



**AIRSAN – Coordinated action
in the aviation sector
to control public health threats**

**Work package 4
Guidance Document**

**Remote risk assessment and management of
communicable disease events
on board an aircraft**

Version May 2015



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Abbreviations

| | |
|--------|--|
| ATS | Air Traffic Services |
| IHR | International Health Regulations |
| PLF | Passenger Locator Form |
| ECDC | European Centre of Disease Prevention and Control |
| EU | European Union |
| IATA | International Air Transport Association |
| ICAO | International Civil Aviation Organization |
| PHA | Public Health Authority |
| RAGIDA | Risk Assessment Guidelines for Infectious Diseases transmitted on Aircraft |
| WHO | World Health Organization |

Definitions

Aircraft: means an aircraft making an international voyage (1).

Airport: means any airport where international flights arrive or depart (1).

Arrival: means the arrival of an aircraft at an airport (1).

Competent authority: means an authority responsible for the implementation and application of health measures under the International Health Regulations (2005) (1).

Contamination: means the presence of an infectious or toxic agent or matter on a human or animal body surface, in or on a product prepared for consumption or on other inanimate objects, including conveyances, that may constitute a public health risk (1).

Crew member: means persons on board a conveyance who are not passengers (1).

Cabin crew member: A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a pilot (2).

Pilot: A crew member licensed to manipulate the flight controls of an aircraft during flight.

Departure: means, for persons, baggage, cargo, conveyances or goods, the act of leaving a territory (1).

Disease: means an illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans (1).

Disinfection: means the procedure whereby health measures are taken to control or kill infectious agents on a human or animal body surface or in or on baggage, cargo, containers, conveyances, goods and postal parcels by direct exposure to chemical or physical agents (1).

Event: means a manifestation of disease or an occurrence that creates a potential for disease (1).

Health measure: means procedures applied to prevent the spread of disease or contamination; a health measure does not include law enforcement or security measures (1).

Ill traveller: means a person undertaking an international voyage suffering from or affected with a physical ailment that may pose a public health risk (1).

Infection: means the entry and development or multiplication of an infectious agent in the body of humans and animals that may constitute a public health risk (1).

Infection control measures: mean health measures.

Isolation: means separation of ill or contaminated persons from others in such a manner as to prevent the spread of infection or contamination (1).

Passenger: a person who is traveling in an aircraft.

Personal data: means any information relating to an identified or identifiable natural person (1).

Public health risk: means a likelihood of an event that may affect adversely the health of human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger (1).

Quarantine: means the restriction of activities and/or separation from others of suspect persons who are not ill or of suspect baggage, containers, conveyances or goods in such a manner as to prevent the possible spread of infection or contamination (1).

Risk assessment: is a systematic process for gathering, assessing and documenting information to assign a level of risk. Risk assessment includes three components — hazard assessment, exposure assessment and context assessment (3).

Risk communication: is the range of communication principles, activities and exchange of information required through the preparedness, response and recovery phases of a serious public health event between responsible authorities, partner organizations and communities at risk to encourage informed decision-making, positive behaviour change and the maintenance of trust (3).

Risk management: is the process of weighing policy options in the light of a risk assessment and, if required, selecting and implementing appropriate intervention options, including regulatory measures. With respect to acute public health events, risk management is the process by which appropriate actions are taken to manage and reduce the negative consequences of acute public health risks (3).

Suspect: means those persons, baggage, cargo, containers, conveyances, goods or postal parcels considered by a State Party as having been exposed, or possibly exposed, to a public health risk and that could be a possible source of spread of disease (1).

Contributors

Members of the AIRSAN Team of work package 4 were responsible for developing the present document. All AIRSAN Partners were invited to support the development of this AIRSAN Guidance Document by providing their input to the preparation and review of the guidelines. AIRSAN Partners written in italic letters formed a specific small working group to support finalizing the document. All contributions are gratefully acknowledged.

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Experts with declared interests

All 44 contributors listed above were asked to state any declared interests in the past 4 years in written format. No interests besides the interests of the institution the AIRSAN Partner is representing due to his or her professional affiliation were declared by 34 persons handing in a declaration of interest from.

From the following 11 contributors no DOI could be retrieved: Ruben Alblas, Sue Bidmead Ulla Blom, Sietse Felix, Cinthia Menel Lemos, Janusz Janiec, Aykut Yener Kavak, Alex Leventhal, Žarko Sivčev, Suzanne Acton-Gervais and Helena de Lucas de Santos.

