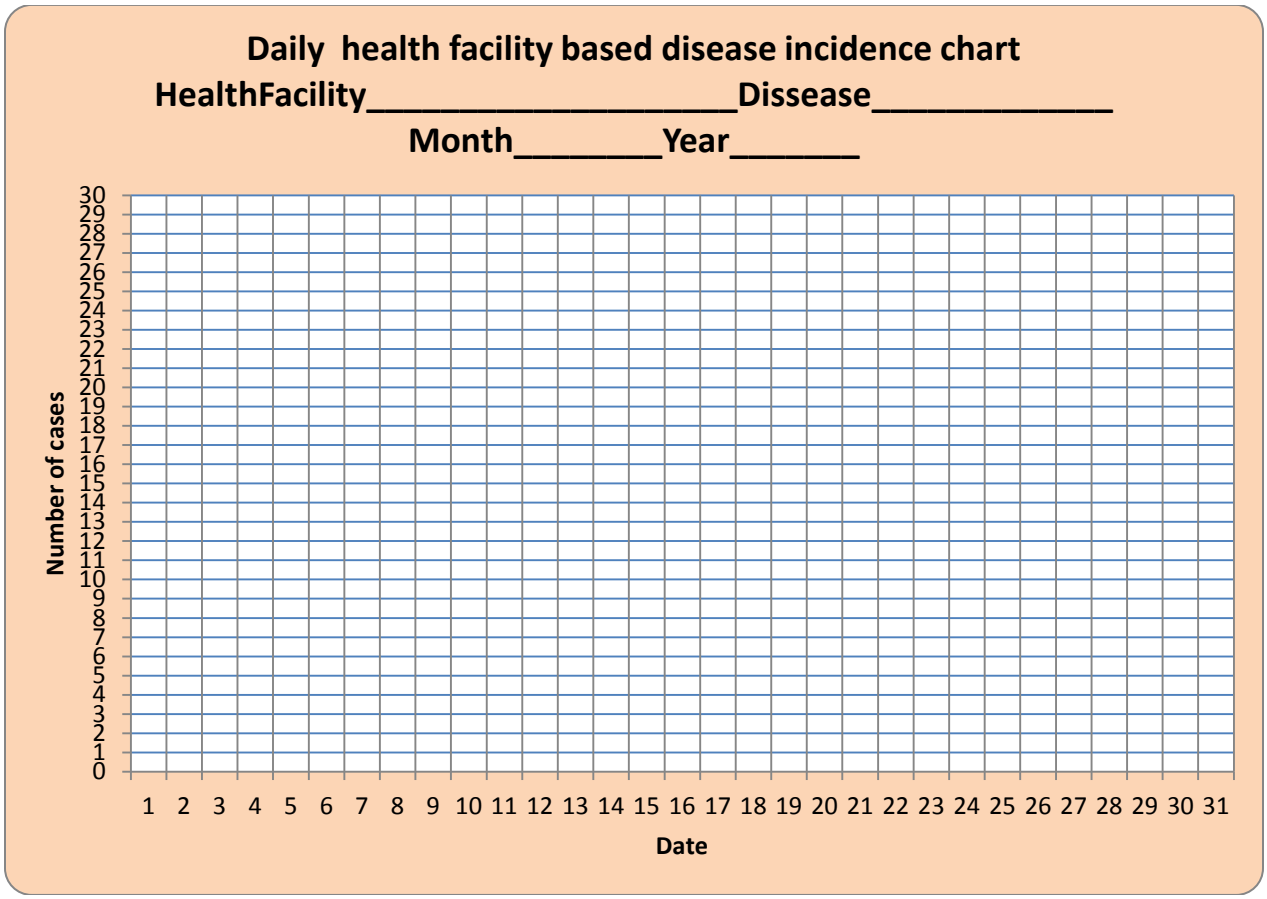
Annex A: Glossary

Alert threshold	A pre-determined number of reported cases or a reported incidence rate of a disease, above which the situation is defined as an alert. It can be differ depending on the context of the disease burden of the location
Attack rate	The proportion of a group that experiences the outcome under study over a given period[15]
Case definition	A set of criteria (not necessarily diagnostic criteria) that must be fulfilled in order to identify a person as representing a case of a particular disease
Case fatality rate	The proportion of cases of a specified condition that are fatal within a specified time. Case fatality rate number of deaths from a disease (in a given period) X 100 (%) number of diagnosed cases of that disease (in the same period)
centralized oxygen supply	Oxygen supplied in patient care units of the hospitals through a central system with controllable outlets on the wall
clustering	A closely grouped series of events or cases of a disease or other health-related phenomena with well defined distribution patterns in relation to time or place or both
Complex emergency	situations of war or civil strife affecting large civilian populations with food shortages and population displacement, resulting in excess mortality and morbidity[16]
Dyspnoea	Labored or difficult breathing.
Endemic disease	The constant presence of a disease or infectious agent within a given geographic area or population group
Epidemic	The occurrence of an illness or cases, specific health-related behavior, or other health-related events in a community or region of clearly in excess of normal expectancy
epidemiology	The study of the occurrence and distribution of health-related states or events in specified populations, including the study of the determinants influencing such states, and the application of this knowledge to control the health problems

