Topics

- Eight Mile High Club
- Physiology
- Medical Conditions associated with flight
- Pre-flight screening medical fitness to fly
- Advise on reducing health risks
- Managing chronic medical conditions in flight
- Jet Lag
- Airline Medical Clearance
- Case Studies
- In flight medical emergencies
Jack Vroom has completed enough flights to circumnavigate the world 1,600 times American Airlines remove his 'unlimited' pass after realising it costs them $1m a year

Mr Vroom, 67, paid around $350,000 for the ticket 23 years ago, and at times travelled the world four times a week as he cashed in on his investment
The Mile High Club (or MHC) is a slang term applied collectively to individuals who have sex while on board an aircraft in flight.

There is no known formally constituted club so named. However, since "membership" of the "club" is really a matter of an individual asserting they have qualified, the qualifications for membership are open to some interpretation....
Some incidents of people attempting sexual activity:

- In late 2006, a couple was arrested in part for refusing to stop overt sexual activity on a flight in a case that received widespread media attention. The couple's lawyer claims that the couple was not engaging in sexual activity, but that the man was sick and resting his head on the woman's lap.

- Richard Branson, the owner of Virgin Atlantic Airways and Virgin America Airways, claimed that he joined the mile high club at age 19 (c. 1969) in a plane's lavatory. Afterwards, he found out that she was married, and they had no relationship beyond the encounter in the plane.

- On 11 February 2007, Lisa Robertson, a Qantas flight attendant, was dismissed after having sex with actor Ralph Fiennes in a business class lavatory during a flight from Darwin to Mumbai on 24 January 2007. Robertson at first denied the allegation, but subsequently admitted the encounter in an interview with the Daily Mail. She also said she had stayed with Fiennes at his Mumbai hotel.
The BBC ran an article investigating whether sex on a plane was legal. Their conclusion was that it would depend on many factors, such as whether or not the act occurred in sight of others. If British law applied, for example, it may constitute sex in lavatory to which the public has access, contrary to Sexual Offences Act 2003 s.71, with a maximum 6-month term.

Also, for international flights, the law could vary depending on departure and destination cities, where the aircraft was overflying at the time, and the nation of the carrier airline.

In January 2011, the United Kingdom's aviation regulator body, the Civil Aviation Authority (CAA), refused to recertify Mile High Flights, an air charter company located in Gloucestershire for allowing its passengers to have sex while in-flight.
Human Factors

Level of Pilot Capabilities during Flight

Safety Margin during flight

Pilot Workload

Time during Flight

Adapted from Transport Canada's Human Factors for Aviation: Basic Handbook
An Air Canada pilot has made a series of blunders that led to passengers being injured, report finds. A SLEEPY Air Canada pilot mistook the planet Venus for another aircraft and then sent his packed plane into a dive that injured 16 passengers and crew, an air safety report has found.

In a terrifying 46 seconds the pilot forced the plane into the sudden 120m dive before lurching 240m back upward on a transatlantic flight from Toronto to Zurich, according to a report by Canada's Transportation Safety Board.

Those hurt aboard the Boeing 767 overnight flight carrying 95 passengers and eight crew had allegedly failed to comply with lit seatbelt signs.

"Under the effects of significant sleep inertia (when performance and situational awareness are degraded immediately after waking up), the first officer perceived the oncoming aircraft as being on a collision course and began a descent to avoid it," the report said.

The first officer had reportedly just woken up from a long nap and was disoriented on the January 2011 flight.
“Acceptable Risk “

- No more than 1 fatal accident in 10 million flights (reasonably achievable accident rate) and no one component should contribute more than 1/10 of the total risk ie no one component (aircrew failure, airworthiness, mechanical failure, ATC failure/error, flight operational failure) should exceed 1 in 100 million hours.

- As a rule of thumb, for medical conditions the acceptable risk for class 1 multicrew operation is that no condition(s) should have a risk of incapacitation of greater than 1% per year. (Tunstall-Pedoe 1984).

- For single crew commercial operation the acceptable risk is 0.1% in order to maintain the equivalent level of safety.
Helicopter Underwater Escape Training [ HUET ]
Topics

- Eight Mile High Club
- Physiology
- Medical Conditions associated with flight
- Pre-flight screening medical fitness to fly
- Advise on reducing health risks
- Managing chronic medical conditions in flight
- Jet Lag
- Airline Medical Clearance
- Case Studies
- In flight medical emergencies
Physiology

