



**Aviation Safety Council
Taipei, Taiwan**

**CI611 Accident Investigation
Factual Data Collection
Group Report**

Injury Documentations Group

June 03, 2003

ASC-AFR-03-06-001

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I. Team Organization

Chairman:

James Fang / Investigator, ASC, ROC

Members:

1. Dr. Kai-Ping Shaw, M.D., Ph.D. / Chairman of Department of Forensic Pathology, Institute of Forensic Medicine, Minister of Justice, ROC
2. Cynthia L. Keegan / Investigator/Survival Factors Engineer, Office of Aviation Safety, NTSB, USA
3. Frank Ciaccio / Manager-Forensic Sciences, Office of Transportation Disaster Assistance, NTSB, USA
4. Pei-Da Lin / Engineer, ASC, ROC
5. Sherry Liu / Engineer, ASC, ROC

II. History of Activities

Date	Description
05/26/02	● Injury Documentation Group established.
05/26/02 ~ 06/30/02	● Collected the records of victims' injury description and photos from the examinations by the forensic science doctors.
07/02/02 ~ 07/12/02	● A survival factors engineer and a forensic science specialist of NTSB, USA joined the group. ● Collected more than 150 victims' pictures and injury records.
08/15/02 ~ 09/30/02	● Established injury pattern database.

III. Factual Description

1.2 Injuries to Persons

The CI611 aircraft had 3 Flight Crew Seats and 2 Observer Seats in cockpit (no observer in this flight), 16 Cabin Crew Jump Seats, 22 First Class Seats, 16 Business Class seats in Upper Deck, 30 Business Class seats and 288 Coach Class Seats in the main Deck. The cabin is divided into 6 zones –Zone A to E, and Zone UD as shown in Figure 1.2-1.

There were three flight crewmembers, sixteen cabin crewmembers and 206 (including 3 infants) passengers on board. The seat assignment for each passenger was obtained from the CAL, Flight CI611 passenger manifest. Passengers might change their seats or moved since the aircraft was not full. Cockpit flight crewmembers were seated according to their assigned positions. Seat assignment of the sixteen cabin crewmembers were provided by CAL, however, according to CAL, the cabin crewmembers could be out of their seats performing cabin service at the time of the accident.

The Cockpit Voice Recorder (CVR) revealed that the Captain had turned off the “Fasten Seat Belt” sign prior to the accident; therefore passengers might have been moved around the cabin or might have changed seats prior to the accident. The CVR also indicated that the Captain had announced and advised the cabin crewmembers to begin service prior to the accident.

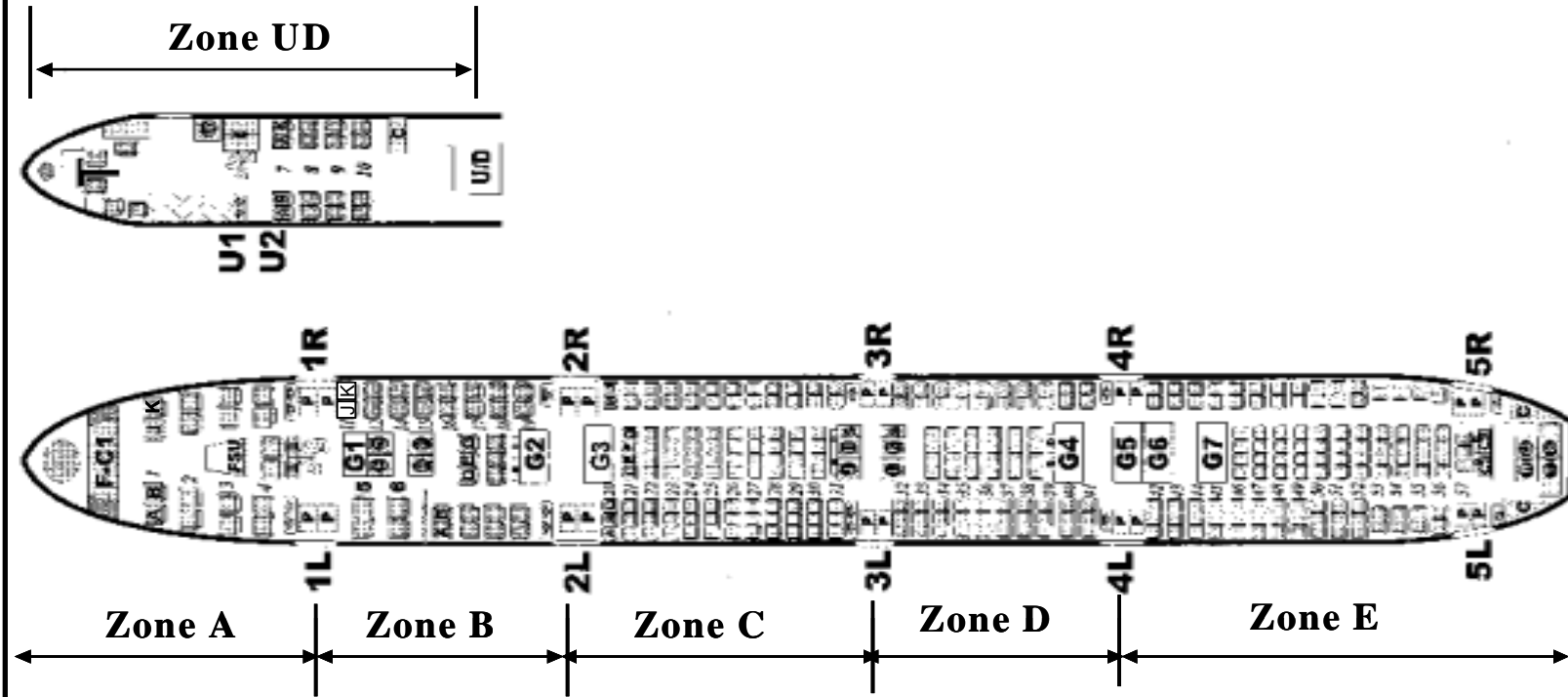
Figure1.2-2 shows the distribution of recovered/non-recovered victim’s assigned seats provided by China Airlines.

