

Repatriation of travellers

experience from SOS International

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I have worked for 24 years as a freelance
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No conflict of interest to declare

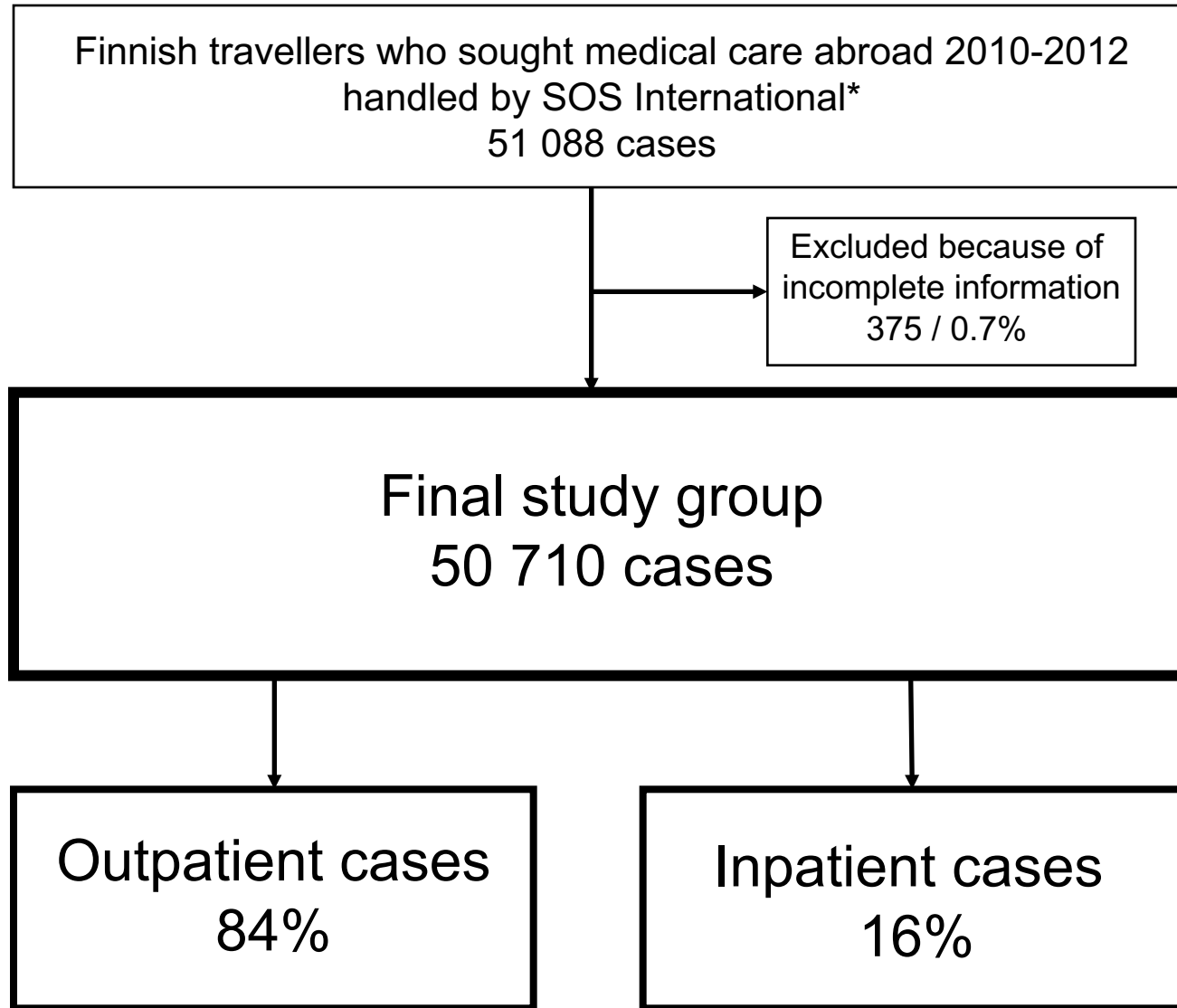


- Assistance organization serving Nordic and Baltic insurance companies
- Founded 1957, owned by 15 of the largest Nordic insurance companies
- Provides travellers with 24/7 emergency assistance
 - Advice
 - Referral to treatment
 - Cost coverage
 - Medical evaluation
 - Arrangement of transportation if indicated for medical reasons

www.sos.eu



- > 1200 employees
 - represent 30 nationalities, speak more than 37 different languages
- Main alarm centre in Copenhagen
- “Finnish group” - taking care of Finnish travelers only
 - 30 Finnish speaking alarm center workers in Copenhagen
 - 12 Finnish coordinating doctors
 - 9 in Finland, 1 in Denmark, 1 in USA, 1 in Venezuela