1. Introduction

The AIRSAN Project, amongst other objectives, aims to develop AIRSAN Guidance Documents, which shall facilitate the implementation of the International Health Regulations (IHR) (2005) (1) in EU Member States.

According to Article 2 of the IHR, the purpose and scope of the IHR are *“to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.”*

How does the purpose and scope of the IHR apply to an event in which a traveller with a suspect communicable disease is identified on board an aircraft?

The AIRSAN Guidance Document *“Remote risk assessment and management of communicable disease events on board an aircraft”* aims to support public health authorities to assess whether or not a public health risk exists on board an aircraft from a remote position. In case a public health risk has been identified guidance on public health measures e.g. in the context of contact tracing, is given. Minimal interference with international traffic is aimed for. This means that significant delays and disruption for both passengers and the airline need to be avoided. If significant delays and disruption are present, the State Party is obliged to *“provide to WHO the public health rationale and relevant scientific information for it”*, according to Article 43 of the IHR (1).

The AIRSAN Partners, who represent both the public health and the aviation sector, closely worked together to develop an AIRSAN Guidance Document which allows a remote risk assessment and management of communicable disease events on board an aircraft in EU Member States in order to minimize delays and disruption for both passengers and airlines.

2. Scope and Purpose

The AIRSAN Guidance Document focusses on suspected communicable diseases. Signs and symptoms listed in the health part of the aircraft general declaration are used for decision making (1, 4). This means that a syndromic approach is chosen; risk assessments do not rely on diagnoses.

The overall objective of the present AIRSAN Guidance Document is to give operational guidance in the event a traveller (passenger or crew member) is identified on board an aircraft with a suspect communicable disease, which is achieved by:

- assessing whether the disease poses a public health risk,
- establishing ground to air and air to ground communication,
- managing the event by adequate public health measures applied on an aircraft or upon arrival of the aircraft at the airport,
- communicating the event appropriately and
- minimizing interference with international traffic.

When applying public health in the aviation sector, stakeholders from different sectors need to work together effectively. This AIRSAN Guidance Document mainly targets the cooperation between:

- Public health authorities; and
- Cabin crew.

In order to ensure effective cooperation between the cabin crew and the public health authorities, the following groups also benefit from awareness on the content of this document:

- Pilots
- Airline operators
- Airport operators
- Civil aviation authorities
- Medical first responders at the airport

The primary target group, to whom the AIRSAN Guidance Document is applicable, are the travelling public and crew members.

3. Methods

The responsible authors for this AIRSAN Guidance Document were the members of the work package 4 (WP4) AIRSAN Partners which was represented by the Robert Koch Institute (RKI). Additionally all the other AIRSAN Partners contributed to this document: they represented public health authorities, airports, airlines and key international organizations like the European Aviation Safety Agency (EASA), the European Commission (EC), the European Centre for Disease Prevention and Control (ECDC), Eurocontrol, the International Air Transport Association (IATA), the International Civil Aviation Organization (ICAO) and the World Health Organization (WHO).

All persons contributing their expertise to the document were asked to fill in a declaration of interest form. Only interests other than those coming from the organization the person was affiliated to within the past 4 years were accepted as declared interests. No such interests were declared.

All 42 contributors were asked to state any declared interests in the past 4 years in written format. No interests besides the interests of the institution the AIRSAN Partner was representing due to his or her professional affiliation were declared by 31 persons handing in a declaration of interest form. From 11 contributors no declaration of interest could be retrieved.

The topic “*Risk assessment and management of communicable disease events on board an aircraft and at the airport*” was identified as a gap during the AIRSAN Guidance Document Survey (see Report), which was conducted in September 2013.

Based on this result and on the literature review performed (see Report: “AIRSAN Review”) the AIRSAN Team of WP4 drafted a first version and shared the draft with all AIRSAN Partners in May 2014, before the first interim AIRSAN meeting in June 2014, where the draft was critically appraised. The main conclusions from this meeting were, that

- a flowchart was needed to depict the main decisions to be made in case of an ill traveller on board an aircraft with a suspect communicable disease and that
- a remote risk assessment questionnaire was needed that allows the public health authority with the support of the cabin crew to identify a public health risk with need for infection control measures (e.g. contact tracing).

