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*Penttilä Antti - Ranta Helena: Medicolegal Examination and  
Identification of Victims of M/S Estonia Mass Disaster.*

Department of Forensic Medicine, University of Helsinki - The Finnish  
DVI Team - Ministry of Justice.

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**MEDICOLEGAL EXAMINATION AND  
IDENTIFICATION OF VICTIMS OF  
M/S ESTONIA MASS DISASTER**

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## **MEDICOLEGAL EXAMINATION AND IDENTIFICATION OF VICTIMS OF M/S ESTONIA MASS DISASTER**

### **Manpower in Forensic Medicine and Forensic Odontology in Finland**

Finnish Disaster Victim Identification Team (DVI-team) was established in 1989. In addition to 16 policemen of the Finnish National Bureau of Investigation, a psychologist and a priest, two forensic pathologists and two forensic odontologists belonged to the team in September, 1994 (Table 1).

In 1994, there were altogether 25 specialists in forensic medicine in Finland working as medical examiners in the provinces, teachers at the universities and medical officers in the National Board of Medicolegal Affairs.

In addition, there are 20 dentists in Finland with experience in forensic odontology and practising on the field.

### **Facilities of the Department of Forensic Medicine, University of Helsinki**

Preliminary plans for the medicolegal examination of victims in mass disasters had been drafted in advance at the Department of Forensic Medicine since 1988. The staff had been trained in advance in two small-scaled aircraft accidents with few victims in 1988 and 1992.

Considering the medicolegal autopsies in mass disasters in the future in Finland, it is reasonable to conclude that they should be performed at the Department of Forensic Medicine of the Helsinki University because the department has the best resources in Finland to perform examinations in major accidents and disasters.

A summary of facilities, staff and public services of the Department of Forensic Medicine of the Helsinki University in 1994 are presented in Table 2.

### **Preliminary Medicolegal Measures in Estonia Disaster**

Shortly before 2 a.m. on Wednesday morning, 28 September, 1994 the Estonian ro-ro passenger vessel M/S Estonia capsized and sank in the international waters in the Baltic Sea about 35 kilometers south-east from the most southern Finnish island.

The Estonian police requested legal assistance from the Finnish police to examine the cause of death of the victims as well as to identify them. After the Swedish authorities had accepted this procedure, the identification process was officially started.

The Finnish DVI-team assembled for a meeting in Helsinki by noon, 28 September, 1994 and transferred with the rolling stock to Turku. At the meeting in Turku at 6.20 p.m., 28 September, 1994 the police investigator in charge of the investigation of the disaster requested the Finnish DVI-team to proceed with the examination of the cause of death and identification of victims.

At the morning meeting, 29 September, 1994 in Turku it was decided that the medicolegal examination of victims will be performed at the Department of Forensic Medicine, University of Helsinki. Medicolegal autopsy of all victims was to be performed by the order of the police investigator in charge.

After this meeting all the involved employees at the Department of the Forensic Medicine, University of Helsinki were informed and asked to prepare for the work by checking facilities, equipment and material necessary in the examination. An information session was arranged for the whole staff in the afternoon, 29 October, 1994. Due to the prevailing information the staff was informed about the possibility of identification of several hundreds of victims.

### **Medicolegal autopsies of Estonia victims**

A demonstration autopsy was performed in the morning, 30 September, 1994. All the policemen, medical doctors, dentists and technicians working at the autopsy section attended the demonstration autopsy. The procedures to be followed in the examination of victims were described in detail to standardize the working routines.

All 92 victims found shortly after the disaster were examined in 6 days (Table 3). One victim was found and examined on 17 October.

One victim died in Stockholm, Sweden and was examined there.

A policeman, a forensic pathologist and a forensic odontologist belonging to the executive group of the Finnish DVI-team were in charge of the autopsy section.

The staff working full time at the autopsy section comprised 5 forensic pathologists, 8 autopsy technicians, 5 secretaries and 2 cleaners from the Department of Forensic Medicine, 2 medical examiners from the province of Häme, 11 consulting forensic odontologists and about 15 policemen. The whole staff of the department was involved part time in the examination.

