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

# Work package 6: AIRSAN Training Toolkit:

## Use of the AIRSAN Guidance Documents: "Remote risk assessment and management of communicable disease events on board an aircraft'

&

## "Contact tracing – collaboration between the public health and the aviation sector"

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# 1. Introduction

## 1.1 Rationale

With a global objective to increase the capacity under the International Health Regulation (IHR) 2005[4], the EU-funded Project AIRSAN aims to improve the cooperation between relevant stakeholders in the field of public health and air transport. Although risk assessment and contact tracing during and after international air travel are used infrequently, they may be important procedures, as stated in the IHR: "*While international travel and trade bring many health benefits linked to economic development, they may also cause public health risks that can spread internationally at airports, ports and ground crossings through persons, baggage, cargo, containers, conveyances, goods and postal parcels. The IHR (2005) provide a public health response in the form of obligations and existing or temporary non-binding recommendations in ways that avoid unnecessary interference with international travel and trade. States Parties to the IHR (2005) must strengthen public health capacities at designated airports, ports and ground crossings in both routine circumstances and when responding to events that may constitute a public health emergency of international concern*." (Source WHO IHR)

This AIRSAN Training Toolkit was developed within the EU-funded AIRSAN Project, Work Package 6 in order to support the implementation of the AIRSAN Guidance Documents on remote risk assessment and contact tracing with regard to international air travel[1] (Work Package 4 of the AIRSAN Project). These AIRSAN Guidance Documents set out standard procedures. Training and testing need to be carried out before the AIRSAN Guidance Documents can be incorporated into existing preparedness plans. The training and testing will also ensure that the stakeholders involved have all necessary knowledge and capabilities to act according to the procedures set by the AIRSAN Guidance Documents.

1. The AIRSAN Guidance Document 'Remote risk assessment and management of communicable disease events on board an aircraft' aims to support public health authorities in assessing whether or not a public health risk exists on board an inbound aircraft with a suspect case(s) of communicable disease. It outlines information that should be collected prior to arrival of the aircraft, to allow the public health official to carry out an effective risk assessment. The outcome of the assessment will allow the public health official to advice the aircraft crew on any measures that should be undertaken to reduce the risk of spread of a communicable disease on board and to determine what control measures, if any, will be required when the aircraft lands.

2. The AIRSAN Guidance Document 'Contact tracing – collaboration between the public health and the aviation sector' aims to improve cooperation between airlines and public health professionals so that the process of contact tracing can be carried out in a timely and effective manner.

[1] For all documents refer to http:www.airsan.eu

## 1.2 The AIRSAN Training Toolkit

The aim of the AIRSAN Training Toolkit is to provide assistance to the relevant stakeholders and authorities (e.g. public and port health authorities, airport and airline operators, airport medical services, airline medical services,) by:

- planning, coordinating and implementing the AIRSAN Guidance Document(s), including necessary training and/or exercise(s), therefore facilitating the strengthening of the implementation of the IHR core capacities;
- evaluating the resources and required capacities for incorporating the AIRSAN Guidance Documents (in full or in part) into existing preparedness plans;
- supporting an efficient and coherent response to serious cross-border public health threats (PHTs) on aircraft.

Many organisations are familiar with the use of table-top exercises (TTE's) for testing emergency response plans, including those for managing outbreaks of communicable diseases. An advantage of a TTE is that it allows plans to be tested in a hypothetical situation without causing disruption to normal operations.

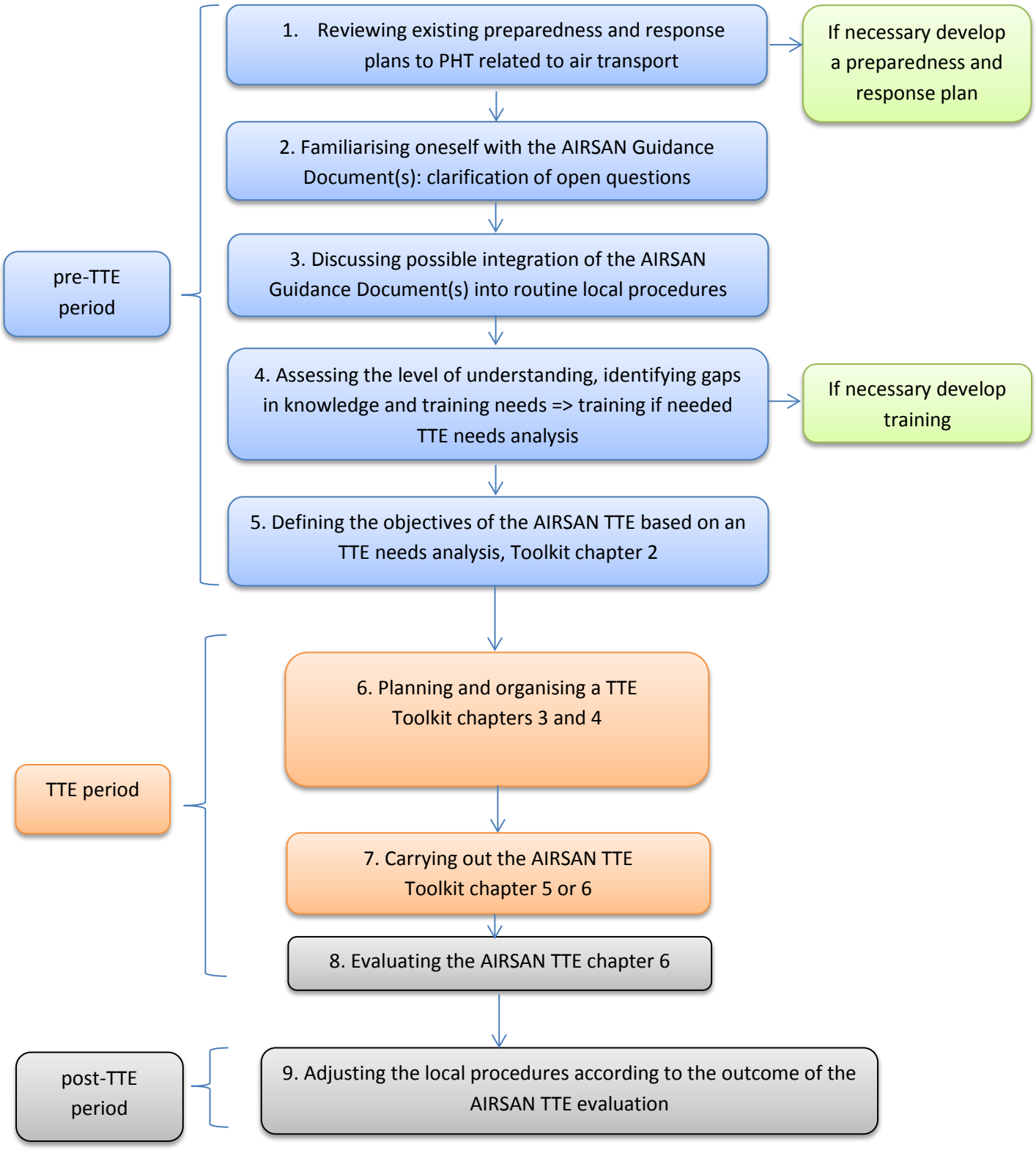
The steps for incorporating the AIRSAN Guidance Documents into existing preparedness plans and for preparing and running a TTE are described in Figure 1. If the decision is made to incorporate the AIRSAN Guidance Documents in full or in part into preparedness and response plans, all respective stakeholders should be informed of the modifications and, if necessary, provided with additional training (steps 2, 3 and 4). Consideration should also be given to any resource implications. These steps are considered common practice and therefore will not be further elaborated on here.