During the interim AIRSAN meeting a small AIRSAN working group was established to help the WP4 finalizing the document; this working group included volunteers representing pilots, cabin crew members, public health authorities and civil aviation authorities. Via a teleconference in August 2014 and a meeting in September 2014 the AIRSAN working group continued to develop the draft document that had been shared with all AIRSAN Partners for further feedback.

4. Guidance

4.1. Remote Risk Assessment

Main target groups: cabin crew and public health authority.

According to the health part of the aircraft general declaration in ICAO Annex 9 – *Facilitation* (4) and Annex 9 of the IHR (2005) (1),

“A communicable disease is suspected when a traveler (passenger or a crewmember) has a fever (temperature 38°C/100°F or greater) associated with one or more of the following signs or symptoms:

- *Appearing obviously unwell*
- *Persistent coughing*
- *Impaired breathing*
- *Persistent diarrhea*
- *Persistent vomiting*
- *Skin rash*
- *Bruising or bleeding without previous injury*
- *Confusion of recent onset”*

The US CDC has published definitions for the above listed signs and symptoms to assist flight crews in identifying people with potential cases of a reportable illness (5). For measuring fever, an aircraft shall be equipped with a first-aid kit according to ICAO Annex 6 (2, 6). A thermometer is recommended to be included in the first-aid kit. In case a thermometer is not available the referenced US CDC definitions offer options like “feels warm to the touch” or “gives a history of feeling feverish or having chills”.

If a suspect communicable disease is identified during a flight, the cabin crew should follow the IATA guidelines (7) and/or their airline/airport specific procedures. A notification of the event by the pilot via air traffic service (ATS) to the public health authority may become necessary. ICAO Annex 9 (4), Section 8.15, states in part: *“The pilot-in-command of an aircraft shall ensure that a suspected communicable disease is reported promptly to air traffic control, in order to facilitate provision for the presence of any special medical personnel and equipment necessary for the management of public health risks on arrival.”*

Cabin crew would implement infection control measures (see chapter 4.2.1) until advised that these are no longer required. This is the case if:

1. Medical support can be gained by the ground service or from a health professional available on board which assesses that the ill traveller does not suffer from a suspect communicable disease.
2. Communication with the competent public health authority (PHA) can be established and the assessment reveals that there is no public health risk present.

The flowchart in Figure 1 depicts the suggested decision flow and actions to be taken.