The autopsy group comprised of a forensic pathologist, an autopsy technician and 3 technical investigators of the police. On day 3 the number of groups was raised from 3 to 4.

The maximum number of autopsies per team was 5 per day. The teams worked from 08 a.m. to 06 p.m. Routine medicolegal autopsies were performed either before or after office hours.

The storage of victims and working order at medicolegal autopsies are presented in Table 4. In all cases a complete medicolegal autopsy was performed with a careful external and internal examination and documentation of findings. All necessary samples were taken at autopsy. The autopsy protocol was completed and the Interpol form for victim identification filled at autopsy. Later final autopsy reports and death certificates were given.

After autopsy odontological examination was made by a team comprising 2 dentists and 1 technician. The total number of teams was 5 of which 2 were working at a time.

The autopsy reports and Interpol forms were delivered to the identification center at the National Bureau of Investigation on the same or the following day after autopsy. The final autopsy reports were delivered in one to two weeks after autopsies and death certificates on the day when the victims were identified.

Two uniformed policemen guarded the entrance of the department during office hours and the Finnish Defence Forces the morgue 24 hours a day.

### **Autopsy Findings**

The number of medicolegal autopsies was 93 of which 52 were males and 41 females.

Of males 35 (67 %) died from drowning, 16 (31 %) from hypothermia and 1 (2%) from injuries. The respective rates for females were 34 (83 %), 6 (15 %) and 1 (2 %) (Table 5).

In all cases of drowning, hypothermia was regarded to be a contributing factor to death (Table 5). One fourth (25/27 %) of the victims were naked or almost naked, 18 (19 %) had very insufficient and 40 (43 %) insufficient clothing for the weather condition at the time of the accident. Only 10 (11 %) victims had extra clothing. 74 victims (80%) were not wearing shoes and 3 (3 %) had only one shoe.

Severe injuries were regarded to be contributing factors to death in 14 cases (6 males and 8 females) and heart disease in 2 males (Table 5).

Fractures and/or injuries to inner organs were found in 28 (30%) cases and all victims had suffered minor or more extensive superficial excoriations, bruises, etc.

Presence of glucose in urine was quite common (58 cases, 62 % of those tested) obviously due to the strenuous stress situation. Only two victims suffered from diabetes on the basis of AM information.

Alcohol and/or medicaments did not play any significant role. Classical narcotics were not found, either (Tables 6 and 7).

## **Gender and age distribution of the people on board**

### **1. Passengers and members of the crew**

Based on the latest passenger and crew lists on 4 January, 1996 it is assumed that there were 989 people from 17 countries on board, of which 504 were males, and 485 females (Table 8). More than half (56 %) of them were Swedish and one third (35%) from Estonia.

The distribution of all people on board by gender and age is presented as follows:

Table 9	Number of passengers and crew members
Table 10	Rescued persons
Table 11	All victims
Table 12	Missing victims
Table 13	Identified victims

More than half of the males (52 %) and females (56%) were middle-aged (25-54 years). The number of children (<15 years) or elderly people ( $\geq 75$  years) was small (Table 9).

Only 26 (5 %) of the women, opposite to males (111/22%), were rescued (Table 10). The majority belonged to the age group of 15-44 years. Only 3 % of the males but none of the females over 45 years were rescued.

## 2. Passengers

The distribution of passengers by gender and age is presented as follows:

Table 14	All passengers
Table 15	Rescued passengers
Table 16	Killed passengers
Table 17	Missing passengers
Table 18	Identified passengers

## 3. Members of the crew

The distribution of the members of the crew by gender and age is presented as follows:

Table 19	All crew members
Table 20	Rescued crew members
Table 21	Killed crew members
Table 22	Missing crew members
Table 23	Identified crew members

### Ante-mortem (AM) and post-mortem (PM) data

INTERPOL's victim identification forms were used in collecting AM and PM data. The Finnish DVI-team translated AM forms into Estonian and printed 500 copies. AM information was collected in different countries with the help of the local police. In Estonia, members of the Finnish DVI-team and other Finnish police officers were active in collecting information.