- Lowered pO2
- Lowered Cabin pressure
- Dry cabin air (10-20% rel humidity)
- Dry Skin & Eyes
- Noise & Vibration
- Motion Sickness
Figure 1: Effect of altitude on the oxygen-haemoglobin dissociation curve.
<table>
<thead>
<tr>
<th>Altitude (feet)</th>
<th>% HbO₂ sat</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10,000</td>
<td>98-90</td>
<td>Decrease in night vision, decreased ability to perform complex new tasks</td>
</tr>
<tr>
<td>10,000-15,000</td>
<td>90-80</td>
<td>Drowsiness, poor judgment, headache, reduced work capacity, poor co-ordination</td>
</tr>
<tr>
<td>15,000-20,000</td>
<td>80-70</td>
<td>Loss of self-criticism, decreased skill levels, impaired vision, loss of peripheral vision, decreased colour perception, poor co-ordination, bad handwriting, decreased short-term memory, marked changes in emotional state (euphoria, belligerence, moroseness). Also, symptoms due to hypercapnia, such as lightheadedness, paresthesiae and tetany</td>
</tr>
<tr>
<td>20,000-25,000</td>
<td>70-60</td>
<td>Accentuation of all symptoms, myoclonic jerks, convulsions, circulatory collapse, death</td>
</tr>
</tbody>
</table>

*Reproduced with permission from Edith Cowan University course on aviation physiology.*
Cabin Pressurisation

![Diagram showing the relationship between Pressure Altitude and Flight Duration for Cabin Pressure and Aircraft Altitude.](image)
# Cruising Cabin Altitude

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Po2</th>
<th>Hb % Saturation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2500 feet</td>
<td>90</td>
<td>99%</td>
</tr>
<tr>
<td>5000 feet</td>
<td>80</td>
<td>97%</td>
</tr>
<tr>
<td>7500 feet</td>
<td>70</td>
<td>95%</td>
</tr>
</tbody>
</table>
Medical Conditions Associated with Flying

- Hypoxia
- Barotrauma
- Decompression Illness – “Bends”
- Cabin Fever - “Aerotoxic Syndrome”
- Jet lag
Medical Conditions Associated with Decompression

**Explosive < 0.5 sec**
- *Environmental effects* - Noise, Debris, Wet cold fog
- *Body* - Lung damage < 0.2 sec; Ear/Sinus/Gut barotrauma; Bends; Air embolus

**Rapid > 0.5 sec** - no lung damage

**Subtle**
### Time of Useful Consciousness

- **18,000 feet** - 20 minutes
- **22,000 feet** - 10 minutes
- **25,000 feet** - 3 minutes
- **28,000 feet** - 2 minutes
- **30,000 feet** - 1 minute
- **40,000 feet** - 15 seconds
- **50,000 feet** - 5 seconds
Emergency Oxygen Drill [EOD]

- 5 second mark - reach for Oxygen mask
- 10 second mark – check all oxygen equipment; 100% Oxygen delivery (maximum flow rate)
- 15 second mark - descent to <10,000 ft
- 20 second mark - PAN PAN emergency
THIS IS YOUR CAPTAIN... WITH ME IN THE COCKPIT TODAY ARE JOHNNY WALKER, JACK DANIELS, AND A WHOLE BUNCH OF DIALS AND KNOBS AND STUFF...
Pre-flight screening medical fitness to fly

- Detailed air travel history
- Patient expectations of air travel and their concerns e.g. culture shock
- Risks for barotrauma; Risks & Rx DVT
- Jet lag
- Risks for STI
- Dry skin and eyes
- Travel Vaccinations
- Medication
- Alcohol
- Travel Medical Insurance
- Managing chronic medical conditions in flight
- Airline Medical Clearance
Case 1 – ambitious 30 year old middle manager

- BNE –PER ; PER- BNE ; 5 hrs each way
- Flew across for Job Interview
- Mildly unwell on landing
- Successful interview and proceeds to Preemployment Medical next day
- 24 hrs after arrival fever, dull tympanic membranes, rhinopharyngitis and ear drums would not move with valsalva
- Adamant she needed to return home on the ‘red eye’ that night - advised formally this was risky
- On descent acute left >right ear pain, nausea and dizziness that persisted for several weeks following.
- Referred acute ENT assessment.
Case 1 – Round Window Rupture
### Table 2: Types of barotrauma — frequency and clinical effects

**Otic barotrauma/barotitis media**
- Common
- Involves rupture of the ear drum and bleeding into the middle ear
- A possible complication is round-window rupture, which causes persistent vertigo and a chronic labyrinthine fistula
- Permanent sensorineural hearing loss is a rare complication after otic barotrauma and is attributed to rupture of either the stapediovestibular ligament or the round window, with the creation of a perilymph fistula

