



NORSK LUFTAMBULANSE
NORWEGIAN AIR AMBULANCE



Incident title: Utøya

Reporter

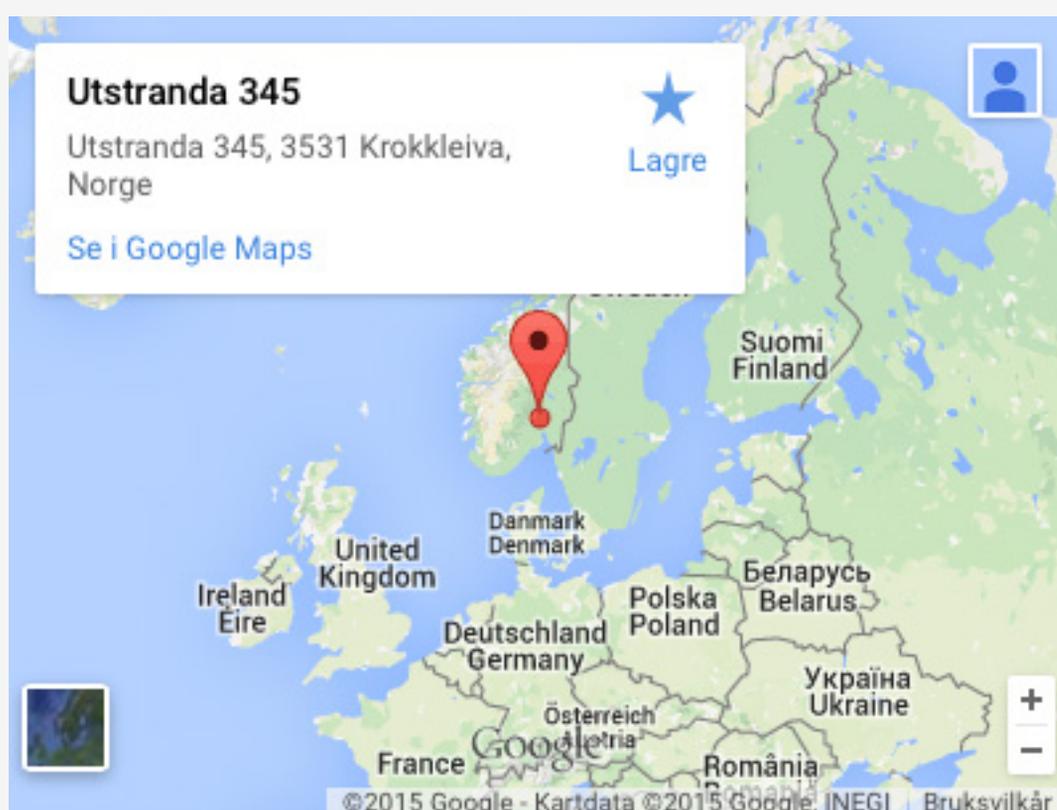
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Role in incident: one of several HEMS physicians called in extra following the terrorist attacks of July 22, 2011. He took part in the rescue efforts, triage and treatment of victims from the Utøya shooting both on the first triage point and on the island itself.

Incident location



[Latitude - Longitude: 60.023457,10.247288](#)

Summary

Country:  Norway

Incident scene at Utøya, a 0.12 sqkm island 39km from Oslo by road. The island has no permanent inhabitants, but is owned and used by the labour party youth organisation. At the time of the incident a summer camp was taking place at the island with estimated 700 registered visitors. The island is only accessible by boat and there are no roads on the island. A ferry travels between shore and the island and can carry one vehicle. A secondary road passes by the ferry site. Nearest hospital (local hospital) is in the town Hønefoss 17 km from the shore side of Utøya. Mobile phone coverage in the area is fair. Emergency services communicate via old analogue network and local coverage in the area is poor.