There were 6 PCs for processing AM data and 3 PCs for processing PM data in the identification center. The secretarial staff comprised 10 employees.

PM data were transferred to data base the same day and AM data the same or the following day after being received at the identification center.

Computerized IDENT<sup>R</sup> program for dental and HUID<sup>R</sup> program for other comparisons were applied.

In general, the AM forms were properly filled, e.g. in 98 % of the victims examined and identified in Helsinki. In some cases there were two or more AM forms available. More than half (50/54%) of the victims had a family doctor and more than two thirds (65/70%) a family dentist.

No AM data was available at the time of medicolegal autopsies.

Time schedule of arrival of AM and PM data to the identification center was as follows:

- |                    |  |
|--------------------|--|
| 28 September, 1994 | Disaster.  |
| 30 September, 1994 | First AM forms from Finland and the Netherlands.   |
| 30 September, 1994 | First PM forms.  |
| 05 October, 1994   | Last PM forms.   |
| 07 October, 1994   | Training seminar on completing of AM forms for Estonian police officers in Tallinn by Finnish authorities.                       |
| 09 October, 1994   | Putative identity of about half of the victims. Collecting information of these cases was speeded up both in Sweden and Estonia. |
| 17 October, 1994   | One victim found in Jussarö, Finland.  |
| 31 October, 1994   | All victims identified. AM form missing in 172 cases.  |
| January, 1995      | 47 AM forms from Estonia. Information collected by a member of the Finnish DVI-team.   |
| 17 May, 1995       | The last AM form from Estonia.   |
| 04 January, 1996   | No AM information available in 2 cases and very insufficient in 1 case.  |

AM dental data missing in 211 cases (21%). Most of these victims are from Estonia (Table 24).

After 17 October, 1994 no further Estonia-victims have been found.

## Identification

In the identification the procedure presented in Interpol's Manual for Disaster Victim Identification was used as a starting point. The identification document was produced at the identification sessions. The executive group of the DVI-team (head, police officer, forensic pathologist and forensic dentist), one or two



presenters (police officers), the police officer responsible for collecting post-mortem information, a session secretary and a secretary preparing the identification document were present. The identification document was signed by the members of the executive group.

The first identification session was a demonstration where the strategy of the procedure was agreed.

At the following ten identification sessions all 93 victims were identified by 31 October, 1994, i.e. within 33 days of the disaster (Table 25).

Gender, age (+/- 5-10 years), height (+/- 5 cm), body build and hair colour in addition to specified characteristics were the main characteristics applied in searching the putative identification.

Identification of all Estonia victims was concluded on the basis of one or in many cases several specified and the above mentioned general characteristics.

From specified methods dental identification was most powerful (Table 26). With one exception, all victims of Sweden (97%) were identified by teeth, whereas only 27 % of those from Estonia.