Herd immunity	The immunity of a group or community. The resistance of a group to invasion and spread of an infectious agent, based on the resistance to infection of a high proportion of individual members of the group
immuno-compromised	Having an impaired immune system.
Incidence	The number of instances of illness commencing, or of persons falling ill, during a given period in a specified population
incidence rate	The rate at which new events occur in a population. The numerator is the number of new events that occur in a defined period or other physical span
Incubation period	The time interval between invasion by an infectious agent and appearance of the first sign or symptom of the disease in question
index case	The first case in a family or other defined group to come to the attention of the investigator
Infectivity	The characteristic of the disease agent that embodies capability to enter, survive, and multiply in the host
Informal information	Facts from an informal source that have not been arranged and/or transformed to provide the basis for interpretation
Morbidity	A measure of a sickness measured by the number of affected person, the illnesses experienced by the persons and the duration of the illness
Mortality	numbers of deaths and/or rates by age, sex, cause, and sometimes other variables
natural ventilation structures	Designed ventilation structure to maintain a better natural inlet and exhausting system of air into and out of a room
Notifiable diseases	A disease deemed of sufficient importance to the public health to require that its occurrence be reported to health authorities
Outbreak	An epidemic limited to localized increase in the incidence of a disease, e.g.in a village, town, or closed institution;
Outbreak investigation	The investigation procedure undertaken by trained staffs to detect the persons, time, place and source of the outbreak in order to implement an effective control mechanism
outbreak threshold	The outbreak threshold is a pre-determined number of reported measles cases or a reported incidence rate above which the situation is defined as an outbreak
Pandemic	An epidemic occurring worldwide or over a very wide area, crossing international boundaries, and usually affecting a large number of people

Prevalence	A measure of disease occurence: the total number of individuals who have an attribute or disease at a particular time (it may be a particular period) divided by the population at risk of having the attribute or disease at that time or midway through the period
secondary cases	The number of cases of an infection that occur among contacts within the incubation period following exposure to a primary case
Sentinel surveillance	Surveillance based on selected population samples chosen to represent the relevant experience of particular groups
Surveillance	Systematic and continuous collection, analysis, and interpretation of data, closely integrated with the timely and coherent dissemination of the results and assessment to those who have the right to know so that action can be taken
Surveillance focal point	The person assigned to do the surveillance activity within an area or an institution
susceptible persons	A person with lack of resistance/ immunity to a disease
Symptomatic treatment	Observing and treating symptoms than a disease
Tepid sponging	wipe the body with soft cloth soaked in warm water
Transmission	Any mechanism by which an (infectious) agent is spread from a source or reservoir to another person
Virulent	Extremely severe or harmful in its effects/ highly infective (particularly a pathogen, especially a virus)

Annex B1: Sample health facility based disease incidence chart



Annex B2: Sample Alert notification form

Date: _____ Region_____ Province_____
District_____Health Facility/camp_____
Name of focal point_____ Contact number_____

No	Name	Age	Sex	Address	Complaints/signs and symptoms	Suspected disease	Date of onset	Outcome *
1								
2								
3								
4								
5								
6								

Annex B3: DEWS Weekly reporting format

Surveillance Reporting Form for Morbidity (Diseases) and Mortality (death)
Bring to PHD office on every Saturday

Province Name/Code: **District Name/Code:**

Town/Village/Camp: **Facility Name/Code:** **NGO/Donor:**

Epidemiological Week___ from Saturday: _____/_____/2011 to Friday_____/_____/2011

tact's Name & phone #:……

	Events Under Surveillance	**Male/Less than 5 years old**		**Female/Less than 5 years old**		**Male/ 5 years old and over**		**Female/ 5 years old and over**	
		Cases	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**
1	AURI- Cough and cold								
2	ALRI- Pneumonia								
3	Acute Diarrhoea								
4	Bloody Diarrhoea								
5	AWD w Dehydration								
6	Suspected Meningitis (SIC)								
7	Susp. Acute Viral Hepatitis								
8	Suspected ARI								
9	Suspected Pertussis								
10	Probable Diphtheria								
11	Tetanus/ Neonatal Tetanus								
12	Acute Flaccid Paralysis								
13	Suspected MalAURIa								
14	Suspected Typhoid Fever								
15	Susp. Hemorrhagic Fever								
16	Pregnancy-related deaths								
	DEWS Disease								
TOTAL New Clients/ Deaths									

- Please include only those cases that were examined / admitted during the surveillance week and deaths that occurred during the surveillance week. Each case should be counted only once.
- Write "0" (zero) if you had no case or death of any of the Health Events listed in the form.

- Deaths should be reported only under "Deaths", NOT under "Cases", and please fill the following **table for each reported death**.

S.N.	Name	Age	Sex	Cause	Residence/ Address
1					
2					
3					

Investigate with history and lab specimen single cases of suspected avian influenza, cholera, ARI, pertussis, diphtheria, AFP, meningitis and hemorrhagic fever and search for other cases. Similarly, investigate clusters of pneumonia, bloody diarrhea, hepatitis, malaria, and typhoid and increasing trends of AURI and diarrhea

Annex C: Methods for collection of respiratory specimens[17]

Materials required:

1. Personal protective equipment (PPE):
   - PPE should be used according to national or local guidelines and will depend on the clinical setting and whether cases of SARI or ILI/ARI are being sampled.

