

So what if your patient happens to fly?

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So what if your patient happens to fly ?



Your patient is a pilot

- General principles
- Cases
- Doctors legal obligations

Your patient travels by air

- General Principles
- In-flight emergencies

Pilots, not all subject to the same standards



CAA medical certificate,
by designated Medical Examiner

- Class 1: Commercial
- Class 2: Private
- Class 3: Air traffic Controller (ATC)

Non CAA medical certificate, by GP

- NZTA (passenger vehicle): Recreational pilot
- Medical Declaration: Self regulating organisations e.g gliders, microlights, hang gliders etc.

General principles



Flying is foreign to the individual (3 D + time)

Can't stop the aircraft ! – need for planning ahead
Multitasking

- Must have good **cognitive function & Judgment**
 - Fatigue (workload - Jet lag - poor sleep e.g. due to sleep apnoea, or pain, worries)
 - Medication / drug and alcohol
 - Mental Health, behaviour issue
 - Aging

General principles



→ Requires sufficient **physical function** for the task

- Vision
- Hearing
- Limb function
 - Range of movements
 - Power and coordination
 - No distracting / incapacitating pain

General principles



- **Must have low risk of incapacitation (sudden, subtle)**

- Epilepsy, PTE
- CVA
- Migraine
- Vertigo
- Eustachian tube / sinus dysfunction
- Asthma (unstable or severe) / COPD
- Coronary Artery Disease
- Tachy / brady arrhythmia
- Hypotension &
- Vasovagal syncope
- Cholelithiasis
- Renal lithiasis
- DVT → P . E
- etc

Case

J Blogg, male - age 60



- Flies small twin engine aircraft for the local Air ambulance
- Total hip replacement on 1 July 2010
- Reports to you that he is fine, wants to work seeking clearance certificate from you

- What do you do ?
- What do you write ?

Medical Certificate



→ Typical certificate

“Mr J Blogg has been unable to work since 1st July 2010. He has recovered well and will be fit to work on 8 August 2010”.

→ Problem:

- CAA Medical certificate has been suspended
- CAA doctor or Aviation Medical Examiner needs to make a decision to clear him back to flying
- CAA Cannot make that decision without adequate medical information
- Please report the facts. Can you make an aviation medicine decision or recommendation ?

J Blogg – Total hip replacement



✈ Cognitive:

- Sleep ?
- Medication ?

✈ Function ?

- Range of movement
- Muscle power

✈ Incapacitation ?

- Risk of dislocation
- DVT



Medical Certificate



Suitable certificate

“Mr J Smith underwent shoulder surgery on 1 July 2010.

He has near full range of movement and full power,

He is free of pain during the day, he sleeps well with the help of two Paracetamol tabs taken at night for some residual nocturnal pain”.

Or

Copy of consultation notes



Ag pilot - mid 40s - Accident



Ag pilot - mid 40s



- ➔ **S:** patient seeks clearance to work as a Pilot. Aircraft accident one week ago.
- ➔ **O:** Moving well, no apparent pain, BP 136/74. chest and heart ok. Bruising only to leg and pelvis, abdomen ok. Chest X-ray reviewed , no finding.
- ➔ **Plan:** Copy notes to patient for aviation doctor.

GP notes - comments



- Notes quite detailed
- Considered chest injury
 - No Pneumothorax !
- Did not give an opinion regarding flying clearance
 - Not qualified to do so
 - Avoids conflict
- Did not clearly indicate if head injury (CT scan?)
- Did not clearly address psychological status (PTSD ?)

Treating / Prescribing to pilots



• Concern with condition

- Seizure risk (head injury, history of seizure, cancer)
- Migraine
- Vertigo
- Ischaemic heart disease
- Rhythm disturbance i.e AF, tachyarrhythmia, heart block
- Renal stones
- Depression
- Drug / alcohol

• Concern with medication

- Psychoactive medication
- Medication that can lead to impairment - primary effect
 - Antihypertensive (trial period), Warfarin, Sulphonylurea
- Can lead to Impairment - side effects
 - Alpha blockers, Steroids, Anticholinergics, Isotretinoids etc

Case 3 – Female – Age 35



- Jane Dow attends
 - Poor sleep
 - Anxiety
 - Depressed mood, 1 month
 - Not suicidal
 - Relationship difficulties
 - Mother just passed away
- Rx: Fluoxetine

Certification issues:

- Is condition likely to:
 - Impair concentration ?
 - Impair judgment ?
- Is it early major depression, i.e stable ?
- Is the medication tolerated ?