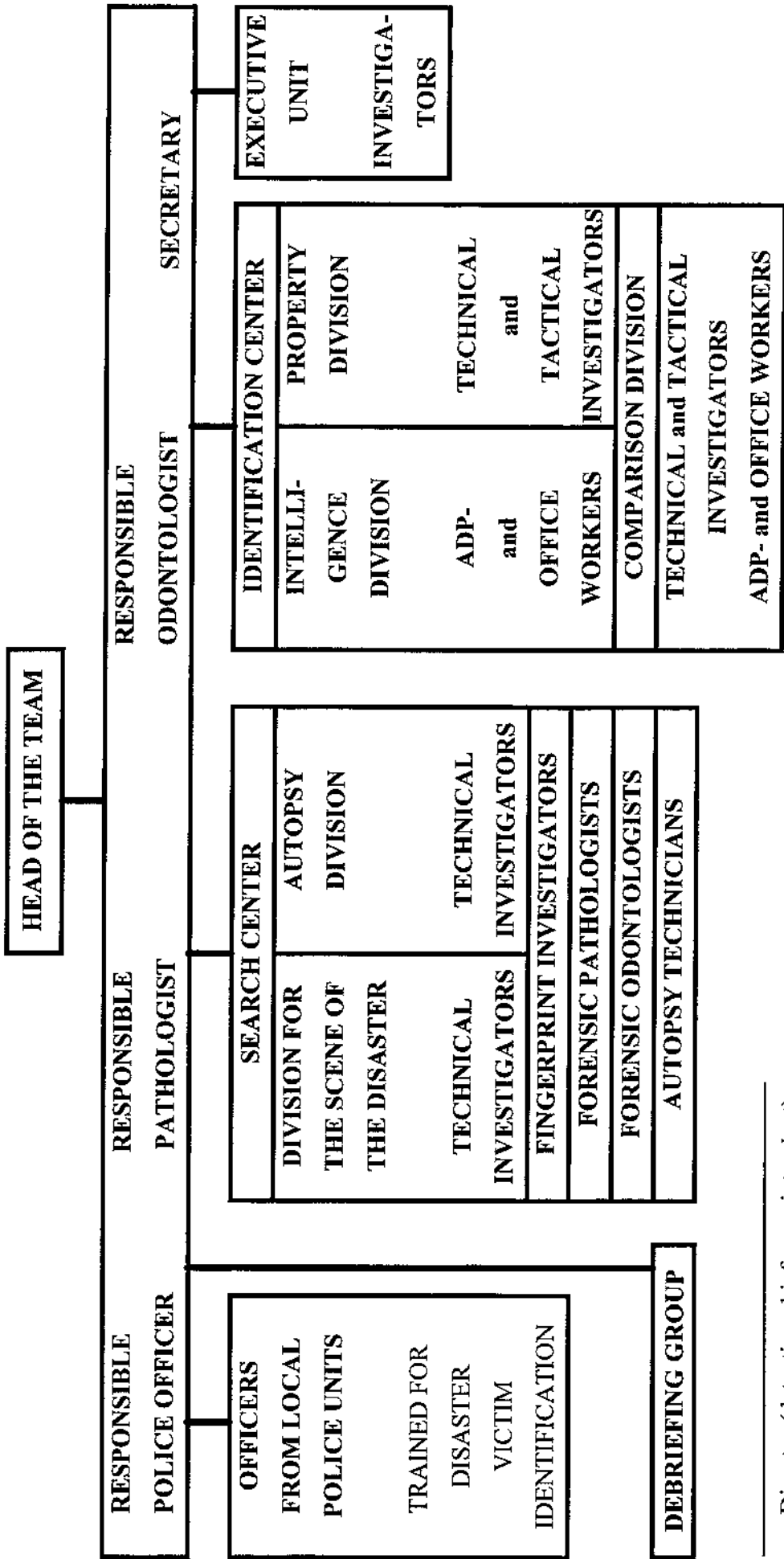
The results of identification by other specified methods are presented as follows:

Table 27	Visual identification by legal documents by members of the DVI-team
Table 28	Visual identification by PM photographs by next to kin
Table 29	Visual identification of crew members by PM photographs by company physician
Table 30	Identification based on specified personal items
Table 31	Identification based on physical characteristics
Table 32	Identification based on characteristics of medical treatment

In Table 33 is summarized identification by visual and dental methods in various combinations. 90 victims (97%) could be identified by combining visual and dental identifications.

ABO/Rh blood group information was obtained in 21 cases (23 %). In 18 of these victims the results matched whereas in 3 cases discrepancy existed.