**Sinus barotraumas (aerosinusitis, barosinusitis)**
- Uncommon and variable in nature
- May cause severe pain and haemorrhage into the sinus to relieve pressure. A rare complication is pneumocephalus, which usually presents with headache, nausea, vomiting and vertigo, with the most specific sign being ‘bruit hydroaerique’ — a splashing sound heard only by the patient on postural change

**Barodontalgia (aerodontalgia)**
- Uncommon
- A specific tooth is painful with descent
- Often associated with inflammation of the tooth pulp (pulpitis)

**Pulmonary barotrauma/overpressure accidents**
- Very uncommon
- Presents as pneumothorax (shortness of breath and chest pain), surgical emphysema (crepitus beneath the skin of the neck) or cerebral arterial gas embolism (stroke symptoms)
Otic Barotrauma

Check both ears for easy movement of the ear drum following valsalva or if you have a tympanometer for a normal tympanogram.

If your patient can equalise without difficulty and can hear the opening pop and/or the ear drum can be seen to move easily with a valsalva they are medically fit to fly.

It is best not to fly with a cold. For pilots and aircrew with a higher level of responsibility it is mandatory that they do not fly or pilot an aircraft if they may endanger the safe operation of the aircraft. You should issue a medical certificate.
Middle Ear Clearing Techniques

- Swallowing, chewing, yawning or forward movement of the lower jaw.
- Infants, feeding or giving a pacifier (dummy) to stimulate swallowing may reduce the symptoms.
- Inhaling menthol dropped into tissue or using nasal decongestants such as otrivine may help a little 10 minutes prior to descent of the aircraft. However this should not be recommended as a guaranteed method to combat any risk of barotrauma.
- Toynbee or Frenzel manoeuvres.
Case 2 – blurred vision after long haul flight

- 25 year old female with Eisenmenger’s syndrome NYHA Gd II & 2nd Polycythæmia
- Rx monthly venesections, hydralazine, aspirin
- Haematologist advised venesection to ensure Hct 0.52 2/7 before flight WLG –AUCK- LAX – OHARE & antiembolism stockings
- 24 hrs after arrival in Chicago blurred vision left eye & left CRAO. Rx warfarin with return journey to include flights no longer than 6 hours
- Permanent minor residual visual defect.
- Dehydration was thought to be the most significant modifiable cause
# DVT Risk Factors

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Relevant risk factors</th>
<th>Suggested prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal risk</td>
<td>Age &lt; 40; otherwise fit and healthy</td>
<td>General advice</td>
</tr>
<tr>
<td>Low risk</td>
<td>Age &gt; 40; obesity; active inflammation; minor surgery within 3 days</td>
<td>As above ± graduated compression stockings</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>Varicose veins; poorly controlled heart failure; MI within 6 wks; oestrogen therapy (including oral contraception); polycythemia; pregnancy/puerperium; lower limb paralysis/trauma within 6 weeks</td>
<td>Consider aspirin if no c/i ± graduated compression stockings</td>
</tr>
<tr>
<td>High risk</td>
<td>Previous VTE; known thrombophilia; major surgery within 6 weeks; previous stroke; malignancy; family history VTE</td>
<td>As above but consider LMW heparin in place of aspirin</td>
</tr>
</tbody>
</table>
DVT Risk Factors

<table>
<thead>
<tr>
<th>Definition</th>
<th>Recommendations</th>
<th>Quality of evidence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk Flight time less than 8 h or distance less than 5000 km</td>
<td>Avoid constrictive clothing around waist and lower extremities; avoid dehydration; move about cabin several times or do calf-stretching exercises</td>
<td>Grade 1C</td>
</tr>
<tr>
<td>Moderate risk Flight time more than 8 h or distance more than 5000 km, and: obesity, large varicose veins, pregnancy, hormone-replacement therapy, tobacco use or oral contraceptives, or relative immobility</td>
<td>Low-risk measures and: wear properly fitted below-knee compression stockings providing 15–30 mm Hg of pressure at the ankle; aisle seating</td>
<td>Grade 1C and grade 2B</td>
</tr>
<tr>
<td>High risk Flight time more than 8 h or distance more than 5000 km, and: history of previous venous thromboembolism; hypercoagulable state (eg, factor V Leiden); major surgery 6 weeks before air travel (including hip or knee arthroplasty); known malignancy</td>
<td>Moderate-risk measures and: low-molecular-weight heparin injected before departure in individuals who are not on warfarin</td>
<td>Grade 1C and grade 2B</td>
</tr>
</tbody>
</table>

Data are based on references 38, 40, 41, 51–53, and 57. *Grade 1C is a strong recommendation, but existing evidence is of low quality and benefits clearly outweigh risk or burden. Grade 2B is a weak recommendation derived from...
DVT prophylaxis

- 1/250K passengers > 65 die from flight related PE
- Maintain good hydration
- Best avoid alcohol
- Regular calf exercises
- Exercise during flight & stopovers
- Aisle seat
- Graded compression stockings
- Low dose aspirin 2 hours before takeoff and 24 hours later ↓ DVT risk by 1/3
- Low MW Heparin e.g. Dalteparin 5000IU sc 2 hours prior takeoff ↓ DVT risk by 2/3 or Enoxaparin 40mg sc
Case 3 – Advice on New Born Travel

- P1G3M2 two week old baby travel to USA – is it safe?