The AIRSAN Training Toolkit has been developed to support exercise facilitators (see for definitions paragraph 1.3), exercise leaders and senior managers in the preparation of the implementation of the AIRSAN Guidance Document(s). The Toolkit consists of the following components:

1. a plan for a training needs analysis (Toolkit, chapter 2);
2. an off the shelf training manual including description of the TTE format and suggested scenarios (chapters 3, 4, 5);
3. a template for a standard AIRSAN presentation to be used by an exercise leader for the tabletop exercise on risk assessment (can be downloaded from the AIRSAN website);
4. an information leaflet for participants (can be downloaded from the AIRSAN website);
5. a template for a letter of invitation, a checklist and evaluation forms (Toolkit, Annexes).

All these documents and the supporting material can be downloaded free of charge from the AIRSAN website (www.AIRSAN.eu).
Please note that this Tool is a training aid for the organisers of a TTE and should **not be distributed among exercise participants** prior to the TTE.

**Figure 1: AIRSAN Tabletop Exercise (TTE) flowchart**


1. Reviewing existing preparedness and response plans to PHT related to air transport
If necessary develop a preparedness and response plan
2. Familiarising oneself with the AIRSAN Guidance Document(s): clarification of open questions
3. Discussing possible integration of the AIRSAN Guidance Document(s) into routine local procedures
pre-TTE period
4. Assessing the level of understanding, identifying gaps in knowledge and training needs => training if needed TTE needs analysis
If necessary develop training
5. Defining the objectives of the AIRSAN TTE based on an TTE needs analysis, Toolkit chapter 2
6. Planning and organising a TTE Toolkit chapters 3 and 4
TTE period
7. Carrying out the AIRSAN TTE Toolkit chapter 5 or 6
8. Evaluating the AIRSAN TTE chapter 6
post-TTE period
9. Adjusting the local procedures according to the outcome of the AIRSAN TTE evaluation

## 1.3 Definitions (as stated in the AIRSAN Guidance Documents)

**Aircraft:** an aircraft making an international voyage.

**Airport:** any airport where international flights arrive or depart.

**Arrival:** the arrival of an aircraft at an airport.

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

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

**Contamination:** 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.

**Crew member:** a person on board a conveyance who is not a passenger.

**Departure:** for persons, baggage, cargo, conveyances or goods, the act of leaving a territory.

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

**Evaluator:** a person responsible for the determination of the importance and effectiveness in relation to the aim and objectives of the exercise.

**Event:** a manifestation of disease or an occurrence that creates a potential for disease.

**Exercise leader:** a person who moderates the exercise.

**Exercise/training needs assessment:** a systematic process for determining and addressing needs, or "gaps" between current conditions and desired conditions or "wants". The discrepancy between the current condition and wanted condition must be measured to appropriately identify the need.

**Facilitator:** a person who is responsible for developing and organising an exercise, not necessarily being the exercise leader.

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

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

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

**Observer:** a person responsible for the registration of communication and interaction between participants during an exercise.

**Passenger:** a person who is travelling in an aircraft.

**Personal data:** any information relating to an identified or identifiable natural person.

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

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

**Risk assessment: 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.

**Suspect:** 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 the spread of disease.

**Table-Top Exercise (TTE):** an exercise involving key personnel discussing simulated scenarios in an informal setting. TTEs can be used to assess plans, policies, and procedures.

# 2. Pre-TTE period: TTE (exercise) needs analysis

**Review of existing preparedness and response plans to a PHT in the air**

Prior to the preparation of a TTE it is essential that an evaluation of the resources and required capacities for incorporating the AIRSAN Guidance Documents into existing preparedness and response plans is carried out. The assessment should be conducted before the stakeholders familiarise themselves with the AIRSAN Guidance Document(s); questions need to be answered followed by the discussion on how these documents might be incorporated into routine local procedures. An assessment should be carried out of who needs what knowledge and which capabilities in order to implement newly developed or amended documents and procedures. If there is a gap in the knowledge level and more specific training needs are identified it is advisable to focus on that instead of using the TTE format of the Toolkit. If there is no overall preparedness and response plan available, it is suggested that such plan is first developed, tested and followed by a TTE. The development of preparedness and response plans is a resource-intensive process!

After incorporation of the AIRSAN Guidance Document(s) into the existing preparedness and response plans and training of the relevant stakeholders, it is useful to conduct a TTE in order to ensure full understanding and to test adequate performance of newly developed or amended standard operational procedures.

This chapter describes the steps which are recommended for setting up an off the shelf TTE based on a needs analysis.

## 2.1 TTE needs analysis

It is a responsibility of a TTE planning group to carry out a TTE needs analysis based on the developed AIRSAN Guidance Documents on remote risk assessment for communicable diseases and on contact tracing. The planning group has to include the relevant stakeholders from the aviation and public health sectors, who have to familiarise themselves with the AIRSAN Guidance Document(s).

The advantage of a joint assessment of modification and training needs followed by a TTE is that participants get to know their counterparts within their network with whom they have to collaborate if a similar situation arises in the future. Answering a basic set of questions during this analysis allows understanding of an existing structure and helps a facilitator to establish an overview of the TTE needs. The analysis must demonstrate that the targets, as described in the AIRSAN Training Toolkit TTE manual, are in line with the wishes of the participants. This analysis can be carried out through individual interviews or in a group session with the relevant participants (*i.e.* representatives of the aviation sector, public health, and airport medical services). It is important to realise that those who participate in the TTE needs analysis are also the most appropriate participants in a future TTE.