CAA wants to know !

Pilot obligation - s27C (paraphrased):



- If a licence holder is aware of or has reasonable grounds to believe any change in his / her medical condition
- that may interfere with safe exercise flying, the licence holder must:
 - Advise the Director
 - May not exercise the privileges related to the certificate.

What are your obligations



S27C of the Civil Aviation act (paraphrased):

- If a doctor is aware of or has reasonable grounds to believe that a person is a licence holder, and
- is aware, or has reasonable grounds to suspect that the licence holder has a medical condition
- that may interfere with safe exercise flying, the registered medical practitioner must, as soon as practicable:

What are your obligations



- ➔ Inform the licence holder (your patient) that you will advise the Director of Civil Aviation
- ➔ Advise the Director of the condition
- ➔ Indemnified Act:
Not subject to any civil or criminal liability.



CAA Action



- ➔ Require information
- ➔ Can impose conditions (e.g. Isotretinoid
→ no night flying)
- ➔ Can suspend the medical certificate
 - And after 10 working days
 - Can disqualify
 - Can do all of the above

Ethical Issues



- Ethical dilemma, choosing between:
 - Best treatment,
and
 - Treatment that is acceptable for certification ?
e.g.: Not giving optimum treatment for diabetes, to avoid Sulphonylurea or Insulin
- Reporting to third parties: NZMC guidelines. No advocacy !

Questions ?



www.caa.govt.nz → Medical, or call us

Your patient as a passenger NZ is remote – long distances



- Air New Zealand
- Key Air New Zealand codeshare partners
-  Star Alliance hub cities

Routes shown operated by Air New Zealand and key codeshare partners are subject to change without notice.

Large aircraft – lots of people



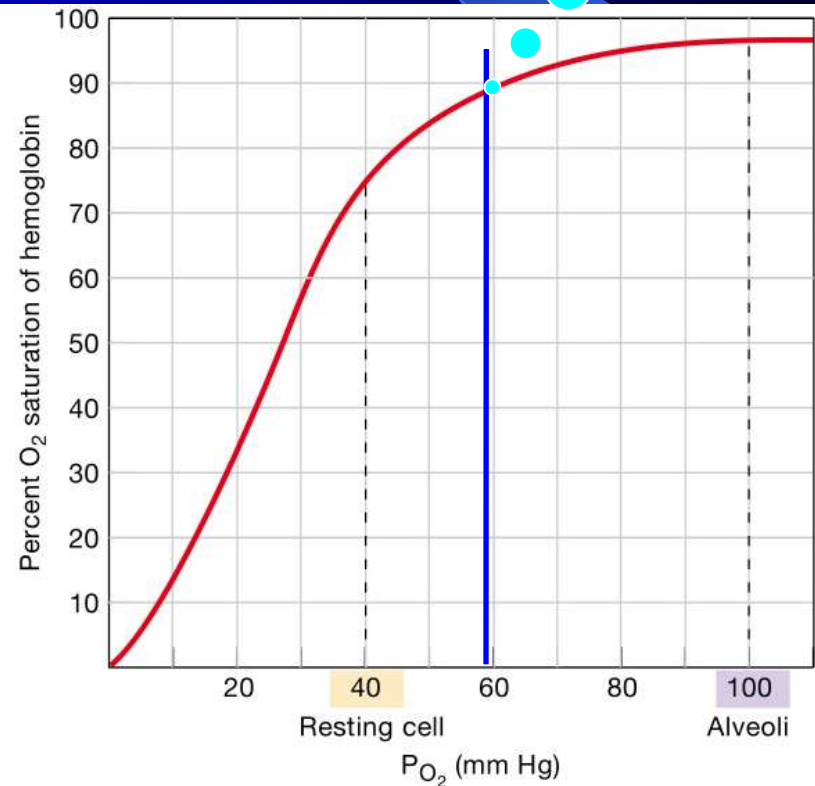
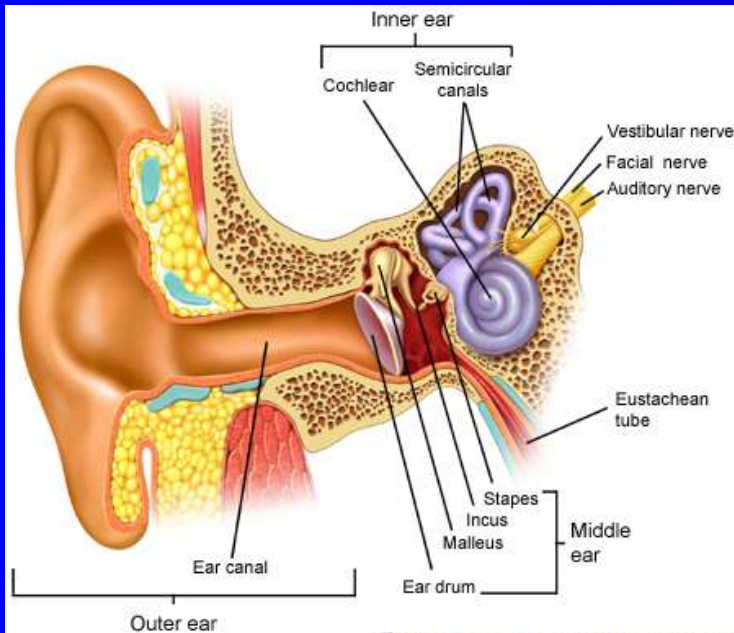
Your patient as a passenger