EMS background

1. Was an EMS coordinating centre (the centre responsible for dispatching and coordinating EMS units on-scene) available in the affected country/ies before the incident? *

Yes

2. Does a dialling number to Emergency Services exist? *

Yes

2-1. Is there a single and unique dialling number to EMS or one common dialling number for all Emergency Services (fire, police and EMS)? *

A single and unique dialling number

3. Can a major incident be declared directly by the person receiving an alert at the EMS coordinating centre? *

No

4. What is the background of staff in the every-day/normal staffing of EMS services? *

- Basic Life Support by EMS professionals, non-physician
- Advanced Life Support by EMS professional, non-physician
- Advanced Life Support On-scene by Physician

5. What other resources are routinely available to assist the EMS service in a normal setting? *

- Fire brigade
- Police
- Voluntary organizations

5-1. Please specify which voluntary organizations are available to assist the EMS service in a normal setting *

Red Cross ambulances and staff, Norwegian Peoples Aid Ambulances and staff. Staff of both organisations have basic life support training.

5-2. Do the voluntary organizations require authorization from police or other authorities to participate in the response phase? *

No authorisation needed, but units will be dispatched by emergency call center or police/ rescue coordination center.

6. Other resources that can be mobilized in a major incident *

- Fire brigade
- Police
- Voluntary organizations
- Coast guard
- Military
- Civil protection
- Other resources / Unknown

6-1. Please specify which voluntary organizations are available *	Red Cross ambulances and staff, Norwegian Peoples Aid Ambulances and staff. Staff of both organisations have basic life support training. Alpine rescue groups.
6-2. Please specify if the voluntary organizations available require authorization from police or other authorities to participate in the response phase *	No authorisation needed, but units will be dispatched by emergency call center or police/ rescue coordination center.
7-1. Are there any regional hospital/s with trauma specialty that exists within the EMS catchment system that was affected by the major incident? *	Yes
7-1.1. Please state the number of regional hospital/s with trauma specialty within the EMS catchment system that was affected by the major incident *	2
7-1.2. Is the number given above exact or estimated? *	Exact
7-2. Are there any regional hospital/s without trauma specialty that exists within the EMS catchment system that was affected by the major incident? *	Yes
7-2.1. Please state the number of regional hospitals without trauma specialty within the EMS catchment system that was affected by the major incident *	1
7-2.2. Is the number given above exact or estimated? *	Exact
7-3. Are there any local hospital/s without trauma specialty that exists within the EMS catchment system that was affected by the major incident? *	Yes
7-3.1. Please state the number of local hospitals without trauma specialty within the EMS catchment system that was affected by the major incident *	4
7-3.2. Is the number given above exact or estimated? *	Exact
7-4. Are there any other type of hospital/s that exists within the EMS catchment system that was affected by the major incident? *	No
8-1. Is a pre-hospital on-scene triage	No

system in use daily on a national level? *

8-2. Is a pre-hospital on-scene triage system in use daily on regional levels? *

No

9-1. Is a pre-hospital on-scene triage system for major incidents in use on a national level? *

No

9-2. Is a pre-hospital on-scene triage system for major incidents in use on regional levels? *

Yes, but different triage systems exist in different regions

9-2.1. Please specify which pre-hospital on-scene triage system/s for major incidents are in use on regional levels: *

System has no specific term, but is based on four categories: Red - immediate care/ transport. Yellow - urgent care/ transport Green - normal care/ transport Black - dead or dying/ no transport

10. Does the pre-hospital on-scene triage system for major incidents include direct tagging/labelling of patients? *

Yes

11. For those employees within the pre-hospital EMS system who are intended to work on-scene: is major incident training mandatory? *

No

Incident characteristics

12. What was the mechanism/external factor that caused the incident? *

Other / Unknown

12-2. Please specify other mechanism/external factor that caused the incident:

Spree shooting

12-3. Is this incident coupled to another incident? *

Yes

12-3.1. Please specify which other incident this major incident is coupled to: *

First incident was a bomb blast in Oslo government district. Population in Oslo approximately 605 000. Population density approximately 5221/sqkm. The scene lies in an area with mainly government offices (several ministries, Cabinet and Prime Minister). Urban area with good road infrastructure and public access. Nearest hospital (Trauma centre and university hospital) approximately 3 km by road. Good telecommunications, digital network for emergency services (Tetra). The bomb blast killed 8 people and

injured 92 people, 10 of them seriously.