Questions to be discussed during a TTE needs analysis are:

- Which essential organisations play an important role in the process of risk assessment of a public health event and contact tracing?
- What kind of procedures are in place for performing a (remote) risk assessment on board an aircraft if a suspected communicable disease is identified during a flight (IATA guidelines [1,2,3] or airline/airport-specific procedures, RAGIDA [6]) and how familiar are the stakeholders with the content of these guidelines?
- How good is the cooperation between the aviation sector, the airlines and the public health authority?
- Would the AIRSAN Guidance Document(s) improve the risk assessment and contact tracing procedures? (feasibility analysis)
- Is a TTE needed to test or to train participants in order to support the implementation of the AIRSAN Guidance Document(s)?

## 2.2 TTE training needs assessment report

The TTE facilitator should prepare a brief report on the TTE needs and identified knowledge gaps; the content of the report needs to be approved by the management of the relevant organisations before proceeding to the next step- the design and development of the TTE.

The assessment report on TTE needs should include a description of:

1. background (reasons for carrying out the assessment);
2. purpose of the assessment; method (e.g. interviewing relevant stakeholders, group discussion);
3. summary of the gaps and findings; defined objectives of a TTE addressing those gaps;
4. conclusions and recommendations.

The report should focus on the main conclusions resulting from the interviews with the stakeholders, identified performance gaps and the implications of these findings to the implementation of the local procedures and exercise objectives. The conclusions and recommendations of the report set out the TTE aims and objectives as well as a designated target group (and later the participants) for the TTE.

If the analysis shows that the preconditions for testing the AIRSAN Guidance Document(s) in a TTE are not fulfilled, the necessary steps should be taken to meet those conditions. For example, if a preparedness and response plan for Public Health events in the air not exists yet, this should be developed and trained first. Later a TTE can be conducted.

# 3. TTE introduction and description of different roles

## 3.1. Introduction

This manual contains several essential elements for facilitators and exercise leaders that are necessary for development of a well-structured TTE. Detailed generic information on the structure and organisation of simulation exercises including table-top exercises can be found in the ECDC guidance document on simulation exercises [7]. Chapters 5 and 6 provide detailed information for exercise leaders on the flow of the TTE, messages and questions to be asked. The questions are based on the AIRSAN Guidance Documents for remote risk assessment and contact tracing.

A TTE is basically a structured discussion led by an exercise leader[2]. (S)he initiates and moderates the interaction in the form of discussion between the participants. The exercise leader does not act as a trainer or a teacher. During the discussion the participants explore and explain their personal actions based on a hypothetical (but realistic) scenario. A TTE requires a modest commitment in terms of time, cost and resources and is an effective method for reviewing plans, procedures and policies. A TTE provides insights into the capabilities of a management system or a network within a particular scenario; it ensures that key personnel become acquainted with their responsibilities and the necessary procedures should such situation arise. The design of a TTE can be adjusted to suit defined objectives and goals.

## 3.2 TTE role descriptions: Facilitator

A facilitator bears overall responsibility for the preparation of the TTE based on the TTE needs assessment and does this in cooperation with an exercise leader. The facilitator is in charge of organising pre-TTE activities including setting up objectives for the TTE and developing the TTE. The facilitator acts as a host of the meeting. He or she designs the TTE and should get familiar with:

- Standard operational procedures in the aviation sector concerning risk assessment for passengers on board an aircraft and the role of the cabin crew and pilot of an aircraft.
- The relevant AIRSAN Guidance Documents (www. airsan.eu) , IATA guidelines [3] and RAGIDA guidelines [6].
- ICAO mandatory communication procedures
- Procedures after the landing and disembarking of ill traveller(s).
- The role and responsibilities of public health officials.

The facilitator should:

[2] There may be a distinction between the role of a facilitator and that of an exercise leader. In this manual we use the term “facilitator” as a person who is in charge of planning and executing a TTE (the organiser). However, (s)he can also act as an exercise leader. The exercise leader is then a moderator of the table-top discussion between the participants.

- Invite the participants of the TTE, arrange the facilities including the equipment needed for the presentations; prepare printed materials. Some tasks can be delegated.
- Provide the exercise leader with background material if needed and discuss his (her) role.
- Provide participants with information regarding the objectives of the TTE, their expected output as well as with the relevant AIRSAN Guidance Document(s) and amended standard protocols if applicable.
- Prepare a TTE agenda. Sufficient time should be allocated for the exchange of background information between the participants in a form of short introductory presentations.
- Ask representatives of airport medical services, aviation sector and public health authorities in advance to prepare brief presentations describing their tasks and routine procedures in case of identification of a suspect ill traveller constituting a public health threat. Presented information should outline timeliness of procedures, communication channels and available response capacities. The time constraints and the underlying regulations and procedures related to these tasks should be covered. The background material can be shared between the stakeholders prior to the TTE.

## 3.3 Exercise leader

The exercise leader acts as the moderator of the TTE and initiates and supports the discussion between the participants in a structured way and pinpoints essential questions. The success of a TTE is determined by feedback from participants and the impact this feedback has on the evaluation and revision of policies, plans and procedures. The exercise leader should summarize the results of the discussion as action points that determine the outcome of the TTE. These action points can be used as a basis for further actions.

It is essential that the exercise leader is well prepared and has a basic understanding of the subject. The exercise leader should possess good presentation skills and be an experienced moderator. Good preparation does not necessary guarantee success, but lack of preparation will guarantee failure.

## 3.4 Participants

In order to achieve the aim of the TTE it is important that a designated group of participants takes part in the TTE. Ideally representative(s) of the following parties should participate in the TTE; however the choice of participants naturally depends on the local situation:

- Airport authorities and related structures, including operations / emergency planning, ground handling, airport managers
- Public health authorities
- Airline representatives
- Airport medical services, including paramedics, responsible for the initial clinical assessment of an ill traveller
- Flight crew and cabin crew
- Border and customs agencies and air traffic control (ATC)

For the scenario 'Remote risk assessment on board an aircraft' all the above-mentioned participants should be invited, whereas a TTE based on the scenario 'Contact tracing in the case of air travel' might involve the airport managers, representatives of public health authorities and airlines only.

## 3.5 Observers

The role of the observers, who are not participating in the TTE, is to pinpoint important issues and gaps that are identified during the discussion. It is advisable to have at least two observers to guarantee objectiveness. Material to support the observers in the observation process can be found in Annex 1. During the evaluation part of the TTE the observers are invited to give their (oral and written) comments on what went well and what could be improved.

