



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Healthcare and Nutrition

231, de Saram Place, Colombo 01000, Sri Lanka

Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk

Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk

Web: <http://www.epid.gov.lk>

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Air travel and health

The volume of air traffic has risen steeply in recent years and "frequent flyers" now make up a substantial proportion of the traveling public. The number of long-distance flights has increased. According to the International Civil Aviation Organization, passenger traffic is projected to double between 2006 and 2020. Air travel, in particular over long distances, exposes passengers to a number of factors that may have an effect on their health and well-being.

Cabin air pressure

Although aircraft cabins are pressurized, cabin air pressure at cruising altitude is lower than air pressure at sea level. At typical cruising altitudes in the range 11 000–12 200 metres (36 000–40 000 feet) air pressure in the cabin is equivalent to the outside air pressure at 1800–2400 metres (6000–8000 feet) above sea level. As a consequence, less oxygen is taken up by the blood (hypoxia) and gases within the body expand. The effects of reduced cabin air pressure are usually well tolerated by healthy passengers. Cabin air contains ample oxygen for healthy passengers and crew. However, because cabin air pressure is relatively low, the amount of oxygen carried in the blood is reduced compared with sea level. Passengers with certain medical conditions, particularly heart and lung disease and blood disorders such as anaemia (in particular sickle cell anaemia), may not tolerate this reduced oxygen level (hypoxia) very well. Some of these passengers are able to travel safely if arrangements are made with the airline for the provision of an additional oxygen supply during flight.

Gas expansion

As the aircraft climbs, the decreasing cabin air pressure causes gases to expand. Similarly, as the aircraft descends, the increasing pressure in the cabin causes gases to contract. These changes may have effects where gas is trapped in the body. Gas expansion during the climb causes air to escape from the middle ear and the sinuses, usually without causing problems.

This airflow can sometimes be perceived as a "popping" sensation in the ears. As the aircraft descends, air must flow back into the middle ear and sinuses in order to equalize pressure differences. If this does not happen, the ears or sinuses may feel as if they are blocked and, if the pressure is not relieved, pain can result. Swallowing, chewing or yawning ("clearing the ears") will usually relieve any discomfort. As soon as it is recognized that the problem will not resolve, a short forceful expiration against a pinched nose and closed mouth (Valsalva manoeuvre) should be tried and will usually help. For infants, feeding or giving a pacifier to stimulate swallowing may reduce the symptoms. Individuals with ear, nose and sinus infections should avoid flying because pain and injury may result from the inability to equalize pressure differences. If travel cannot be avoided, the use of decongestant nasal drops shortly before the flight and again before descent may be helpful. As the aircraft climbs, expansion of gas in the abdomen can cause discomfort, although this is usually mild. Some forms of surgery, other medical treatments or diagnostic tests may introduce air into a body cavity. Examples include abdominal surgery or eye treatment for a detached retina. Passengers who have recently undergone such a procedure should ask a travel medicine physician or their treating physician how long they should wait before undertaking air travel.

Cabin humidity and dehydration

The humidity in aircraft cabins is low, usually less than 20% (environmental humidity is normally over 30%). Low humidity may cause skin dryness and discomfort of the eyes, mouth, nose and exposed skin but presents no risk to health. Using a skin moisturizing lotion, saline nasal spray to moisturize the nasal passages, and spectacles rather than contact lenses can relieve or prevent discomfort. The low humidity does not cause internal dehydration and there is no need to drink more than usual.

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Motion sickness

Except in the case of severe turbulence, travelers by air rarely suffer from motion (travel) sickness. Those who do suffer should request a seat in the mid-section of the cabin where movements are less pronounced, and keep the motion sickness bag, provided at each seat, readily accessible. They should also consult their doctor or travel medicine physician about medication that can be taken before flight to help prevent problems, and should avoid drinking alcohol during the flight and for the 24 hours beforehand.

