GP Handbook

General Topics

(last update 20110929)

ALTITUDE SICKNESS

Hypoxia is the primary physiological insult on ascent to high altitude. The fraction of oxygen in the atmosphere remains constant (0.21), but the partial pressure of oxygen decreases along with barometric pressure on ascent to altitude.

Altitude sickness refers to a group of syndromes that result from hypoxia; the target organs are the **brain** and the **lung**. Acute mountain sickness (AMS) and high-altitude cerebral oedema (HACO) are manifestations of the cerebral pathophysiology, while high-altitude pulmonary oedema (HAPO) is that of the lung. Everyone travelling to altitude is at risk, regardless of physical fitness or previous altitude experience.

The high altitude environment generally refers to elevations > 1500m (4900ft). Moderate altitude, 2000-3500m (6600-11,500ft), includes the temples in Tibet, and many ski resorts around the world. Although arterial oxygen saturation is well maintained at these altitudes, low PO2 results in mild tissue hypoxia, and altitude illness is common. Very high altitude refers to elevations of 3500-5500m (18,000ft). Arterial oxygen saturation is not maintained in this range, and extreme hypoxaemia can occur during sleep, with exercise, or with illness. HACO and HAPO are most common at these altitudes. Extreme altitude is over 5500m; above this altitude, successful long-term acclimatization is not possible.

Acclimatization

Acclimatization is the process of adjusting to hypoxia in which there is a series of compensatory changes in multiple organ systems over days to weeks.

Ventilatory acclimatization

The most important immediate response is an increase in minute ventilation, triggered by oxygen sensing cells in the carotid body. Increased ventilation produces a higher alveolar PO2, but concurrently, a lowered alveolar PCO2 produces a respiratory alkalosis, acting as a brake on the respiratory centre of the brain and limiting the increase in ventilation. Renal compensation, through excretion of bicarbonate ion, gradually brings the blood pH back toward normal and allows further increase in ventilation. This requires approximately 4 days at a given altitude and is greatly enhanced by acetazolamide. Patients with inadequate carotid body response (genetic or acquired, eg after surgery or radiation) or pulmonary or renal disease may have an insufficient ventilatory response and thus not adapt well to high altitude.

Circulatory changes

Ascent to high altitude initially results in increased sympathetic activity, leading to increased resting heart rate and cardiac output and mildly increased blood pressure. The pulmonary circulation reacts to hypoxia with vasoconstriction. This may somewhat improve ventilation/perfusion matching and gas exchange, but the resulting pulmonary hypertension can lead to a number of pathological syndromes at high altitude, including HAPO and altitude-related right heart failure. Cerebral blood flow increases immediately on ascent to high altitude, returning to normal over about a week. Whether the headache of AMS is related to this flow increase is not known.

Others

The haemoglobin level increases after ascent to high altitude. This is initially due to haemoconcentration from reduction in plasma volume secondary to altitude diuresis and fluid shifts. Subsequently, over weeks to months, erythropoietin stimulates increased red cell production.

Sleep architecture is altered at high altitude, with frequent arousals and nearly universal subjective

reports of disturbed sleep. This generally improves after several nights at a constant altitude.

AMS

Acute mountain sickness (AMS) is a syndrome of non-specific symptoms with varying severity. It occurs in non-acclimatized persons in the first 48 hours after ascent to altitudes above 2500 m, especially after rapid ascent (1 day or less). Symptoms usually begin a few hours after arrival at the new altitude but may arise as much as a day later, often after the first night's sleep. Headache is the principal symptom, typically frontal and throbbing. Gastrointestinal symptoms (anorexia, nausea, or vomiting), and constitutional symptoms are common. AMS feels similar to an alcohol hangover, or to a non-specific viral infection, but without fever or myalgia.

Fluid retention is characteristic of AMS, and persons with AMS often report reduced urination, in contrast to the spontaneous diuresis observed with successful acclimatization. As AMS progresses, the headache worsens, and vomiting, oliguria, and increased lassitude develop. Ataxia and mental symptoms herald the onset of clinical high-altitude cerebral oedema (HACO).

Symptoms

- Headache (100%)
- Gastrointestinal: anorexia, nausea, vomiting
- Constitutional: light-headedness, dizziness, weakness, fatigue
- Insomnia

The most common history in HACO is a person ascending further despite symptoms of AMS. Also, HACO commonly occurs in conjunction with HAPO.

Physical findings

- Patients appear ill.
- Neurologic signs are negative in AMS (but positive in HACO).
- Heart rate and blood pressure are variable and nondiagnostic.
- Pulmonary crackles may be present, but oxygen saturation is normal or slightly lower than acclimatized persons at the same elevation.
- Fever is absent.
- Fundoscopy may reveal retinal hemorrhages.
- Peripheral and facial oedema may be present.

Pre-hospital management

This follows 3 axioms: (1) no further ascent until symptoms resolve, (2) descend to a lower altitude if no improvement occurs with treatment, and (3) at the first sign of HACE, descend immediately.

- Acetazolamide accelerates acclimatization and thus quickens resolution of the illness; it is of limited value in HACO because of its relatively slow action (12-24 hrs).
- Dexamethasone swiftly reverses symptoms (2-4 hours) but does not improve acclimatization. It is the drug of choice for treating HACO and should be given early.
- Both agents may be used to treat AMS if the victim does not descend.
- Oxygen is extremely effective, but availability is often limited.
- Portable hyperbaric chambers made of coated fabric (eg Gamow bag) are now widely available among adventure travel groups on expeditions and in high-altitude clinics.

Hospital care

All of the symptoms of AMS improve dramatically with descent, and, by the time a patient reaches the hospital, further treatment is rarely indicated.

- Oxygen 4 L/min or to keep SaO2 above 90% should be used in patients who continue

to be ill after descent.

- Dexamethasone should be continued for 1-2 days after descent or until the mental status clears.
- Ataxia due to HACO commonly persists for days to weeks after descent, but persistent mental status changes or the presence of focal neurological deficits should prompt a complete neurological evaluation.

HAPO

High-altitude pulmonary oedema (HAPO) is a non-cardiogenic, hydrostatic pulmonary oedema, characterized by pulmonary hypertension and increased pulmonary capillary pressure. Left ventricular function is normal in HAPO. Patchy hypoxic pulmonary vasoconstriction and consequent localized over-perfusion, combined with hypoxic permeability of pulmonary capillary walls, results in a high-pressure, high-permeability leak.

Hypoxic pulmonary vasoconstriction results in increased pulmonary artery pressures in all who ascend to high altitude, but it is exaggerated in those susceptible to HAPO, primarily due to genetically determined factors. This individual susceptibility is perhaps the greatest risk factor, although pre-existing medical conditions associated with pulmonary hypertension or a restricted pulmonary vascular bed will greatly increase susceptibility to HAPO. Exercise increases the risk of HAPO via increasing cardiac output and pulmonary artery pressure at altitude.

Symptoms

HAPO generally occurs 2-4 days after ascent to high altitude, often worsening at night. Decreased exercise tolerance is the earliest symptom, usually associated with a dry cough. As the illness progresses, the cough worsens and becomes productive; dyspnoea, tachypnoea, tachycardia, drowsiness or other CNS symptoms may develop. CXR characteristically shows patchy infiltrates and a normal cardiac outline.

HAPO varies in severity from mild to immediately life-threatening. Differential diagnosis is sometimes problematic, but HAPO improves dramatically with descent or oxygen, whereas other diagnoses do not.