13. What was the location of the incident scene? *

- Rural/countryside area
- Offshore/maritime (ocean, river, lake)

14-1. Did the EMS make use of wheeled vehicles to access patients for treatment at incident scene? *

No

14-2. Did the EMS make use of railway system to access patients for treatment at incident scene? *

No

14-3. Did the EMS make use of air transport to access patients for treatment at incident scene? *

No

14-4. Did the EMS make use of boat transport to access patients for treatment at incident scene? *

Yes

14-4.1. Were there any delays in accessing patients by boat? *

Yes

14-4.2. Please describe reasons for delay, which could include reasons such as: security issues, congested roads due to traffic, weather conditions: *

Access by boat to the scene at Utøya was delayed due to security issues (scene was not cleared by police until ca 90 min after shooting started)

14-5. Did the EMS access patients for treatment at incident scene on foot? *

No

14-6. Did the EMS make use of other means to access patients for treatment at incident scene? *

No

15-1. Did the EMS make use of wheeled vehicles to evacuate patients from the incident scene? *

Yes

15-1.1. Were there any delays in evacuating patients by wheeled vehicles? *

Yes

15-1.2. Please describe reasons for delay, which could include reasons such as: security issues, congested roads due to traffic, weather conditions: *

Road access was delayed for several reasons: - security issues - congested roads (Secondary road to Utøya congested by civilian and rescue vehicles) - lack of local geographical knowledge (several units were from other EMS districts and did not have maps of the area)

15-2. Did the EMS make use of railway system to evacuate patients from the incident scene? *

No

15-3. Did the EMS make use of air

Yes

transport to evacuate patients from the incident scene? *

15-3.1. Were there any delays in evacuating patients by air? * Yes

15-3.2. Please describe reasons for delay, which could include reasons such as: security issues, congested roads due to traffic, weather conditions: * Transport delayed for several reasons: - security issues did not permit landing on the scene - no landing site available at first casualty clearing station - low cloud base and fog demanded initiation of instrument flying rules and GPS approaches to hospitals

15-4. Did the EMS make use of boat transport to evacuate patients from the incident scene? * Yes

15-4.1. Were there any delays in evacuating patients by boat? * Yes

15-4.2. Please describe reasons for delay, which could include reasons such as: security issues, congested roads due to traffic, weather conditions: * Evacuation delayed due to security issues (no access before police cleared the scene) - most severely injured evacuated by civilians using their own boats

15-5. Did the EMS evacuate patients from the incident scene on foot? * Yes

15-5.1. Were there any delays in evacuating patients by foot? * Yes

15-5.2. Please describe reasons for delay, which could include reasons such as: security issues, congested roads due to traffic, weather conditions: * Evacuation delayed due to security issues (no access before police cleared the scene)

15-6. Did the EMS make use of other means to evacuate patients from the incident scene? * No

16-1. Was there damage to electrical power that affected EMS response? * No

16-2. Was there damage to telecommunication that affected EMS response? * No

16-3. Was there damage to other modes of communications that affected EMS response? * No