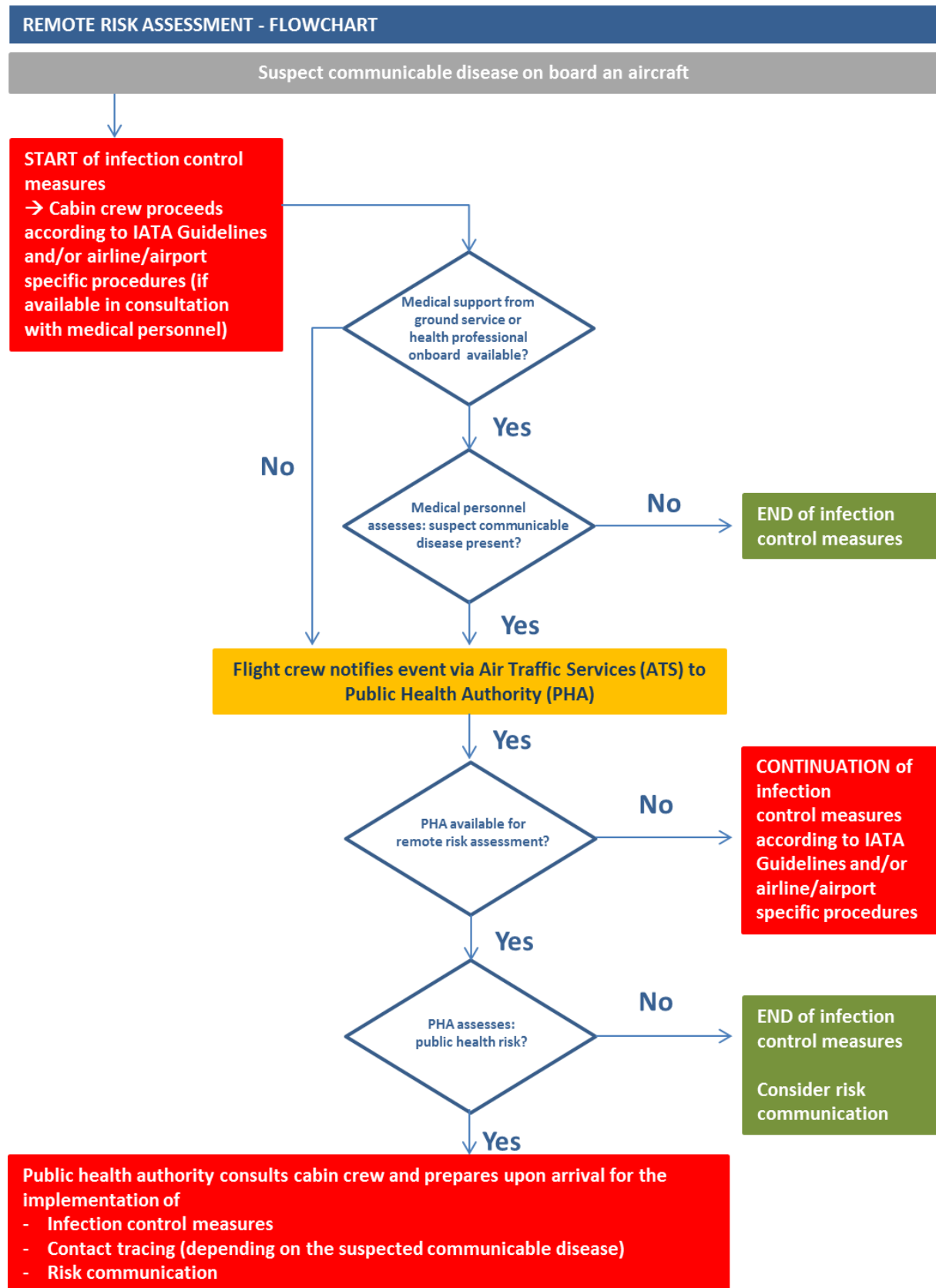


Figure 1. Flowchart depicting the decision flow and actions to be taken if a suspected communicable disease is on board an aircraft. AIRSAN Guidance Document on risk assessment and management of communicable disease events on board an aircraft, 2014.

4.1.1. Questionnaires

Main target groups: cabin crew and public health authority.

If a pilot notifies a suspect communicable disease to the ATS the ATS is required to inform the competent public health authority. Communication between the public health officer on duty and the pilot (or co-pilot) can be established through the airport/airline operator, but not through the ATS. Therefore it is important that public health emergency plans contain contact information from the competent public health authority, from the airport operator and the airlines operating at the specific airport. As ground to air and air to ground communication is limited as long as an aircraft is still in the air a remote risk assessment should focus only on the most important information necessary to find out whether or not a public health risk exists. In order to ease this process cabin crew and the PHA should use the same core questionnaire, proposals see in Figure 2 (for cabin crew) and Figure 3 (for PHA).

Ideally the PHA has already assessed the public health risk before arrival of the aircraft. If not possible (e.g. since the aircraft is already approaching for landing) the PHA needs to assess the situation upon arrival.