Physical findings

- Rales or wheezing in at least one lung field
- Central cyanosis or arterial oxygen desaturation relative to altitude
- Tachycardia
- Tachypnoea
- Fever and orthopnoea
- Pink/frothy sputum is a late finding

Management

DESCENT! Descent to an altitude below that where symptoms started is always effective treatment, but it may not be practical or possible. In general, a descent of 500-1000 m is usually sufficient.

- Oxygen (4L/min via nasal cannula).
- Nifedipine may be useful for patients being evacuated on foot.
- Portable hyperbaric chambers can effect a physiologic (simulated) descent.
- Acetazolamide has no role in the treatment of HAPO
- Dexamethasone should be used only in cases of concurrent HACO.
- Furosemide may be useful with acute HAPO.
- Portable hyperbaric chambers are widely used among adventure travel, trekking groups and climbing expeditions.

Prevention

Recommendations on staged ascents are by and large adequate for the average person, but some persons will still become ill despite a slow, staged ascent.

Helpful guidelines

- Avoid abrupt ascent to sleeping elevations over 3000 m (10,000 ft).
- Spend 1-2 nights at an intermediate elevation (2500-3000 m) before further ascent.
- Above 3000 m, sleeping elevations should not increase by more than 300 m per night.
- Day hikes to higher elevations, with return to lower sleeping elevations.
- Avoid overexertion.
- Avoid alcohol consumption (respiratory depression, exaggerated sleep hypoxemia, AMS headache being dismissed as a hangover).

Medications

Acetazolamide

- It effectively prevents AMS; it accelerates acclimatization by inducing a bicarbonate diuresis, stimulating ventilation and improving sleep-breathing patterns.
- It is indicated in unavoidable rapid ascent, such as flying in to a high city (eg Lhasa, Tibet; La Paz, Bolivia), or with a past history of AMS.
- Dosage: 250mg BD 48 hours before ascending and continue it for at least 48 hours after arrival at the high altitude.
- Contraindications: sulfonamide allergy, hepatic disease, hyponatremia or hypokalemia; adrenocortical insufficiency, hyperchloremic acidosis, severe renal dysfunction, and severe pulmonary obstruction. Acetazolamide should be used with caution in diabetics as it can cause a change in glucose control.

Dexamethasone

- It also effectively prevents AMS but does not improve acclimatization. However, because of the concern of rebound symptoms and the side effect profile, this medication cannot be routinely recommended for prophylaxis.

ANTIBIOTIC PROPHYLAXIS

Oftentimes we are asked to prescribe "antibiotic cover" for patients with cardiac defects or valvular conditions undergoing dental or other procedures. The aim is prevention of infective endocarditis, a serious illness with significant morbidity and mortality.

Previous guidelines focused on suppression of bacteraemia of organisms known to cause infective endocarditis in dental (eg viridans group streptococci), GU or GI (eg enterococci) procedures. Since infective endocarditis are more likely to result from frequent exposure to random bacteraemia associated with daily activities, optimal oral hygiene is much more important than prophylactic antibiotics.

The current emphasis is on the risk of adverse outcomes, rather than the lifetime risk, of infective endocarditis.

AHA 2008 Guidelines

The latest AHA guidelines suggest that **antibiotic prophylaxis should be focused to high-risk patients before dental procedures that involve manipulation of either gingival tissue or the periapical region of the teeth or perforation of oral mucosa**.

Antibiotic prophylaxis is therefore NOT indicated for other lower risk patients undergoing dental, GU or GI procedures.

<u>High-risk patients</u>
(1) Prosthetic cardiac valves
(2) Previous infective endocarditis
(3) Congenital heart diseases:
    (a) Unrepaired cyanotic congenital heart diseases, including palliative shunts and conduits
    (b) The first 6 months after complete prosthestic repair of congenital heart defects
    (c) Incompletely repaired congenital heart defects
(4) Cardiac transplant recipients with valve regurgitation due to a structurally abnormal valve

CONSENT

Consent in healthcare can simply be defined as a patient's agreement for a health professional to provide care. Patients may indicate consent non-verbally (eg by presenting their arm for pulse taking), orally, or in writing. Consent is often wrongly equated with a patient's signature on a consent form. ***A signature on a form is evidence that the patient has given consent, but is not proof of valid consent***. Patients may, if they wish, withdraw consent after they have signed a form: the signature is evidence of the process of giving consent, not a binding contract.

In Hong Kong, it is not uncommon for a doctor to perform a pre-employment examination on a foreign domestic helper without consent (verbal or written) from the examinee to either the examination itself, or releasing the result of the examination to the employer, or both. Needless to say this could result in serious medico-legal issues. It is the duty of every doctor to obtain such consent from the examinee, and record in the medical notes that such consent was obtained.

Written Consent

It is rarely a legal requirement to seek written consent, but it is good practice to do so if any of the following circumstances apply:

- the treatment or procedure is complex, or involves significant risks (the term 'risk' is used throughout to refer to any adverse outcome, including those which some health professionals would describe as 'side-effects' or 'complications')
- the procedure involves general/regional anaesthesia or sedation
- providing clinical care is not the primary purpose of the procedure
- there may be significant consequences for the patient's psycho-social status
- the treatment is part of a project or programme of research approved by the appropriate authority

Consent Q&A

When do health professionals need consent from patients?

- Before you examine, treat or care for competent adult patients you must obtain their consent.

- Adults are always assumed to be competent unless demonstrated otherwise. If you have doubts about their competence, the question to ask is: "can this patient understand and weigh up the information needed to make this decision?" Unexpected decisions do not prove the patient is incompetent, but may indicate a need for further information or explanation.

- Patients may be competent to make some health care decisions, even if they are not competent to make others.

- Giving and obtaining consent is usually a process, not a one-off event. Patients can change their minds and withdraw consent at any time. If there is any doubt, you should always check that the patient still consents to your caring for or treating them.

Can children give consent for themselves?

Before examining, treating or caring for a child, you must also seek consent. Young people aged 16 and 17 are presumed to have the competence to give consent for themselves. Younger children who understand fully what is involved in the proposed procedure can also give consent (although their parents will ideally be involved). In other cases, someone with parental responsibility must give consent on the child's behalf, unless they cannot be reached in an emergency. If a competent child consents to treatment, a parent cannot over-ride that consent. Legally, a parent can consent if a competent child refuses, but it is likely that taking such a serious step will be rare.

Who is the right person to seek consent?
It is always best for the person actually treating the patient to seek the patient's consent. However, you may seek consent on behalf of colleagues if you are capable of performing the procedure in question, or if you have been specially trained to seek consent for that procedure.

What information should be provided?
Patients need sufficient information before they can decide whether to give their consent: eg information about the benefits and risks of the proposed treatment, and alternatives. If the patient is not offered as much information as they reasonably need to make their decision, and in a form they can understand, their consent may not be valid.

Does it matter how the patient gives consent?
No: consent can be written, oral or non-verbal. A signature on a consent form does not itself prove the consent is valid – the point of the form is to record the patient's decision.

Refusal of Treatment

Competent adult patients are entitled to refuse treatment, even when it would clearly benefit their health. The only exception to this rule is where the treatment is for a mental disorder and the patient is detained under the Mental Health Act 1983. A competent pregnant woman may refuse any treatment, even if this would be detrimental to the foetus.