Table 1. The Finnish DVI-team in 1994



Director (detective chief superintendent)

15 Police officers

2 Forensic pathologists

2 Forensic odontologists

Priest

Psychologist

22 Total

**Table 2. Department of Forensic Medicine, University of Helsinki (1994)****1. Facilities****Building**

built 1974  
 volume 23500 m<sup>3</sup>  
 floor space 6413 m<sup>2</sup>

**Autopsy division**

floor space 464 m<sup>2</sup>  
 3 autopsy rooms with three autopsy tables  
 1 autopsy room with one autopsy table  
 1 orthopantomograph  
 5 x-ray apparatuses

**Morque division**

floor space 486 m<sup>2</sup>  
 refrigerated space (0°C) for 200 cadavers  
 2 refrigerated mobile containers (0°C) for 100 cadavers  
 (after autopsy)

**2. Staff****Pathology section**

7 medical doctors  
 2 medical examiners (province of Uusimaa)  
 8 autopsy technicians  
 4 laboratory technicians  
 7 secretaries

**Odontology section**

3 odontologists (consultants)

**Toxicology section**

1 medical doctor  
 8 chemists  
 7 laboratory technicians  
 1 secretary

**Biochemistry section**

1 chemist  
 2 laboratory technicians

**DNA laboratory**

1 laboratory technician

**Diverse**

13 employees

**Total 61 employees****3. Public services**

<b>Medicolegal autopsies</b>	2276
<b>Toxicological analyses (number of cases)</b>	4406
<b>Biochemical analyses (number of cases)</b>	326
<b>Histological slides</b>	20483
<b>DNA analyses (number of cases)</b>	4
<b>Clinical forensic examinations</b>	3288
<b>Forensic odontological examinations</b>	113

**Table 3. M/S Estonia medicolegal autopsy schedule**

Time	Estonia <sup>a)</sup> autopsies	Routine <sup>b)</sup> autopsies
Disaster Wed 28 Sep 1994		
Fri 30 Sep 1994	1 <sup>c)</sup> + 6	7
Sat 01 Oct	15	
Sun 02 Oct	20	
Mon 03 Oct	20	8
Tue 04 Oct	20	4
Wed 05 Oct	10	14
Mon 17 Oct	1 <sup>d)</sup>	9
Total	93	42

a) performed between 08 a.m. and 06 p.m.

b) performed before 08 a.m. or after 06 p.m.

c) demonstration autopsy

d) the victim was found on 17 October

**Table 4. Storage of corpses and working order of medicolegal autopsies**


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**Storage** in cardboard coffins at 0°C

**External examination**

Clothes, property  
 Finger prints  
 Medical examination  
 Photography

**Internal examination**

Medicolegal autopsy	
Photography	
Samples	
Toxicology	blood, vitreous humor, urine, liver, stomach content other after consideration
Microscopy	4 samples of lungs other after consideration
Biochemistry	vitreous humor, urine
Serology	blood
DNA	blood

Radiology after consideration

Autopsy protocol  
 Interpol form

Final autopsy report  
 Death certificate

**Odontological examination**

Photography  
 Orthopantomography  
 Clinical examination

Interpol form

**Embalming**

**Storage** in refrigerated containers at 0°C at the Department of Forensic Medicine

**Long-term storage** in wooden coffins at an installed morque at 0°C

**Re-examination** (5 cases)

**Repatriation** of victims to authorities of respective countries

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**Table 5. Cause of death**

Underlying cause	Males n	Females n	Total n
<b>Drowning</b>	<b>35</b>	<b>34</b>	<b>69</b>
<b>Contributing factor</b>			
Hypothermia	35	34	69
Injuries	6	8	14
Heart disease	2	-	2
<b>Hypothermia</b>	<b>16</b>	<b>6</b>	<b>22</b>
<b>Contributing factor</b>			
Heart disease	2	-	2
<b>Injuries</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>Contributing factor</b>			
Hypothermia	1	-	1
<b>Total</b>	<b>52</b>	<b>41</b>	<b>93</b>

**Table 6. Blood alcohol concentration (o/oo) of victims**

Concentration	Males		Females		Total	
	n	%	n	%	n	%
0	40	77	40	98	80	86
0.35 - 0.5	9	17	1	2	10	11
0.5 - 0.99	3	6	-		3	3
<b>Total</b>	<b>52</b>	<b>100</b>	<b>41</b>	<b>100</b>	<b>93</b>	<b>100</b>