All 206 passengers and 19 crewmembers aboard CI 611 were fatally injured. The injury distribution is summarized in Table 1.2-1:

Table 1.2-1 Injury table

Injuries	Flight Crew	Cabin Crew	Passengers	Other	Total
Fatal	3	16	206	0	225
Serious	0	0	0	0	0
Minor	0	0	0	0	0
None	0	0	0	0	0
Total	3	16	206	0	225

CI 611 Cabin Configuration Diagram



T— Toilet
C— Coat Closet
FSU— Flight Service Unit
G— Galley

22 First Class Seats
16 Business Class Upper Deck
30 Business Class Lower Deck

3 Flight Crew Seats
16 Cabin Crew Jump Seats
288 Coach Class Seats

Figure 1.2-1 Cabin Configuration Diagram

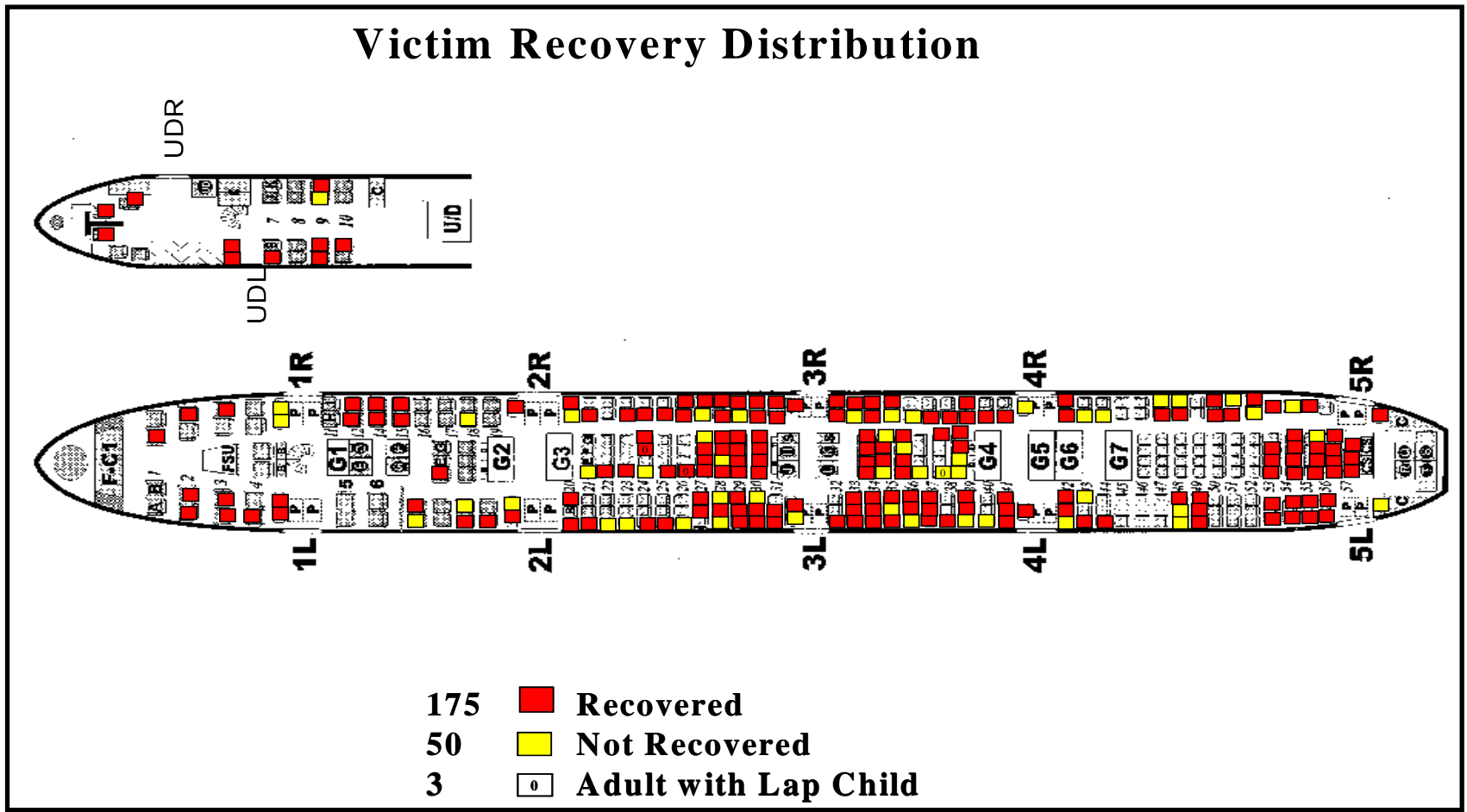


Figure 1.2-2 Victim Recovery Distributions

1.13 Medical and Pathological Information

1.13.1 Victim Recovery, Examination and Identification

Of the 225 passengers and crew on board, remains of 175 were recovered and identified. The remains of the victims were recovered either by surface vessels, or by the wreckage recovery vessels. They were brought to a makeshift morgue at a gymnasium of Makung Air Force Base. The first 82 bodies were found floating on the ocean surface of the Taiwan Strait and were recovered by fishing boats, Coast Guard and military vessels. Contracted recovery vessels were subsequently utilized for the recovery of the aircraft wreckage and the remaining victims' body.

The recovered bodies were placed in body bags and transported by Coast Guard boats to the makeshift morgue staffed by the Makung local Prosecutor, the Makung local Coroner, the Kaoshiung Prosecutor and Coroner, the coroner of Institute of Forensics Medicine, and Dental Consultants from Dental Union of Taiwan.