Incompetent Adults

No-one can give consent on behalf of an incompetent adult. However, you may still treat such a patient if the treatment would be in their best interests. 'Best interests' go wider than best medical interests, to include factors such as the wishes and beliefs of the patient when competent, their current wishes, their general well-being and their spiritual and religious welfare. People close to the patient may be able to give you information on some of these factors. Where the patient has never been competent, relatives, carers and friends may be best placed to advise on the patient's needs and preferences.

If an incompetent patient has clearly indicated in the past, while competent, that they would refuse treatment in certain circumstances (an 'advance refusal'), and those circumstances arise, you must abide by that refusal.

FALLS

All falls in an elderly patient, especially if recurrent, need to be investigated; the risk of a subsequent fatal fall is high.

Causes

- About 50% are due to accidents
- 10% are related to loss of consciousness or dizziness
- For others, there are no clear cause

Evaluation

To properly evaluate an elderly patient after a fall, we have to determine both the resulting injuries and the underlying causes of the fall. The exact circumstances under which the fall happens are important and any nervous, cardiac, musculoskeletal abnormalities should be looked into. A full drug history is useful. The patient should be examined for arrhythmia, postural hypotension and neurological deficits.

Common fall-associated injuries

- Cuts and bruises
- Fracture ribs, wrist (Colles), pelvis, neck of femur
- Head injuries (neuro-obervation necessary: subdural haematoma)

Specific Causes

Drop attacks

These can be due to vertebrobasilar insufficiency. Paroxysmal cardiac dysrhythmias are a recognised cause of syncope and fall. Frequent ventricular ectopic beats and left bundle branch block are common findings in the ECGs of elderly patients, but the combinations of syncope and complete heart block, bifascicular block, or sick sinus syndrome require cardiac pacing.

Postural hypotension

This is a common phenomenon in the elderly. A drop of 20mmHg or more in systolic pressure on standing is found in 15% of those aged between 65 and 74, and in 25% of those aged 75 or more. If autoregualtion of cerebral blood flow is impaired or the standing systolic blood pressure is less than 110 mmHg, syncope may occur. It tends to occur after meals, on exercise, on getting up at night and with other illness such as influenza. Over use of diuretics, hypotensive agents, phenothiazines and benzodiazapines are also responsible.

Others

- Cerebral disorders: stroke, epilepsy, Parkinsonism…etc
- Skeletal problems: arthritis, obesity, instability in knees…etc
- Visual impairment
- Balance disorders such as inner ear problems

FEVER

Fever with duration of less than 3 days is often due to a self-limiting viral infection but less common infection including SARS should be suspected if it persists beyond 4-5 days.

Alarming Symptoms & Signs

- Repeated rigors, altered mental state with petechiae (consider meningococcaemia)
- Marked pallor
- Severe pain
- Dyspnoea

Fever in Children

Usually due to viral infection; not harmful if < 41C.

Management

- Decide whether the child looks well or seriously ill
- Consider admission if serious illness suspected (eg meningitis, pneumonia, septicaemia) or special investigations indicated (blood culture, CSF examination).
- Investigate and treat underlying diseases
- Have adequate fluid intake
- Advise: light clothing, frequent small drinks, no heavy blankets
- Tepid sponging
- Antipyretics: Paracetamol (DHAmol) 12mg/kg q4h, Mefenamic acid 6mg/kg q6h
- NEVER USE STEROIDS TO TREAT FEVER

Fever in the Elderly

Keep in mind that fever is always significant in the elderly, and is due to sepsis until proven otherwise (especially in lungs and urinary tract).

Pyrexia of Unknown Origin (PUO)

Three diagnostic criteria:

1) Fever for > 3 weeks
2) Temperature > 38C
3) Undiagnosed after 1 week of extensive investigations

Differential diagnoses:

- TB
- Bacterial endocarditis
- Malignancy
- Connective tissue disorder
- Crohn's disease

RE-EXAMINE THE PATIENT ON EVERY VISIT.

FITNESS TO DIVE

The combination of cold water, high pressure and strenuous exercise makes great demands on the diver. The 'buddy' system of diving means that any diver must be capable of rescuing another. The following conditions render a person MEDICALLY UNFIT to dive:

- asthma
- spontaneous pneumothorax, pulmonary cysts
- cardiac disease
- poor cardio-respiratory reserve
- problems with balance
- poorly controlled diabetes
- epilepsy and other causes of loss of consciousness
- poor vision and, especially, a history of eye surgery
- problems with Eustachian tubes and eardrums
- neuromuscular disorders
- psychiatric difficulties
- obesity
- pregnancy

Hyperbaric oxygen therapy

The Recompression Treatment Centre (RTC) on Stonecutters Island has been operating in Hong Kong since 1994 and has been used to treat a variety of diving-related and other conditions by means of hyperbaric oxygen therapy. Below is a list of conditions for which hyperbaric oxygen therapy is useful:

(1) Related to diving and compressed-air work
- Decompression illness
- Arterial gas embolism

(2) Acute indications
- Carbon monoxide poisoning
- Clostridial myonecrosis
- Soft-tissue necrotising infections

(3) Chronic indications
- Radiation tissue damage
- Refractory osteomyelitis
- Enhancement of healing in selected problem wound

FITNESS TO FLY

A patient is medically NOT fit to fly as a passenger usually when they have a condition which will be adversely affected by **hypoxia** and/or **pressure changes** produced by altitude.

Hypoxia

Civil aircraft cabins are pressurized to about 5,000-7,000ft both as a safety margin for passengers and because psychomotor performance, which is of relevance to aircrew, deteriorates at altitudes over 8,000ft. Pressurisation to sea level, although ideal, is not cost-effective.

At a cabin altitude of 6,000ft the alveolar partial pressure of oxygen will have fallen from 13.7kPa (103mmHg) to 10.3kPa (77mmHg), but the sigmoid shape of the haemoglobin dissociation curve is such that the oxygen saturation of haemoglobin will have been reduced by only about 3%. Without in-flight oxygen, patients with the following conditions are thus not fit to fly:

- uncontrolled heart failure
- stroke in the last 3 weeks
- myocardial infarction in the last 10 days
- anaemia below 7.5g/dl
- uncontrolled chronic respiratory disease
- poor cardio-respiratory reserve (unable to walk about 80m and unable to climb 12 stairs without symptoms)

In-flight oxygen has to be arranged with the airline concerned. This usually takes at least a day or 2. Oxygen other than that provided by the carrying airline will not be allowed on board any civil aircrafts. In most cases in-flight oxygen, which is not humidified, is delivered with nasal cannula. A doctor should specify how much oxygen (in litres/min) their patient requires when applying for in-flight oxygen. Any patient requiring in-flight oxygen has to be escorted by at least a nurse, but preferably a doctor. Particular attention should be paid to the compatibility of the various connections involved in the whole oxygen delivering mechanism.

Gas Expansion

Gas in the body is likely to expand by about 30% at a cabin altitude of 6,000ft. Patients who cannot tolerate this, and are thus unfit to fly, include those:

- with blocked Eustachian tubes and sinuses
- with a recent middle ear surgery, especially stapedectomy
- within 10 days of abdominal or chest surgery
- within 2 weeks of a gastrointestinal bleed (bleeding may be reactivated by the distension of the bowel)
- within 7 days of air encephalography, open neurosurgery, and a skull fracture extending into a sinus or the middle ear cavity
- with an pneumothorax (without an *in-situ* chest drain)
- who have been scuba diving in the 12 hours before the flight
- with a recently applied full plaster cast (patients should wait for 24 hours before a flight of less than 2 hours and 48 hours before a longer flight, unless the cast is capable of expansion, or is split)

Pregnancy

A pregnant woman should not fly beyond the 35th week of pregnancy. Newborn babies should not fly in the first 2 days of life while their alveoli are still expanding.