**Table 7. Medicaments and narcotica**

Medicament	Males n	Females n	Total n
Cardiovascular	6	2	8
Psychotropic	-	3	3
Analgetic	1	1	2
Cough and COCD preparations	-	2	2
Narcotica	-	-	-
<b>Total</b>	<b>7</b>	<b>8</b>	<b>15</b>

**Table 8. Nationality**

Country	Total	Rescued	Missing victims	Identified victims
	n	n	n	n
Belarus	1		1	
Canada	1		1	
Denmark	6	1	5	
Estonia	348	63	237	48
Finland	13	3	9	1
France	1		1	
Germany	8	3	4	1
Latvia	23	6	13	4
Lithuania	4	1	3	
Morocco	2		2	
Netherlands	2	1	1	
Nigeria	1		1	
Norway	9	3	6	
Russia	13	2	10	1
Sweden	553	52	462	39
Ukraine	2	1	1	
United Kingdom	2	1	1	
Total	n	137	758	94
	%	14	77	10



**Table 9. Number of passengers + crew members**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	9	2	6	1	15	2
15-19	20	4	20	4	40	4
20-24	60	12	40	8	100	10
25-34	85	17	77	16	162	16
35-44	98	19	85	18	183	19
45-54	82	16	106	22	188	19
55-64	61	12	73	15	134	14
65-74	76	15	69	14	145	15
≥ 75	13	3	9	2	22	2
<b>Total</b>	<b>504</b>	<b>100</b>	<b>485</b>	<b>100</b>	<b>989</b>	<b>101</b>

**Table 10. Distribution of rescued people at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	1	11	0		1	7
15-19	7	35	2	10	9	23
20-24	26	43	4	10	30	30
25-34	25	29	10	13	35	22
35-44	30	31	6	7	36	20
45-54	16	20	3	3	19	10
55-64	4	7	1	1	5	4
65-74	2	3	0		2	1
≥ 75	0		0		0	
<b>Total</b>	<b>111</b>	<b>22</b>	<b>26</b>	<b>5</b>	<b>137</b>	<b>14</b>

**Table 11. Missing and identified victims at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	8	89	6	100	14	93
15-19	13	65	18	90	31	78
20-24	34	57	36	90	70	70
25-34	60	71	67	87	127	78
35-44	68	69	79	93	147	80
45-54	66	80	103	97	169	90
55-64	57	93	72	99	129	96
65-74	74	97	69	100	143	99
≥ 75	13	100	9	100	22	100
<b>Total</b>	<b>393</b>	<b>78</b>	<b>459</b>	<b>95</b>	<b>852</b>	<b>86</b>

**Table 12. Missing victims at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	8	89	6	100	14	93
15-19	13	65	16	80	29	73
20-24	26	43	33	83	59	59
25-34	49	58	59	77	108	67
35-44	56	57	63	74	119	65
45-54	56	68	95	90	151	80
55-64	50	82	68	93	118	88
65-74	70	92	69	100	139	96
≥ 75	13	100	9	100	22	100
<b>Total</b>	<b>341</b>	<b>67</b>	<b>418</b>	<b>86</b>	<b>759</b>	<b>77</b>

**Table 13. Identified victims at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	0		2	10	2	5
20-24	8	13	3	8	11	11
25-34	11	13	8	10	19	12
35-44	12	12	16	19	28	15
45-54	10	12	8	8	18	10
55-64	7	11	4	5	11	8
65-74	4	5	0		4	3
<b>Total</b>	<b>52 +1<sup>a)</sup></b>	<b>11</b>	<b>41</b>	<b>8</b>	<b>93 +1<sup>a)</sup></b>	<b>10</b>

a) One victim examined and identified in Stockholm, Sweden

**Table 14. Assumed number of passengers**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	9	2	6	2	15	2
15-19	18	4	13	3	31	4
20-24	40	10	18	5	58	7
25-34	57	14	52	14	109	14
35-44	77	18	53	14	130	16
45-54	68	16	92	24	160	20
55-64	60	14	73	19	133	17
65-74	76	18	69	18	145	18
≥ 75	13	3	9	2	22	3
Total	418	99	385	101	803	101