- Inflight death discovered mid Atlantic by a frantic mother.

- Who is liable?
DVT prophylaxis

- 1/250K passengers > 65 die from flight related PE
- Maintain good hydration
- Best avoid alcohol
- Regular calf exercises
- Exercise during flight & stopovers
- Aisle seat
- Graded compression stockings
- Low dose aspirin 2 hours before takeoff and 24 hours later ↓ DVT risk by 1/3
- Low MW Heparin e.g. Dalteparin 5000IU sc 2 hours prior takeoff ↓ DVT risk by 2/3 or Enoxaparin 40mg sc
1. Ensure adequate equipment supplies and medication e.g. testing strips; batteries for glucometer etc.
2. Split insulin vials, if possible, between two different carry on bags in case one is lost or stolen.
3. Insulin should not be carried in stowed baggage as this may be exposed to freezing temperatures which may cause the insulin to denature. The bags may also be lost.
4. Blood glucose monitoring equipment should also be carried in hand luggage for the same reasons as 3 above.
5. Some IDDMs prefer a seat near a toilet for privacy of injections although with pen devices this is often unnecessary.
6. Increasing fluid intake, avoiding alcohol and arranging appropriate meals is important.
7. Diabetic meals are often designed for NIDDMs and may contain insufficient amounts of carbohydrate for IDDMs who may risk hypoglycaemia. The “vegetarian meal” usually contains pasta based or rice dishes which may be more suitable. It is important to have snacks on hand and rapid acting sugar to cover unforeseen circumstances such as delayed meals due to turbulence etc.

8. Oral agents should be taken at the usual times

9. Insulin – diabetics on insulin may need to adjust their dose for east or west trips with time zone changes greater than four hours and consultation with a diabetes specialist may be needed. The traveller then returns to their usual dose the morning after arrival.

10. Blood glucose monitoring should be increased in frequency during travel.

11. Medic Alert bracelet and brief medical summary are invaluable, particularly when travelling alone.
# Diabetes in flight

## Insulin

### Table 5: Insulin adjustment when travelling East across Multiple Time Zones

(From Aviation, Space and Environmental Medicine Vol 74 No 5 Section II May 2003)
Jet Lag

- Temporary circadian rhythm disorder associated with long haul flights across time zones
- Desynchronisation between the body clock within the suprachiasmatic nucleus of hypothalamus
- Daytime fatigue, ↓ appetite, constipation, ↓ psychomotor coordination & cognitive skills
- Westward travel lengthens the day and causes phase delay in circadian rhythm
- Eastward travel shortens day and causes phase advance
- Synchronization takes 1/7 for every time zone crossed westward or 1.5 days for every time zone crossed eastward
Jet Lag treatment

**Ramelteon**
- New melatonin-receptor agonist with no abuse potential
- Indication for treatment of primary insomnia in individuals of 55 years of age or older
- Untested for circadian-rhythm disturbances

**Phototherapy**
- Involves intentional exposure or avoidance to bright light to hasten re-entrainment
- Efficacy is questionable
- Often impractical or inconvenient

**Pre-flight sleep hygiene**
- Westbound: go to sleep 1hr later than usual and be awake 1hr later than usual 3 days before travelling
- Eastbound: go to sleep 1hr earlier than usual and be awake 1hr earlier than usual 3 days before travelling
Jet Lag treatment

Agomelatine
• New dual melatonin-receptor and serotonin 5-HT2C receptor agonist
• Efficacious for symptoms of depression and sleep–wakefulness disorders
• Not tested for jet lag, but could be more useful for individuals having westward-travel jet lag, who commonly show symptoms of depression

Benzodiazepines
• Some reported efficacy in sleep quality (eg, temazepam)
• Some reported efficacy in other circadian-rhythm or sleep parameters

Caffeine
• Poorly studied
• Slow-release caffeine showed faster re-entrainment (measured physiologically)
Jet Lag treatment

- Cochrane meta analysis of 10 trials concluded:
  0.5-5 mg melatonin at the desired destination bedtime is effective for reducing or preventing jet lag

- Herxheimer A; Petrie KJ Melatonin for preventing and treating jet lag. Cochrane Database Syst Rev 2001:CD001520
Aerotoxic Syndrome

- Cabin air is routinely drawn off engines and supplied to aircraft cabins (not so on the Airbus A380).
- If seals within the engine compartment are not secure, engine oil can leak and the products of this pyrolysis can leak into the cabin air supply.
- These products include tricesyl phosphate of which the tri ortho isomer is an organophosphate cholinesterase inhibitor capable of inducing a delayed neuropathy.
Aerotoxic Syndrome

- Symptoms include odours described as ‘dirty socks’ or ‘musty’, headaches, nausea, metallic taste in the mouth, tight chest, dry stinging eyes, dizziness, blurred vision, difficulty concentrating and temporary paralysis (which has been reported in pilots!).