Other Conditions

Patients with the following conditions are not fit to fly:

- contagious diseases
- psychiatric conditions with a tendency to become violent
- terminal diseases likely to result in death during flight
- offensive conditions
- uncontrolled epilepsy

Special Attention

Patients with poor venous circulation of the legs should wear support stockings and walk about the cabin as much as possible.

Patients with CSF leakage should not fly because of the possibility of backflow and bacterial contamination due to the pressure changes within the cabin.

Patients with wired jaws must be able to release the mechanism in the event of vomiting.

Patients with arthritis or other lower limb problems may need the extra legroom of First/Business Class unless the airline can provide economy seating with extra space.

Inside an aircraft, a special wheelchair (which is slimmer) can be used to negotiate the aisle and transfer patients from the seat to toilet.

Airlines differ widely in their policies on the provision of in-flight medications, but all provide an in-flight emergency medical kit for use in urgent medical situations.

The air in the aircraft cabin is, on average, changed every 3 minutes. It is a mix of fresh air drawn from outside the aircraft, and air that has passed through very efficient filters, which provide an environment that is as sanitized as a hospital operating theatre. The air supplied to aircraft toilets is not re-circulated but is expelled from the aircraft. Inside the aircraft cabin the air vents are at the level of overhead stowage bins while air extraction is at floor level. Air is thus drawn down, not up, and most importantly, there is no longitudinal flow of air through the cabin. Therefore, the risk of contracting or disseminating airborne infection in a civil aircraft is, at least in theory, much smaller than that in an office building.

Epilepsy may be precipitated by hypoxia, hyperventilation, fatigue, and stress when flying, and patients should increase rather than decrease their medication as they change to the new time zone.

Statutory Requirements for Passengers

These mainly relate to mobility. A passenger eligible for using an airline seat must be able to seat upright during takeoff and landing, and to get out of the seat with minimum assistance. A patient

who cannot do so, or who needs to be in a supine position can be accommodated using a stretcher on a scheduled flight with mandatory medical escort. The in-flight stretcher is created by fixing a stretcher on a frame of about 4 feet high, and is installed longitudinally in the economy class occupying an area over 6-8 seats.

In all matters of fitness to fly, the airlines and their designated doctors can exercise their discretion, and the captain can veto the decision of the airline medical department without having to give justification.

Flight Crew

It is obvious that the fitness requirement for a pilot is very different from that of a flight attendant or a passenger. Knowing the occupation of the patient is therefore important in assessing the medical fitness to fly. In general, 2 basic principles are essential when assessing a flight crew's medical fitness for aviation duties:

1) The crew should be physically and mentally capable of performing their duty
2) There should be no medical reasons, which make the crew liable to incapacitation while performing their duty, to a degree that flight safety might be jeopardized

Therefore, common or even self-limiting symptoms like fever, abdominal cramps or diarrhoea are usually enough to render a pilot or a flight attendant medically unfit to fly as a working crew.

Health Requirements for Flight Attendants

- Physically and medically fit to discharge the duties specified (including normal speech, hearing, smell, taste, vision and general physical abilities)
- An arm reach of at least 208cm (safety requirement)
- To jump and slide down the escape slide (length ~ 1420cm, height drop ~ 780cm)
- To swim with a life jacket on
- To assist passengers to stow hand baggage (may exceed 15kg) in the overhead locker
- To pull/push food cart with meal trays (up to 100kg when fully loaded) along the aisle at an incline (up to +10 degrees) within a reasonable time frame
- To perform duties which involve considerable lifting, stretching and bending eg preparation of food carts, service of meals and beverages
- To push the emergency slide pack (up to 134kg) out of the aircraft from the cabin floor in an event of emergency
- To carry and pour hot and cold drinks, holding a tray, cups, and pouring beverage (pot max weight 2.4kg) with the other hand
- To assist in moving incapacitated person(s) down the stairway
- To walk at a good pace for extended distances and negotiate stairs for up to 25 minutes continuously at airports and terminals
- A high level of tolerance of stress in emergency situation and in dealing with unruly and agitated passengers
- A high level of emotional stability, for good judgment decision making and quick and appropriate responses during turbulence, unexpected incidents and in emergency procedures, as well as the ability to adjust to time zones, frequent travel, and working away from family and social support

Prescribing for Flight Crew

For pilots, different licensing States may have slightly different detail in their requirements, but the

Joint Aviation Authorities (JAA) rules describe well the approach to aircrew medication:

"(b) Holders of medical certificates shall not take any prescription or non-prescription medication or drug, or undergo any other treatment, unless they are completely sure that the medication, drug or treatment will not have any adverse effect on their ability to perform safely their duties. If there is any doubt, advice shall be sought from the AMS (national aeromedical service), an AMC (aeromedical center), or an AME (approved aviation medical examiner)".

Acceptable risk for driving on the road is of a completely different level to that in aviation. The risk of impairment or sudden incapacitation in crew who are critical to the safety of the flight must be kept to the absolute minimum possible. While the side-effects of some medications (eg hypnotics and antihistamines) are well known, others may only become significant under the unique flight conditions of mild hypoxia, body clock disturbance and poor visual environment faced by aircrew.

Physicians treating aircrew must be alert to 2 considerations – what effect could the illness itself have on flight safety, and secondly what adverse effect might the treatment produce?

When choosing a medication:

- Make sure treatment is started at least 48 hours before next flight
- Explain the drug's action and potential side effects to the patient
- Insist on reviewing the aircrew member before they return to flying, if in doubt about the illness or the therapy given
- Advise on timing of doses, particularly if the crew member is returning to long-haul

Self-medication

During any medical consultation with an aircrew member, ask about their current or planned use of any over-the-counter (OTC) medicines, alternative medicines and "supplements" (eg vitamins, body-building products etc).

In Hong Kong, many local people use traditional Chinese medicines (TCM) in tandem with prescribed therapies, and may not think to mention this during a consultation. Some TCM practitioners may use substitute ingredients, and in some cases this may include the addition of Western pharmaceuticals such as analgesics, steroids or stimulants.

Some body-building products contain substances eg gamma-hydroxybutyrate (GHB) may cause drowsiness and coma, thus affecting flying.

Specific Cautions & Contraindications

Although the following requirements, described by body system, apply principally to pilots and how medications affect their licensing status, they are also relevant in assessing drug effects on other aircrew (eg flight attendants and flight engineers).

Cardiovascular system

- Anti-angina drugs: not acceptable
- Antiarrhythmic drugs: the underlying medical condition may be disqualifying.
- Anticoagulant drugs: not acceptable
- Antihypertensive drugs: alpha-blockers not acceptable. Other drugs may be initiated by agreement with the aeromedical service (AMS) of the licensing state and may include non-loop diuretics, some beta-blockers, ACE inhibitors, angiotensin II blockers and some calcium channel blockers. A trial of therapy on the ground with a minimum of 10 days free of side-effects is required before consideration of return to flying duties. For pilots, a restriction to multi-pilot flying may be required.

