



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

Work package 6: AIRSAN Training Scenario:

Extra scenario to be used as component of a table top exercise in the light of the AIRSAN Guidance Document: “Remote risk assessment and management of communicable disease events on board an aircraft’

Version 1.0

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1. Introduction

This AIRSAN scenario is an annex to the AIRSAN Training Toolkit and is developed within the EU funded AIRSAN Project in order to support the implementation of the 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”¹

This AIRSAN scenario can be used as a basis for a Table-Top Exercise (TTE). The construction and implementation of a table-top exercise is described in the AIRSAN Training Toolkit and can be found on the AIRSAN Website: <http://www.airsan.eu/>

The scenario described in this manual provides the organizer an extra scenario to set up a 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.

Intended participants of the TTE are representatives of airlines, public health authorities, airport medical services and flight and cabin crew. This scenario describes a situation in an aircraft where many people have gastroenteritis symptoms after eating a meal together. The exercise leader can make use of the messages and the process cards in this annex in the light of the scenario as described in the AIRSAN Toolkit chapter

¹ For all documents refer to <http://www.airsan.eu>

2. Norovirus scenario

Note: This information 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 day before their six hour home flight is scheduled, a tourist group of 30 people visits a fish restaurant. After an enjoyable evening at the restaurant, the tourists return to their hotel for the last night of their holiday. The next morning, the group needs to get up early to catch their flight. On their way to the airport, two of the tourists start to feel unwell: nausea and stomach cramps make them feel uncomfortable. Because they do not want to miss their flight, they decide to take loperamide and an antiemetic that relieve their symptoms.

The group of 30 tourists boards into the aircraft, a Boeing 777-300ER in which a total of 350 passengers are seated (total capacity 425 passengers). The tourist group is seated together in rows 31 to 36. A few hours after departure, 3 other members of the tourist group start to experience similar symptoms as the first two. A quick walk to the lavatory is needed to relieve the symptoms by vomiting in the toilet, followed by diarrhea. As the symptoms come back every 10-15 minutes, and 3 more members of the tourist group start to feel unwell too within a short time, all lavatories are occupied by members of the tourist group. The inevitable happens that all lavatories are occupied and another tourist needs to go to the toilet. The airsickness bag is insufficient to catch all the vomit.

About half way the flight, the cabin crew notifies the pilot that there are several passengers with gastrointestinal complaints and no medical expertise is available on board. The pilot is asking for ground medical support on what actions need to be taken to control this situation. Because of the large number of passengers showing symptoms, anxiety among the cabin crew starts to grow.

3. Background information on Norovirus disease

General information for the exercise leader and exercise staff, not to be distributed to the participants

Noroviruses also known as the cause of “winter-vomiting disease”, “stomach-flu” or “food poisoning”, are small RNA-viruses without an envelope. They belong to the taxonomic family of the Caliciviridae. Up to now, 5 Norovirus genusgroups have been identified, of which 3 can cause symptoms in humans.

Clinical symptoms, such as nausea, vomiting, diarrhea, some stomach cramping and possibly mild fever usually start between 12 and 48 hours after exposure. The illness often begins suddenly, and the infected person may feel very sick. In general, children experience more vomiting than adults. Most people with norovirus illness have both diarrhea and vomiting. Currently there is no specific treatment killing the virus and there is no vaccine to prevent infection. Treatment is symptomatic, and the main goal is to prevent dehydration, meaning that people with vomiting and diarrhea should drink plenty of liquids. When healthy people are affected, the infection is not serious and does not result in long lasting complaints, and symptoms subside in 2-3 days in adults and about 1 week in children. Anyone can become infected with these viruses. There are many different strains of norovirus, which makes it difficult for a person’s body to develop long-lasting immunity. Therefore, norovirus illness can recur throughout a person’s lifetime.