AIRSAN Remote Risk Assessment Questionnaire - For Cabin Crew

Please insert all dates in the format DD.MM.YYYY

| REMOTE RISK ASSESSMENT (information ideally collected during the flight) | |
|---|---|
| Name of crew member providing information: | |
| Number of suspected cases on board: | |
| Information about suspect ill traveller | |
| 1. Nationality: | 2. Age: |
| 3. Sex: | |
| 4. Symptoms present (1) | |
| 4a. | <input type="checkbox"/> Temperature 38°C / 100°F or greater; when did it start: |
| 4b. | <input type="checkbox"/> Appearing obviously unwell; when did it start: |
| 4c. | <input type="checkbox"/> Coughing; when did it start: |
| 4d. | <input type="checkbox"/> Difficulties of breathing; when did it start: |
| 4e. | <input type="checkbox"/> Diarrhoea; when did it start: how often: |
| 4f. | <input type="checkbox"/> Vomiting; when did it start: how often: |
| 4g. | <input type="checkbox"/> Skin rash; when did it start: |
| 4h. | <input type="checkbox"/> Bruising or bleeding without previous injury; when did it start: |
| 4i. | <input type="checkbox"/> Confusion of recent onset |
| 5. What does he/she or someone else think is the cause of the symptoms: | |
| 5a. | If yes, why does he/she think that? <input type="checkbox"/> Medical diagnosis <input type="checkbox"/> Self-diagnosis <input type="checkbox"/> Unknown <input type="checkbox"/> Other: |
| 6. Has medical treatment already been taken by ill traveller for the symptoms present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | |
| 6a. | If yes, which medical treatment (consider asking for documentation): |
| 6b. | If yes, when did the medical treatment start: |
| 7. Places, where the ill traveller has stayed within the last 3 weeks (consider asking for countries, regions, cities; urban areas or rural areas): | |
| 8. Why were the above named places visited (consider asking for business trip, backpacker trip, visiting family, working as a healthcare-worker ...): | |
| 9. Any contact with persons with similar symptoms within the last 3 weeks (consider asking whether ill traveller cared for patients or had contact to a person who died)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | |
| 10. ADDITIONAL COMMENTS: | |

(1): If the meanings of the symptoms are unclear, use CDC Definitions of Symptoms for Reportable Illnesses: <http://www.cdc.gov/quarantine/pdf/reporting-symptom-definitions.pdf>

Figure 2. Remote rapid risk assessment questionnaire for cabin crew. AIRSAN Guidance Document on assessment and management of communicable disease events on board an aircraft, 2014.



AIRSAN Remote Risk Assessment Questionnaire - For Public Health Official

Please insert all dates in the format DD.MM.YYYY

| | | | | |
|--|---|---------------------|-----------------------|-----------------|
| Information about the person who is filling this questionnaire in | | | | |
| Name | | E-Mail | | Phone |
| | | | | |
| Position: | | | | |
| A. INITIAL NOTIFICATION (information available from the air traffic service) | | | | |
| Date of notification: | | | | Time: |
| Notified by (name:) | | E-Mail: | | Phone: |
| | | | | |
| Following information should be included in the initial notification | | | | |
| Airline | Flight# | Departure aerodrome | Destination aerodrome | Time of arrival |
| | | | | |
| Number of persons on board: | | | | |
| B. REMOTE RISK ASESMENT (information ideally collected during the flight) | | | | |
| Name of crew member providing information: | | | | |
| Number of suspected cases on board: | | | | |
| Information about suspect ill traveller | | | | |
| 1. Nationality: | | 2. Age: | | 3. Sex: |
| | | | | |
| 4. Symptoms present (1) | | | | |
| 4a. | <input type="checkbox"/> Temperature 38°C / 100°F or greater; when did it start: | | | |
| 4b. | <input type="checkbox"/> Appearing obviously unwell; when did it start: | | | |
| 4c. | <input type="checkbox"/> Coughing; when did it start: | | | |
| 4d. | <input type="checkbox"/> Difficulties of breathing; when did it start: | | | |
| 4e. | <input type="checkbox"/> Diarrhoea; when did it start: | how often: | | |
| 4f. | <input type="checkbox"/> Vomiting; when did it start: | how often: | | |
| 4g. | <input type="checkbox"/> Skin rash; when did it start: | | | |
| 4h. | <input type="checkbox"/> Bruising or bleeding without previous injury; when did it start: | | | |
| 4i. | <input type="checkbox"/> Confusion of recent onset | | | |
| 5. What does he/she or someone else think is the cause of the symptoms: | | | | |
| 5a. | If yes, why does he/she think that? <input type="checkbox"/> Medical diagnosis <input type="checkbox"/> Self-diagnosis <input type="checkbox"/> Unknown <input type="checkbox"/> Other: | | | |
| 6. Has medical treatment already been taken by ill traveller for the symptoms present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | | | | |
| 6a. | If yes, which medical treatment (consider asking for documentation): | | | |
| 6b. | If yes, when did the medical treatment start: | | | |
| 7. Places, where the ill traveller has stayed within the last 3 weeks (consider asking for countries, regions, cities; urban areas or rural areas): | | | | |

| |
|---|
| |
| 8. Why were the above named places visited (consider asking for business trip, backpacker trip, visiting family, working as a healthcare-worker ...): |
| 9. Any contact with persons with similar symptoms within the last 3 weeks (consider asking whether ill traveller cared for patients or had contact to a person who died)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown |
| 10. ADDITIONAL COMMENTS: |

Figure 3. Remote rapid risk assessment questionnaire for public health official. AIRSAN Guidance Document on risk assessment and management of communicable disease events on board of an aircraft, 2014.

