

## PREHOSPITAL CARE

# Emergencies in the air

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Medical emergencies in the air are topical. This study, undertaken by the Faculty of Prehospital Care at the Royal College of Surgeons of Edinburgh, analyses retrospectively consecutive medical emergencies occurring over a 6 month period on a single major international airline. Clinical problems are related to pre-existing problems (65%), new medical problems (28%), and traumatic injury (7%). The paper highlights the need for better pre-flight health advice and screening, a reminder to carry personal medication—especially for asthma—and the need to include ankle and leg exercises prior to getting out of the seat to reduce the incidence of syncope, which was responsible for 91% of new medical problems.

Medical issues surrounding air travel such as thromboembolic events and defibrillation have gained increasing publicity. The British Medical Association has recently raised concerns over training of flight staff and equipment carried during flights. The data on in-flight emergencies remains limited including preventative health measures.

Cabin crew for this carrier receive 30 hours of training in first aid and basic life support during their introductory training period which is followed by annual updates. Senior aircrew, usually the purser are trained in the use of an automated defibrillator. The aircraft carries a first aid kit that all cabin crew are trained to use. In addition there is a medical kit which can be used by any doctor, nurse or paramedic who may respond to an assistance call. In addition in-flight advice is available from Medlink, which is one of a number of independent commercial companies to give direct advice including medical diversion and to arrange support for patients on landing.

### METHODS

Voyage Report Forms are completed for each in-flight medical emergency and are collated by a single department. This study reports all in-flight medical emergencies occurring between June 2002 and December 2002 from a single major International Carrier.

### RESULTS

507 forms were completed over the 6 month period and all were available for analysis. The categories of problems identified and the action taken are detailed in table 1.

Subgroup analysis of pre-existing medical problems are summarised in table 2.

Pre-existing respiratory disease was the largest causal factor in this subgroup where 50% of the patients suffered asthma attacks. One third of patients suffering an asthma attack and 6% of the total respiratory group had forgotten their medication or it was packed in the luggage in the baggage hold.

Cardiovascular emergencies were related to chest pain with the majority suffering angina and most resolving with GTN medication. Of the 46 patients, 10 patients did not carry their medication into the cabin with them. Three patients within this subgroup required flight diversion the clinical details of which are summarised:

1. A 73 year old male, collapsed, pale, clammy, central chest pain. Coronary artery bypass graft 2 years previously, systolic blood pressure 70 mmHg, pulse rate 40 beats per minute. Died in flight following attempted resuscitation.
2. 62 year old male collapsed in seat, cardiopulmonary resuscitation. Chest pain started prior to boarding. Died in flight.
3. Chest pain with left arm radiation and shortness of breath, not responding to treatment.

10% of unwell patients presented with pre-existing abdominal problems. Whilst many were vague abdominal symptoms a third of the patients suffered diarrhoea accompanied by vomiting and had been on a series of connecting flights with symptoms being present before boarding the current flight. Two patients with abdominal pain required flight diversion.

1. Abdominal pain and vomiting commencing after take off, patient becoming unresponsive.
2. 28 week pregnant female. Premature labour.

The miscellaneous problems included such things as migraine, earache, nausea, toothache, backache, joint pains, and general malaise.

Syncope accounted for 91% of all new medical incidents with over half occurring in the aisle shortly after getting up from the sitting position (see table 3).

Trauma was responsible for 7% of the total emergencies of which superficial scalds and falling luggage were a common source of problems (see table 4).

**Table 1** Data recorded

Flight details	Date Section Flight Number
Patient details	Age Incident details
Request for assistance	Medlink called? Public Announcement made?
Treatment	Diagnosis First Aid Kit opened? Emergency Bag opened? Items used
Flight outcome	Supplemental Oxygen given? Medical assistance on arrival Patient offloaded Flight Delayed Flight Diverted

**Table 2** Categories of problems (n = 507)

Exacerbation of pre-existing problem	330	65%
New medical problem	140	28%
Traumatic injury	37	7%

**Table 3** Exacerbation of pre-existing medical problems (n = 330)

Respiratory Problems	69	21%
Cardiovascular Problems	46	14%
Abdominal Problems	33	10%
Forgotten Medication or medication in baggage hold	20	6%
Miscellaneous Problems	162	49%

A request for medical assistance from a doctor, nurse or paramedic was made in 35% of all emergencies. A doctor responded to 75% of requests and nurses and paramedics responded to 11% of cases. Medlink was called upon for advice in 7% of all cases and was contacted before each flight diversion.

## DISCUSSION

These data must be interpreted based on the level of training of the in-flight personnel although in 177 cases there was the benefit of medical, nursing or paramedic support.

The vast majority of in-flight emergencies were due to exacerbation of pre-existing medical problems (65%). Respiratory problems were the most common where reduced cabin pressures and low humidity may be contributory factors.<sup>1-3</sup> 50% of these cases were related to asthma and one third due to forgotten medication. Flight advice is available for certain conditions including diabetes<sup>4</sup> and respiratory distress.<sup>5</sup> Ground staff should be encouraged to refer unwell patients to the airport medical centre to ensure their fitness to fly.<sup>6</sup>

At check in notices should remind passengers of the importance to keep their medication on their person.

Syncope accounted for 25% of all incidents and 91% of all new medical problems, a figure similar to an incidence of 35% recorded in a previous report in 1996.<sup>7</sup> Most of these events occurred when getting up after prolonged sitting.

## CONCLUSION

Exacerbation of pre-existing medical problems accounted for the majority of in-flight emergencies. Pre-flight advice, screening and an increased awareness by ground staff may

**Table 4** New Medical Conditions (n = 140)

Syncope	128	91%
Abdominal Pain	8	6%
Alcohol related problems	3	2%
Headache	1	1%

**Table 5** Trauma (n = 37)

Superficial scalds due to hot drinks	9	24%
Falling luggage	9	24%
Finger caught in toilet door	1	3%
Miscellaneous minor trauma	18	49%

recognise passengers who are medically unfit to fly. Information posters in the check-in area to remind passengers to carry their regular medication on their person may prevent some of the in-flight medical emergencies.

Syncope accounts for 91% of new in-flight emergencies and appear related to a prolonged period of sitting. In-flight advice as part of Deep Venous Thrombosis (DVT) prevention is given on many long haul flights. This advice should also emphasise the importance of an exercise regime prior to getting up from the sitting position to reduce the number of syncopal episodes.

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