Noroviruses are very contagious. The infectious dose is being estimated at 18 particles, although the ingestion of 1 particle can already lead to infection in half of the cases. Faeces can contain 10 million to 100 billion virus particles during and until 1 week after the acute phase of the infection. Viruses are also well capable of surviving outside their host. It is important to notice that the viruses can survive in up to 10 ppm chlorine, well in excess of levels routinely present in public drinking water systems (less than 2 ppm).

Transmission route

Noroviruses are very contagious and can be easily transmitted from human to human. The route of transmission is fecal-oral which means that shedding of the virus takes place through infectious vomit or faeces. Transmission from human to human can occur directly, for example by droplet or airborne transmission or indirectly, for example through contaminated objects, such as doorknobs, toys, food or water. People infected with norovirus are contagious from the moment they begin feeling ill to at least 3 days after recovery. Some people may be contagious for as long as 2 weeks after recovery. Therefore, it is particularly important for people to use good handwashing and other hygienic practices after they have recently recovered from norovirus illness. Many food products can be contaminated with Norovirus, which can lead to infection. The most important food products can be categorized into 3 groups: 1) ready-to-eat meals or products, 2) not or insufficiently heated oysters and mussels and 3) unheated fruits and vegetables.

Infection control measures cabin crew. (General hygienic precaution)

As it is unknown whether an ill patient is contagious, any body fluid (such as diarrhea or vomit) must be treated as potentially infectious

Personal protection

- Hand hygiene is the most important infection control measure (washing hands with water and soap for at least 20 seconds after assisting ill travelers or coming in contact with body fluids or surfaces that may be contaminated).
- Wear disposable gloves when having physical contact with an ill traveler or when touching body fluids (such as used tissues, blood, vomit, or diarrhea), potentially contaminated surfaces or lavatories.

Management of ill person²

- Minimize the number of persons directly exposed to the ill traveler.
- Keep interactions with the ill traveler as brief as possible.
- Seat the ill traveler(s) close to a lavatory, if possible.
- If possible, restrict the use of that lavatory to the ill traveler(s).
- If the traveler is vomiting, provide air-sickness bags.
- Provide a plastic bag for disposing of used air-sickness bags.
- Encourage the ill traveler to wash hands and/or use alcohol-based hand cleaner (if available).

Targeted clean-up³

- Hard (nonporous) surfaces (such as tray tables and TV monitors): remove visible contaminations and then clean with a cleaning or disinfectant agent approved by your airline.
- Soft (porous) surfaces (such as carpeted floor or seat cushions): first remove as much of the contaminant as possible, then cover the area with an absorbent substance, followed by an impermeable material, such as plastic, to reduce the risk of spread beyond the immediate area or into the air.
- Emphasis should be on frequently touched surfaces.
- Dispose of used cleaning materials in a plastic bag immediately after use.

Post-flight measures

- Notify cleaning crew of areas that have been contaminated (specify respiratory, gastrointestinal and/or blood-borne body fluids) which may need more than routine cleaning or possible removal.

² <https://www.iata.org/whatwedo/safety/health/Pages/index.aspx>

³ <http://www.cdc.gov/quarantine/air/managing-sick-travelers/commercial-aircraft/infection-control-cabin-crew.html>

- Remind cleaning crew that this may require additional personal protective equipment. They should follow company policy for such situations.
- Inform travelers when to see a health care provider after exposure to ill travelers.

4. TTE discussion session

Exercise leader: Distribute copies of the Process exploration cards to the relevant participant(s) after giving the first message. 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 Boeing 777-300ER, in which 350 passengers are seated, is on its way to an international airport in your country (estimated time of arrival in 4 hours).

The cabin crew has noticed several passengers suffering from stomach cramping, vomiting and frequently using the toilet. At the moment all lavatories are occupied by ill passengers; some passengers could not make it to the lavatory in time, which has resulted in vomit and faeces on the ground. The cabin crew has notified the pilot about the situation.