## 3.6 Evaluator

An evaluator is assigned to document and to evaluate individual, team, and organisational performance based on the TTE objectives. The key responsibility of the evaluator is:

- To observe the TTE and to report afterwards on what went well and what could be improved in relation to the objectives.
- If the TTE went well, what was the outcome?
- If the TTE went not so well, how can the preparedness plans be amended or what should be changed in performance in order to achieve the TTE aims and objectives; what are the next steps?

The evaluators summarize the outcome of the TTE and describe the steps needed for improvement. The evaluator writes a comprehensive report of the TTE.

# 4. TTE manual: planning and organisation

Two different scenarios with respective objectives have been developed for the TTE (see chapter 5 and 6). Scenarios are chosen for their relevance, practical applicability and intervention possibilities.

## 4.1 Exercise staff

It is recommended to convey a group of people, the exercise staff, who can help preparing for the TTE. Secretarial support is desired. The TTE should be planned within a few weeks after completion of the TTE needs analysis report. The **checklist** provided in Annex 2 can be helpful for preparing and planning the TTE. The planning starts with setting a date for the TTE, arranging an adequately equipped meeting room (presentation equipment with sound and a flipchart etc.), catering (drinks etc.), inviting participants, and appointing observers and an evaluator.

An example of a letter of invitation and an invitation leaflet can be found in Annex 3. Ask the participants to confirm their attendance.

As soon as a list of participants is available, ask the representatives of the airport, the public health authorities and the flight crew to prepare a short presentation (a maximum of ten minutes) to introduce their organisation and tasks. Include the evaluation and reporting in the planning process.

## 4.2 TTE meeting room

Any conference facility able to accommodate the expected number of participants in a face-to-face setting is suitable for the TTE. The conference room should have the necessary equipment for audio-visual presentations. The number of participants and the chosen scenario determine the number and arrangement of tables. A U-shaped arrangement of the tables is advised.

## 4.3 Table-top exercise

On the day of the TTE the exercise staff (*i.e.* a facilitator, an exercise leader and supporting staff) should check in advance the room, equipment used for presentations, catering arrangements and availability of printed material (if needed). Before the start of the TTE the facilitator should discuss the TTE objectives with the observers if not done so and the evaluator and provide them with the scenario and a template of evaluation form (Annexes 4 and 5). The questionnaires from the AIRSAN Guidance Document on 'Remote Risk Assessment and Management during the flight' should be distributed among the participants and be used as a part of the TTE based on the scenario 1.

## 4.4 Start and introduction, AIRSAN presentation

In addition to the AIRSAN Training Toolkit a draft PowerPoint **presentation** outlining the structure of the TTE is available on the AIRSAN website. The TTE agenda and objectives are highlighted; and separate consecutive detailed messages (injects) of the scenario are predefined.

The exercise leader welcomes all the participants and explains the aim of the TTE, the agenda, roles of the observers and the evaluator.(S)he then asks the participants to briefly introduce themselves (*i.e.* to provide a few details about their background and their involvement into the area of preparedness and response to PHT in the air). Short presentations from relevant stakeholders should follow the introductions.

The timeframe of the TTE is important; the exercise leader should timely guide the discussions towards each of the predefined consecutive steps. Two suggested scenarios, a set of questions to be asked after each message, process exploration cards and the instructions containing tips for the exercise leader can be found in **chapter 5 (scenario 1) and chapter 6 (scenario 2).**

## 4.6 The evaluation process

It is recommended to conduct the evaluation immediately after the TTE.

The exercise leader closes the discussion session. During the following debriefing session the participants are asked to fill in a predefined evaluation form (Annex 4) and to provide one to three suggestions for improvement of cooperation between the different sectors involved into preparedness and response as well as ways to achieve it. The exercise leader then gives the floor to the observers and asks them for comments. The evaluator should remember that the purpose of the TTE is to evaluate organisational procedures, existing as well as newly developed policies and the intersectoral cooperation between various stakeholders, but not to assess the performance of individual participants.
The evaluator should discuss the summary of findings with the participants and verify its appropriateness in relation to the objectives of the TTE.

The evaluator should ask the participants whether the TTE as a whole (organisation, structure and content) met their expectations. The participants are then asked to give their feedback on the TTE and to suggest possible ways for improvement.

The evaluation process includes the following steps:

1. The evaluator observes the interactions between the different stakeholders and provides feedback on their acceptance of the AIRSAN Guidance Document(s) as well as the relevance of the actions in relation to the TTE objectives.
2. Within two weeks after the TTE the evaluator prepares an evaluation report. A format is available in Annex 5. It should describe the key outcomes of the TTE based on discussions and observations expressed verbally as well as in a written form by the participants and the observers during the TTE and the wrap-up session. The report should contain the summary of the findings, identified gaps, opinions and suggestions related to the processes, procedures and AIRSAN Guidance Document(s) that were discussed during the TTE. Based on the evaluation summary, the next steps for the local implementation of changes need to be determined.

# 5. Remote risk assessment, scenario1:

## 5.1 The aim of the TTE

The aim of the TTE is to assist with the implementation of the AIRSAN Guidance Document on 'Remote risk assessment and management of communicable disease events on board an aircraft' (in full or in part) by improving cooperation and communication between airlines, airport operational management and public health authorities according to the IHR (2005) capacity requirements.

## 5.2 Objectives

- To test the effectiveness of the separate stakeholder organisations' plans/procedures and ensure that they would provide an effective and coordinated response. To ensure that the airport managers, airlines and public health authorities are informed about emerging threats from communicable diseases in a timely manner?
- To explore the AIRSAN Guidance Document 'Remote risk assessment and risk management of communicable disease events on board an aircraft'.
- To explore whether procedures as described in the flowchart of the AIRSAN Guidance Document could be incorporated into routine practice.
- If yes, to follow the procedures as described in the flowchart of the AIRSAN Guidance Document.
- To increase the awareness of the roles and responsibilities of crew members, airline operators, airport operational managers and public health authorities according to the core capacity requirements of the IHR.
- To become familiar with control measures in case of a suspected communicable disease on board and their limitations.
- If relevant: to improve communication between the pilot in command (through air traffic control) and public health authorities.

## 5.3 Process exploration cards, suggested agenda and timeline

The format and the timeline of the TTE are flexible and can be adapted to suit a particular situation.

Here we suggest one possible format of the TTE. The TTE takes about three hours. The discussion is led by the exercise leader. The use of so-called '**Process exploration cards**' containing a set of questions that are outlined in the manual can help structuring the discussion in a step-by-step way.