**Table 15. Rescued passengers at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	1	11	0		1	7
15-19	6	33	1	8	7	23
20-24	18	45	1	6	19	33
25-34	16	28	6	12	22	20
35-44	21	27	3	6	24	18
45-54	12	18	2	2	14	9
55-64	4	7	1	1	5	4
65-74	2	3			2	1
≥ 75	0		0		0	
Total	80	19	14	4	94	12

**Table 16. Missing and identified passengers at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	8	89	6	100	14	93
15-19	12	67	12	92	24	77
20-24	22	55	17	94	39	67
25-34	41	72	46	88	87	80
35-44	56	73	50	94	106	82
45-54	56	82	90	98	146	91
55-64	56	93	72	99	128	96
65-74	74	97	69	100	143	99
≥ 75	13	100	9	100	22	100
<b>Total</b>	<b>338</b>	<b>81</b>	<b>371</b>	<b>96</b>	<b>709</b>	<b>88</b>

**Table 17. Missing passengers at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
< 15	8	89	6	100	14	93
15-19	12	67	11	85	23	74
20-24	19	48	17	94	36	62
25-34	38	67	44	85	82	75
35-44	45	58	41	77	86	66
45-54	50	74	84	91	134	84
55-64	49	82	68	93	117	88
65-74	70	92	69	100	139	96
≥ 75	13	100	9	100	22	100
<b>Total</b>	<b>304</b>	<b>73</b>	<b>349</b>	<b>91</b>	<b>653</b>	<b>93</b>

**Table 18. Identified passengers at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	0		1	8	1	3
20-24	3	8	0		3	5
25-34	3	5	2	4	5	5
35-44	11	14	9	17	20	15
45-54	6	9	6	7	12	8
55-64	7	12	4	5	11	8
65-74	4	5	0		4	3
<b>Total</b>	<b>34 +1<sup>a)</sup></b>	<b>8</b>	<b>22</b>	<b>6</b>	<b>56</b>	<b>7</b>

<sup>a)</sup>One victim examined and identified in Stockholm, Sweden

**Table 19. Members of the crew**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	2	2	7	7	9	5
20-24	20	23	22	22	42	23
25-34	28	33	25	25	53	28
35-44	21	24	32	32	53	28
45-54	14	16	14	14	28	15
55-64	1	1	0		1	1
<b>Total</b>	<b>86</b>	<b>99</b>	<b>100</b>	<b>100</b>	<b>186</b>	<b>100</b>

**Table 20. Rescued members of the crew at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	1	50	1	14	2	22
20-24	8	40	3	14	11	26
25-34	9	32	4	16	13	25
35-44	9	43	3	9	12	23
45-54	4	29	1	7	5	18
55-64	0				0	
<b>Total</b>	<b>31</b>	<b>36</b>	<b>12</b>	<b>12</b>	<b>43</b>	<b>23</b>

**Table 21. Missing and identified members of the crew at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	1	50	6	86	7	78
20-24	12	60	19	86	31	74
25-34	19	68	21	84	40	75
35-44	12	57	29	91	41	77
45-54	10	71	13	93	23	82
55-64	1	100			1	100
<b>Total</b>	<b>55</b>	<b>64</b>	<b>88</b>	<b>88</b>	<b>143</b>	<b>77</b>

**Table 22. Missing members of the crew at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	1	50	5	71	6	67
20-24	7	35	16	73	23	55
25-34	11	39	15	60	26	49
35-44	11	52	22	69	33	62
45-54	6	43	11	79	17	61
55-64	1	100			1	100
<b>Total</b>	<b>37</b>	<b>43</b>	<b>69</b>	<b>69</b>	<b>106</b>	<b>57</b>