- Longer term reported symptoms include memory loss, chronic fatigue; neurological and respiratory problems.
Communicable Diseases

- H1N1 Swine Flu; H5 N1 Avian influenza; SARS; Multi Drug Resistant Tuberculosis and Polio have all been transmitted inflight
Airline Medical Clearance
Travelling with a Medical Condition

In some cases, you are required to have medical clearance before you can travel.

This medical clearance allows your doctor to ensure it is safe for you to travel and it also allows Air New Zealand to make arrangements for special services as required.

MEDA Forms

Medical Clearance Required Prior to Travel

No Medical Clearance Necessary But Please Tell Us!

Medications

Travelling on Other Airlines

MEDA Forms

Your travel agent can provide you with a medical clearance form known as a MEDA. Alternatively you can download and print the form yourself by clicking on the PDF file below.
# Air New Zealand

**Medical Fitness for Air Travel (MEDA) - May 2011**

**PLEASE PRINT IN BLOCK CAPITALS**

<table>
<thead>
<tr>
<th>Flight Details</th>
<th>Your Travel Agent will complete this.</th>
<th>Air New Zealand Booking Reference: ____________________________</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NAME:</th>
<th>AGE:</th>
<th>DAYTIME TELEPHONE:</th>
<th>( )</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Flight No: NZ</th>
<th>Date:</th>
<th>From:</th>
<th>To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight No: NZ</td>
<td>Date:</td>
<td>From:</td>
<td>To:</td>
</tr>
<tr>
<td>Flight No: NZ</td>
<td>Date:</td>
<td>From:</td>
<td>To:</td>
</tr>
<tr>
<td>Flight No: NZ</td>
<td>Date:</td>
<td>From:</td>
<td>To:</td>
</tr>
</tbody>
</table>

Are you travelling with: (please circle):
- [ ] A companion?
- [ ] A doctor?
- [ ] A nurse?

Their Name: ____________________________  Their Air New Zealand Booking Reference: ____________________________
Medical Clearance Required Prior to Travel

A medical clearance is required if you have a medical condition which results in there being doubt that you can complete the flight safely, without requiring extraordinary medical assistance during the flight, or which poses a risk to other passengers.

Some examples of conditions that may limit your ability to complete the flight safely include but are not limited to:

- Heart disease
- Psychiatric conditions
- Late pregnancy
- Lung disease
- Ear and sinus problems
- Recent bone fractures set in a cast

A medical clearance is always required when travelling in a stretcher or incubator or if medical oxygen is required during the flight.

If there is concern that you have an infectious disease, medical clearance is also required. This includes any illness that could be contagious at the time of travel particularly chicken pox, tuberculosis, measles and mumps.

For your own safety and wellbeing Air New Zealand strongly recommends that when requesting clearance you have your doctor complete the attached medical clearance form.

No Medical Clearance Necessary - But Please Tell Us
Medical Conditions

Medical Clearance Required Prior to Travel

There are some medical conditions that may restrict travel or require clearance from a medical practitioner before a person can fly with Virgin Australia, Pacific Blue or Polynesian Blue.

Travel may be refused for persons with a relevant medical condition if our Medical Clearance Form has not been completed in advance.

- Please refer to our Medical Clearance Guidelines (PDF, 124k) to determine if you need to complete a Medical Clearance Form (PDF, 143k) prior to traveling with us.
- If you have experienced any of the medical conditions Considered Unacceptable for Travel listed in the Medical Clearance Guidelines, you may be unable to travel.
- If travel is intended while affected by Conditions Requiring Medical Clearance to Travel listed in the Medical Clearance Guidelines, clearance from a medical practitioner (registered doctor) must be obtained and the Medical Clearance Form or suitable letter will need to be completed and provided at check-in and onboard the aircraft.
- The Guidelines are not an exhaustive list of conditions. If you have had recent surgery or have an ailment that is not specified in the lists below that you feel may...
Medical Clearance Guidelines (MED-02)
EFFECTIVE 14 FEBRUARY 2011

Guidelines to be referred to by medical practitioner.