**Suggested TTE agenda and timeline**

1. Welcome and introduction of the participants (exercise leader: 15 min).
2. Presentation of the TTE aim and explanation to the participants on what is expected from them, the observers and the evaluator (exercise leader: 10 min).

3. Introductory presentations (airport representative, public health authorities, flight crew: each 10 min).
4. Start of the TTE: discussion on the roles and tasks of the participants with regard to the scenario led by the exercise leader using the **Process exploration cards** followed by discussions (facilitator, participants: about 1.5 to 2.5 hours).
5. Continuation of the TTE; introduction of messages 3 and 4.
6. End of the scenario discussion; immediate brief oral feedback by the participants (what went well and what might need improvement). Written evaluation of the TTE by the participants and observers (exercise leader, participants, observers and evaluator: 30 min.)
7. End of the TTE.

## 5.4 Scenario[3]

***This information is has to be distributed as a hard copy to the observers and the evaluator only! The participants should be blind to the full scenario.***

A few months ago a Ministry of Health of an African country informed the WHO about an evolving Ebola outbreak. The WHO reports an increasing number of cases and deaths due to the Ebola Virus Disease (EVD). The virus is spreading within the affected country as well as to neighbouring countries. EVD patients have been identified at other continents. These patients are health care workers infected while working across different healthcare settings on the African continent.

An aircraft with 200 passengers on board is now on its way from an Ebola-affected area to an international airport in your country.

Approximately one and a half hours before landing the cabin crew's attention is drawn to a passenger in seat 12 D, a 22-year-old woman. On her way back from the lavatory the passenger walks unsteadily and looks unwell. She vomits into the airsickness bag and spills some of its content on the floor. The passenger tells the cabin crew that she feels feverish, nauseous and has a sore throat. She took some aspirin prior to the flight and felt fit to fly. During the flight the symptoms are becoming dramatically worse. Two weeks before taking the flight she travelled through the country with her companion after a two-month internship in a little remote clinic. She is in the last year of her study to become a registered nurse.

The cabin crew tell the pilot that there is an ill, feverish passenger on board and no medical expertise available on board. The cabin crew is asking for ground medical support and is looking for advice on how to proceed. Some passengers seated in the same area notice the ill passenger and overhear the conversation between the cabin crew and the ill traveller. A few of these passengers express their concerns about the situation and start asking the cabin crew questions.

[3] The scenario does not contain sufficient exact, sound data to conclude that the ill traveller is a suspected case of Ebola virus disease!

## 5.5 Background information on Ebola viral disease [10]

Ebola is a rare and severe disease in humans and nonhuman primates. Ebola is caused by infection by a virus of the family *Filoviridae*, genus *Ebolavirus*. Ebola was first discovered in 1976 near the Ebola River in Zaire (now the Democratic Republic of Congo). Since then outbreaks have appeared sporadically in Africa. The natural reservoir host of the Ebola virus remains unknown. However, it is now commonly believed that the virus is animal-borne and that bats are the most likely reservoir. EVD generally presents itself in an acute manner. Symptoms of EVD are:

- Fever (> 38°C)
- Headache and muscle pain
- Sore throat
- Weakness
- Diarrhoea, vomiting
- Abdominal and chest pain
- Unexplained haemorrhage

Symptoms may appear anywhere from 2 to 21 days after exposure to Ebola, but in average is after 8-10 days. Currently there is no approved vaccine or specific treatment available. Case fatality rates may be as high as 70-90%. Supportive care significantly increases the chances of survival. The death of a patient mainly occurs in the second week of infection. If a patient survives, the clinical recovery takes considerable time.

Transmission route

The first patient most likely becomes infected through contact with an infected animal, possibly through handling bush meat (wild animals hunted for food) or contact with infected bats. If an infection occurs in humans, the virus can spread in several ways to others. Ebola is spread through direct contact (through broken skin or mucous membranes) with the blood or body fluids (including urine, saliva, faeces, vomit, and semen) of an infected person or objects that have been contaminated with the virus. Healthcare workers caring for Ebola patients and family/friends who are in close contact with Ebola patients are at the highest risk of infection because they may come into contact with the body fluids or blood of Ebola patients.

## 5.6 Start of the TTE discussion session

**Exercise leader:** Distribute copies of the Process exploration cards to the relevant participant(s) after giving the first message (see the powerpoint); allow them time to read and compose answers to the questions stated in the cards. The messages can be displayed in a Power Point format for the whole group. Each question should be read aloud in turn by the participants who should then provide their answers. Invite all the participants to comment on the answers. The exercise leader moderates the discussion.

**Message 1**

A fully occupied aircraft with 200 passengers on board is on its way to an international airport in your country (estimated time of arrival 1.5 hours.)

During the flight a pilot of the aircraft receives the following information from the cabin crew about a seriously ill traveller: "We have a 22–year-old passenger on row 12 D. She feels feverish and nauseous. She has just vomited on the lavatory and in her seat.

**1. Process exploration card for the airline/cabin crew**

- On the basis of the available information what can the pilot/cabin crew do? What kind of measures will be taken as a routine?
- What guidelines do you follow?
- At what moment do you decide to notify the public health authority at the destination airport of a suspect case of communicable disease? Or do you choose not to do this?

**Additional questions for the participants**

- **<u>Please fill in the AIRSAN questionnaire for the cabin crew. What kind of extra information do you need?</u>**
- Using the AIRSAN Guidance Document on remote risk assessment, the flowchart and the questionnaire, is it possible to obtain all data required for conducting the risk assessment?
- What additional questions could you ask the cabin crew?

**Tips for the exercise leader in general:**

- Encourage discussion, invite the other participants to comment or ask questions.
- Ask participants which guidelines and procedures they would use in relation to the topic.
- Ask other participants if they would take any action as a precaution based on the information they receive.
- Ask participants to be as specific as possible with information on: who, what, where, why, when and how.
- Encourage the cabin crew to explain which guidelines they would use and what control measures are feasible in a full aircraft.
- Present the flowchart from the AIRSAN Guidance Document and ask the participants to discuss it between themselves. How can stakeholders ensure that all activities are geared to one another?

**2. Process exploration card for the public health authority**:

- Could you, based on this information access the public health risk remotely?
- If you were asked to assess this situation, which additional questions do you want to ask the cabin crew/pilot?
- Who is in general responsible for the risk assessment and the corresponding procedures if you are asked to do so? Who is in charge to make an assessment? (e.g. the public health authorities or the airline of maybe a ministry of health?