*SOS International covered approximately 95% of all Finnish cases handled abroad by assistance organizations

Diagnoses

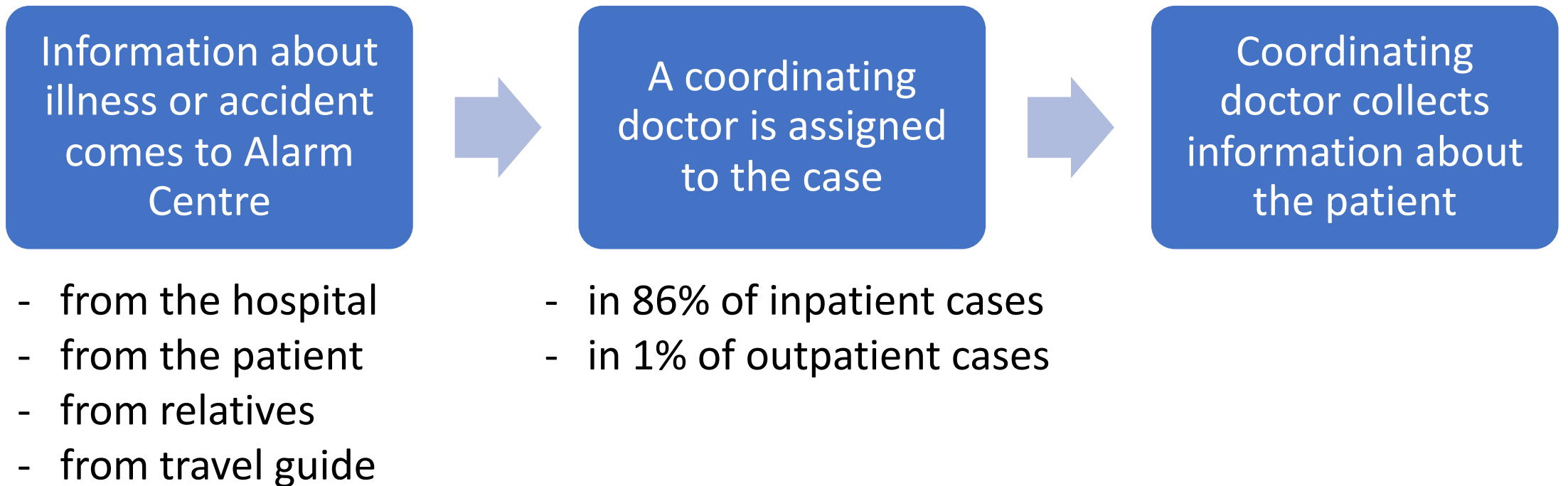
- 60% infections
- 14% injuries
- 5% skin diseases
- 5% musculoskeletal and connective tissue diseases
- 3% diseases of the digestive tract
- 2% vascular diseases

Return trip

	N (%)
According to the original plan	48 842 (96.3)
Return trip was rearranged	1 556 (3.1)
Ambulace flight	113 (0.2)
Death*	199 (0.4)

*168 did not die in hospital, diagnoses not available

Process of work in SOS International



All data are processed online in a computerized database

Coordinating doctor gets information about the case

- **From the treating doctor**
 - From medical reports
 - By telephone
 - Language skills needed
 - Language barriers - interpreters
- **From the patient him/herself**
- From relatives
- Local assistance organisation
 - If difficult to get information directly from hospital
- From patient's medical files in home country
 - If background information is needed

Role of the coordinating doctor

To evaluate if the patient has

1. Acute disease

- Insurance covers treatment and repatriation

2. Acute worsening of existing disease

- Insurance covers 7-10 days of treatment, not repatriation

3. Expected need of treatment

- Illness that has started before the trip
- Not covered at all

4. Illness/accident is caused by alcohol or drugs

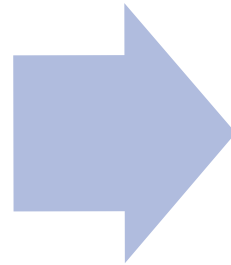
- Not covered at all

Role of the coordinating doctor

1. To check that patient gets as good treatment as he/she would get in the home country
2. "Cost control"
3. If patient is not fit to fly as planned
 - To evaluate and decide when and how to repatriate the patient
 - done in cooperation with the treating doctor
 - coordinating doctor is the one responsible for the transport