2. Swabs:
   - Use only sterile dacron or rayon swabs with plastic shafts (see picture below).
   - Calcium alginate or cotton swabs, or swabs with wooden sticks, should not be used because they may contain substances that inactivate some viruses and inhibit PCR testing.

example of a swab

3. Tongue depressor (for the collection of throat swabs)

Example of a tongue depressor

4. Plastic vials:
   - e.g. cryovial able to accommodate 2-3 ml of VTM
   - should be able to withstand temperatures of -70°C to -180°C (liquid nitrogen)

5. Viral Transport Media (VTM):
   - Plastic vials containing 2–3 ml of VTM should be purchased ready made or prepared by the national influenza laboratory.
   - These should be readily available and be pre-positioned at sentinel hospitals and outpatient facilities for the collection of specimens from cases of SARI and ILI or ARI, respectively.
   - VTM can be obtained commercially (e.g. Minimum Essential Medium Eagle).[62]
   - Alternatively, VTM can be prepared by the lab. A suitable VTM for use in collecting throat and nasal swabs from human patients is prepared as follows:
     - Add 10g veal infusion broth and 2g bovine albumin fraction V to 400 ml sterile distilled water.
     - Add 0.8 ml gentamicin sulfate solution (50 mg/ml) and 3.2 ml amphotericin B (250 µg/ml).
     - Sterilize by filtration.
     - VTM prepared in this way can be stored unopened in the dark at room temperature for up to one year.

6. Indelible and alcohol resistant marker pen.

Collection of nasal and throat swabs:

Standard precautions should always be followed (i.e. hand hygiene and barrier protections applied if appropriate – see above). When taking nasal or throat swabs, the swabs must be held correctly. They should be held between the thumb and the first and second fingers with the shaft protruding beyond the web of the thumb (like a pencil) (Fig. A-1) and not between the thumb and forefinger with the base in the palm of the hand (Fig. A-2). The main reason for this is that if the patient makes a movement in reaction to the swabbing, the swab will slide out of harms way if held the first way (Fig. A-3 with the patient represented by the open gloved hand of the operator) but not if held in the second way (Fig. A-4). In this case discomfort would be caused and the patient could be injured. In addition, control over the swab is much greater if it is held correctly.

Fig. A-1. Swab held correctly

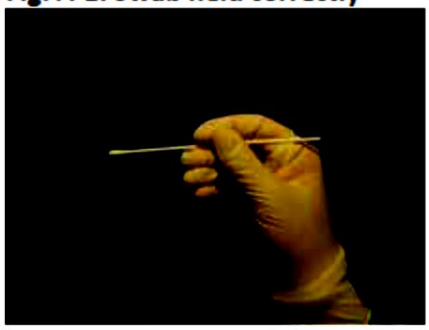


Fig. A-2. Swab held incorrectly

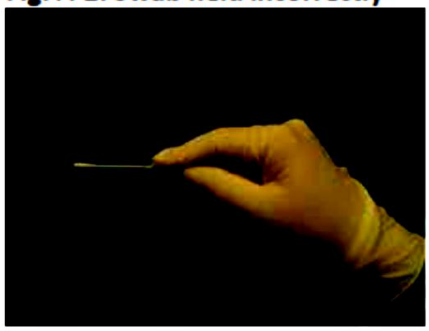


Fig. A-3. Correctly held swab can slide out of harms way

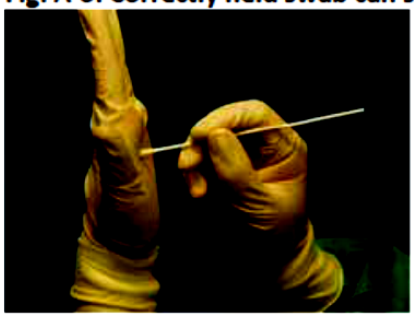
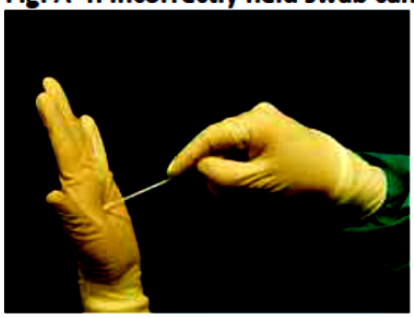


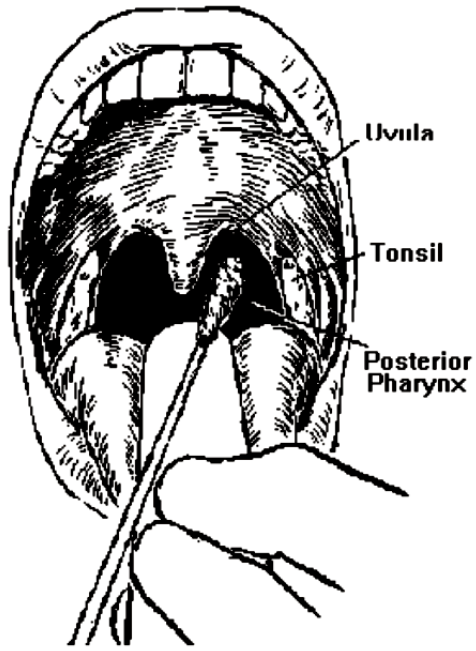
Fig. A-4. Incorrectly held swab can injure the patient