**Exercise leader: Fill in the AIRSAN questionnaire to structure the data-gathering for risk assessment**

**Message 2, continuation**

**To continue the discussion, the exercise leader will give additional information to the participants based on the questions the public health officials ask to make a proper risk assessment.**

- The information given to the participants is based on the scenario only! Please do not give any additional or fictional information.
- If the participants raise the questions concerning the information that is not described within the scenario, tell them that the information is not available. Suggested answers: the aircraft has departed from an Ebola epidemic area, the woman worked as a healthcare worker, she took aspirin, it is not known if she took anti-malaria prophylaxis, it is not known if she was in contact with Ebola patients, etc.

**3. Process exploration card for the public health authority**

- What is your risk assessment based on what you know now? What do they know now? (The initial information you will receive will be that there is an inbound aircraft, registration number *-****, with a suspect case(s) of communicable disease on board, which departed from XYZ and which is due to arrive at x time. You should also be told the total number of persons on board) .
- What additional measures would you suggest to control the situation? Which guidelines do you use?
- Is the AIRSAN Guidance Document applicable to this situation?
- Who will inform the airport manager to prepare for the incoming flight?

**4. Process exploration card for the airport managers**

- Based on the information that you have what measures are you going to undertake?
- With whom will you communicate and why?
- Do you need input and advice about what to do with the luggage?
- How will you find out whether the ill traveller needs a visa to enter and cover her stay in your country?
- Do you expect questions and anxiety and maybe fear among the employees at the airport? Which information are you going to communicate to the employees working at the airport who might become involved in this event?
- What will you do about possible trouble-makers among the other passengers?

**End the 1st period of discussion and summarize the main points on assessment and the measures undertaken.**

- .
- Discuss the most appropriate measures to control the situation on board according to the AIRSAN Guidance Document.
- Close this discussion session and move to final messages.

**Message 3**

After arrival the aircraft has come to a standstill. The passengers want to disembark as soon as possible.

**After giving the message 3 the exercise leader asks all participants; start with the public health authorities, continue with the airport manager and move to the airline representative**:

- What has to be done, what are the next steps?
- Who decides or advises on disembarkation procedure (who should disembark first)? What would be your advice regarding the order of disembarkation (to keep the other passengers seated and first move the ill passenger to an ambulance or the other way around)?
- What would be the next steps with regard to the other passengers and the crew?
- How can you ensure that contact persons at risk have been identified and registered?
- Who is in charge of communication in relation to this event?

**Tips for the exercise leader:**

- Encourage discussion by asking the participants to react and give comments.
- Be aware that there is a distinction between high-risk and low-risk contact people; ask the public health representative to explain.
- Encourage the cabin crew to explain which guidelines they use in a full aircraft, and which control measures are feasible, and which are not.
- It is advisable to keep the flowchart from the AIRSAN Guidance Document on the screen and let the participants discuss it with each other.

**Message 4**

**There is unrest in the cabin while people wait to disembark and for the medical crew to arrive. Passengers want information and start to communicate through social media. Even pictures of the ill traveller are taken and posted on Twitter. Meet-and-greet people are waiting for information....**

**Questions for all participants, starting with the airport manager:**

- How do you control the information presented in social media or fed to mass media?
- Who is responsible for the correct reporting of the event to the public health officials?
- How do the public health authorities, the medical services at the airport, the aviation company and the airport authorities communicate with each other?
- Who will give the meet-&-greet people the correct (medical) information?

After these rounds of messages the exercise leader **ends the discussion** and starts the **wrap-up session**: he asks the participants and then observers to provide their feedback on the discussions. The exercise leader asks the evaluator to draw up a summary of conclusions, to define gaps in guidelines and to address action points for improvement and suggestions for the evaluation report.

# 6. Contact tracing: scenario 2

## 6.1 Introduction

An important element of public health response is the follow-up and the investigation (contact tracing) of people who may have been exposed to an infectious agent and thus may be at risk of developing a disease of public health concern. Contact tracing of flight passengers requires excellent cooperation between the public health authorities, the aviation authorities and the airlines involved. Compared to the TTE based on the scenario 1, a smaller group of participants is required for the TTE based on this scenario; however the course of preparations and the implementation of the TTE can follow the same format.

The AIRSAN Guidance Document "Contact tracing – collaboration between the public health authorities and the aviation sector" aims to create a better understanding of diverging and joint positions in the area of contact tracing. Thus, it may positively contribute to intersectional cooperation and to finding a common best practice for performing contact tracing. The TTE based on scenario 2 focuses on improving contact tracing and uses the mentioned AIRSAN Guidance Document.

Contact tracing in the aviation sector involves contacting and informing passengers and cabin crew who were on the same flight as an infectious passenger. The RAGIDA guidelines present specific algorithms available for public health authorities for a range of infectious diseases but decisions about contact tracing should always be based on a specific event. All passengers in a respective section of the plane may be contacted or only those passengers who had close contact with the infectious passenger; this differs per disease. Contact tracing always requires a significant level of resources, because airlines often either do not collect passenger contact information, have only insufficient passenger information or don't keep it for a long period of time. In addition, many countries have data protection legislation that puts restrictions on how passengers' personal information can be obtained and used.

For the purpose of efficient appropriate contact tracing it is essential that passenger contact details are made available within a short time. Airlines should respect this urgency. In the context of the International Health Regulations any delay in the availability of the passenger list will hamper the process of contact tracing. The public health authorities need access to travellers' contact details. If the passenger list does not contain contact details (e.g. telephone numbers, mailing addresses) and the seat number of the passengers, it will be a time-consuming process for the public health authorities to identify all the contacts at risk.

The public health authorities make a decision about contact tracing based on the respective criteria; they approach the contacts at risk, so that they can inform them as soon as possible and if necessary monitor their health.

## 6.2 Objective

The main objective of the TTE based on this scenario is to ascertain whether existing procedures facilitate rapid contact tracing to be initiated as soon as possible after confirming the diagnosis in the ill passenger. This is only possible if there is good cooperation between airlines and public health authorities. The TTE aims to demonstrate whether the use of the AIRSAN Guidance Document on contact tracing can optimise this cooperation.

**Suggested agenda and timeline**

The format and the timeline of the TTE are flexible and can be adapted to suit a particular situation.

The TTE takes about three hours. The discussion is led by the exercise leader. The use of so-called '**Process exploration cards**' containing a set of questions that are outlined in the manual can help structuring the discussion in a step-by-step way.