4.1.2. Outcomes

Target group: public health authority.

The remote risk assessment should reveal where the ill traveller stayed in the last 3 weeks. In order to find out which communicable diseases are currently endemic/epidemic in the areas the ill traveller stayed the following sources may be helpful:

- The disease distribution maps on the WHO website about international travel and health: www.who.int/ith/en
- The ECDC Communicable Disease Threats Report about current outbreaks: http://ecdc.europa.eu/en/publications/surveillance_reports/Communicable-Disease-Threats-Report/Pages/default.aspx

The information gained through the remote risk assessment should allow a decision as to whether or not the event is a public health risk.

For public health in the aviation sector only those diseases where contact tracing needs to be initiated are considered as public health risk. These are primarily the communicable diseases for which the RAGIDA guidelines exist (8-11).

| C. OUTCOME OF THE REMOTE RISK ASSESSMENT | | |
|--|---|--|
| Check if applicable | Is the event a public health risk? | Actions to be considered |
| <input type="checkbox"/> | Event is not a public health risk (e.g. suspected seasonal influenza without increased virulence) | <ul style="list-style-type: none"> ● Risk communication about the event may be needed to address the public perception of risk (For instance: ask airport operator, airline operator and cabin crew to inform that the outcome of the risk assessment revealed: there is no public health risk) |
| <input type="checkbox"/> | Event is a public health risk | <ul style="list-style-type: none"> ● Implement infection control measures ● Collect information needed for possible contact tracing (depending on diagnosis) ● Provide guidance to airline operators, airport operators and others about necessary measures |
| Check if applicable | Which communicable disease is suspected? | Incubation period |
| <input type="checkbox"/> | Suspected novel influenza with pandemic potential OR seasonal influenza with increased virulence | 2 days (1-4 days) |
| <input type="checkbox"/> | Influenza virus with zoonotic potential (e.g. avian and swine influenza) | 2 days (up to 10 days) |
| <input type="checkbox"/> | Severe acute respiratory syndrome (SARS) | 3-10 days |
| <input type="checkbox"/> | Middle East respiratory syndrome coronavirus (MERS-CoV) | 2-14 days |
| <input type="checkbox"/> | Meningococcal disease | 3-4 days (2-10 days) |
| <input type="checkbox"/> | Tuberculosis | |
| <input type="checkbox"/> | Measles | 8-10 days (up to 19 days) |
| <input type="checkbox"/> | Viral haemorrhagic fevers | 2-21 days |
| <input type="checkbox"/> | Other disease relevant for contact tracing: | |

Figure 4. Outcomes of rapid risk assessment and further questions in case of presence of a public health risk. AIRSAN Guidance Document on risk assessment and management of communicable disease events on board an aircraft, 2014.

4.1.3. Information Needed in Preparation for Possible Contact Tracing

Main target groups: public health authorities and cabin crew.

If the remote risk assessment revealed that the event is a public health risk the competent public health authority should initiate the collection of personal data from the ill traveller and passengers or crew members identified as contacts. The passenger locator form (PLF) or a similar form should be used (minimum information: name, seat number, e-mail or phone number and temporary address for the next 48 hours). Cabin crew following the IATA Guidelines may have already collected PLF information from the passengers sitting in the same row, 2 rows in front and behind the ill traveller.

The questions below may help to quickly assess the risk of exposure.

| D. If the event is a public health risk, the following information needs to be collected upon arrival | |
|---|---|
| 12. Name of ill traveller: | 13. Phone: |
| 14. Place of residence: | 15. E-Mail: |
| 16. Does the ill traveller suffer from an underlying condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | |
| 16a. | If yes, which? |
| 16b. | If yes, which medication has been taken? |
| 17. Measures taken by crew <input type="checkbox"/> Isolation of ill passenger <input type="checkbox"/> Mask for ill traveller <input type="checkbox"/> Mask for crew member in charge <input type="checkbox"/> Gloves for crew member in charge <input type="checkbox"/> Oxygen <input type="checkbox"/> Medication, specify: | |
| 18. Where did the ill traveller stay during the flight (which seat/s, which area/s)? | |
| 19. Is any family member or someone else travelling with the ill traveller (same transports, visits, hotels)? | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | |
| 19a. | If yes, seat numbers of other persons: |
| 20. Number of crew members or passengers caring for the ill traveller (direct contact: touching the ill traveller, talking more than 15 minutes with the ill traveller): | |
| 20a. | If one or more, names of crew members or seat numbers of passengers: |
| 21. Did the ill traveller lose any body fluids (e.g. blood, vomit, urine)? | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | |
| 21a. | If yes, did any contamination occur? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown |
| 21b. | If yes, state location and body fluid causing contamination (e.g. seat no. 2A contaminated with blood, rear left toilet contaminated with vomit)? |
| 22. ADDITIONAL COMMENTS: | |