Respiratory system

- Asthma: inhaled medications (eg steroids and bronchodilators) are generally acceptable, but an increased frequency or severity of asthma attacks indicates the need for aeromedical review. The need for more than 800mcg of inhaled beclomethasone (or equivalent) should also prompt a review. Oral steroid therapy, and other oral medications such as xanthines and oral beta-agonists, are generally unacceptable.
- Cough: avoid preparations containing antihistamines, codeine or morphine derivatives, and those purchased overseas with instructions/contents printed in an unfamiliar foreign language.
- Active airborne or droplet infections are not compatible with flying.

Digestive system

As food handlers flight attendants must not work while suffering from gastroenteritis (or any infections transmissible via the faecal-oral route) and may not assist a patient in the toilet because they are food handlers.

- Antacids: generally acceptable provided symptoms of the underlying condition are only mild (eg indigestion).
- Antidiarrhoeals: aircrew must not work while suffering from acute GI disturbances (these are the commonest cause of sudden in-flight incapacitation in pilots). Loperamide may be acceptable for repatriation as a passenger to the home base.
- Antispasmodics: drugs with atropine-like action and side effects are unacceptable. Peppermint derivatives acceptable.
- Active ulcer disease is disqualifying, but maintenance therapy with H2 antagonists and proton pump inhibitors after healing is acceptable.
- Inflammatory bowel disease: chronic IBD is disqualifying, but recertification may be allowed on full remission. Steroid enemas – unacceptable. Oral mesalazine – acceptable (not sulphasalazine).
- Gallstones: only patients with single, large gallstones are considered for unrestricted flying. Those with multiple, asymptomatic stones may be considered for restricted flying as or with a copilot, but the use of stone-dissolving medications is unacceptable.

Metabolic system

- DM: insulin therapy is not acceptable. The only acceptable oral hypoglycaemic drugs are biguanides (metformin) and alpha-glucosidase inhibitors, and then only with an operational multipilot restriction applied by the licensing authority.
- Active thyroid disorders are disqualifying, but the regulatory authority may allow recertification once the patient is stable, asymptomatic and clinically compensated with or without ongoing therapy under appropriate specialist care.
- Addisons disease is disqualifying, but recertification may be considered (usually with multipilot restriction) if stabilized and the pilot carries cortisone while on duty.
- Corticosteroids: systemic treatment is usually not acceptable, although pilots under accredited specialist care may be allowed to return to flying on < 10mg of prednisolone equivalent. This is a decision for the medical staff of the licensing authority, and if other doctors consider steroids clinically necessary, the pilot must be grounded pending such opinion.

Haematological system

- Anaemia: following investigation and correction of the anaemia on the ground, ongoing treatment with iron supplements, vitamin B12 and/or folic acid supplements is acceptable.

Urinary system

- Symptomatic treatment for stones: symptomatic urinary stones are incompatible with flying.
- Asymptomatic stones are investigated and a multipilot limitation applied to the licence

until successful treatment has been completed.

- Renal transplant: while disqualifying in initial pilot applicants, recertification may be considered for trained pilots after a minimum of 12 months. Post- transplant if maintained on minimal immunosuppressive therapy.

Reproductive system

- Acute syphilis is disqualifying. Certification is considered only after the successful completion of therapy.
- HIV positivity is disqualifying, but the AMS may consider recertification with a multi-pilot restriction. The occurrence of AIDS/AIDS related complex is disqualifying and therefore treatment for this is incompatible with flying as a pilot.
- Erectile therapy: injectable autonomic agents are unacceptable. Sildenafil (Viagra) is not acceptable within 10 hours of flying duty, as it causes problems with colour vision ("Viagra blue") in some subjects.
- Hormone therapy: most therapies (eg oral contraceptives, female hormone replacement therapy and androgen replacement) are acceptable.

Musculoskeletal system

- Simple analgesics, such as aspirin and paracetamol are acceptable. Moderate and strong analgesics, including opiates (morphine, codeine) and related compounds are not acceptable. If strong pain relief is necessary, the underlying pathology may not be compatible with flying.
- Anti-inflammatory drugs (NSAID): as mentioned above, the condition creating the need for the drug may not be compatible with flying, but in cases without significant disability, NSAID may offer good symptomatic relief. Effectiveness and side-effects should be assessed on the ground first before a return to flying.
- Gout therapy: aircrew must not fly during an acute attack, but long-term suppression (eg with allopurinol) may be acceptable.

Neurological and Psychiatric disorders

- Antidepressants are not acceptable
- Antiepileptics: not acceptable
- Antipsychotics: not acceptable
- Migraine therapy: aborting drugs are not acceptable. Following investigation, prophylaxis such as with beta-blockers may be acceptable.
- Stimulants: not acceptable. Amphetamines and high doses of caffeine have been investigated and used in military flying, but their use in civil aviation is not acceptable.
- Therapy for alcoholism: initial treatment must be started on the ground. Following full assessment and recovery, a return to flying may be possible while still on treatment (eg with disulfiram).
- Hypnotics: the lowest possible dose of a short acting drug eg midazolam may be tried, but must not be taken within 12 hours of flying duty. Longer acting drugs, such as diazepam, are not acceptable.

Visual system

- Topical preparations: drugs designed to dilate or constrict the pupil must not be administered to pilots when the action may persist into a flying duty period.

Ear, nose and throat system

- Antihistamines: only non-sedating antihistamines, eg loratidine, are acceptable.
- Decongestants: systemic decongestants are not acceptable in most cases.
- Vertigo/dizziness therapy: dizziness, vertigo, loss of balance and Meniere's disease are all incompatible with aircrew duties. It follows that drugs aimed at acutely controlling these conditions are not acceptable.

Skin

- Topical steroids: acceptable. However, active dermatitis may not be compatible with cabin crew food handling duties.
- Anti-acne therapy: topical agents are acceptable, but systemic treatment with isotretinoin (Roaccutane) is not acceptable due to the known risks of epistaxis, photosensitivity and impaired night vision.

Oncology

- Licensing authorities assess cancer and its treatment individually (eg by stage, therapeutic options, yearly risk of sudden incapacitation). Any change to therapy must be reported in order to assess its safety impact.

Antimicrobials

- Most antibiotics are acceptable. However, anti-tuberculosis therapy is not acceptable for flying in aircrew due both to the risks of the underlying infection and to known drug side-effects. Ethambutol is unacceptable due to the risk of retrobulbar neuritis, scotomata and blurred vision, and standard therapy drugs (rifampicin, isoniazid, pyrazinamide) carry the risk of serious side effects.
- Antimalarials: the choice of antimalarial prophylaxis must follow the known risks present in any geographical area. Most standard drugs are well-tested and acceptable, except for mefloquine which must not be used due to the known neuropsychiatric risks which include dizziness and psychosis.
- Antiviral drugs: acyclovir is usually acceptable after a trial of therapy on the ground.

FOLLOW UP

It is amazing how many doctors out there do not follow up their patients in a proper and timely manner, and how many dissatisfied patients complain about not being duly reassessed by their doctors.

Do You Know…

- virtually all patients would like to be followed up until they are free of symptoms?
- most patients would like to get a prognosis of their conditions from their doctors?
- a lot of patients would like to stock some medications at home just in case?

Will They Come Back?

Whether or not a patient will return for follow-up depends largely on the trust they have on their doctors. A very useful technique to build trust with your patients is to tell them they do NOT need any follow-up when they really DON'T. Later, when there is an indication for follow-up, your patients will be more willing to comply with your request.