Welcome and introduction of the participants (exercise leader: 10 min)

1. Presentation of the TTE aim and explanation to the participants on what is expected from them (exercise leader: 10 min).
2. Introductory presentations (airline representative, airport manager, public health authorities, 10 min each).
3. Presentation of basic background information about the disease used in the scenario, if necessary (representative of public health authority).
4. Introduction of the scenario (exercise leader: 5 min).
5. Discussion on the roles and tasks of the participants regarding the scenario led by the exercise leader using the **Process exploration cards** followed by discussions (facilitator, participants: about 1.5 to 2.5 hours).
6. End of the discussion, wrap-up and evaluation (exercise leader, participants, observers and evaluator: 30 min).

## 6.3 Scenario 2

**Facilitator:** distribute hard copies of the following text among the participants and observers and give them time to read it.

'As of May 2013, increasing numbers of laboratory-confirmed cases of human infection with Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported to WHO. Most patients presented with severe acute respiratory disease requiring hospitalisation. Since the beginning of the outbreak there have been imported cases identified in different countries.

Monday morning

This morning the (regional) public health authority in the region connected to the national airport, receive a notification that a 65-year-old woman who went to Mecca on a pilgrimage has been admitted to hospital in your jurisdiction. Her symptoms are compatible with MERS-CoV. Just like the other travel companions in her group she came into contact with dromedary camels while visiting a market. The final result of the diagnostic tests for MERS-CoV will be known at the end of the day. If the laboratory result confirms the diagnosis, this case will be the first MERS-CoV case in your country.

The patient experienced the initial symptoms last week on Thursday. On Friday she left Saudi Arabia by a direct flight to your country. The patient travelled in a group with 67 fellow travellers. They all took the same flight. During the flight the passenger was symptomatic; she was coughing, had a fever and felt sick. After arrival she went straight home together with some relatives. On Sunday morning her symptoms became worse. She developed severe dyspnoea and was taken to hospital on Monday morning.

Monday afternoon

It's 4 pm. The laboratory results have confirmed MERS-CoV. The regional public health authority recognises the risk of transmission during travel and will contact the national public health authority immediately as they are the national focal point. The regional public health authority tries to collect as much information as possible in order to assess if contact tracing is necessary.'

## 6.4 Background information on MERS-CoV [11]

The 'Middle East Respiratory Syndrome coronavirus' (MERS-CoV) is a new type of coronavirus that was discovered in September 2012 and which may cause severe symptoms, in particular among people who suffer from underlying conditions. The virus owes its name to the region (the Middle East) where it presented itself for the first time and where most cases have been found. Symptoms of MERS-CoV:

- Severe respiratory symptoms, also referred to as Acute Respiratory Distress Syndrome (ARDS)
- Fever (> 38°C /100.4 F)
- Coughing
- Shortness of breath and respiratory problems
- Sometimes diarrhoea

Symptoms may appear anywhere from 2 to 14 days after exposure to MERS-CoV. The clinical picture is less serious among healthy and younger people.

Transmission route

It is not entirely clear how people contract the virus and a great deal of research is now being carried out. The virus is also found among dromedary camels in the Middle East. It is suspected that the virus is mainly transferred from these animals to people. Transfer from human to human is rare and usually occurs in a hospital setting.

## 6.5 The exercise:

**Facilitator:** Distribute the copies of the Process exploration cards to the participants; allow them time to read and compose answers to the questions stated in the cards. These messages can be displayed in a Power Point format for the whole group. Each question should be read aloud in turn by the participants who should then provide their answers. Invite all the exercise participants to comment on the answers. The exercise leader moderates the discussion.

**Process exploration card for the regional public health authorities**

- Who or which department will inform you about the patient with MERS-CoV?
- Who is responsible for the decision to perform contact tracing?
- Based on what kind of criteria and guidelines will you start contact tracing?
- Are public health authorities obliged to arrange contact tracing? By law?
- What exact information from the airline company do you need to contact all the passengers at risk and the cabin crew and based on the scenario?
- Who will contact the passengers and who will contact the airline crew?

Tips for the exercise leader**:**

- Ask the representative what he/she needs to do and with whom he/she has to work and communicate in order to do this.
- Summarise each answer and confirm that it is correct.

## Process exploration card for the airport manager

- What can you do to support the airline or the public health authorities in generating a complete Passenger Name Record Data?
- What will you communicate to employees (e.g. the customs officer, the airport ground handler) who might have come into contact with the ill traveller at your airport? Do you expect questions about the event from other parties?

- What will you do with the questions regarding the Passenger Name Record Data and whom will you consult to provide the answers?

## Process exploration card for the responsible airline or the airline handling agent

- The public health authorities will contact you to ask you to provide them with passenger contact information. Who is in charge for that and can be contacted
- What data can you provide? Will that be enough information for the public health authorities?
- Are passengers' contact details available from the airline?
- Within what time frame can you provide the passenger contact information to the public health authorities?
- What are the existing procedures for generating the Passenger Name Record Data and delivering it to the public health authorities?
- Does your airline use Passenger Locator Forms?

**The exercise leader encourages discussion amongst the participants by asking the following additional questions:**

- Who is responsible for providing the passenger details?
- How can you be sure that legislation restricting the collection and use of passengers' personal information does not interfere with public health interests?
- What is the moment that an airline decides to carry Passenger Location Forms on board an aircraft (if they are not doing so already)?

This is the end of the TTE.

After these rounds of messages the exercise leader **ends the discussion** and start **the wrap-up session**: he asks the participants and then observers to provide their feedback on the discussions. The exercise leader asks the evaluator draw up a summary of the conclusions, to define gaps and to address action points for improvement

# Annex 1. Observer evaluation form

Please answer the following questions; we would appreciate it if you could give reasons for your answer.

| |
|---|
| The aim of the TTE is to assist with the implementation of the AIRSAN Guidance Document on 'Remote risk assessment and management of communicable disease events on board an aircraft' / Contact tracing by improving cooperation and communication between airlines, airport operational management and public health authorities in accordance with the IHR(2005) capacity requirements. |
| Was this aim achieved? Yes, no, partially: ……. please explain: |
| Are the participants aware of the way in which public health authorities are informed about emerging communicable diseases and how information is forwarded to relevant stakeholders? |
| Yes, no, partially: ……. please explain: |
| Is it clear that the participants are familiar with the AIRSAN Guidance Document(s)? |
| Yes, no, partially: ……. please explain: |

| |
|---|
| Are the participants aware of the role and responsibilities of flight crew, airlines, airport managers and public health authorities with regard to the IHR? |
| Yes, no, partially: ……. please explain: |
| Is there a clear communication procedure between the pilots in command (through traffic control) and the public health authorities that helps with the remote risk assessment? |
| Yes, no, partially: ……. please explain: |
| Is there an efficient procedure for disembarkation of an aircraft with a suspected ill traveller? |
| Yes, no, partially: ……. please explain: |

| |
|---|
| Are the remote risk assessment flowchart and the remote risk assessment questionnaire for cabin crew and public health authority used in the exercise valuable to the TTE? |
| Yes, no, partially: ……. please explain: |
| Is there a clear procedure regarding the way in which the risks will be communicated to other travellers? |
| Yes, no, partially: ……. please explain: |
| Is it clear who is responsible for informing the waiting relatives of the passengers? |
| Yes, no,: ……. please explain: |