✈ Environment

- Low humidity (5 – 35 %)
- Reduced barometric pressure
- Reduced paO_2

At
8000 ft



Diving and flying



✈ Risk of decompression sickness (Undersea and Hyperbaric Medicine Society workshop - 1990)

- 12 h for less than 2h diving in past 2 days
- 24 h after multiday unlimited (in time) dives
- 24 h but preferably 48 h after any dive requiring decompression stops

General issues



- ➔ Stress prior to departure
- ➔ Lack of sleep
- ➔ Medication
 - Forgotten / in wrong luggage
 - Interaction with alcohol
 - Time zone → Timing of medication
- ➔ Delayed flights
- ➔ Delayed luggage

Cardiovascular disease

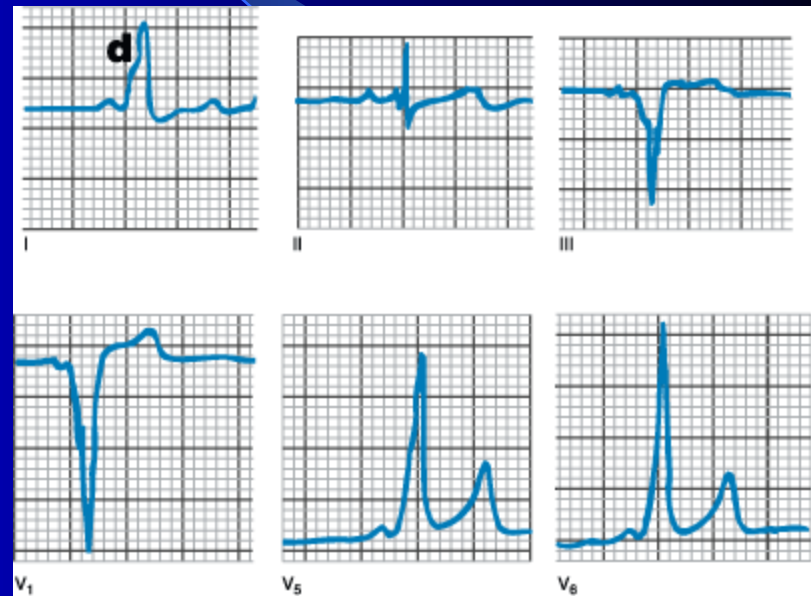


→ Ischaemic heart disease

- Angina controlled
- MI > 7 days if uncomplicated

→ Cardiac failure

- Controlled



Respiratory disease



✈ Pneumothorax

- 7 -14 days, with escort

✈ COPD

- Exercise tolerance $> 50 - 100$ m



O2 need assessment



→ Scientific

- Altitude chamber to 8000 ft
- 15 % Oxygen trial
- Prediction formula

→ Practical

- Can patient walk 100 m with hand luggage, unassisted?
- SatO2 on the ground:
 - < 93 % but >88%, may need O2
 - < 88% does need O2 M
 - Must book O2 supply with airline



Haematology



→ Anaemia

- Symptomatic, or

- $< 8.5 \text{ g /L}$

- Transfusion or O₂ supplementation

→ Sickle cell

- Uncommon in NZ, usually not a problem

- > 10 days after crisis (+ O₂)

→ Thrombophilia

Diabetes on insulin



- Two blood monitoring devices with extra batteries (in two bags);
- Enough insulin, syringes and testing equipment;
- Regular insulin and short acting (no fridge available on aircraft);
- Emergency kit, i.e Carbohydrates & Glucagon;
- Medication for diarrhoea and vomiting;
- Medic Alert;
- Insurance papers;
- GP letter or essential medical records.