Immobility, circulatory problems and deep vein thrombosis (DVT)

Contraction of muscles is an important factor in helping to keep blood flowing through the veins, particularly in the legs. Prolonged immobility, especially when seated, can lead to pooling of blood in the legs, which in turn may cause swelling, stiffness and discomfort. It is known that immobility is one of the factors that may lead to the development of a blood clot in a deep vein, so-called “deep vein thrombosis” or DVT. In most cases of DVT, the clots are small and do not cause any symptoms. The body is able to gradually break down the clots and there are no long-term effects. Larger clots may cause symptoms such as swelling of the leg, tenderness, soreness and pain. Occasionally a piece of the clot may break off and travel with the bloodstream to become lodged in the lungs. This is known as pulmonary embolism and may cause chest pain, shortness of breath and, in severe cases, sudden death. This can occur many hours or even days after the formation of the clot in the leg. The risk of developing DVT when traveling is increased in the presence of other risk factors, including:

- previous DVT or pulmonary embolism;
- history of DVT or pulmonary embolism in a close family member;
- use of oestrogen therapy – oral contraceptives (“the Pill”) or hormone replacement therapy (HRT);
- pregnancy;
- recent surgery or trauma, particularly to the abdomen, pelvic region or legs;
- cancer;
- obesity;
- some inherited blood-clotting abnormalities.

It is advisable for people with one or more of these risk factors to seek specific medical advice from their doctors or a travel medicine clinic in good time before embarking on a flight lasting three or more hours. DVT occurs more commonly in older people. Some researchers have suggested that there may be a risk from smoking and from varicose veins.

Jet lag

Jet lag is the term used for the symptoms caused by the disruption of the body’s “internal clock” and the approximate 24-hour (circadian) rhythms it controls. Disruption occurs when crossing multiple time zones i.e. when flying east to west or vice versa. Jet lag may lead to indigestion and disturbance of bowel function, general malaise, daytime sleepiness, difficulty in sleeping at night, and reduced physical and mental performance. Its effects are often combined with tiredness

caused by the journey itself. Jet lag symptoms gradually wear off as the body adapts to the new time zone. Jet lag cannot be prevented but there are ways of reducing its effects. Travelers who take medication according to a strict timetable (e.g. insulin, oral contraceptives) should seek medical advice from their doctors or a travel medicine clinic before their journey.

General measures to reduce the effects of jet lag are as follows.

- Be as well rested as possible before departure, and rest during the flight. Short naps can be helpful.
- Eat light meals and limit consumption of alcohol. Alcohol increases urine output, with the result that sleep may be disturbed by the need to urinate. While it can accelerate the onset of sleep, alcohol impairs the quality of sleep, making sleep less restorative. The after-effects of excessive consumption of alcohol (“hangover”) can exacerbate the effects of jet lag and travel fatigue. Alcohol should therefore be consumed in moderation, if at all, before and during flight. Caffeine should be limited to normal amounts and avoided within a few hours of an expected period of sleep.
- Try to create the right conditions when preparing for sleep. When taking a nap during the day, eyeshades and earplugs may help. Regular exercise during the day may help to promote sleep, but avoid strenuous exercise immediately before trying to sleep.
- At the destination, try to get as much sleep in every 24 hours as normal. A minimum block of 4 hours’ sleep during the local night – known as “anchor sleep” – is thought to be necessary to allow the body’s internal clock to adapt to the new time zone. If possible, make up the total sleep time by taking naps during the day in response to feelings of sleepiness.
- The cycle of light and dark is one of the most important factors in setting the body’s internal clock. Exposure to daylight at the destination will usually help adaptation.
- Short-acting sleeping pills may be helpful. They should be used only in accordance with medical advice and should not normally be taken during the flight, as they may increase immobility and therefore the risk of developing DVT.
- Trying to adjust to local time for short trips of up to 2–3 days may not be the best coping strategy, since the body clock may not have an opportunity to synchronise to the new time zone, and re-synchronisation to the home time zone may be delayed after the return flight. If in doubt, seek specialist travel medical advice.
- Individuals react in different ways to time zone changes. Frequent flyers should learn how their own bodies respond and adopt habits accordingly. Advice from a travel medicine clinic may help in formulating an effective coping strategy.