# Annex 2. Table-top exercise preparation checklist

| **Preparation checklist** (items can be added) | | | | | |
|---|---|---|---|---|---|
| Name of the TTE | | | | | |
| Date | | | | | |
| TTE facilitator | | | | | |
| **Actions** | **Applicable?** | **Who is responsible?** | **Deadline** | **Completed** | **Remarks** |
| **Preparation** | | | | | |
| | | | | | |
| TTE objectives, adjustment needed? | | | | | |
| TTE Timeline | | | | | |
| List of actions | | | | | |
| Background material | | | | | |
| | | | | | |
| | | | | | |
| **People** | | | | | |
| Participants | | | | | |
| Observers | | | | | |
| Evaluator | | | | | |
| Exercise leader | | | | | |
| **Inform** | | | | | |
| Media (communication) | | | | | |
| Senior management | | | | | |
| Participants | | | | | |
| Rooms | | | | | |
| Meeting room | | | | | |
| Presentation equipment | | | | | |
| Laptop with sound | | | | | |
| Flipchart | | | | | |
| U-shaped table setting | | | | | |
| Microphones if needed | | | | | |
| Check correct playing AIRSAN movie | | | | | |
| Name cards | | | | | |
| Catering | | | | | |
| Lunch or dinner, snacks, coffee, tea, etc | | | | | |

# Annex 3. Letter of invitation

As an example, the following text can be used as a basis for the invitation to the TTE.

*Dear Sir or Madam,*

*The AIRSAN Project, which is funded by the European Commission, aims to ensure an efficient, multi-sector, multi-stakeholder, coherent response at EU level to public health threats in air transport. Twenty-four project partners represent public health authorities, airlines, airport management and international organisations across European countries including the World Health Organisation (WHO), the International Civil Aviation Organisation (ICAO) and the International Air Transport Association (IATA) together with the national public health institutes and public health authorities across a number of European countries. The project is led by the Robert Koch Institute, Germany.*

Within the AIRSAN Project two new standard AIRSAN Guidance Documents: " Remote risk assessment and management of communicable disease events on board an aircraft' and 'Contact tracing – collaboration between the public health and the aviation sector' were developed with an aim to improve the response to public health threats in air transport. *Additionally a table-top exercise that should support authorities and companies with the implementation of these Guidance Documents was developed.*

*The aim of this table-top exercise is to strengthen an efficient and coherent response at airport level to serious cross-border public health threats on aircraft. During this exercise the participants will gain an insight into the tasks and responsibilities of other actors within their network. This will ensure that, if such a situation should arise, each one is aware of the others' tasks and responsibilities and an adequate response and cooperation can be achieved. The time investment will be approximately 5 hours.*

*The exercise is scheduled to take place on XX, XX, and XXXX at YYYY airport, room xy. It will start at ZZ: 00 and will end at AA: 00.*

*We would like to invite colleagues from your organisation to participate in this exercise. We would very much appreciate it if you could appoint two colleagues from your team who would like to participate in this exercise. Targeted candidates for this exercise are those who are involved in the transport of passengers at your main airport. If you would like to receive more detailed information about this exercise, please contact Mr/Ms.....phone .....email.....*

*Could you please confirm your participation by … so that we can send you more detailed information.*

# Annex 4. Participants' evaluation form

The aim of the TTE is to assist with the implementation of the AIRSAN Guidance Document on 'Remote risk assessment and management of communicable disease events on board an aircraft'/ Contact tracing by improving cooperation and communication between airlines, airport operational management and public health authorities in accordance with the IHR(2005) capacity requirements.

| |
|---|
| Name:<br><br>Function: |

| What is your overall impression of this exercise? Please describe. |
|---|
| |
| **Was the aim of the exercise (see above) achieved? Please explain:** |
| |
| **Please give three suggestions (next steps) to improve the outcome of the exercise:** |
| • <br>• <br>• |
| **Do you have any suggestions for improving the exercise?** |
| |

# Annex 5. Table-top exercise evaluator report format

| | | | |
|---|---|---|---|
| Name of TTE | | Date of TTE | |
| Facilitator | | Evaluator | |
| Observers | | Date of report | |
| Objectives | | | |
| Participants | | | |

| | **TTE Objectives** | Achieved? | Comments |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| | **Remarks by participants** | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | **Observers' remarks** | | |
| | | | |

| | |
|---|---|
| | |
| | |
| | |
| | |
| | **General conclusions and remarks** |
| | |
| | |
| | |
| | |
| | |
| | **Did the TTE generally meet the expectations of participants? Please explain.** |
| | |
| | |
| | **What improvements or actions you would you suggest regarding the organisation of the TTE?** |
| | |
| | **Next steps and action points (SMART)** |
| | |
| | |
| | |

# Annex 6. References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# 8. Acknowledgements

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**AIRSAN Training Toolkit Advisory Group**

T Rolf Appels, MD Public Health Services, Kennemerland, the Netherlands

Hans van Brug, Preparation Offer at Schiphol Group Fire Brigade, the Netherlands

Saskia van Egmond, RIVM and Public Health Services, Kennemerland, the Netherlands

Sietse Felix, MD KLM Health Services, the Netherlands

André Jacobi, RIVM, the Netherlands

Corien Swaan, MD, head of the department of preparedness and response, RIVM, the Netherlands

René Verjans, Amsterdam Airport Schiphol Group, the Netherlands

Sophia Vreugdenhil, coordinator of training and exercises at Kennemerland Safety Region, the Netherlands

**Our AIRSAN colleagues**

Astrid Milde-Busch, RKI, Germany

Nigel Dowdall**,** MD, Head of Aviation Health Unit, Gatwick Airport South, United Kingdom

Andreas Gilsdorf, RKI, Germany

Christos Hadjichristodoulou, Department of Hygiene and Epidemiology, Greece

Maria an der Heiden, RKI, Germany

Janusz Janiec, National Institute of Public Health, Poland

Yanina Lenz, RKI, Germany

Artyun Nishanov Magardichyan, Varna Airport, Bulgaria

Claude Thibeault, MD  IATA , Canada