Figure 5. Additional questions in case of presence of a public health risk. AIRSAN Guidance Document on risk assessment and management of communicable disease events on board an aircraft, 2014.

4.2. Risk Management

Main target groups: public health authorities and cabin crew.

4.2.1. Infection Control Measures

For all suspected communicable diseases

During the flight

- If possible, relocate the ill traveller to a more isolated area or relocate adjacent passengers and leave adjacent seat(s) unoccupied.
- If possible, designate a specific lavatory restricted to the ill traveller; if not possible, clean lavatory following use by the ill traveller.
- Apply proper hand washing and hand hygiene: wash hands with water and soap; an alcohol-based hand rub can be used if hands are not visibly soiled.
- If risk of contact with body fluids, wear disposable gloves; gloves do not replace proper hand hygiene.
- Carefully handle any blankets, trays or other personal products used by the ill traveller.
- Store soiled items or PPE in a biohazard bag or, if not available, in a sealed plastic bag labelled with "biohazard".
- Cabin crew should follow the IATA guidelines (7) and/or airline/airport specific procedures, which include infection control measures and contact tracing recommendations.

Upon arrival / after the flight

- Ensure that contact information is collected, in accordance with local arrangements, from persons identified as contacts (8-11). If possible use the PLF (12); otherwise at least collect contact details where the passenger can be reached within the next 48 hours (name, seat number, e-mail or phone number, temporary address).
- Inform the passengers and crew members that transmissions of infectious diseases in aircraft have only been described very rarely. In case the diagnosis of the ill traveller is confirmed the PHA will contact the passengers who were exposed individually.
- Allow other passengers to disembark before medical staff board to assess the ill traveller, unless the medical condition of the ill traveller requires immediate emergency care and the medical staff are available to meet the aircraft (13).
- Ensure clinical and laboratory diagnosis e.g. in a medical facility; in case the suspected communicable disease or another communicable disease posing a public health risk has been confirmed in the index case, the passengers and crew members identified as contacts need to be contacted for follow-up measures.
- Ensure that the index case is isolated until the results from the diagnosis are pending (depending on his/her health either in a medical facility or at home).
- If required, ensure that cleaning and disinfection of aircraft is done under appropriate conditions.
- Under normal circumstances, travellers exposed to the communicable diseases listed in Figure 4 and having shared their contact details, can continue to travel to their final destination. Immediate quarantine measures at the airport are not required.

Additionally for suspected respiratory diseases (Influenza, SARS, MERS-CoV, Tuberculosis)

During the flight

- Potentially infectious traveller should be relocated to an isolated seat separate from other travellers (if possible) and provided with a surgical face mask, if available and tolerated.
- If ill traveller cannot tolerate a mask or refuses, any person < 1m to ill traveller should wear a mask.
- If coughing, ask ill traveller to follow respiratory etiquette: provide tissues and advice to use tissues to cover mouth and nose when speaking, sneezing or coughing and provide an airsickness bag for safe disposal of tissues.

4.2.2. Contact Tracing

The contact details may either be collected during the flight by the cabin crew (e.g. by use of the PLF) or upon arrival by someone determined by the PHA.

- a) Suspected novel influenza with pandemic potential OR seasonal influenza with increased virulence: see specific RAGIDA guidelines (9).
- b) Influenza virus with zoonotic potential (e.g. avian and swine influenza): see specific RAGIDA guidelines (9).
- c) Severe acute respiratory syndrome (SARS): see specific RAGIDA guidelines (8).
- d) Middle East respiratory syndrome coronavirus (MERS-CoV): see specific RAGIDA guidelines (11).
- e) Meningococcal disease: see specific RAGIDA guidelines (8).
- f) Tuberculosis: see specific RAGIDA guidelines (10).
- g) Measles: see specific RAGIDA guidelines (8).
- h) Viral haemorrhagic fevers: see specific RAGIDA guidelines (8).