When to Follow Up?

When should a patient return for follow-up after investigation? In routine cases like cough (CXR) or back injury (XR of L/S) we can explain the results to the patient at the next visit, the timing of which depends on specific clinical situations. We do NOT need the patient to return any sooner, unless there is something urgent we need to tell them as soon as possible.

HEAT SYNDROMES

Heat syndromes are a continuum of increasingly severe heat illness caused by dehydration, electrolyte loss, and failure of the body's thermoregulatory mechanisms. Patients at the extremes of age are particularly vulnerable.

Heat Stroke

A life threatening heat illness characterized by extreme hyperpyrexia with profound CNS dysfunction.

Risk factors

- Extremes of ages
- Intercurrent illness
- Cardiovascular disease
- Parkinsonism
- Autonomic neuropathy
- Drugs and toxins: amphetamines, salicylates, thyroxine, alcohol, anticholinergics, antihistamines, tricyclic antidepressants, phenothiazines, diuretics, beta blockers...

Classic triad

- Core temperature > 41C
- CNS disturbance: stupor, delirium, seizures, focal neurological deficits
- Hot dry skin

Management

- Provide prompt first aid; immediately transfer the patient to a safe, cool place
- Remove excessive coverage
- Lie on the side
- Avoid spraying cold water to skin as this only results in vasoconstriction
- Admit the patient to hospital as an emergency case

Heat Exhaustion

Water depletion type

- Intense thirst, weakness
- CNS symptoms: muscular incoordination, psychosis, delirium, and coma
- Moderately elevated temperature (>39 C)

Salt depletion type

- Muscle cramps, nausea, vomiting, weakness, pale skin, tachycardia and hypotension.
- Thirst or sweating may not be present
- Low sodium levels

Management

- Cool environment
- Oral NaCl 1gm every hour for 4-6 hours with large amount of water or intravenous saline with potassium supplement as indicated
- Close observation needed as heat exhaustion may rapidly progress to heat stroke

Heat Cramp

Heat cramp refers to painful spasms of voluntary muscles of abdomen and extremities after strenuous exercise. It is due to salt depletion. In heat cramp, the visible skin changes are variable, and the core temperature is normal or mildly raised.

Management

- Rest in cool area
- Recumbent position
- Replace water and electrolytes orally

Heat Syncope

Heat syncope usually presents itself as post-exertional fainting. It is due to cutaneous and muscular vasodilatation, and is characterized by cold clammy skin, weak pulses, transient hypotension with a normal or mildly elevated core temperature. Heat syncope typically responds promptly to rest in recumbent position, cooling and oral rehydration.

Heat Oedema

Heat oedema is due to muscular and cutaneous vasodilatation, and is characterized by swelling of feet and ankles after prolonged sitting or standing. It is treated by support and elevation. Diuretics are NOT indicated.

MEDICAL EXAMINATION

For a variety of reasons a doctor may be asked to perform medical examinations (aka ME) on patients. In TYMP most of the ME fall intone of the following categories:

- Wellness check-up
- Pre-insurance medical examination
- Pre-employment examination

Wellness Check-Up

Wellness check-ups are routine medical examinations. It is our duty to inform the client that wellness check-up cannot totally exclude the presence of cancers or other serious diseases.

For whom?

- Anyone concerned about their health status

What does it include? It depends on…

- Family history
- Present history
- Physical examination
- Client's concern
- BUDGET

Pre-Insurance Medical Examination

Often inappropriately called "Insurance Examination", pre-insurance medical examinations assess the medical assurability of a client. Naturally cases with higher life risks attract higher premiums, and cases with risks unacceptable to insurance companies are probably unassurable. In addition, pre-existing medical conditions will probably be excluded from relevant insurance coverage.

Pre-insurance examination is therefore not supposed to be comprehensive. Extremely few, if any, doctors would ask an examinee to remove all the clothes just to scan the whole body for skin diseases, or perform formal genital examination routinely. Doctors are however required to make individual professional judgment as to the extent of a pre-insurance check-up.

A mobile pre-insurance examination is performed on the basis where the examiner (a doctor or a nurse) visits the client at a pre-appointed time and location to conduct the examination.

Pre-Employment Examination

Objectives

(1) Safety: It is considered critical that the new applicant be free from medical conditions that could result in sudden incapacitation that can lead tan accident, especially, for health and safety sensitive jobs. Examples of such a position are driving, piloting, climbing working over a body of water, driving…etc. In these positions sudden incapacitation would expose the worker himself and his colleague to great danger.

(2) Health: Pre-employment is a means to establish baseline health data against which future health status of the worker be compared. It is also a means of identifying existing medical conditions which could be adversely affected by occupational exposures.

Guidelines for determining fitness

(1) Chronic diseases:
An applicant must be free from any chronic psychiatric and physical illness that can compromise safety or disrupt operations.

(2) Acute diseases:
Acute medical conditions are illnesses that can be totally cured within a relatively short period of time. Job applicants who fall under this category are to be certified as TEMPORARY UNFIT. They remain in this category until the condition is cured. Following their recovery, the job applicant is to be reassessed to ensure that full recovery has taken place before they can be declared as FIT.

(3) Physical disabilities:
The suitability of job applicants with one or more disabilities is to be determined by the job requirements and the safety risk associated with the job.

- A job applicant with monocular vision is UNFIT to perform jobs which requires good depth perception. Examples of work activities which require normal visual perception of depth are: driving (ground, water, or air), sailing, climbing, jumping.

- Applicants with colour deficiency are UNFIT for those jobs that require ability to differentiate colours correctly such as pharmacists, pilots, fire fighters, electricians, electronic technicians, laboratory technicians…etc.

- A job applicant with deformity or amputation of a limb to such a degree that the disability interferes with successful and safe job performance and emergency evacuation is declared UNFIT.

Reporting the results

Most companies require that the report be submitted to the human resources department or the administrative office. Companies that do this normally require the job applicant to sign a form to give their consent to the doctor to release medical and personal information to the potential employer. Although it is usually the potential employer that pays for the pre-employment medical examination, a doctor owes the examinee a professional responsibility no different from that derived from a normal doctor-patient relationship.

NEEDLE-STICK INJURY

Needle-stick injuries are wounds caused by needles that accidentally puncture the skin. Accidental injection of blood-borne viruses is the major hazard of needle-stick injuries. The risk of transmission after exposure to INFECTED blood is about 0.3% for HIV, up to 10% for hepatitis C virus and up to 30% for hepatitis B virus.

Other infectious diseases that have been transmitted through needle-stick injuries include:

- Blastomycosis
- Brucellosis
- Cryptococcosis
- Diphtheria
- Cutaneous gonorrhea
- Herpes
- Malaria
- Mycobacteriosis
- Mycoplasma caviae
- Rocky Mountain spotted fever
- Sporotrichosis
- Staphylococcus aureus
- Streptococcus pyogenes
- Syphilis
- Toxoplasmosis
- Tuberculosis

Although most of these diseases were transmitted in rare, isolated events, they still demonstrate that needle-stick injuries can have serious consequences.

Recapping

Recapping is the single most common cause for, and can account for 25-30% of all needle-stick injuries of healthcare workers. Injuries occur in 3 different ways:

- the needle misses the cap and accidentally enters the hand holding it
- the needle pierces the cap and enters the hand holding it
- the poorly fitting cap slips off of a recapped needle and the needle stabs the hand

In TY Healthcare we have recommended that all our associates avoid recapping needles before disassembly or disposal. Despite this, some of our associates still continue the practice even when being properly informed of the dangers. In some cases, inappropriate training may be responsible.