16-4. Was there damage to road that affected EMS response? * No

16-5. Was there damage to rail that affected EMS response? * No

16-6. Was there damage to the EMS or health structure that affected EMS response? *	No
16-7. Was there other damage to infrastructure that affected EMS response? *	No
17. How many sites required separate EMS infrastructure (such as on-scene leadership and casualty clearing stations) in the response phase? *	2
17-1. Is the number given above exact or estimated? *	Exact
18-1. Was ongoing violence or risk of further violence a threat to rescuers on scene? *	Yes
18-1.2. Please specify the ongoing violence or risk of further violence and how this affected the rescuers on scene *	Ongoing shooting for approximately 60 minutes before shooter apprehended. This delayed access to the scene and access to the wounded. Also suspected explosives at first casualty clearing station and on the island.
18-2. Was fire a threat to rescuers on scene? *	No
18-3. Was collapsing building/s a threat to rescuers on scene? *	No
18-4. Was climate a threat to rescuers on scene? *	No
18-5. Was lack of electricity a threat to rescuers on scene? *	No
18-6. Was lack of water/food a threat to rescuers on scene? *	No
18-7. Were other hazard/s a threat to rescuers on scene? *	No
19-1. Was on going violence or risk of further violence a threat to patients on scene? *	Yes
19-1.2. Please specify the on going violence/risk of further violence and how this affected the patients on scene *	On-going shooting at Utøya for approximately 60 minutes caused delayed access to EMS. Victims had to hide from the shooter to avoid further injuries, some victims were killed or injured on second contact with the perpetrator.
18-2. Was fire a threat to patients on scene? *	No

19-3. Was collapsing building/s a threat to patients on scene? *	No
19-4. Was climate a threat to patients on scene? *	Yes
19-4.2. Please specify the climate and how this affected the patients on scene *	Relatively cold weather at Utøya (15 degrees C air temperature). Water temperature 14 degrees C, many victims swam across the lake to main land (600 m from shore to shore) to get help/ escape the shooter.
19-5. Was lack of electricity a threat to patients on scene? *	No
19-6. Was lack of lack of water/food a threat to patients on scene? *	No
19-7. Were other hazard/s a threat to patients on scene? *	No

EMS response data

20-1. Did the first medical team to arrive on-scene assume the role of medical commander? *	No
20-2. Did the first medical team to arrive on-scene begin to make an assessment of scene safety? *	Yes
20-2.1. If possible, please provide the time the first medical team to arrive on-scene begun to make an assessment of scene safety	2011-07-22
Hour	17
Minutes	35
20-2.2. Is the time given above exact or estimated? *	Estimated
20-3. Did the first medical team to arrive on-scene communicate a situation report to EMS coordinating centre? *	Yes
20-3.1. Was this done according to a pre-existing system or mnemonic? (E.g. METHANE)? *	No

20-4. Did the first medical team to arrive on-scene request additional resources? *	Unknown
20-5. Did the first medical team to arrive on-scene initiate any safety related actions? *	Yes
20-5.1. Please describe the safety related actions initiated by the first medical team to arrive on-scene *	Withdrew from scene to await further orders.
20-6. Did the first medical team to arrive on-scene delegate responsibility for other tasks on scene? *	Unknown
21. What time was summoning of additional medical staff to participate in the medical response initiated?	2011-07-22
Hour	17
Minutes	45
21-1. Additional medical staff who responded to the major incident was summoned by: *	EMS coordinating centre
21-2. Medical pre-hospital resources used in the major incident response was coordinated by: *	<ul style="list-style-type: none"> • On-scene medical commander • EMS coordinating centre
21-3. Who was responsible for briefing medical staff of the situation during the pre-hospital major incident medical response? *	<ul style="list-style-type: none"> • On-scene medical commander • EMS coordinating centre
22-1. Was communication achieved between medical personnel at the incident? *	Yes
22-1.1. Please state at which time communication between medical personnel at the incident was initiated	2011-07-22
Hour	17
Minutes	45
22-1.2. This communication was managed by: *	<ul style="list-style-type: none"> • On-scene medical commander • EMS coordinating centre
22-2. Was communication achieved between the different task forces involved (police, fire fighters, health, political leaders etc)? *	Yes, between all of the task forces