Collection of posterior pharyngeal swabs (throat swabs):

1. Hold the swab and with a sweeping motion, swab the posterior pharyngeal wall and tonsilar pillars (Fig. A-5).
   - Have the subject say "aahh" to elevate the uvula.
   - Hold the tongue out of the way with a tongue depressor (N.B. this procedure can induce the gag reflex).
   - Avoid swabbing the soft palate and do not touch the tongue with the swab tip.
2. Place the swab immediately into a sterile vial containing VTM.
3. Break the applicator stick off near the tip to permit closure of the lid. Plastic swab handles usually have a weak point in them to allow them to be broken off for insertion into a specimen tube. Others have a handle made of a brittle plastic that will snap easily. If the shaft cannot easily be broken off so that it is short enough to fit into a small tube, such as a cryovial, it will have to be cut. To do this:
   - Cut the shaft with scissors, taking care not to touch the tip.
   - Allow the tip to slide into the VTM and then cap the tube (do not let cut portions of the bag or wrap fall into the tube).
   - Sterilize the cutting edge of the scissors by the use of flame (e.g. by the use of a spirit burner, a Bunsen burner or another suitable heat source).
   - Allow scissors to cool before reuse.
4. Label the specimen container (the cap should not be marked, as it may get switched during handling) with:
   - the unique identifier
   - the specimen date
   - the type of specimen in the tube (e.g. nasal swab, throat swab etc.).

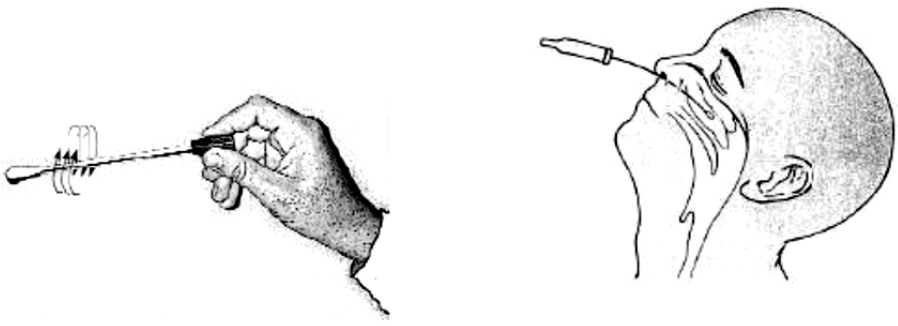
Fig. A-5. Throat swab collection:



Collection of anterior nasal swab:

1. Use the same type of rigid swab as for sampling from the throat. Advance the swab tip past the vestibule (anterior nares) to the nasal mucosa (approximately 2–3 cm from the nostrils in adults) and gently rotate to collect nasal secretions from the anterior portions of the turbinate and septal mucosa (Fig. A-6).
2. Insert a swab into the nostril parallel to the palate.
3. Leave the swab in place for a few seconds to absorb secretions.
4. Swab both nostrils with the same swab.
5. Place the swab immediately into the sterile vial containing VTM and the throat swab.
6. Break the applicator stick off near the tip to permit tightening of the cap (see above).

Fig. A-6. Nasal swab collection



Nasopharyngeal specimens

Storage and transport of nasopharyngeal samples[18]

- These must be transported in viral transport medium* and shipped on wet ice
- (4 to 8 ^{0} C) to arrive at the testing laboratory within 48 hours
- If arrangements cannot be made for rapid shipment; swabs must be shaken in the medium to elude the cells, and then removed.
- The medium or nasal aspirate is then centrifuged at 2500xg for 15 minutes at 4 ^{0} C and the resulting pellet re-suspended in cell culture medium.
- The suspended pellet and the supernatant are stored separately at -70oC and shipped to the testing laboratory on dry ice (-700C)

*If viral transport medium is not available, Gelatron isotonic saline solution, tissue culture medium or phosphate buffered saline may be used.

Annex D: Surveillance focal points by Regions, Provinces and Districts (To be updated)

	Name	Post Title	Provinces	District	Contact No	E-Mail Address
1	Dr. Bashir Noormal	General Director APHI	Kabul	Kabul	700281134	noormalb@yahoo.com
2	Dr. Mir Ismal Sayed	Surveillance DEWS Dirctor	Kabul	Kabul	700290955	km_islam2001@yahoo.com
3	Dr. Naqibullah Ziar	Deputy. Surveillance Direct	Kabul	Kabul	799001491	nziarhaleem@gmail.com
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13	Dr.M.Afzal Khosti	Regional DEWS Officer	Paktia	Gardiz City	700933102	

Annex F: Sample case investigation form (general)

Sample case/cluster investigation form

Province:	Date/time of first report: Who Reported?
District: Date of investigation:	Village/town: Distance from Center of Province:
Name of the nearest health facility:	Total population of the area: Number at risk:
Name of the team leader: Telephone number:	DPTHH coverage of the area: OPV3 coverage: ARICoverage of the area:

Health event/suspected disease (tick one box only)	**Symptoms and signs (several boxes can be ticked)**
□ Acute diarrhoea □ Acute bloody diarrhoea □ Suspected ARI □ Suspected ARI □ Suspected rubella □ Suspected pertussis □ Suspected diphtheria □ Suspected meningitis □ Acute lower respiratory infection □ Acute jaundice syndrome □ Hepatitis □ Acute hemorrhagic fever syndrome □ Acute flaccid paralysis (suspected poliomyelitis) □ Suspected malAURIa □ Adult tetanus □ Typhoid fever □ Unexplained fever □ Unexplained cluster of health events □ Other (specify): _____ _____ **Team Members:**	□ 3 or more loose stools per 24 hours □ loose stools with blood □ fever □ rash □ other skin lesion □ cough □ vomiting □ yellow eyes and/or skin □ neck stiffness □ convulsions or seizures □ muscle weakness □ increased secretions (e.g. sweating or drooling) □ altered level of consciousness □ other (specify): _____
	GPS Ev: N: L:
	Total number of cases reported: **Total number of cases investigated:** **Total number of deaths reported:**

Response:

Surrender Villages		
Name	**Direction**	**Population**

☼ In case of town please mention the number of street and house
(a) Age: by days (for newborn), months (for infants), and years
(b) Sex: M for male; F for female;
(c) Date (day/month/ year)
(d) Records using the following codes: I = currently ill, R = recovering or recovered, D = died, L = lost to follow-up, U = unknown.
(e) Record using the following codes: B = blood, S = stool, C = cerebrospinal fluid, U = urine, R = respiratory specimen, O = other.

Line list of suspected cases

Province: _____ District: _____Village: _____

Estimated population_____ Informant: _____

Nearest health facility_____

No	Full Name	age	sex	Symptoms and signs	Date of onset	Treatment given	Past history of disease contact or source*	Outcome**	If died; Date of death

*= Any relevant case number or any other suspected source suggested by the informant
**= Sick/Recovered/Died

Information collected from the health facility registration books on the suspected disease

Number of the cases this week	**Total**	**Death**
Number of the cases for the last week		
Number of the cases in the same week of the last year (☼)		
Average number of the cases for the last 3 years		

☼ please mention if there was an outbreak of the disease in the same weeks of last year

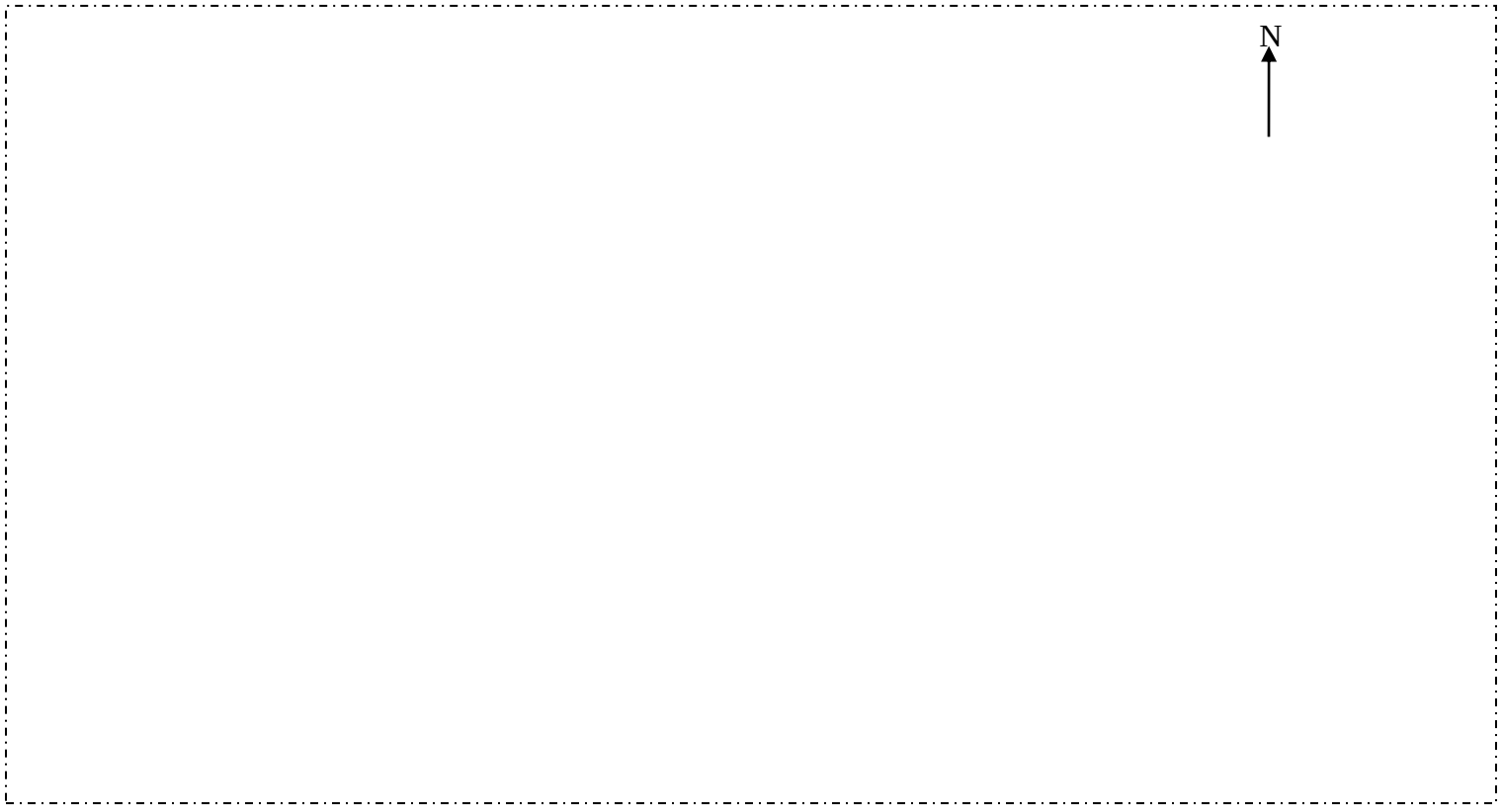
Outbreak investigation (information recorded from the village's graveyard visit)