Each body was assigned a recovery number according to the order transported to the morgue (number 1 being the first body assigned). ASC investigators then correlated the bodies with their assigned seat (according to the China Airlines CI611 passenger manifest). The victim's bodies were photographed; their clothing and possessions were cataloged and returned to the victim's families. The victims were identified by visual identification, personal effects, fingerprints, dental examination, and DNA testing.

The three recovered flight crewmember bodies were autopsied; however, none of the passenger and cabin crewmember bodies were autopsied. The ASC has no legal authority to request the local prosecutor to perform autopsy.

Only ten bodies plus few human remains of the cabin crewmembers and passengers were examined using X-ray in the makeshift morgue.

1.13.2 Toxicological Examination of Flight Crew

The Makung Coroner and Dental Team collected specimens for toxicological examination from the Captain, the First Officer and the Flight Engineer. Specimens were submitted to the Institute of Forensics Medicine in Taipei for examination. No positive toxicological responses were found.

1.13.3 Victims' Injury Information

Injury data, pertinent recovery data and assigned seating locations were correlated for each identified victim. Victim's records included the body diagrams, injury protocol, photographs of the bodies, documents related to the recovery, and identification of the individuals were reviewed by the group members.

Some of the victims had expansion of lung tissue, subcutaneous emphysema, bleeding on nose and mouth. There was no carbon remains found on any of the recovered bodies or their clothes. (No sign of fire burning and blast damage were found.) Most of the victims had extensive injuries, and consistencies were found with head injuries, tibia and fibula fractures, significant back abrasion, right versus left sided injuries, pelvic injuries and other more traumatic injuries. In general, most of bodies were nearly intact except for fractured bones when they were recovered.