Repatriation of patient

Coordinating doctor
gives
a detailed transport
instruction



Alarm Centre personnell
arrange
the transport

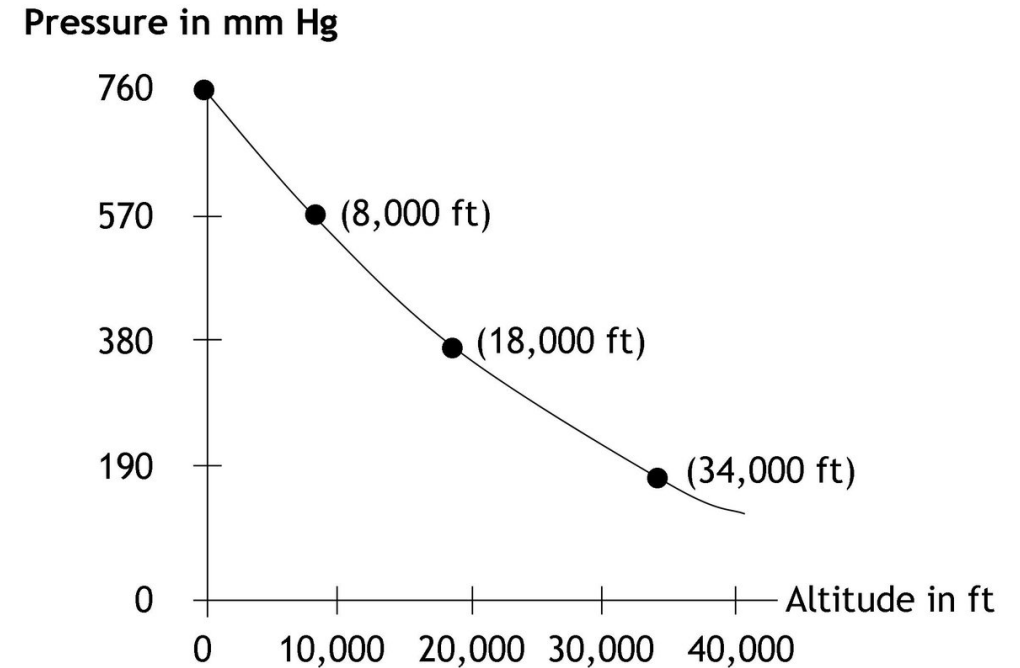
Principles of transporting patients

- If patient gets as good care as in home country, wait until he/she is stable enough for transport
 - Safety of the patient is the 1st priority
- If patient is in a place with poor treatment facilities, evacuate to the nearest place with proper facilities
 - If condition is serious, urgent evacuation by ambulance plane