The single-handed scooping technique is recommended where recapping is considered necessary:

- lay the cap on a flat surface
- scoop it onto the tip of a syringe held in one hand, and
- during the whole recapping process keep the free hand away from the sheath and well behind the exposed needle

TY Guidelines on Needle-stick Injuries

- All needles and sharps are potentially infectious and to be handled with care to prevent accidental injuries.
- All needles and sharps are to be disposed of in puncture-resistant containers located near the area of use. These "sharps boxes" should not be overfilled.
- Needles should not be recapped by hand or purposely bent, broken, or removed from disposable syringes or otherwise manipulated by hand.

Assess risks

- Time of exposure
- Nature and degree of exposure: skin integrity, bleeding, depth of needle penetration, visible blood contamination of the needle…
- First Aid response: was the site washed immediately, how?

Deliver treatment

- Wash, disinfect and consider surgical treatment if the wound is tetanus prone

Counsel the patient

- Reassure the patient that the risk of disease transmission is small
- Advise against donating blood, organs or semen
- Inform the risks associated with breast feeding and pregnancy
- Explain precautions to avert disease transmission: eg safe sex, no sharing of toothbrushes or any item which may be blood contaminated

Give post-exposure prophylaxis

- Hepatitis B immune globulin (HBIG), IM stat, if < 72 hours from time of exposure
- Hepatitis B vaccination, IM (separate site from HBIG)
- Tetanus vaccination - with or without tetanus immunoglobulin based on tetanus immunisation history and the type of wound

Collect blood for baseline testing

- Request HIV Ab, Anti-HCV, and HBcAb if the patient is not vaccinated, or HBsAb if already vaccinated

Follow up

- Complete the full course of hepatitis B vaccination followed by antibody testing at 2-4 months after completion of the vaccine course
- Retest for HIV Ab (at 3 months), hepatitis B and hepatitis C (at 3 and 6 months)

OCCUPATIONAL MEDICINE

Occupational Disease Reporting

The Occupational Safety & Health Ordinance aims to protect the safety and health of workers. All registered medical practitioners are legally required to notify to the Commissioner for Labour the following 51 occupational diseases. The notification forms can be obtained from Occupational Health Service, Labour Department, 15/F Harbour Building, 38 Pier Road, Central, Hong Kong (Tel 2852 4041), or downloaded from: http://www.labour.gov.hk/eng/form/oh/ld483.PDF

1) Radiation illness
2) Heat cataract
3) Compressed air illness
4) Cramps of hand or forearm
5) Beat hand
6) Beat knee
7) Beat elbow
8) Tenosynovitis of hand and forearm
9) Anthrax
10) Glanders
11) Leptospirosis
12) Extrinsic allergic alveolitis
13) Brucellosis
14) Tuberculosis in health care workers
15) Parenterally contacted viral hepatitis in health care workers
16) Streptococcus suis infection
17) Avian chlamydiosis
18) Lead poisoning
19) Manganese poisoning
20) Phosphorus poisoning
21) Arsenic poisoning
22) Mercury poisoning
23) Carbon bisulphide poisoning
24) Benzene poisoning
25) Poisoning by nitro-, amino-, or chloro- benzene
26) Dinitrophenol poisoning
27) Poisoning by halogen derivatives of hydrocarbons
28) Diethylene dioxide poisoning
29) Chlorinated naphthalene poisoning
30) Poisoning by oxides of nitrogen
31) Beryllium poisoning
32) Cadmium poisoning
33) Dystrophy of the cornea
34) Skin cancer
35) Chrome ulceration
36) Urinary tract cancer
37) Peripheral polyneuropathy
38) Localized papillomatous or keratotic new skin growth
39) Occupational vitiligo
40) Occupational dermatitis
41) Chemical induced upper respiratory tract inflammation
42) Nasal or paranasal sinus cancer
43) Byssinosis
44) Occupational asthma
45) Silicosis
46) Asbestos-related diseases
47) Occupational deafness
48) Carpal tunnel syndrome
49) Legionnaires' disease
50) SARS
51) Avian influenza A

Occupational deafness has accounted for more than half of the total number of occupational diseases each year since 1996. There has been a marked increase in the number of cases of occupational deafness since 1997 owing to the change in criteria for compensation.

In 1995-1995, the most commonly reported occupational diseases in Hong Kong were occupational deafness, silicosis, gas poisoning, tuberculosis in health care workers, tenosynovitis of hands and forearms, and occupational dermatitis.

RINGSIDE MEDICAL ASESSMENT

Duties of a Ring Doctor

The job of a ringside physician (aka ring doctor) is to **enable the fight to proceed to its natural conclusion**. Throughout the competition the ring doctor must be present at a designated seat until the last fight ends. The following are the ring doctor's duties:

(1) To check the boxer's physical examination before the fight to certify that the boxers are healthy and without any prohibited diseases or conditions that may render them medically unfit to fight.

(2) To give advice and suggestion to the referee on request.

(3) To give medical assistance for a knocked-out or technical knocked-out boxer.

(4) To check and diagnose the boxers after their bouts to notify them their recovery periods before the next bout:

- After a five-round bout, the boxers must rest before the next bout at least 21 days.
- The winner in one round must rest at least 7 days.
- The winner in three rounds must rest at least 14 days.
- The loser by technical knockout must rest at least 30 days. In case of losing by knockout, the boxer must rest at least 90 days.

A Holistic Approach

Every decision a ring doctor makes can have serious repercussions across the board. Make a decision that is too liberal about a fighter's injury and the doctor could be responsible for that fighter having permanent physical debilitations. Make a decisions that is too conservative and the doctor could impact a fighter's career, the subsequent fights he can get and the decisions other ring doctors and fighters make about him for the rest of his professional life.

A fight is not only about the punches landed, but also the events going on with the officials, the response of the crowd, the history of the fighters, the temperature of the room…etc. When making medical decisions in a fight, the ring doctor must consider the summation of all events that are taking place to impact that fight.

Cuts

To assess whether a cut should cause a fight to stop, a ring doctor should consider the following first:

- Is blood getting in the eye?
- Is the cut huge?
- Could the cut disfigure the fighter permanently?

If the answer to any of those questions is "Yes," then the answer is obviously that the fight needs to be called. But there are many other things to consider that are not as obvious:

- What round is the fight in? Cuts in later rounds may not be called as much since it is more likely that the fight's natural conclusion would involve the cut fighter being able

to safely fight for a minimal number of rounds.
- Was the cut from a head butt? These cuts are deeper and usually cause more problems than hit cuts.
- Who are the fighter's cornermen and how well are they able to treat the cuts?

In general, the referee should bring the fighter to the doctor whenever the referee is worried about the fighter's safety, but even if the referee does not bring a fighter over to see a doctor during a round, it is the ring doctor's responsibility to get a look at the cut during the round break.

Headbutts

A headbutt is a deceleration injury, in which a head that was in motion is suddenly stopped by another head. Cuts from headbutts are often deeper than punch cuts, so doctors need to examine them more carefully. In addition, headbutts are prone to cause concussions. More than one fighter have lost a fight because they suffered a concussion in a headbutt that did not get diagnosed. The rule of thumb when looking at a fighter after a headbutt? Remember how hard the hit to the head was and how much danger the fighter who received the head butt may be in.