Consequently, the group examined the types of injuries. An injury pattern database for CI611 accident has been created to document all injury types.

1.13.3.1 Clothing Condition of Recovered Victims' Bodies

Figure 1.13-1 shows the clothing condition of the recovered victims. They were coded as: naked, partially clothed and fully clothed.

There were a high percentage of the naked passengers whose assigned seats were located between Zone D and E. There were also a high percentage of the fully clothed passengers that were assigned seats located between Zone A and C.

1.13.3.2 Floating vs. Non-Floating of Recovered Victims

Figure 1.13-2 represents the floating and non-floating victims and depicts the assigned seats of the individuals that were initially found floating on the surface of the ocean, and the victims that were later found on the bottom of the ocean floor with the wreckage. The figure also shows the victim's assigned seats whose bodies were later (after May 27, 2002) found after they had decomposed and floated to the surface of the Taiwan Straits.

Among the 82 bodies found floating on the ocean surface 76 were passengers, 6 were cabin crewmembers, and none were flight crewmembers.

There were a high (93%) percentage of passengers who were initially found floating on top of the ocean with assigned seats located between rows 42 and 57 (Zone E) in the cabin.

1.13.3.3 Injury Predominance: Right vs. Left of Victim

Occupants with injuries predominantly on the right or left side of their bodies were charted in their assigned seats. Ten occupants had predominantly right-sided injuries while 10 occupants had predominantly left sided injuries are shown in Figure 1.13-3.

1.13.3.4 Tibia/Fibula Fractures of Victim

Injuries of the stronger tibia and fibula leg bones, the longer bones in the lower body, are shown in Figure 1.13-4.

1.13.3.5 Back and Hand Abrasion Injuries

The abrasion of the epidermal layer of skin on the victims back was found on 26 of the recovered victims' bodies and bruises were found on 47 of the victim's hands. Neither the epidermal layer of the victims back injuries nor the hand abrasion injuries were found on any of the recovered victims whose bodies were recovered from the ocean after May 27, 2002. Those victims' bodies were too badly decomposed to observe such abrasion or dermal injuries. Figure 1.13-5 shows the distribution of victim's assigned seats with back abrasion and hand abrasion injuries.