**Table 23. Identified members of the crew at different age groups**

Age (yrs)	Males		Females		Total	
	n	%	n	%	n	%
15-19	0		1	14	1	11
20-24	5	25	3	14	8	19
25-34	8	29	6	24	14	26
35-44	1	5	7	22	8	15
45-54	4	29	2	14	6	21
55-64	0				0	
Total	18	21	19	19	37	20

**Table 24. Missing ante-mortem dental data by  
4 January 1996**

Country	Missing AM dental data	
	n	%
Belarus	1	100
Canada	-	
Denmark	3	50
Estonia	148	43
Finland	1	8
France	-	
Germany	-	
Latvia	10	43
Lithuania	3	75
Morocco	1	50
Netherlands	-	
Nigeria	1	100
Norway	-	
Russia	7	54
Sweden	34	6
Ukraine	1	50
United Kingdom	1	50
<b>Total</b>	<b>211</b>	<b>21</b>

**Table 25. Identification schedule**

Time		n	Cumulative	
			n	%
Disaster Wed 28 Sep 1994				
Mon	10 Oct 1994	10	10	11
Tue	11 Oct	14	24	26
Thu	13 Oct	24	48	52
Fri	14 Oct	5	53	57
Mon	17 Oct	7	60	65
Tue	18 Oct	10	70	75
Fri	21 Oct	7	77	83
Tue	25 Oct	6	83	89
Thu	27 Oct	8	91	98
Mon	31 Oct	2	93	100
10 sessions		93	93	100

**Table 26. Dental identification**

Country	Victims n	Dental identification		Dental comparison	
		n	%	n	%
Estonia	48	13	27	12	25
Sweden	38	37	97	1	3
Latvia	4	3	75	1	25
Finland	1	1	100	-	-
Germany	1	1	100	-	-
Russia	1	1	100	-	-
Total	93	56	60	14	15

**Table 27. Visual identification (various legal documents)**

Identification	Males	Females	Total
	n	n	n
Yes	13	9 <sup>a)</sup>	22
No documents	39	32	71
<b>Total</b>	<b>52</b>	<b>41</b>	<b>93</b>

a) One victim originally incorrectly identified

**Table 28. Visual identification by next to kin (PM photograph)**

Country	Identification	
	n	%
Estonia	45	94
Sweden	5	13
Germany	1	100
Russia	1	100
<b>Total</b>	<b>52</b>	<b>56</b>

**Table 29. Visual identification of crew members by company physician (PM photograph)**

Identification	n
Definitive	10
Highly probable	5
Probable crew member	2
Incorrect	2
No identification	18
<b>Total</b>	<b>37</b>

**Table 30. Identification based on personal items**

Item	n
Specified ring	13
Several specified rings	11
Specified watch	2
Specified necklaces	1
Clothing + shoes	1
Specified jewellery	1
Watch + keys	1
Buckle of belt	1
Belt	1
Combinations	4
<b>Total</b>	<b>36</b>

**Table 31. Identification based on physical characteristics**

Characteristic	n
Specified tattoo	6
Birthmark (face)	5
Birthmark (other)	3
Freckles	1
Specified body build	1
Moustache	1
Face + moustache + height	1
Exceptional anatomy of mandible	1
Posttraumatic status (fingertip)	1
<b>Total</b>	<b>20</b>

**Table 32. Identification based on characteristics of medical treatment**

Characteristic	n
Operations/scars	15
Pace maker	2
Orthodontic appliance	1
<b>Total</b>	<b>18</b>

**Table 33. Identification by visual and dental methods**

<b>Method</b>	<b>n</b>	<b>Cumulative</b>	
		<b>n</b>	<b>%</b>
<b>Visual</b>			
company physician	15		
legal document	22		
next to kin	52		
company physician/legal document		32	34
company physician/legal document/next to kin		59	63
<b>Dental</b>	56		
dental/visual (company physician)		65	70
dental/visual (legal document)		69	74
dental/visual (company physician/legal document)		75	81
dental/visual (next to kin)		89	96
dental/visual (company physician/legal document/next to kin)		90	97
<b>Other methods</b>		93	100
<b>Total of victims</b>	93	93	100