Eye Swelling

A one-eyed fighter should not be allowed to fight. The ringside doctor should consider the following when looking at a swollen eye:

- Has the fighter lost the ability to self-defend?
- Why is the eye closing (could it be because of a fracture underneath the swelling, which would cause an immediate stoppage)?
- Who are the fighter's cornermen and how well are they able to treat the swelling?

After a KO or a Tough Round...

This is one of the most loaded calls a ring doctor can make because it can dictate the outcome of the fight and the future health of the fighter. In evaluating a fighter after a KO or an extra tough round, a doctor should ask themselves:

- What round is it? If it's early on, the fighter has a better chance of recovering and continuing to fight since he or she will be fresher and stronger.
- When in the round did the KO happen? Early on or late enough that a corner break is about to happen when the doctor can do further evaluation.
- Was the KO from a flash punch or a series of punches?
- What is the fighter's experience? Has he or she handled big punches before?
- How did the fighter's gait look when he or she walked back to the corner?
- Is the fighter hurt or just tired?

Less is More...

Every time a ring doctor comes into the ring, it breaks the flow of the fight, which affects both fighters. To come into the corner between rounds as much as possible is also disruptive, because corner time is valuable to fighters and every moment that the doctor spends in the corner is less time the fighter can spend listening to their cornermen. The solution is therefore to examine the fighter when necessary. And, after all, if a fighter is in a condition where they needs to be checked by a doctor round after

round after round, should the fight really continue? Less is more.

SICK LEAVE

There is only one indication for a doctor to grant sick-leave to a patient – ***when it is in a doctor's professional opinion that the patient requesting certification of sick leave is medically unfit to perform their duty during that leave period***. So it does not take an Albert Einstein to figure out "when" the sick note is issued has no relation to "why" the sick leave is given.

Can I Backdate Sick Notes?

It depends on what you mean by backdating. If you define backdating as falsifying the date on a document, then my answer is "Yes, you can, but you may not, and if you insist, you'll end up in jail." If you define backdating a sick note as writing one recommending sick leave for a period of time in the past, then my answer is "Yes, you can and you may, according to the above first principle".

If a patient presents himself today saying that he was too sick tgtwork the previous day, then according tour first principle you should have no trouble issuing a sick note with today as the date of issue and yesterday as the date of sick leave. The key point here is whether the issue date a doctor puts on the sick note is indeed the date the note is issued. Doctors (and any persons for that matter) that falsify dates on sick notes (and any other documents for that matter) commit a criminal offence which is punishable by imprisonment.

A patient Mr X visited one of our clinics at 00:50, 2006/06/26. Dr Y, the MP on duty, thought Mr X was sick enough to take a day off on 2006/06/26, and issued a sick note accordingly. Yet Mr X was actually too sick to report twork on 2006/06/25, and asked for a sick note for that day. Dr Y refused to write Mr X a sick note for 2006/06/25 because the consultation happened on 2006/06/26, although he had no doubt that Mr X was genuinely too sick to report duty on 2006/06/25.

Sound deja-vuish? Any idea how many unhappy patients and blood-boiling complaints doctors have created over the years by refusing tissue sick notes under this and other similar situations?

Not Comfortable Issuing Sick Notes the TY way?

What if one of our MPs says, "Okay Dr Chow, I understand your logic. It's just that I don't feel comfortable issuing sick notes according to your first principle." To me this is not unlike saying "Okay Dr Chow, I understand your mission. It's just that I don't feel comfortable doing physical examination on patients." Refusing to issue sick notes to patients when professionally indicated violates at least 2 of our core values, namely:

- Recognize service and flexibility as core elements in our business philosophy
- Apply the highest professional standards to caring of patients and prevention of diseases

What if the Patient Lies?

Some doctors have problem trusting their patients; some have no problem judging theirs. If you start distrusting your patients, you might just consider a change of career.

The reasoning is simple: a doctor who does not believe their patients will never be able to make appropriate professional recommendations for the latter. How can you effectively manage your

patients if you routinely assume that they would lie about their symptoms? If you cannot trust your patients you should not feel obliged to continue managing the patient; you should instead advise that there is a breakdown of doctor-patient relationship, and refer the patient for a second opinion.

Half-Day Sick Leave

There are not many medical conditions whereby patients are sick just enough to be unable to attend work for a few hours. We should not issue sick notes to patients just because they spend a few hours getting dressed, being stuck in traffic, reading magazines in our lobby, waiting for their medications and receipts… A certificate of attendance will do the fine job of telling people how much time a patient spends on getting to see a doctor.

Sick Leave Duration for Infectious Diseases

In order to prevent patients (especially children) with communicable diseases from attending workplaces or schools during the infectious period, the Department of Health has been releasing relevant recommendations since 2003. Below is the TY's guidelines on sick leave duration for some common infectious diseases. As always the attending doctor should exercise their professional judgement when making the final decision thereof, taking into consideration the whole clinical picture, psychosocial factors and even epidemiological data.

Disease	**When should sick leave end?**
Acute conjunctivitis	No abnormal secretion from the eyes
Bacillary dysentery	No more diarrhoea AND > 2 consecutive stool samples collected > 24 hours apart negative for bacteria (the 1st stool sample being collected 48 hours after completion of antibiotic treatment)
Chickenpox	All vesicles dry up
Diptheria	2 negative nasopharyngeal swab culture
Gastroenteritis	No more diarrhoea and vomiting for > 2 days
Hand foot mouth disease	All vesicles dry up (add 2 more weeks if enterovirus 71 isolated)
Hepatitis A	> 1 week from appearance of jaundice
Hepatitis B	> 4 weeks from appearance of jaundice
Measles, mumps, rubella	7 days after appearance of rash
Scarlet fever	Fever down AND 24 hours after starting antibiotic treatment
Tuberculosis	> 2 weeks after starting treatment
Typhoid fever	> 3 consecutive stool samples collected > 24 hours negative for bacteria (the 1st stool sample being collected 48 hours after completion of antibiotic treatment)
Whooping cough	5 days from starting antibiotic treatment

"UNCLAIMABLE" DIAGNOSES

Like it or not, dealing with insurance cases will become so routine for doctors that the medical profession should learn more about medical insurance in Hong Kong.

Excluded Conditions

These are conditions for which insurance companies usually decline payment:

- Self-inflicted injuries
- Injuries sustained while committing a legal offence
- Conditions related to pregnancy and infertility
- Cosmetic treatment
- Rest cure
- Psychiatric conditions including alcoholism and drug abuse
- Sexually transmitted diseases
- Functional disorders
- Congenital disorders
- Refractive eye disorders
- Dental conditions

A list of the more common "unclaimable" diagnoses is presented below for your information.

"Unclaimable" diagnosis	**Related "claimable" diagnosis**
Anaemia	Palpitations
Anxiety	Palpitations
Dizziness / Vertigo	Vestibular neuronitis / Labyrinthitis
Fatigue	Flu / URTI
Headache	Flu / URTI
Gingivitis	Pharyngitis / Lymphadenitis
Urethral discharge	Urinary tract infection
Irritable bowel syndrome	Abdominal pain / Diarrhoea
Missed period	Secondary amenorrhoea
Obesity	Hyperlipidaemia
Phimosis	Balanitis
Pregnancy	Secondary amenorrhoea
Snoring	Sleep apnoea
Ulcer syndrome	Peptic ulcer / Epigastric pain