Number of the new children graves:	Male	Female	Total
Number of the new adult graves:			
Grand total			

Death cases confirmed by the village Mullah Imam in last 2 weeks

Number of new children deaths:	Male	Female	Total
Number of the new adults deaths:			
Grand total			

Draw Map of the Area below:



Annex F: Sample case investigation summary form for suspected ARI outbreaks(adopted from WHO "new" Influenza A (H1N1) Case Summary form version10)

1. Case information

Case identification number:_____

Date of birth (yyyy/mm/dd)	_____/_____/_____	**or** Age (years)	_____
Sex	Male ☐ Female ☐ Unknown ☐		

2. Symptoms

- Date of onset of symptoms (yyyy/mm/dd) _____/_____/_____
- Symptoms at any time during the course of the infection

	Tick as applicable	Comments (if any)
Fever ≥ 38°C	☐	_____
History of fever (not measured)	☐	_____
Sore throat	☐	_____
Runny nose	☐	_____
Sneezing	☐	_____
Cough	☐	_____
Shortness of breath	☐	_____
Conjunctivitis	☐	_____
Diarrhoea	☐	_____
Nausea	☐	_____
Vomiting	☐	_____
Headache	☐	_____
Seizures	☐	_____
Altered consciousness	☐	_____
Muscle pain	☐	_____
Joint pain	☐	_____
Nose bleed	☐	_____
Other (specify)	☐	_____

3. History and Pre-Existing Conditions

- Did the case have any of the following vaccines or prophylactic medication prior to illness onset?

	Tick as applicable	Comments *(if any)*
Vaccination with seasonal influenza vaccine within the last year?	☐	_____
Vaccination with pneumococcal vaccine?	☐	_____
Antivirals prophylaxis in the 14 days before onset of illness?	☐	_____
If prophylaxis was used, which		
Oseltamivir	☐	
Zanamivir	☐	
Amantadine	☐	
Rimantadine	☐	
Other (specify)	☐	

_____

- Did the case have any pre-existing conditions?

	Tick as applicable	
Cancer	☐	
Diabetes	☐	
HIV/other immune deficiency	☐	
Heart disease	☐	
Seizure disorder	☐	
Lung disease	☐	
Asthma	☐	
Pregnancy	☐	_____ months
Malnutrition	☐	
Obesity	☐	
Others *(specify)*		

Details of Laboratory samples	**Results**
Sample for virology and drug sensitivity	
Sample for Bacteriology and drug sensitivity	

4. Pneumonia, other complications

- Did the patient show clinical signs of pneumonia? Yes☐ No☐ Unknown ☐
- Was a chest x-ray taken? Yes☐ No☐ Unknown ☐
  if no or unknown go to 5.
  - Primary viral/influenza pneumonia diagnosed? Yes☐ No☐ Unknown ☐
  - Secondary bacterial pneumonia diagnosed? Yes☐ No☐ Unknown ☐

- Did other complications (e.g. ARDS[11], MOF[12], CNS[13] involvement) occur? Yes☐ No☐ Unknown ☐

  if yes, describe

_____

_____

5. Treatment

- Date (yyyy/mm/dd) of first presentation to health care system? _____/_____/_____

- Case hospitalized during course of infection Yes ☐ No ☐ Unknown ☐
  if yes, date (yyyy/mm/dd) of first hospitalisation _____/_____/_____
  was case admitted to ICU? Yes ☐ No ☐ Unknown ☐
  was case mechanically ventilated? Yes ☐ No ☐ Unknown ☐

- Did case receive antibiotics? Yes ☐ No ☐ Unknown ☐
- Did case receive antiviral treatment? Yes ☐ No ☐ Unknown ☐

  if no, go to 6

Treatment	*Tick as applicable*	Date started (yyyy/mm/dd)	Duration (days)	Daily Dose
Oseltamivir	☐	____/_____/_____	_____	_____
Zanamivir	☐	____/_____/_____	_____	_____
Amantadine	☐	____/_____/_____	_____	_____
Rimantadine	☐	____/_____/_____	_____	_____

[11] Acute respiratory distress syndrome
[12] Multi organ failure
[13] Central nervous system