These guidelines must be used in conjunction with the Virgin Blue, Pacific Blue and Polynesian Blue Medical Clearance Form (MED-01) or a letter from a medical practitioner. In addition to these guidelines, when considering a passenger’s suitability for air travel, the following must be considered:

- **Reduced atmospheric pressure.** Cabin air pressure changes greatly during 15-30 minutes after take-off and before landing; gas expansion and contraction can cause pain and pressure effects.
- **Reduced oxygen tension.** Cabin air pressure is equivalent to an altitude of 6000 to 8000 ft and oxygen partial pressure is approximately 20% less than at sea level.

Use this form to determine if a passenger’s medical condition makes them *Unacceptable for Travel* or if *Medical Clearance Required* before travel. If Medical Clearance is required before travel, the Medical Clearance Form (MED-01) must be completed by a medical practitioner (registered doctor) or a letter must be obtained from a medical practitioner.

The medical practitioner’s letter must contain the following minimum information:
- Medical practitioner’s name
- Address of the medical practice
<table>
<thead>
<tr>
<th>Code/Medical Condition</th>
<th>Unacceptable for Travel</th>
<th>Medical Clearance Required</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1A) Heart attack</td>
<td>Within 7 days</td>
<td>Within 8-21 days</td>
<td>Unacceptable for travel if supplemental oxygen is required during the clearance period</td>
</tr>
<tr>
<td>(myocardial infarction)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (1B) Angina            | Unstable angina         | Not required if the condition is stable and controlled* | Supplemental oxygen should not be required to control the angina at rest  
* Controlled = able to walk 50 m on level ground at moderate pace without chest pain or breathlessness |
<p>| (1C) Significant cardiac arrhythmia | Within 7 days | Within 8-21 days | Does not include arrhythmias considered by the treating medical practitioner to be benign |
| (1D) Heart failure     | If uncontrolled, requiring supplemental oxygen at rest or | Not required if the condition is controlled* | * Controlled = able to walk 50 m on level ground at moderate |
| (congestive cardiac failure) |                         |                           |          |</p>
<table>
<thead>
<tr>
<th>Code/Medical Condition</th>
<th>Unacceptable for Travel</th>
<th>Medical Clearance Required</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1H) DVT (deep vein thrombosis) or PE (pulmonary embolism). Also, significant predisposition to DVT/PE, including: Prior history of DVT/PE, Significant family history, Concurrent medical condition (e.g. fracture, injury, blood disorder) or use of medication, which predisposes to DVT</td>
<td>Within 5 days</td>
<td>Medical clearance is always required. The certifying medical practitioner can stipulate clearance is valid for up to 24 months from date of issue, provided there has been no DVT or PE or change in preventative treatment over that time</td>
<td>Passengers susceptible to DVT should discuss travel with a medical practitioner before travelling</td>
</tr>
<tr>
<td>(1I) Pacemakers and internal (implanted) defibrillators</td>
<td>Within 72 hours of insertion or 24 hours of replacement of device</td>
<td>Refer (1C) if not controlled by the device, may also apply and overrides these provisions</td>
<td></td>
</tr>
</tbody>
</table>

**Category 2 - Blood Conditions**
## Category 3 - Respiratory Conditions

<table>
<thead>
<tr>
<th>Description</th>
<th>Modified</th>
<th>Size</th>
<th>Compressed size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(3A) Pneumothorax</strong> (collapsed lung) occurring spontaneously or as a result of chest trauma</td>
<td>Within 6 days of full lung expansion</td>
<td>Within 14 days of full lung expansion</td>
<td>Lung expansion should be assessed by chest x-ray. Does not include pneumothorax resulting from open chest or cardiac surgery, where those provisions apply</td>
</tr>
<tr>
<td><strong>(3B) Open chest surgery</strong> (non-cardiac)</td>
<td>Within 13 days</td>
<td>Within 14-21 days</td>
<td>Refer (1F)</td>
</tr>
<tr>
<td><strong>(3C) Chronic lung diseases</strong> (COPD, emphysema, chronic bronchitis)</td>
<td>Where there has been a significant deterioration within 48 hours or if there is cyanosis at rest or if oxygen saturation ≤55 mmHg with</td>
<td>Where supplemental oxygen is required during the flight or if unable to walk 50 metres, at slow pace, without supplemental oxygen</td>
<td>Supplemental oxygen provisions may also apply. Refer (8D) and Note 5</td>
</tr>
</tbody>
</table>
Guests with Anaphylaxis

Virgin Australia is keen to ensure that flying is an enjoyable experience for all of our guests including those with allergies.

If you have a severe allergy or anaphylaxis you must make your booking through our Guest Contact centre (internet discount fare will be honoured).