Transport in commercial airplane
- issues to consider

Pressure conditions in airplane

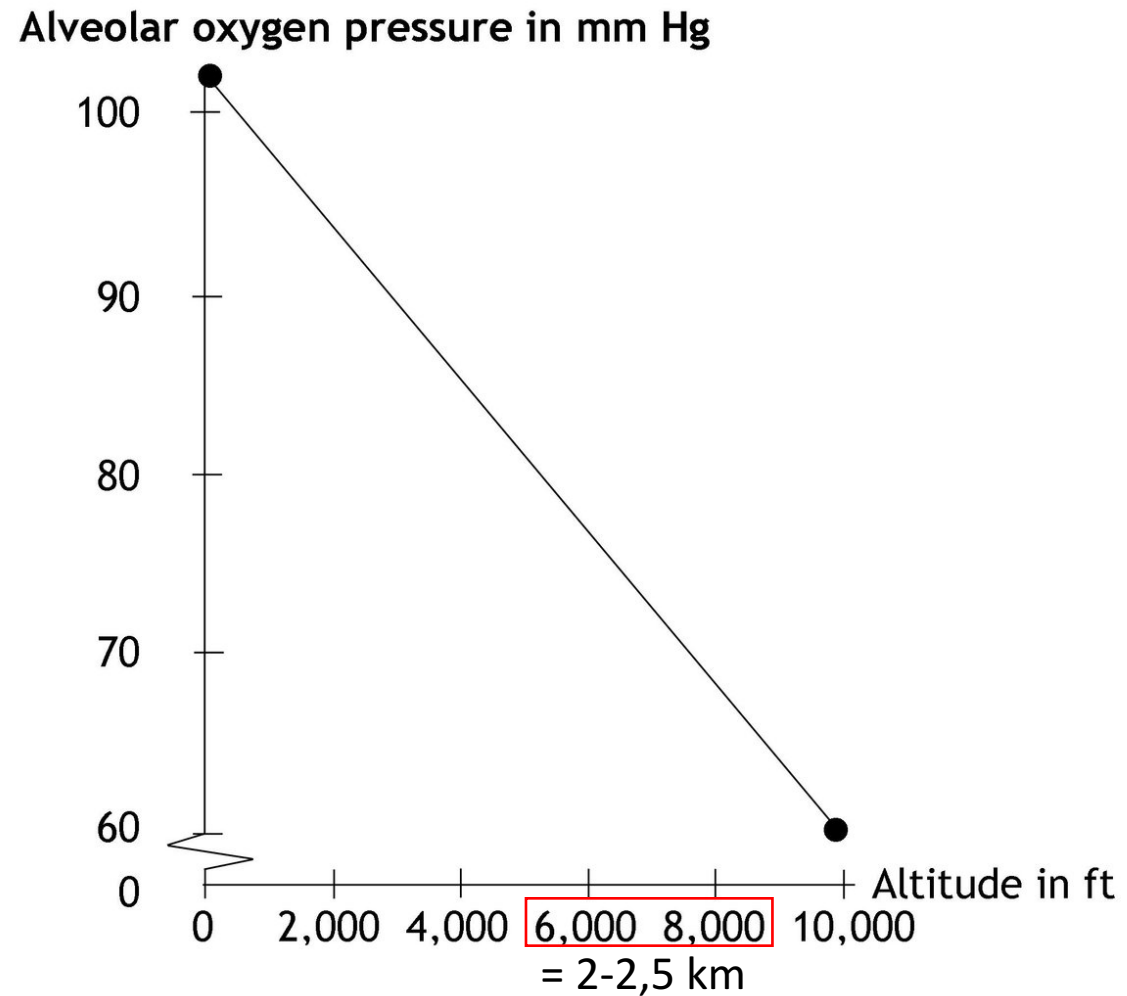
- The average passenger airliner cruises at an altitude of 30 000-36 000 ft = 10-12 km with outside pressure $\frac{1}{4}$ atm = 190 mm Hg
- At the normal cruising altitude the cabin pressure corresponds to 6-8 000 ft. ($\frac{3}{4}$ atm) which **corresponds to the passengers being situated on a mountain at a height of 2 000-2 500 m**
 - In new types of planes the pressure is corresponding an altitude of 1 800 m



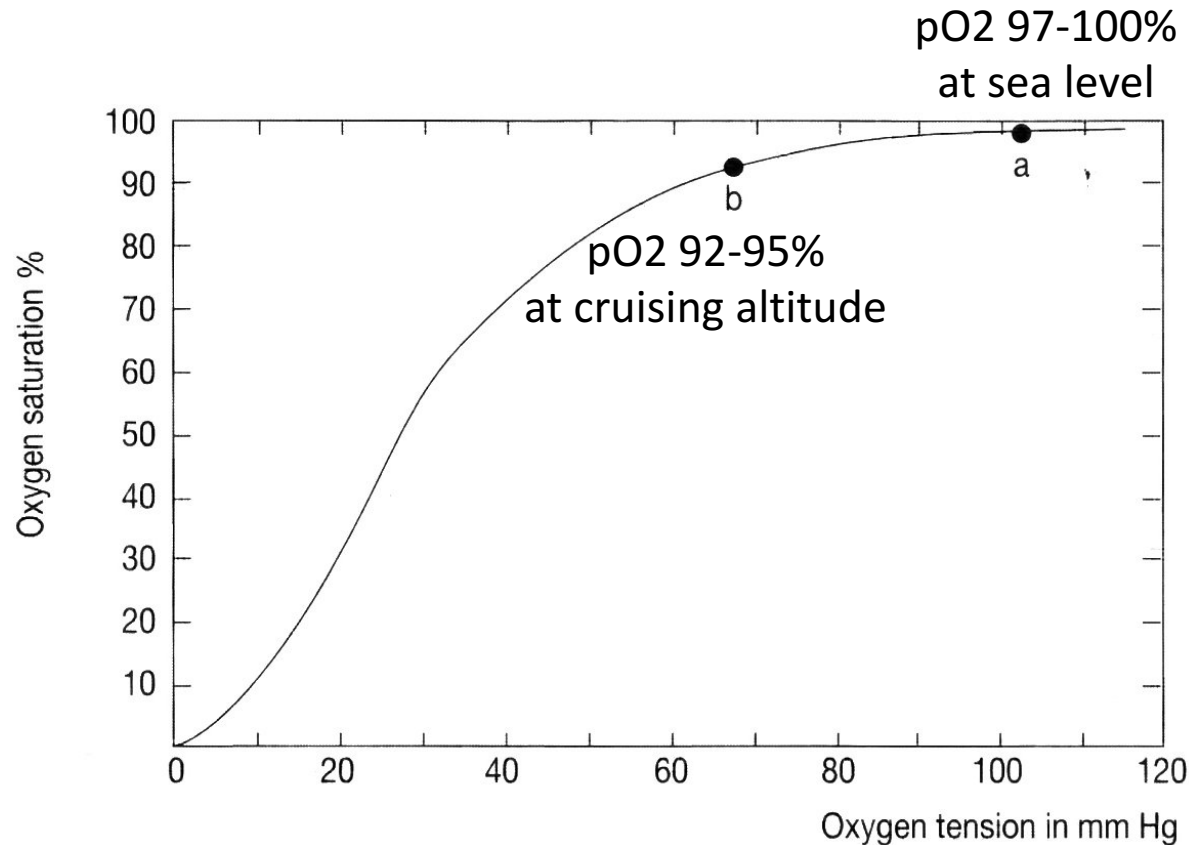
Pressure conditions and transport of patients