Have Insulin, Will Fly: diabetes Management During Air Travel and Time Zone Adjustment Strategies; Clinical Diabetes, Vol 2, 2003: 82-85.

Metabolic - diabetes



Adjusting insulin injections:

→ **Avoid hypoglycaemia**

→ Less than 5 times zone, no adjustment

→ Keep watch at departure time

→ Travelling East → shorter day → less Insulin ↓

→ Travel in West → longer day → more insulin ↑

Have Insulin, Will Fly: diabetes Management During Air Travel and Time Zone Adjustment Strategies; Clinical Diabetes, Vol 2, 2003: 82-85.

Pregnancy



- ➔ Foetal haemoglobin favours the foetus
- ➔ Flying permitted until 36 weeks
(certificate if over 28 weeks)
 - Multiple pregnancies?
 - History of pre term labour ?
 - Complicated pregnancy ?
 - Foetus ?
 - Mother ?



Surgery



- Laparoscopic surgery;
 - > 5days
- Major abdominal surgery;
 - > 10 days
- Neurosurgery
 - > 10 days and no air
- Intraocular surgery
 - > 7 days up to 6 weeks (retinal detachment)
- Other considerations: secondary bleed !

Fractures



- Lower limbs oedema during flight
- Lower limbs cast must be split if < 72 h Cast
- Exit row not permitted

Mental health



✈️ Psychosis not under control

- Medical escort if unstable
- +/- security

✈️ Anxiety and fear of flying or

✈️ Claustrophobia

- Hyperventilation
- Panic



Infectious disease



→ Tb

→ Air conditioning: complete recycle every 3 minutes

→ Complete air change every 6 minutes

→ In practice 2 rows in front and behind to be traced

Special needs



- ➔ O2
- ➔ Impaired i.e blind or deaf
- ➔ Mobility
 - Assistance – need for wheel chair to aircraft
 - Patient in wheel chair
- ➔ Neonates
- ➔ Terminally ill
- ➔ Stretcher





Medical Fitness for Air Travel (MEDA) - July 2009

PLEASE PRINT IN BLOCK CAPITALS

Flight Details - Your Travel Agent will complete this. Air New Zealand Booking Reference: _____

NAME: _____ AGE: _____ DAYTIME TELEPHONE: (____) _____

Flight Nbr: NZ Date: _____ From: _____ To: _____
Flight Nbr: NZ Date: _____ From: _____ To: _____
Flight Nbr: NZ Date: _____ From: _____ To: _____
Flight Nbr: NZ Date: _____ From: _____ To: _____

Are you travelling with: (please circle) A companion? A doctor? A nurse?
Their Name: _____ Their Air New Zealand Booking Reference: _____

Medical Details - Your Doctor will help complete this.

DIAGNOSIS OR CONDITION

DESCRIPTION: _____

SEVERITY Mild [] Moderate [] Severe []

Date of Injury/Illness/Surgery (if applicable): _____ Date of Discharge from Hospital (if applicable): _____

Services Requested - Your Doctor can help with this. Tick (3) as required.

- [] Aisle Seat [] Wheelchair to the aircraft steps (can manage steps if required)
[] Seat Near Toilet [] Wheelchair to the aircraft door (cannot manage steps)
[] Quadriplegic torso harness [] Wheelchair to the aircraft seat (cannot walk from door to seat)

Note: Ambulance arrangements to/from airports are passenger/escort responsibility.

[] Oxygen 2 litres per minute by Nasal Prongs needs to be AVAILABLE THROUGHOUT THE FLIGHT. Passenger is able to use a PULSE DELIVERY oxygen concentrator [] Yes [] No (extra charge applies for oxygen supply - see note page 2)

Note: Other flowrates available by special arrangement

- [] Stretcher } Air New Zealand International Services Only.
[] Oxygen Bottles to drive ventilator } must be escorted by Qualified Doctor/Nurse
[] Power Supply to drive incubator } with all necessary equipment for in-flight care. (See Page 2)

Other Requests: _____

PLEASE NOTE: Flight attendants can not provide assistance with heavy lifting, eating, personal hygiene, ostomy devices or administering medication. Passengers needing help with these need to be accompanied by someone who can assist.