Source:

International Travel and Health WHO-International Health Regulations Secretariat/Communicable Diseases
Web <http://www.who.int/ith>

Table 1: Vaccine-preventable Diseases & AFP

01st-07th August 2009 (32nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	00	00	00	00	00	00	01	49	60	-18.3%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	00	04	00	00	00	00	00	04	05	91	81	+12.3%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	18	24	-25.0%
Whooping Cough	00	01	00	00	00	01	00	00	01	03	00	36	24	+50.0%
Tuberculosis											349		5528	14.4%

Table 2: Newly Introduced Notifiable Disease

01st-07th August 2009 (32ndWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	12	16	09	151	01	02	04	02	10	207	79	11489	3464	+231.6%
Meningitis	02 GM=2	00	02 GL=2	13 VU=13	01 AM=1	04 KR=3 PU=1	00	00	04 RP=3 KG=1	26	14	657	886	-24.1%
Mumps	04	02	03	04	06	02	03	02	01	27	75	1197	1713	-30.1%
Leishmaniasis	00	00	04 MT=4	00	00	00	00	00	00	04	Not available*	490	Not available*	-

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.
 DPDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matala, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Table 4: Surveillance of Communicable diseases among IDP's 01st-07th August 2009 (32nd Week)

Area	Disease	Dysentery	Enteric fever	Viral Hepatitis	Chicken Pox	Watery Diarrhoea
Vavunia		0	5	8	73	-
Chendikulam		70	10	33	155	420
Total		70	15	41	228	420

Table 4: Selected notifiable diseases reported by Medical Officers of Health

01st-07th August 2009 (32nd Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Colombo	106	3028	3	129	0	9	5	125	2	42	3	360	0	5	1	76	0	4	92
Gampaha	113	2815	5	110	0	17	0	31	1	13	10	197	0	7	7	80	0	2	87
Kalutara	8	1073	7	238	0	9	0	44	0	43	1	158	0	1	2	46		2	58
Kandy	87	3175	1	200	0	5	1	22	0	54	2	153	0	116	4	70	0	0	76
Matale	71	1234	0	79	0	2	0	26	0	6	5	270	1	5	2	43	0	2	100
Nuwara Eliya	7	200	9	333	0	2	3	143	3	782	0	29	0	56	1	58	0	0	100
Galle	33	413	15	172	0	10	0	2	2	22	6	109	0	6	3	20	0	3	95
Hambantota	16	708	0	65	0	8	0	6	0	11	0	53	2	58	2	29	0	0	91
Matara	17	882	9	206	0	4	0	4	1	16	2	103	8	90	5	35	0	1	94
Jaffna	0	10	0	80	0	3	2	187	0	28	0	0	0	124	0	141	0	2	25
Kilinochchi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mannar	0	4	1	57	0	1	0	88	0	4	0	0	0	0	0	47	0	0	50
Vavuniya	2	15	20	1364	4	17	15	221	0	2	0	3	0	2	57	3312	0	0	75
Mullaitivu	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Batticaloa	19	478	6	188	0	12	0	10	9	50	0	9	0	2	0	17	0	3	91
Ampara	2	201	0	32	0	0	0	10	0	8	1	9	1	2	2	17	0	0	57
Trincomalee	0	313	1	72	0	2	0	4	0	1	0	16	0	19	0	33	0	1	70
Kurunegala	123	2125	2	124	0	8	2	46	0	9	2	69	1	58	1	87	0	4	75
Puttalam	21	467	9	108	0	7	0	58	0	2	0	63	1	30	1	20	0	1	67
Anuradhapur	5	456	0	80	0	4	0	5	0	3	0	78	0	27	6	114	1	2	58
Polonnaruwa	2	124	0	25	0	2	0	20	0	6	1	55	0	9	0	42	0	0	100
Badulla	2	217	2	180	0	2	1	32	0	19	2	67	1	79	5	239	0	1	73
Monaragala	5	125	4	53	0	1	1	21	1	12	0	13	2	52	5	70	0	1	91
Ratnapura	46	1543	6	372	0	18	0	40	0	5	2	173	4	29	3	98	0	1	83
Kegalle	65	3092	2	123	0	7	1	30	0	6	3	138	0	23	2	153	0	1	82
Kalmunai	0	151	1	77	0	1	1	13	0	3	0	2	0	3	3	16	0	0	62
SRI LANKA	750	22849	103	4469	4	151	32	1189	19	1147	40	2127	21	803	112	4863	01	31	77

Source: Weekly Returns of Communicable Diseases WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 07th August, 2009 Total number of reporting units =311. Number of reporting units data provided for the current week: 241

A = Cases reported during the current week. B = Cumulative cases for the year.

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ON STATE SERVICE

Dr. P. PALIHAWADANA
 CHEIF EPIDEMIOLOGIST
 EPIDEMIOLOGY UNIT
 231, DE SARAM PLACE
 COLOMBO 10