22-2.2. Please specify between whom it was achieved *	Between health, fire and police (communication with police intermittently difficult)
22-3. Was communication achieved between the scene and the EMS coordinating centre? *	Yes
22-3.1 Please state at which time communication between the scene and EMS coordinating centre was initiated	2011-07-22
Hour	17
Minutes	33
22-3.2. This communication was managed by: *	First medical team to arrive on-scene
22-4. Was communication achieved between the scene and receiving hospital/s? *	Yes
22-4.2. This communication was managed by: *	<ul style="list-style-type: none"> • On-scene medical commander • EMS coordinating centre
22-5. Was communication achieved between medical response personnel and the general public? *	Unknown
23. Describe the structure of the medical incident command during the major incident *	Norwegian incident command includes at least one ambulance resource commander (EMT/Paramedic) and one medical commander (physician). Additional resources established if necessary (e.g. triage officer). Two casualty clearing stations: Station 1 initiated 18:50, closed 19:45, Station 2 initiated 19:05, closed 23:00. Station 1: Ambulance resource commander established, no medical commander. Station 2: Ambulance resource commander and medical commander established.
24-1. Were VHF radio used for communication during the major incident response? *	Yes
24-1.1. Were there any failures with the VHF radio communication during the incident response? *	Unknown
24-2. Were Tetra radio used for communication during the incident response? *	Yes
24-2.1. Were there any failures with the Tetra radio communication during the incident response? *	Yes

24-2.2. Please specify tetra radio failure *	Tetra network not activated in the area, some coverage from neighbouring areas, but poor quality. Most Tetra communication as "direct mode" between tetra user on scene.
24-3. Were other type of radio used for communication during the incident response? *	Yes
24-3.1. Were there any failures with the other type of radio used during the incident response? *	Yes
24-3.2. Please specify other type of radio failure *	The old medical communication system in Norway is based on an old mobile network (Offentlig Landmobil Telefoni) that uses the same frequency band as VHF. 64 of these OLT channels were converted to a so called "Health Radio" Network that works (predominantly) in half-duplex. The coverage of this radio system is variable and very poor in the incident area due to the location of the base stations in the area.
24-4. Were mobile phone used for communication during the incident response? *	Yes
24-4.1. Were there any mobile phone failures during the incident response? *	Yes
24-4.2. Please specify mobile phone failure *	Poor coverage and drop-out of calls due to overload in the network.
24-5. Were land line telephone used for communication during the incident response? *	No
24-6. Was communication to the public (such as television, social media) used during the incident response? *	Yes
24-6.1. Please specify mode of communication *	Television news coverage of the incident with general information and advice. Social media used by victims to a certain degree to communicate to friends and family.
24-6.2. Were there any failures to communication means specified in 24-6.1? *	Unknown
24-7. Were other means of communication used during the incident response? *	No
25. Please state communication systems in use on a daily basis *	<ul style="list-style-type: none"> ● VHF radio ● Tetra radio

- Other type of radio
- Mobile phone

26-1. Incident time * 2011-07-22

Hour * 17

Minutes * 20

26-1.1. Is the time given above exact or estimated? * Estimated

26-2. Emergency Medical Service (EMS) notification * 2011-07-22

Hour * 17

Minutes * 24

26-2.1. Is the time given above exact or estimated? * Exact

26-3. First EMS arrival * 2011-07-22

Hour * 17

Minutes * 33

26-3.1. Is the time given above exact or estimated? * Exact

26-4. Major incident declared * 2011-07-22

Hour * 17

Minutes * 45

26-4.1. Is the time given above exact or estimated? * Exact

26-5. Medical command established * 2011-07-22

Hour * 18

Minutes * 45

26-5.1. Is the time given above exact or estimated? * Estimated

26-6. Time of first meeting between police / fire / medical command * 2011-07-22

Hour * N/A

26-7. First patient evacuated by EMS (time of leaving incident scene) * 2011-07-22