DOCTOR'S CERTIFICATE

AIR NEW ZEALAND LIMITED acknowledges that in providing the requested/attached MEDA information the medical practitioner concerned is providing an opinion to the best of his/her knowledge and assessment of the subject and that the final decision as to whether to accept the subject for carriage on its services rests with Air New Zealand Limited alone.

I have read the considerations overleaf and on the notes attached to this form. In my opinion this person is safe to undertake the proposed flight, is not contagious, and is not likely to effect the safety or well-being of other passengers. I agree that the services requested above are appropriate in the circumstances. This passenger is able to take care of his/her own meals, transfers, personal hygiene, administering medication and other needs in flight (or escorted by someone who can assist with these needs).

Additional Comments: _____

Doctor's Name: _____ Signed: _____ Date: _____
Qualification / Speciality: _____
Doctor's Email Address: _____
Contact Phone Number: _____ Address: _____

Office Use Only: _____

PLEASE FAX THIS PAGE ONLY TO AIR NEW ZEALAND CARINA Services : (+64 - 9) 336 2856 OR EMAIL TO medaclearance@airnz.co.nz

www.airnewzealand.co.nz/
special-assistance/

www.flypacificblue.co.nz/
Personal/Flightinfo/Before You
Fly.....

Emirates etc.

In a nutshell – questions to consider



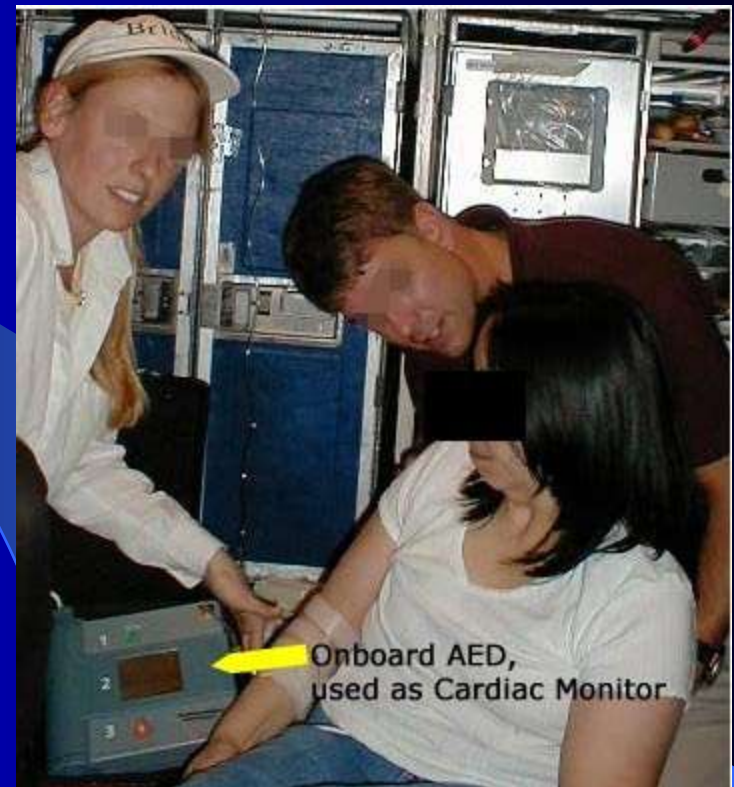
- ➔ Is flying a risk to traveller (exacerbation) ?
- ➔ Condition in flight difficult to handle ?
 - Seizure, cardiac arrest, behaviour
- ➔ Traveller a risk to others ?
 - Infectious disease
 - Behaviour
- ➔ Special requirements ?

Questions ?