4.3. Risk Communication

Target groups: all involved parties (Public health authorities, cabin crew, pilots, airline operators, airport operators, civil aviation authorities, medical first responders at the airport).

- Ensure communication to ill travellers and other travellers.
- Consider communication with terminal to inform relatives and friends waiting.
- Communicate event according to emergency plan (ensure communication between cabin crew, flight crew, airline operator, airport operator, ground medical support and public health authority as required).
- Consider „*one voice policy*“ for communicating specific event.
- Document event in written format from own perspective and hand the interim or final versions over to public health authority.
- Initiate evaluation of event and share lessons learnt.

5. Discussion

The present AIRSAN Guidance Document offers a remote risk assessment for the use by public health authorities with the help of cabin crew. Risk management procedures such as infection control measures and prospective contact tracing procedures as well as main risk communication checkpoints complete the document.

The AIRSAN Guidance Document builds upon existing guidance from various documents published by international organizations in the area of public health in the aviation sector and includes expert opinion from companies, such as airports and airlines, and authorities, such as public health authorities and civil aviation authorities.

As ground to air and air to ground communication is limited a set of questions has been developed that shall support the competent public health authority of an airport to assess whether or not a public health risk exists with the help of cabin crew.

The identification of ill travellers is based on the signs and symptoms named in Annex 9 of the IHR (1). These always include the presence of fever. Many communicable diseases do not necessarily include fever, which means that the identification of an ill traveller is not very sensitive. However, the probability that a traveller who does show fever and one of the other named signs and symptoms really suffers from a communicable illness is supposed to be high. Even though we assume that the proposed risk assessment is specific it is of utmost importance to quickly perform clinical and laboratory diagnosis in the ill traveller. The results allow the public health authority to assess whether or not any follow-up measures need to be applied to travellers identified as close contacts.

Cabin crew does not have a medical background; therefore, misclassification of ill travellers might occur and support from medical personnel (e.g. from the ground service or health professionals on board) is recommended. Even though the health professionals on board may also not be infectious disease experts they surely give a decent educated guess whether or not a communicable disease must be suspected.

Barriers to the application of the remote risk assessment might be reservations that much time is needed to establish the contact between public health authority and the pilot. To overcome this barrier the ground to air and air to ground communication needs to be regularly tested and trained. As Louis Pasteur said: *“Chance favors the prepared mind”* – we propose to implement the specific ways of communication necessary to perform the remote risk assessment in the airports public health emergency plan.

The *minimum resources needed to implement the AIRSAN Guidance Document* imply the storage of the remote risk assessment questionnaire for cabin crew electronically on a tablet in the aircraft and a fair understanding of English language. PLFs in English language should ideally be stored on board aircrafts, but also at the airport in paper format. All airline operators, airport operators and public health authorities should have the PLF in their 6 UN languages readily available in electronic format. Furthermore the airport operator should have an adequate space available for identification of travellers with close contact in order they can fill in a PLF, if feasible separate from other travellers or general public.

As the (draft) document *“WHO Technical Advice for Management of Public Health Events in Air Transport”* (14) states that *“unless a risk assessment for a particular disease indicates otherwise there is no requirement for baggage handlers to adopt different procedures or use additional personal protective equipment when handling baggage from an affected aircraft*

that has potentially carried an infectious passenger” the specific handling of baggage was not included into the AIRSAN Guidance Document.

Experiences in the use of the present AIRSAN Guidance Document needs to be gained.

Although developed for EU Member States this AIRSAN Guidance Document should be easily adaptable to other countries.

6. Perspectives

This AIRSAN Guidance Document shall be piloted at two international airports using real or retrospective events.

The document will be disseminated on the AIRSAN Website (www.airsan.eu), to the AIRSAN Network and the AIRSAN Partners who may all serve as multipliers.

In order to ensure sustainability of the AIRSAN Guidance Document it would be necessary to update its contents as needed. After completion of the AIRSAN Project we recommend that the European Commission takes care that updates of the AIRSAN Guidance Document are ensured.

7. Literature

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