Hour *	18
Minutes *	05
26-7.1. Is the time given above exact or estimated? *	Exact
26-8. Last patient evacuated by EMS (time of leaving incident scene) *	2011-07-22
Hour *	21
Minutes *	00
26-8.1. Is the time given above exact or estimated? *	Estimated
26-9. First patient arriving in hospital *	2011-07-22
Hour *	19
Minutes *	24
26-9.1. Is the time given above exact or estimated? *	Exact
26-10. Last patient arriving in hospital *	2011-07-22
Hour *	21
Minutes *	30
26-10.1. Is the time given above exact or estimated? *	Exact
27. Please describe any delays in the timings mentioned in question 26	Security issues were the main reason for delays. Police resources were overloaded and therefore not able to clear access for health resources. Medical command was established late due to delays in establishing clearing station. Late access to patients because they had to be evacuated from the island. Geography was also an issue, difficult to get to patients/scene directly. Only possible access would have been by boat and/or helicopter, but was not used to access scene because of security issues.
28-1. Were lay persons with no field care education present? *	Yes
28-1.1. Please state number of persons/personnel *	Unknown
28-1.2. Is the number given above exact or estimated? *	N/A
28-2. Were non-EMS personnel with basic life support (BLS) competency present? *	Yes

28-2.1. Please state number of persons/personnel *	Unknown
28-2.2. Is the number given above exact or estimated? *	N/A
28-3. Were EMS professionals who were not physicians, but with BLS competency present? *	Yes
28-3.1. Please state number of persons/personnel *	Unknown
28-3.2. Is the number given above exact or estimated? *	N/A
28-4. Were EMS professionals who were not physicians, but with Advanced Life Support (ALS) competency present? *	Yes
28-4.1. Please state number of persons/personnel *	99 or more
28-4.2. Is the number given above exact or estimated? *	Estimated
28-5. Were on-scene physicians with ALS competency present? *	Yes
28-5.1. Please state number of persons/personnel *	18
28-5.2. Is the number given above exact or estimated? *	Exact
28-6. Were other type of personnel/persons present at the incident scene? *	Yes
28-6.1. Please specify other *	Pilots and crew from Helicopter Emergency Medical Services (HEMS) and Search and Rescue (SAR) helicopters
28-6.2. Please state number of persons/personnel *	14
28-6.3. Is the number given above exact or estimated? *	Exact
29-1. EMS transport: Where there any EMS vehicles present at scene during the early EMS response to the incident? *	Yes
29-1.1. If possible, please specify the approximate numbers of EMS vehicles available at the incident scene. Returning EMS vehicles are to be counted only once.	11

Please provide time of arrival for the first EMS vehicle.

Date 2011-07-22

Hour 18

Minutes 01

29-2. EMS transport: Where there any EMS helicopters present at scene during the early EMS response to the incident? * Yes

29-2.1. If possible, please specify the approximate numbers of EMS helicopters available at the incident scene. Returning EMS helicopters are to be counted only once. Please provide time of arrival for the first EMS helicopter. 8

Date 2011-07-22

Hour 18

Minutes 10

29-3. EMS transport: Where there any EMS boats present at scene during the early EMS response to the incident? * No

29-4. EMS transport: Where there other EMS transportation units present at scene during the early EMS response to the incident? * Yes

29-4.1. Please specify type of other EMS transport * EMS Bus (Helseekspressen)

29-4.2. If possible, please specify the approximate numbers of other EMS transportation units available at the incident scene. Returning EMS transportation units are to be counted only once. Please provide time of arrival for the first other EMS transportation unit. 2

Date 2011-07-22

Hour 19

Minutes 00

29-5. Civilian transport: Where there any civilian vehicles present at scene during the early EMS response to the incident? * Yes