Exercise leader asks the cabin or flight crew participants:

- Please fill in the AIRSAN Remote Risk Assessment Questionnaire for cabin crew⁴. What kind of extra information do you need?
- Using the flowchart and the questionnaire of the AIRSAN Guidance Document “Remote risk assessment and management of communicable disease events on board an aircraft”, is it possible to obtain all data required for conducting the risk assessment?

⁴ http://www.airsan.eu/Portals/0/docs/AIRSAN_RemoteRiskAssessment_Questionnaire_Crew.pdf

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 of suspect cases of communicable disease on board? Is an emergency landing needed? If you decide to inform the public health authorities, which information will you provide? How would you collect this information?
- Would you communicate with the affected travelers? What would you say?
- Would you make any announcements? If yes, what would you announce?

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 members of 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 the information provided by the cabin crew, assess the public health risk remotely?
- Which additional questions do you want to ask the cabin crew/pilot?
- Who is at your location responsible for the risk assessment (in the air) 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 or maybe a ministry of health?)

Exercise leader: Ask the public health participants to 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 questions concerning information that is not described within the scenario, tell them that the information is not available. Suggested answers: the passengers who experience gastrointestinal symptoms all belong to a group of 30 tourists who had dinner at an oyster restaurant the night before the flight. Two members of this group had taken loperamide and an antiemetic drug before departure, etc.

3. Process exploration card for the public health authority

- What is your risk assessment based on what you know until now? (The initial information you will receive will be that there is an inbound aircraft, registration number *-****, with an x number of 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 measures would you suggest to control the situation? Which guidelines do you use?
- Is contact tracing needed by means of contact lists? If yes, should this be done for a selected number of passengers or for all passengers?
- Is the AIRSAN Guidance Document “Remote risk assessment and management of communicable disease events on board an aircraft”, applicable to this situation?
- Who will inform the airport manager to prepare for the incoming flight? What do you expect from the airport manager?
- Are the ill passengers allowed to continue their trip with a connection flight? Who will decide on that?

4. Process exploration card for the airport managers

- Do you have enough information to handle the incoming flight with all the ill passengers?
- 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 travelers need a visa to enter and cover their stay in your country? Or would it be ok that all passengers continue their trip, when your airport is just the transport hub?
- 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 taken.

- Discuss the most appropriate measures to control the situation on board according to the AIRSAN Guidance Document.
- Close this discussion session and move to the 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 (including other travel group members and the rest of the travellers) and the crew?
- What should be done with the aircraft?
- 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.
- 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.

Message 4

There is unrest in the cabin while people wait to disembark and for the medical crew to arrive. With the smell of vomit and faeces filling the complete aircraft, passengers want to disembark as soon as possible. The situation has resulted already in several posts through social media.

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?

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.

5. References

1. CDC guidelines for Infection Control measures by Cabin Crew Members on Commercial Aircraft:
<http://www.cdc.gov/quarantine/air/managing-sick-travelers/commercial-aircraft/infection-control-cabin-crew.html>
2. ECDC factsheet on Noroviruses:
http://ecdc.europa.eu/en/healthtopics/norovirus_infection/factsheet-health-professionals/Pages/factsheet_health_professionals.aspx
3. IATA guidelines for food poisoning on board:
<https://www.iata.org/whatwedo/safety/health/Pages/index.aspx>
4. Bonifait L, Charlebois R, Vimont A et al. Detection and quantification of airborne norovirus during outbreaks in healthcare facilities. Clin Infect Dis. 2015;61:299-304.
5. AIRSAN- Remote risk assessment and management of communicable disease events on board an aircraft, 2014
<http://www.airsan.eu/Achievements/GuidanceDocuments/RemoteRiskAssessmentandManagement.aspx>
6. Thornley CN, Emslie NA, Sprott TW et al. Recurring norovirus transmission on an airplane. Clin Infect Dis 2011;53:515-20.