A medical clearance form, a letter from a medical practitioner or a management plan signed by a medical practitioner is required if the guest believes they suffer from this condition, and they do not have the appropriate medication.

Failure to carry either appropriate medication, a management plan signed by a medical practitioner, a letter from a medical practitioner or a medical clearance form may result in boarding being denied.

Food sold or served on board the aircraft may contain traces of nut products and other allergens. We are unable to prevent other guests from carrying on board and consuming nut products and other allergens.

Virgin Australia cannot guarantee an allergy free environment onboard our aircraft.

If you have a life threatening allergy you must carry appropriate medication on your flight, have it within easy reach and be able to administer it if required. Your medication should be accompanied by a doctor’s certificate to eliminate any difficulties in passing through security.

Under no circumstances will Virgin Australia accept any responsibility for any adverse reactions you may suffer whilst flying.
Medical Assistance

- Medical Clearance
- Communicable Disease and Infection
- Medical Equipment
- Deep Vein Thrombosis (DVT)
- Medications
- Scuba Diving & Decompression Sickness
- Oxygen
- Pregnancy

Medical Clearance

If you are ill or injured and are travelling or returning home for treatment or rehabilitation, a medical clearance may be required. A medical clearance helps Qantas to ensure your comfort, health and safety and facilitates the provision of any specialised equipment or assistance that may be necessary.

When is a medical clearance required?

- If you have a medical condition that meets the criteria listed in detail in the Travel Clearance Form.
- If you or your doctor are unsure about your fitness to travel.
- If you require supplemental therapeutic oxygen.
- If you require medical equipment in flight e.g. stretcher, humidicrib, ventilators, defibrillators, oxygen concentrators etc.

Note: Continuous Positive Airways Pressure (CPAP) devices: do NOT need a medical clearance. Arrangements can be made by downloading and completing the CPAP Clearance form and faxing to +61 (2) 9691 0666. This form also lists the current CPAP devices authorised for use on Qantas aircraft.
Scuba Diving & Decompression Sickness

To minimise the risk of decompression sickness, often known as "the bends", if you who have been scuba diving within 24 hours of your flight departure you will not be permitted to travel.

If you have suffered decompression sickness prior to travel you will require medical clearance for travel commencing within 10 days of completing treatment.

Pregnancy

Flights 4 hours duration or greater

For routine pregnancies, you can travel up to the end of the 36th week for single pregnancies and the end of the 32nd week for multiple pregnancies (e.g. twins).

Medical clearance is required if you are having complications with your pregnancy (that is, if the pregnancy is not routine).

Flights less than 4 hours duration

For routine pregnancies, you can travel up to the end of the 40th week for single pregnancies and the end of the 36th week for multiple pregnancies.

Medical clearance is required if you are having complications with your pregnancy and it is not a routine pregnancy.

Medical Certification

After 28 weeks, you need to carry a certificate or letter from a registered medical practitioner or registered midwife confirming:

- the estimated date of delivery;
- whether it is a single or multiple pregnancy;
- that the pregnancy is a routine pregnancy and that there are no complications with the pregnancy.

The certificate or letter must be available on request and be carried with you at the airport and during the flight in your cabin baggage.

Medical Clearance

Medical clearance is required if the pregnancy is not routine and you are experiencing any complications with your
Medications

If you are taking medications, make sure that you have enough for your trip and carry all medications in your carry on baggage. Before taking any medications overseas, you should:

- contact the embassy of the country/countries you are visiting to ensure the medication is legal in that country;
- carry or enclose with the medication a letter from your doctor, with details of the medication, how much you will be taking with you, and stating that the medication is for your personal use;
- leave the medication in the original packaging so it is clearly labelled identifying the medication, manufacturer's name or pharmaceutical label, along with your name and dosage.

You should note that it is illegal to take Pharmaceutical Benefits Scheme (PBS) subsidised medication out of Australia for reasons other than for personal use. For more information visit the Medicare Australia website.

Generally, a visitor to Australia may bring up to 3 months supply of their prescribed medication without the need for an import approval or permit. However, some medications are subject to permits or import licence approval. The Therapeutic Goods Administration (TGA) issues import approvals to Australia for drugs which require a permit or import licence or for medication exceeding 3 months supply.

Insulin on board

Qantas is not able to refrigerate insulin or other drugs on board. If your medication requires refrigeration you can carry on board a small cooler. The cabin crew can replenish the cooler with ice as required.