29-6. Civilian transport: Where there any civilian helicopters present at scene during the early EMS response to the incident? *	No
29-7. Civilian transport: Where there any civilian boats present at scene during the early EMS response to the incident? *	Yes
29-8. Civilian transport: Where there other civilian transportation units present at scene during the early EMS response to the incident? *	No
29-9. Other emergency services: Where there any other emergency vehicles present at scene during the early EMS response to the incident? *	Unknown
29-10. Other emergency services: Where there any other emergency helicopters present at scene during the early EMS response to the incident? *	No
29-11. Other emergency services: Where there any other emergency boats present at scene during the early EMS response to the incident? *	Yes
29-12. Other emergency services: Where there any other means of transport present at scene during the early EMS response to the incident? *	No
30-1. Was there any equipment available on-scene to provide care for patients exposed to hazardous materials? *	No
30-2. Was there any search and rescue equipment available on-scene? *	No
30-3. Was there any alpine/rescue equipment available on-scene? *	No
30-4. Was equipment from the coast guard available on-scene? *	No
30-5. Were support vehicles available on-scene? *	Unknown
30-6. Was other type of equipment available on-scene enabling EMS to do their job? *	No
31. Number of hospitals receiving patients *	4

32-1.1. Hospital I: Distance from incident scene where pre-hospital medical response was initiated to hospital by air line in kilometers *	11-30
32-1.2. Type of hospital *	Local hospital without trauma specialty
32-1.3.2. Numbers of patients conveyed to hospital by EMS *	30
32-1.5.2. Number of patients conveyed in the first hour after the incident *	Unknown
32-1.6.2. Number of patients conveyed between 1 and 2 hours after the incident *	Unknown
32-1.10. Pre-existing patient distribution plan *	Unknown
32-1.11. Please explain any pre-existing patient distribution plan/s and give any comments on decision making, delays etc. *	Several patients (7-9) transported to this hospital that should have been transported to trauma centre, but because of miscommunication, congested roads and confusion they were taken here. 9 of these patients were transported to trauma centre later within the next 24 h.

Patient characteristics

33. Estimated number of population at risk from incident (e.g. number of passengers on a train / ship) *	600-699
33-1. Please explain how the above number of population at risk was reached *	Estimated number of people on Utøya Island at the time the spree shooting started.
34-1. Number of males affected *	46
34-1.3. Is the number given above exact or estimated? *	Exact
39-2. Is data collection of thirty day mortality of those admitted to hospital considered complete? *	Yes
40. Was a pre-hospital triage system used? *	Yes
40-1. Who performed the pre-hospital on-scene triage? *	<ul style="list-style-type: none"> • Physician • EMS personnel

40-2. Which triage system was used? *	ABCDE and MIMMS-equivalents (no unified system used)
41-1. Were there any patients in category red = immediate? *	Yes
41-1.2. Number of patients in category red *	21
41-1.3. Is the number given above exact or estimated? *	Estimated
41-1.4. Please provide the data source from which these numbers originate *	Equates to the number of patients submitted to Trauma Center (no other records of on-site triage exists) - (se also Gaarder et al. J Trauma Acute Care Surg Volume 73, Number 1)
41-4. Were there any patients in category black = deceased? *	Yes
41-4.1. Number of patients in category black *	76
42-1. Were there patients with minor injuries? Here defines as: patients attended by EMS or medical staff at a primary health care facility, but not admitted to hospital? *	Yes
42-1.2. Number of patients with minor injuries *	99 or more
42-1.3. Is the number given above exact or estimated? *	Estimated
42-1.4. Please provide the data source from which these numbers originate *	Public domain
43. Was there any over-or undertriage? *	No
44-1.1. What was the total number of patients seeking care at a hospital? *	55
44-1.2. Is the number given above exact or estimated? *	Estimated
44-1.3. Please provide the data source from which these numbers originate *	Public domain, NOU 2012:14 "Rapport fra 22. juli-kommisjonen"
44-2.1. What was the total number of patients admitted to hospital? *	55
44-2.2. Is the number given above exact or estimated? *	Exact
44-2.3. Please provide the data source from which these numbers originate *	Public domain, NOU 2012:14 "Rapport fra 22. juli-kommisjonen"