- At normal cruising altitude trapped air in any closed body cavity tries to expand 38%
 - air in sinuses in sinusitis
 - air in middle ear in otitis media
 - trapped air in the bowel
 - gas in abdominal cavity after laparoscopic operation
 - intracranial air after operation
 - pneumothorax
 - etc
- These patients should not be transported using commercial flights until air/gas has disappeared
- If necessary, they can be transported using ambulance plane
 - Can fly at an altitude of 5-8 km and maintain cabin pressure of 1 atm

Oxygen pressure



Oxygen bearing capacity of blood



Degrease of oxygen saturation during flight

- does not cause problems to healthy person
- can cause problems to a patient having
 - heart disease
 - lung disease
 - anemia ($Hb < 8.5 \text{ g/dl}$)

Haemoglobin-oxygen dissociation curve for an adult with normal Hb at 37° C and pH 7,4.

a: Oxygen saturation at sea level.

b: Oxygen saturation at cabin pressure in normal cruising altitude

Ordering oxygen for the flight

Order expressed as: x litres oxygen/min, continuous flow

The airline will carry the ordered quantity of oxygen with a reserve of 50% for the case that flying time should be prolonged

=> OXYGEN CYLINDERS TAKE A LOT OF SPACE IN THE AIRPLANE

Means of transport

1. Commercial aircraft
 - most patients
2. Ground transport
 - short distance
3. Ship
 - e.g. from Estonia to Finland
4. Ambulance plane
 - always discussed with medical supervisor

Transport in commercial airplane

1. Regular passenger
 - most patients
2. Seat in front/2-3 seats side by side
 - if needs to have leg elevated
3. Business class sleeper
 - also alternative to 2. and 4. on long flights
4. Stretcher
 - need $(3 \times 2) + 2 = 8$ seats
 - always with medical escort

Other transport arrangements

- Transport to and from airport
 - Taxi
 - Ambulance
 - Goes directly to plane
- Wheelchair at airport
 - To gate/carried to door/carried to seat
- Help with luggage
- Where is the patient taken
 - Home
 - Hospital – which one

Transport instruction

Need of escort

- **Unescorted**

- Able to manage without help of cabin crew
- Able to close and open safety belt and to go to toilet without help

- **Non-medical escort**

- Usually close relative
- Used if patient cannot do the above but does not need medical escort

Transport instruction

Medical escort

- **Nurse**
 - Stable patient, e.g. hemiplegia
- **Doctor**
 - If patient is expected to need evaluation or medication during transport
- **Doctor and nurse**
 - Patient who need constant supervision, transport >8 h
- **Specialist**
 - e.g. anesthesia doctor and nurse, psychiatric doctor and nurse

Aeromedical guidelines

- IATA (International Air Transport Association) Medical Manual www.iata.org/publications/Pages/medical-manual.aspx
 - a comprehensive manual
- SOS Aeromedical guidelines www.aeromedicalguidelines.com
 - practical guidelines
- Guidelines of airline companies on when patients can be transported
 - Lufthansa, Finnair etc

Take home message

- All travellers need a travel insurance
 - Also Europeans with European Health Insurance Card (EHIC) travelling within Europe need a travel insurance to cover possible medical repatriation
- Doctor: Do not give your patient - in good faith - false promises about the insurance coverage
- Traveller: Check yourself before the trip what the insurance covers
- If you need medical assistance, call the number in your insurance card