Allergies/Anaphylaxis

Because of the wide variety of possible allergens to which a customer may be sensitive, and the fact that other Qantas customers may bring allergens with them, Qantas cannot guarantee an allergy free environment onboard or in our lounges. For this reason, we recommend that you carry any allergy medication you may need with you, including adrenaline auto injectors, in the cabin of the aircraft, keep them within easy reach and be ready to administer the medication if necessary. See the Inflight Assistance page for more information about food allergies and the Qantas Peanut Policy.

Hypodermic Needles

If you are carrying hypodermic needles you will need to declare them at the screening point. Under Australian law (and in accordance with international practices) hypodermic needles are classified as prohibited items within an aircraft cabin unless you can demonstrate a bona fide need to have them in your possession. You are therefore required to carry documentation and identification to confirm that the needles are required for a medical condition.
<table>
<thead>
<tr>
<th>Diagnosis/Condition</th>
<th>Not suitable for travel</th>
<th>Qantas travel clearance form required</th>
<th>Travel will be suitable in most cases if treating doctor clears for travel.</th>
<th>Comments for treating doctor’s information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory Conditions</strong></td>
<td>7 days or less after full inflation</td>
<td>8 - 21 days after full inflation</td>
<td>Must have no air in chest cavity on chest X-ray</td>
<td></td>
</tr>
<tr>
<td>Pneumothorax (air in the cavity around the lung due to a puncture wound or spontaneous) Haemopneumothorax (Blood and Air around the lung)</td>
<td>14 days or less</td>
<td>15 - 28 days, experiencing symptoms or complications</td>
<td>e.g. lobectomy, pleurectomy, open lung biopsy</td>
<td></td>
</tr>
<tr>
<td>Chest surgery</td>
<td>Acute, with symptoms</td>
<td>With in 7 days of resolution - complications or on going symptoms</td>
<td>Fully resolved or, if X ray signs persist, must be symptom free</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>Cyanosis on the ground despite supplementary oxygen / air</td>
<td>If unstable or poor exercise tolerance of less than 2 miles</td>
<td>Supplementary oxygen may be required in flight. Altitude</td>
<td></td>
</tr>
<tr>
<td>COPD, emphysema, pulmonary fibrosis, chronic cough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis/Condition</td>
<td>Not suitable for travel</td>
<td>Qantas travel clearance form required</td>
<td>Travel will be suitable in most cases if treating doctor clears for travel.</td>
<td>Comments for treating doctor’s information</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Ear nose and throat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otitis media and sinusitis</td>
<td>Acute illness or with loss of Eustachian function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle ear surgery</td>
<td>9 days or less</td>
<td>10 - 14 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonsillectomy</td>
<td>6 days or less</td>
<td>Only if complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wired jaw</td>
<td>If travelling alone</td>
<td>If wired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatric</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute psychosis (e.g. mania, schizophrenia, drug induced)</td>
<td>If unstable</td>
<td>Within 14 days of unstable episode or hospitalization</td>
<td>Providing stable for 7 days. Travel may be approved with suitable medical escort/carer</td>
<td></td>
</tr>
<tr>
<td>Eye conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetrating eye injury</td>
<td>6 days or less</td>
<td>7 - 14 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cataract surgery</td>
<td>Less than 24 hours</td>
<td>1 - 3 days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Inflight Medical Emergencies

- Vasovagal - 21.5%
- GI - 15.4%
- Respiratory - 10.2%
- Cardiac - 9.65%
- Neurologic - 8.7%

Medaire stats 2002
Researchers determined that over five years, one large Hong Kong-based airline logged 4,068 in-flight medical emergencies among paying passengers. That translated to a rate of about 12 emergencies per "billion revenue passenger kilometers" -- or the rate per paying passenger per billion kilometers traveled.

Medical emergencies requiring a flight diversion were much less common, at 46 over five years. Thirty passengers ultimately died, with heart attacks and other cardiac complications accounting for two-thirds of those deaths.
• Age was one of the key factors in the likelihood of emergencies leading to flight diversion or resulting in death, the study found. Passengers in their 70s and beyond had the highest risks -- not surprisingly, due to their higher rates of chronic diseases.

• Pregnant women were also at risk, with obstetric complications having the highest rate of flight diversion -- at about 11 percent -- than any other type of medical emergency.
That study also tracked the rates of different types of emergencies, finding that syncope (loss of consciousness) accounted for just over half of the incidents. Gastrointestinal ills were the second-most common cause, at 9 percent, followed by heart problems, at 5 percent.

Overall, 3 percent of all emergencies required a flight diversion, with the most frequent causes of diversions being heart attacks, brain haemorrhages and epileptic seizures.

Those researchers concluded that while in-flight medical emergencies are "generally rare," they can have significant consequences -- for fellow passengers and flight crew as well.
Jet Lag & the Medical Implications of Air Travel

Questions?

Presenter: Assoc Prof Dr Tony Hochberg