Clothing Situation Distribution

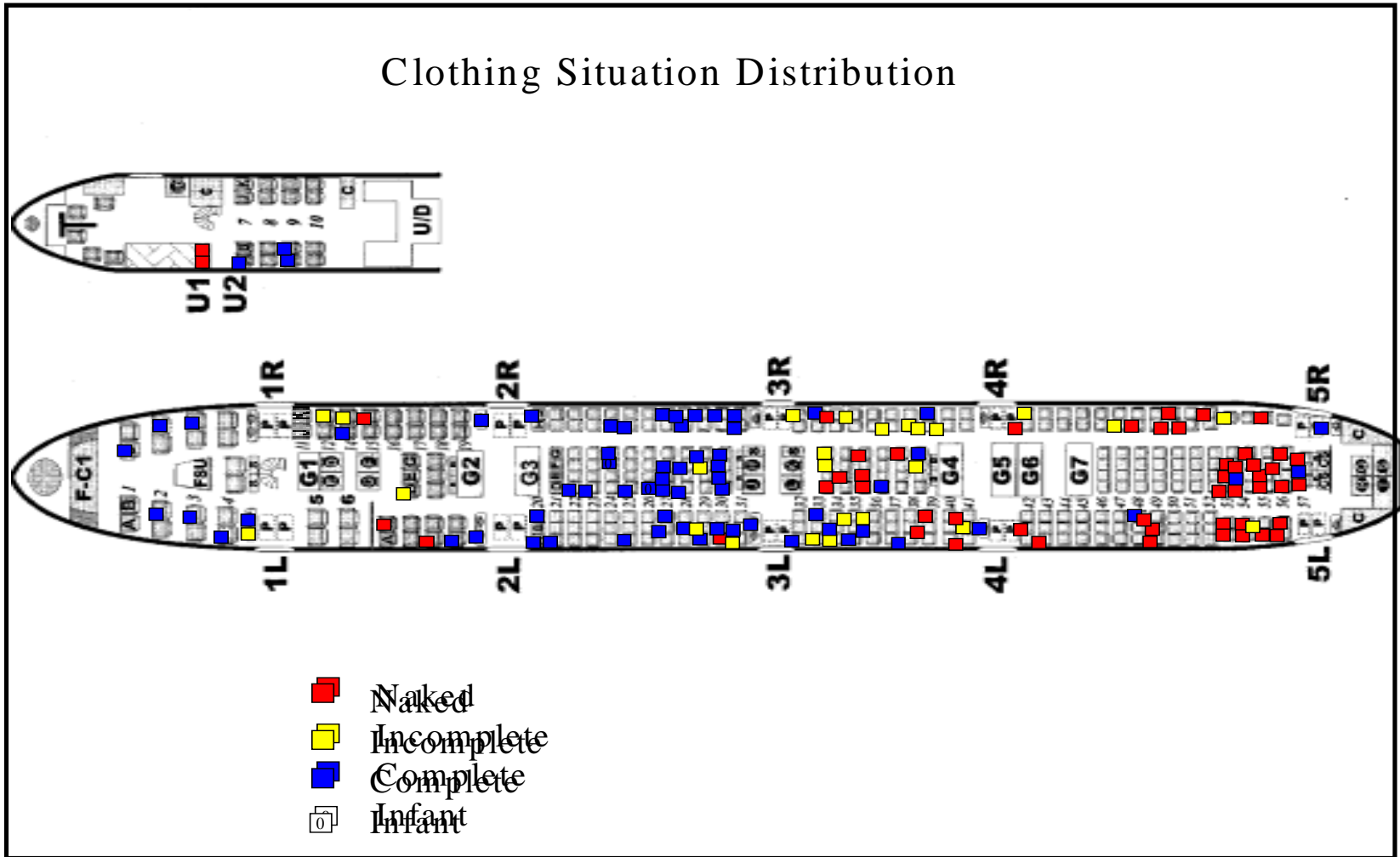


Figure 1.13-1 Clothing Situation Distributions

Floating/Non Floating Victims Assigned Seat

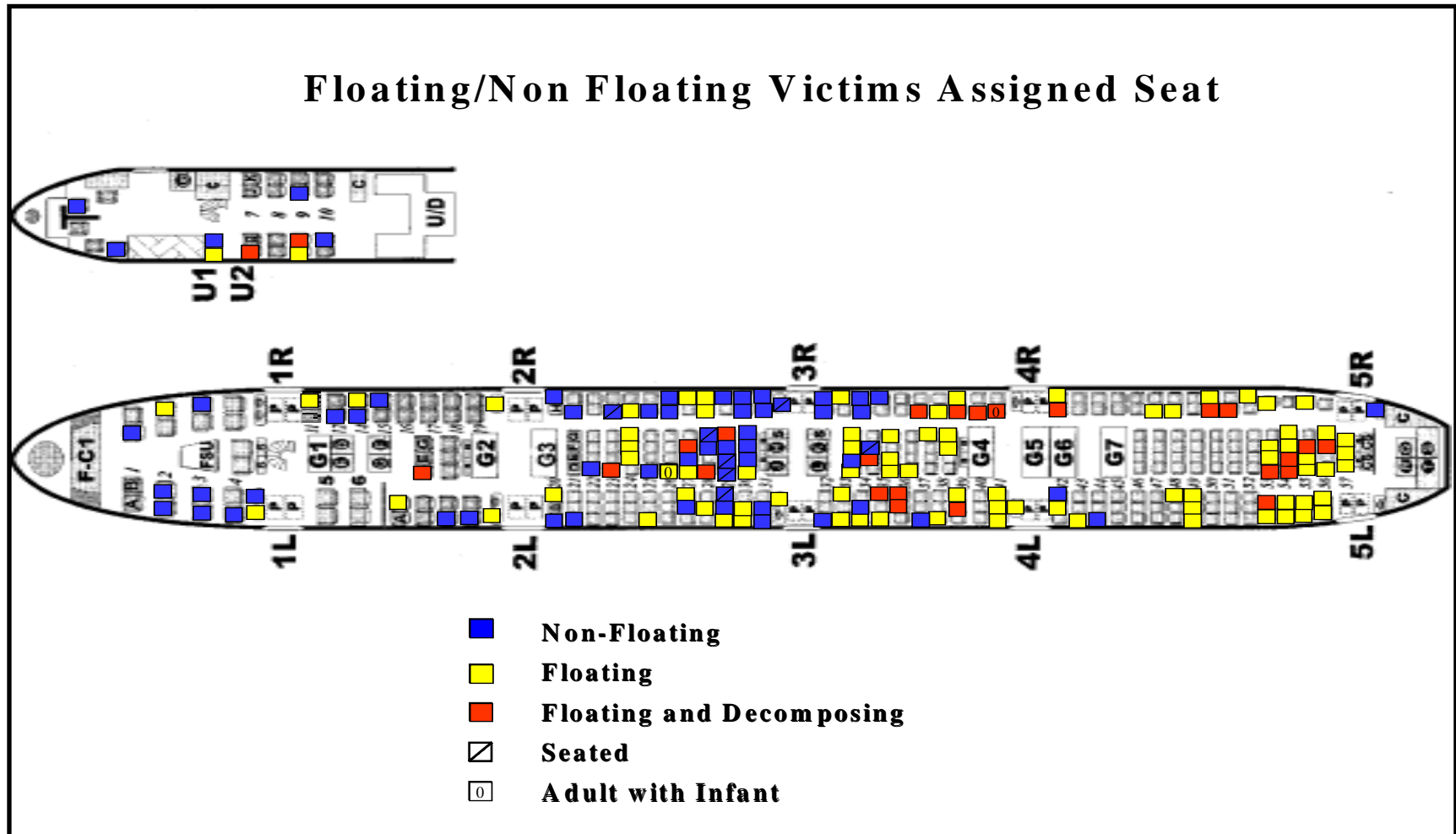