Antibiotic	Date started	Duration	Daily dose

- Were antiviral adverse events noted Yes ☐ No ☐ Unknown ☐

if yes, were they

Moderate ☐ Severe ☐ Life threatening ☐

Specify type of adverse event

_____

6. Outcome

- Patient fully recovered Yes ☐ No ☐ Unknown ☐

  if yes, Date of resolution of symptoms (yyyy/mm/dd) ____/____/____

- Patient died Yes ☐ No ☐ Unknown ☐

  if yes, Date of death (yyyy/mm/dd) ____/____/____

  Presumed cause of death _____

7. Other Observations/Comments

Annex G- Roles and responsibilities of different stakeholders at different levels

Stakeholder	Responsibility		
	Before epidemic	During epidemic	After epidemic
Gov. Health department	1. Develop an Epidemic preparedness plan and ensure all the resources(Money, man, Material and Management with regular pre seasonal review) are arranged from community to national level, 2. Ensure routine surveillance system is efficiently functional (train, implement and regularly M&E the process of notification, analysis, alert Investigation and outbreak control activities) 3. Ensure adequate prepositioning of necessary emergency supplies according to the expected incidence 4. Ensure existence and functional standard laboratory investigation net working 5. Train all the clinicians on standard Case management and technical support	1. Efficiently manage the resources allocate and mobilize according to the priorities 2. Ensure fully functional enhanced surveillance is in place in all affected areas and relevant areas under risk 3. Ensure necessary supplies and buffer stocks are reached to the affected sites in time 4. Ensure quick access to sample transport and feedback from laboratory are reached the field in time 5. Review the case management issues and rectify accordingly and enhance the referral system as well	1. Reorganize the resources and withdraw excess from the affected site or utilize them for long term sustainable solutions 2. Continue enhanced surveillance until complete control is observed 3. Keep an emergency stock at risk locations and withdrew back the balance to the provincial stores 4. Maintain a laboratory investigation data base for future reference 5. Identify the practical issues faced by the clinical staff on case management and plan to rectify them in future 6. Appreciate all the work forces and prepare them for future emergencies as well 7. Evaluate the epidemic response and identify the gaps and utilize the findings to plan and prepare for future
Gov. Education department	1. Participate and contribute to emergency/epidemic preparedness 2. Hygiene promotion through regular education system and special campaigns 3. Ensure food hygiene in the school	1. Hygiene promotion campaigns in the school and surrounding community 2. Volunteer service provision to the health facilities and community	1. Continue the regular hygiene promotion and environmental health activities 2. Participate and contribute in emergency/epidemic review and planning
Gov. Environmental department	1. Ensure at least basic air pollution prevention facilities are available for all urban and rural epidemic prone communities through community based air pollution prevention schemes 2. Well maintain the air pollution prevention schemes particularly factory waste control and introduce less environmentally harm energy supply system for the households 3. Preserve natural forests and improve green areas in urban settings as well 4. Enforce all available legislatives to control the malpractices and strengthen the legislations	1. Quickly identify any air pollution related sources in the epidemic area and find the root causes of such gaps 2. Fill the gaps of air pollution control facilities in epidemic areas with temporary and long term measures 3. Take over, maintain and train the local authorities to ensure prevention of air pollution in the area 4. Launch additional air pollution prevention promotion activities	1. Maintain air pollution control activities until complete control of the epidemic 2. Properly train the local authority or community and ensure a sustainable mechanism to maintain air pollution control project in the area and hand over 3. Closely monitor and evaluate the project 4. Capitalize the epidemic and get funds to fill the gap and make necessary improvements to the air pollution control system in the area
Gov. Housing and infrastructure development department	1. Plan, implement and maintain basic housing facilities and road network with prioritize the epidemic prone districts/ locations 2. Introduce naturally ventilated	1. Ensure functional controled waste management structures and road net works in epidemic locations	1. Identify the gaps during epidemic management and rectify them with appropriate measures

	low cost housing plans for low income communities 3. During planning and constructing public structures like markets, sports complexes , schools and hospitals; Pay attention on waste management system and disease specific treatment units		
Private business community, funding agents and financial supporters	1. Support the communities in epidemic prone areas with micro financing/revolving funds to construct their safe and ventilated low cost houses 2. Support community based hygiene promotion activities and trainings	1. Support hygiene promotion activities, and vaccination campaigns through the established community organizations	1. Identify the gaps in the activities and develop appropriate plans to rectify them
NGOs and UN agencies	1. Support relevant Government departments in the process of planning, implementation and maintenance of health and infrastructure development projects with community based development projects by supporting with Fund, HR, Supplies, technical advice and management	1. Support the government departments with technical advice, HR, supplies and logistics 2. Bring more epidemic control and case management teams 3. Support the monitoring and evaluation of epidemic	1. Identify the gaps in epidemic control and support for a sustainable solution
Community organizations and public	1. Understand their basic priorities and develop community based organizations, plans and implementation teams 2. Arrange all possible resources from the community and get Support from micro financing agencies, NGOs and UN agencies and Implementation of routine vaccination program 3. Organize community based hygiene promotion teams and regularly promote healthy life style in their community	1. Support health department to control the epidemic through supporting all the efforts made by them 2. Follow the instructions given by health department	1. Support the government and other agencies to identify the gaps and rectify them through appropriate measures 2. Follow all necessary procedures to prevent another epidemic and related losses
Gov. Departments of Law and order	1. Develop and implement necessary public laws related to housing, and air pollution prevention 2. Make the public to be aware of the laws and follow	1. Strictly implement the rules	1. Identify the gaps in laws and implementation and rectify them