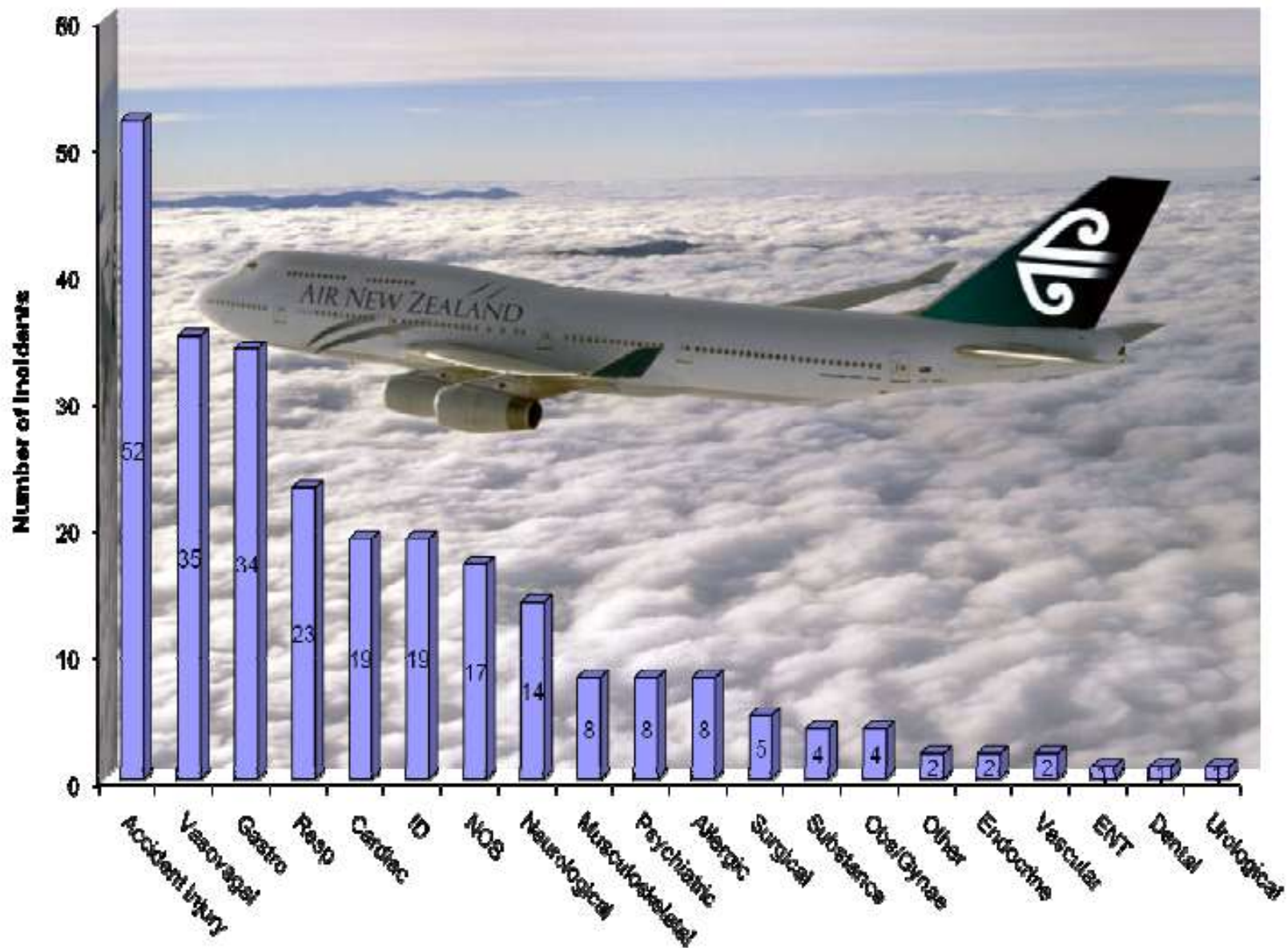


Is there a doctor on board ?

In flight emergencies



Air New Zealand In-flight Medical Emergencies From 1 May 08 - 31 May 09



Issues for the Medic



→ Obligation to assist

- Ethical (NZMC)
- Legal (i.e France)

→ Legal protection

- Good Samaritan legislation in US (do not charge !!)
- Airlines contract to a medical service provider

Ground bases assistance



✈ SOS International

➤ Medaire

- **MedLink Global Response Center**
Phoenix, Ariz. Medair



✈ Provides in flight consultancy services

- You are the eyes, ears and hands

Air NZ medical it



Divert or not



➔ Decision to Divert

➤ The captain's, no yours
!

➤ Considerations:

- Fuel
- Weather
- Ground facilities
 - Accommodation
 - Medical
- Safety of the other 350 people on board