Figure 1.13-2 Floating/None Floating of Recovered Victim

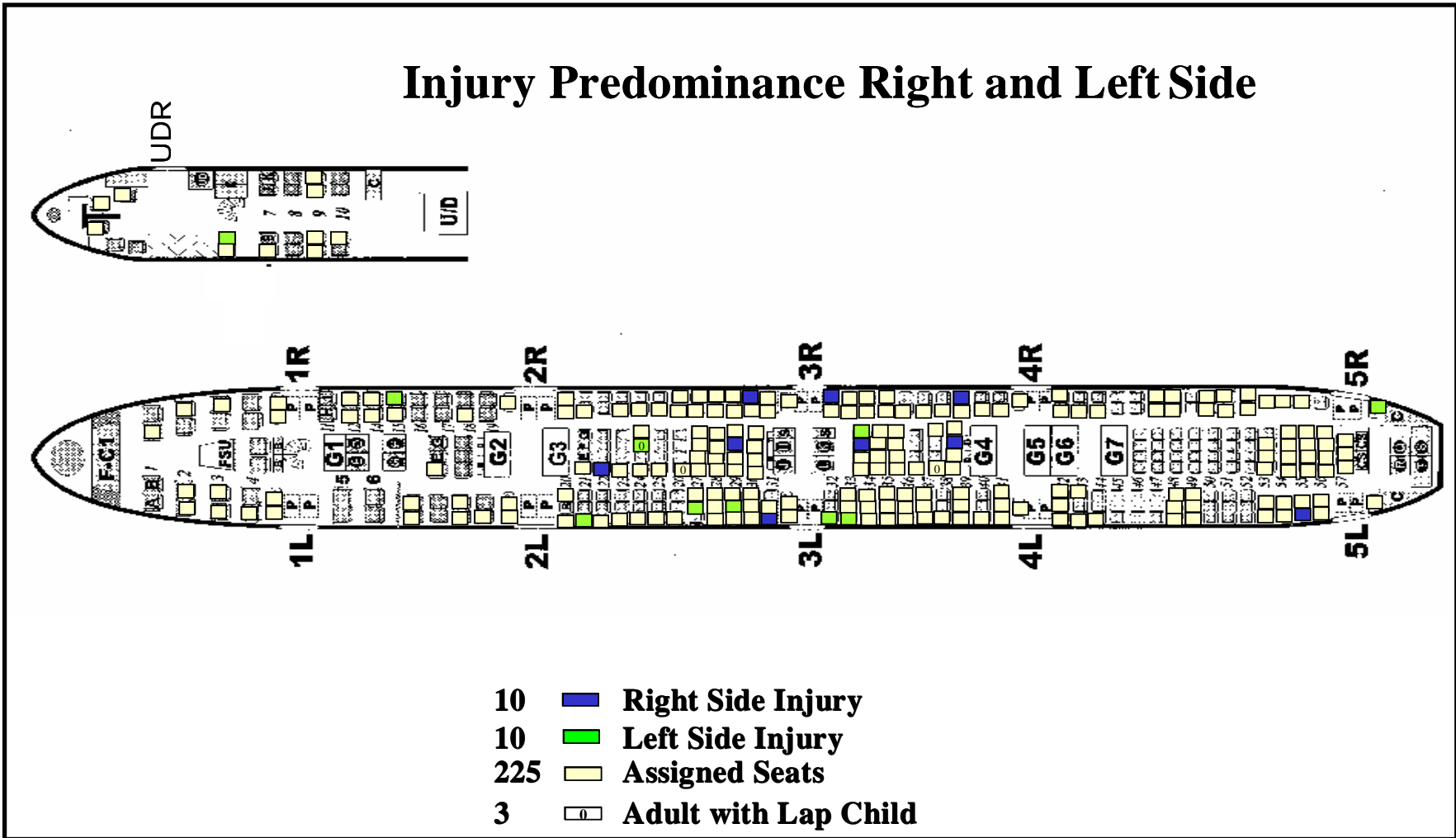


Figure 1.13-3 Injury Predominance: Right vs. Left

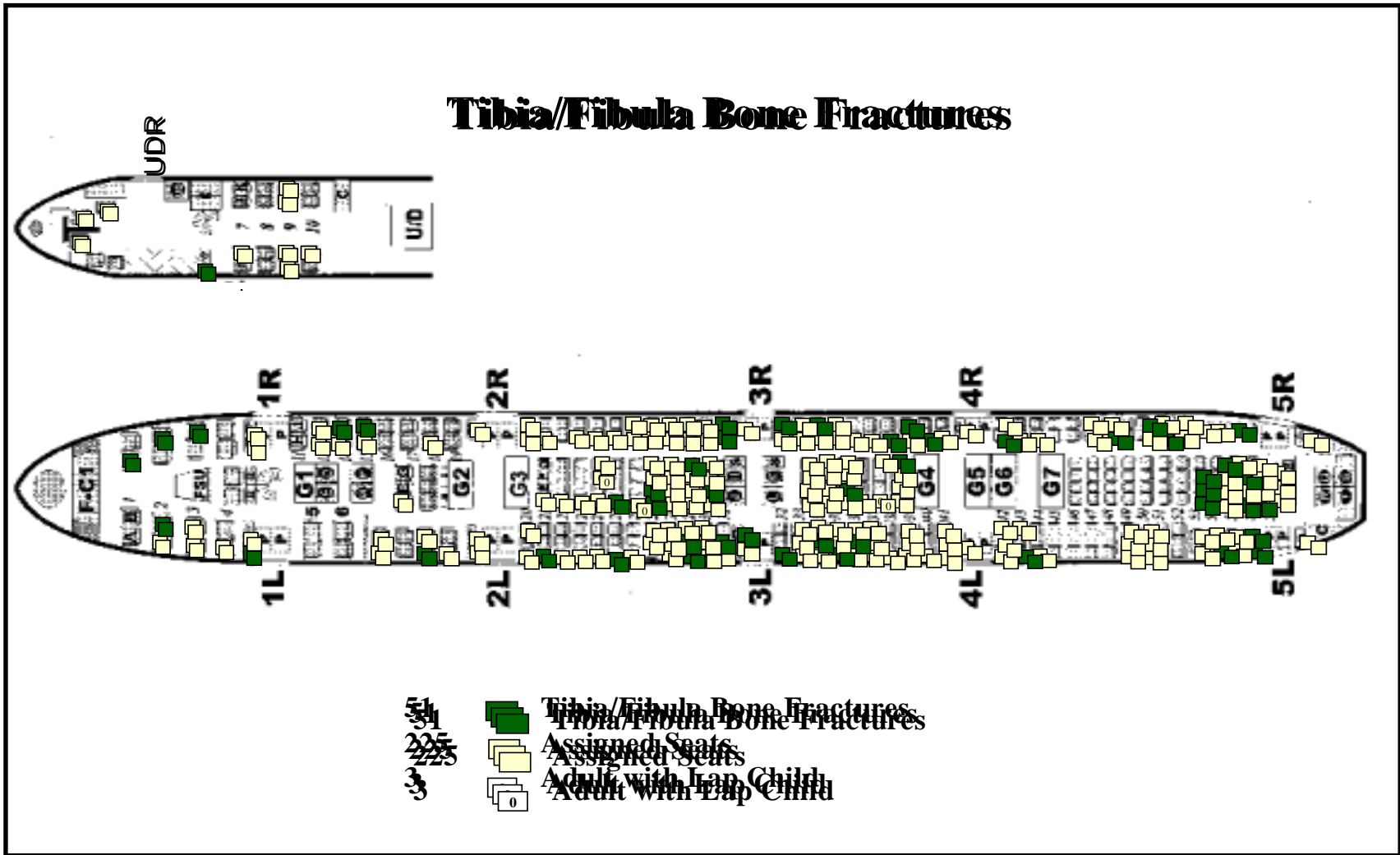