44-3.1. How many of the admitted patients were discharged within 24 hours? *	15
44-3.2. Is the number given above exact or estimated? *	Estimated
44-3.3. Please provide the data source from which these numbers originate *	NOU 2012:14 "Rapport fra 22. juli-kommisjonen"
45-1. Did any patients sustain blunt trauma? *	Yes
45-1.2. Number of patients with blunt trauma *	Unknown
45-1.3. Is number given above exact or estimated? *	N/A
45-1.4. Please provide the data source from which these numbers originate *	No record available (patient sensitive data) on blunt traumas in the victims treated by EMS, but estimated that several sustained blunt traumas from falls etc.
45-2. Did any patients sustain penetrating trauma? *	Yes
45-2.2. Number of patients with penetrating trauma *	35
45-2.3. Is number given above exact or estimated? *	Exact
45-2.4. Please provide the data source from which these numbers originate *	Equates to total number of patients triaged and treated (excluding dead on scene) - all patients had penetrating traumas. Available in the public domain.
45-3. Did any patients sustain burns? *	No
45-4. Did any patients sustain drowning? *	No
45-5. Did any patients sustain asphyxiation? *	No
45-6. Did any patients sustain hypothermia? *	Yes
45-6.2. Number of patients with hypothermia *	Unknown
45-6.3. Is number given above exact or estimated? *	N/A
45-6.4. Please provide the data source from which these numbers originate *	Most victims sustained some degree of hypothermia due to weather conditions and exposure to cold water when swimming from island to shore.
45-7. Did any patients sustain	No

intoxication/poisoning? *

45-8. Did any patients sustain infectious disease? * No

45-9. Did any patients sustain acute psychiatric symptoms? * Yes

45-9.2. Number of patients with acute psychiatric symptoms * Unknown

45-9.3. Is number given above exact or estimated? * N/A

45-9.4. Please provide the data source from which these numbers originate * Expected that all survivors experienced some degree of psychiatric symptoms

45-10. Did any patients sustain nuclear or radiological injury? * No

45-11. Did any patients sustain biological injury? * No

45-12. Did any patients sustain chemical injury? * No

45-13. Did any patients sustain other type of injury? * No

46-1. Were any patients admitted to critical care area? * Yes

46-1.2. Number of patients admitted to critical care area * 10

46-1.3. Is number given above exact or estimated? * Exact

46-1.4. Please explain how you define critical care * Equates to number of patients cared for in the Intensive Care Unit (ICU) at the trauma centre in Oslo. ICU is a surgical and medical ICU.

46-1.5. Please provide the data source from which these numbers originate * Gaarder et al. J Trauma Acute Care Surg Volume 73, Number 1. 269-75.

Key lessons

47. During the pre-hospital emergency medical response to this major incident, were there any particular problems that Yes

may be improved in future major incidents? *

47-1. In what area/s did the problem/s occur? *

The EMS response

47-4.1. EMS response: What was the problem encountered? *

Lacking common triage system. Security issues delayed access to patients. Communication breakdown

47-4.2. EMS response: How did responders attempt to address the problem? *

Described in post incident reports

47-4.3. EMS response: How would you recommend addressing / avoiding a similar problem at a future major incident?*

Establish national triage system (is now established). Establish better system for cooperating with police in similar incidents, to get quicker access to patients. Improve communications system (Tetra is currently being introduced nationwide).

48. During the pre-hospital emergency medical response to this major incident, were there any particular successes that may enhance the response to future major incidents? *

Yes

48-1. In what area/s did the success/es occur? *

The EMS response

48-4.1. EMS response: What element of the response went particularly well? *

Triage on casualty clearing station - no overtriage that caused oversurge of patients in trauma centre.

48-4.2. EMS response: What recommendations would make for the response to future major incidents? *

Triage of large numbers of seriously injured patients should be performed by skilled physicians who are trained in prehospital critical care. Focus on transporting the serious trauma patients to one dedicated trauma centre and NOT spread them "thinly out" on all hospitals.