Annex H: Check list for surveillance focal point of sentinel sites And clinicians of health facilities

tasks to be checked	Indicators	Yes	No	Requirements to complete the task
Appropriately Trained and equipped for surveillance and early response of outbreaks of communicable diseases	Aware of diseases to be notified			
	Aware of case definitions, have a wall chart of case definitions			
	Aware of line listing information to be collected from the case (to find out the time, place , person and source& causes of the disease)			
	Maintaining a visible daily communicable disease incidence chart in the working room			
	Aware of alert and outbreak thresholds			
	Aware of notification frequency and timely notification			
	Availability of all necessary charts, forms and registers and communication facility			
	Aware of the channel of communication and having the updated contact details			
	Aware of samples to be collected for epidemic prone diseases			
	Aware of sample collection methods			
	Availability of sample collection materials			
	Aware of sample packing and dispatch methods			
	Aware of case management procedures of epidemic prone diseases including isolation and special arrangements			
	Aware of enhanced surveillance			

Annex: I Check list for provincial surveillance focal point

tasks to be checked	Indicators	Yes	No	Requirements to complete the task
Appropriately coordinating the provincial surveillance and outbreak response activities of communicable diseases	Aware of diseases and events to be under surveillance			
	Aware of case definitions of communicable diseases under surveillance and any new diseases or health related adverse events in the province, neighboring provinces and in the country and region. have a wall chart of case definitions and new disease information on a whiteboard in the working room			
	Aware of line listing information to be collected from the cases of a particular disease (to find out the time, place , person and source& causes of the disease)			
	Maintaining a visible weekly communicable disease incidence chart in the working room with clearly marked median curve for each disease and sites (separate for each disease and reporting sites)			
	weekly checking the notified and failed to notified sites and compile a comprehensive data, analyze, verify and report to PHD and regional surveillance department			
	Aware of alert and outbreak thresholds and in case of alerts; arranging immediate verification process			
	Availability of all necessary charts, forms and registers and communication and transport facility			
	Aware of the channel of communication and having the updated contact details			
	Having a Well organized system for sample collection, packing, transport and getting timely feedback with tracing facility for epidemic prone diseases			
	Aware of case management procedures of epidemic prone diseases including isolation and special arrangements of outbreak sites			
	Having better collaboration with relevant departments in the province			
	Established community based awareness of epidemic prone diseases and enhanced surveillance system			

Annex: J Check list for provincial emergency response and preparedness committee

tasks to be checked	Indicators	Yes	No	Requirements to complete the task
Appropriately coordinating the provincial outbreak response activities of communicable diseases	Aware of diseases and events to be under surveillance			
	Aware of any new diseases or health related adverse events in the province, neighboring provinces and in the country and region. have a wall chart of case definitions and new disease information on a whiteboard in the working room			
	Availability of relevant data on demography, geography and available health related resources in the province			
	Maintaining an updated communicable disease outbreak map			
	Capable of quick mobilization of necessary resources to the outbreak location			
	Availability of all necessary supplies for outbreak preparedness, surveillance, response and coordination.			
	Aware of the channel of communication and having the updated contact details			
	Having better collaboration with relevant departments in the province			
	Established community based preparedness of epidemic prone diseases and response system			
	Monthly outbreak review meetings conducted and the progress and response activities updated			
	Quarterly preparedness meetings conducted and preparedness plans reviewed and implemented			

Annex: K **Check list for outbreak investigation and early response team**

tasks to be checked	Indicators	Yes	No	Requirements to complete the task
Appropriately Trained, skilled and equipped for outbreak investigation and early response	Aware of diseases to be notified			
	Aware of case definitions, have a wall chart of case definitions			
	Aware of line listing information to be collected from the case (to find out the time, place , person and source& causes of the disease)			
	Maintaining a visible daily communicable disease incidence chart of the outbreak diseases in the working room			
	Aware of alert and outbreak thresholds of the outbreak location			
	Availability of all necessary charts, forms and registers and outbreak communication materials for using during the outbreak			
	Aware of the channel of communication and having the updated contact details of the community leaders and officers of relevant department			
	Have standard communication equipments(Phone, Thurya, VHF radio and audio transmitters/Megaphone)			
	Have a detailed map of the location of outbreak and neighbor districts			
	Aware of type and methods of sample collection for epidemic prone diseases			
	Availability of sample collection materials and field testing tools			
	Aware of sample packing and dispatch methods			
	Aware of case management and prevention procedures of outbreak diseases.			
	Aware of enhanced surveillance			
	Aware of case tracing methods from the index cases			
	proficient of Identification of probable source of infection			
	proficient on personal hygiene, Water and sanitation improvement methods			
	Know about the available of resources to establish personal hygiene and WATSAN			

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[10] Cough and cold remedy for ARI treatment(2001), WHO
[11] Guidance for sentinel influenza surveillance in humans(2011), WHO Regional Office for Europe
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