Figure 1.13-4 Tibia/Fibula Fractures

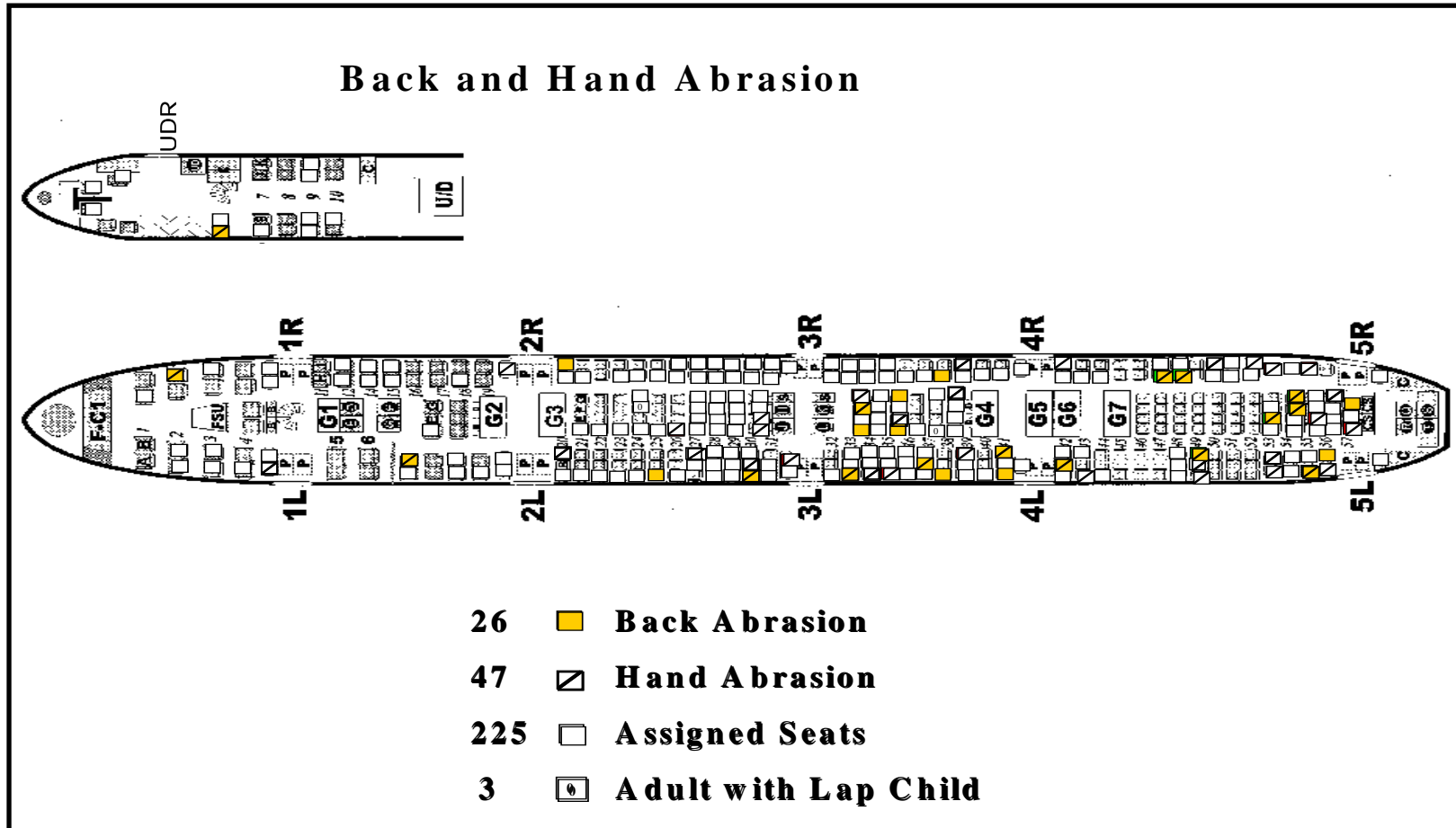


Figure 1.13-5 Back and Hand Abrasion Injuries

1.13.4 Injury Pattern

The other injury pattern of the victims' body have been recovered and stored in the Injury Documentations Database. (See Attachment 5-1)

IV. Attachments

No	Item
5-1	CI611 Accident Injury Documentation Database

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