By Dr Salim Parker
President-elect - SASTM

SOUTH AFRICAN SOCIETY OF TRAVEL MEDICINE
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Germs on aircrafts: Where do they lurk?

Crowded aircrafts, narrow seats cramming everyone close to each other, sneezing or coughing passengers, nauseas toddlers vomiting, nervous first time travellers drowning the toilets with their diarrhoea; it all seem like the closed confined capsule that is an aircraft is a petri-dish of potentially lethal pathogens all ready to snare the unsuspecting traveller! The tissue inadvertently left in the back seat pocket; could a sick person have coughed on it and transmitted his germs? The streaks of food still visible on the tray table; could an epidemic of diarrhoea be harboured there? What about the small claustrophobic aircraft toilet; could that red looking streaks in the basin be blood or just red soft drink? Oh! Is Ebola not spread by blood and close contact!

But let us look at the statistics; and air travel is certainly not the inevitable time bomb that many perceive it to be. It is estimated that there will be 3.3 billion passengers straddling the airways this year, with 1.3 billion crossing international boundaries. Disease outbreaks and transmissions are few and far between and effective aircraft ventilation plays a big part in it. Infectious diseases can still be spread though, and travellers should be aware of modes of spread as well as how to minimise risks of acquiring them. Four possible routes of transmission are known. These are:

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- **Contact:** Infection is spread by direct contact with an infected person or material such as fomite contaminated by the patient.
- **Airborne:** Here aerosolised droplets containing pathogens are sneezed or coughed out and spread around the affected person. Inhalation can then lead to infection.
- **Common vehicle:** Contaminated food and water delivered from unhygienic storage areas are examples of this mode of spread.
- **Vector borne:** Insects and vermin are known carriers of disease.

The greatest risk for disease transmission is probably via large droplet and airborne mechanisms. This is due to the densely packed nature of especially economy class.

The possibility of contracting an infectious disease is also dependent on the infectiousness of the patient, the degree of exposure such as duration of flight and close contact, the health of the fellow passengers, and the ventilation of the aircraft. Measles is known to be highly contagious, and would easily spread to susceptible non-vaccinated passengers. In 1994 there were eight cases of in-flight transmission of measles during a ten hour flight from New York to Tel Aviv. The source case was thought to have

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been a crew member, but this was not confirmed. The passenger sitting next to you might be contagious but not symptomatic, or might only have slight innocuously looking symptoms such as sneezing. It is generally considered that those seated two rows either in front or behind an infectious person are most at risk, as are those seated up to two seats to either side. Severe acute respiratory syndrome (SARS) was an exception, as it infected passengers up to seven rows away from the index patient. We do not really have any say about who sits next to us, so pure chance will dictate whether the passenger seated next to you suffers from an infectious disease or has annoying verbal diarrhoea.

There are practices that would certainly decrease the chances of acquiring an infection on an aircraft. It is known that most respiratory infectious diseases such as influenza are transmitted via droplets when the infected person coughs or sneezes. These droplets contaminated by the pathogenic organism are dispersed not more than a meter and can land on inanimate objects such as on a seat, the folding tray, the overhead bin or even on clothes. Hand hygiene has been shown to be essential in prevention of disease spread. Simply sanitising hands before consuming food or liquids, or after retrieving objects from the seat back pocket or overhead bin, and after visiting the bathroom, will reduce the chances of being infected by influenza by about 40%. One study recently showed that washing hands contaminated with influenza with either soap and water, or a handwash gel containing 50% alcohol, eliminated the organism.

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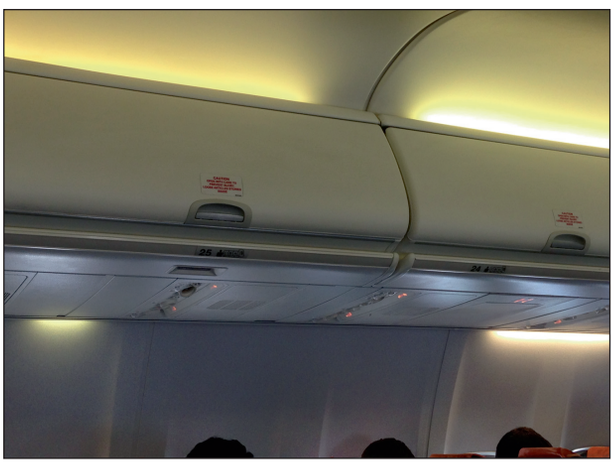
A practical way of ensuring that the cabin airflow is minimises pathogen dispersal close to you is to turn the overhead vent to a low flow and to position the airflow to be slightly in front of you. This should create enough air turbulence to propel a virus away from you and prevent it from landing on the face and mucous membranes.



Very little can be done to prevent congestion in the aisles, tardiness in the bathrooms, or what is shoved in the overhead bins or in the back seat pockets. The spread of germs is not confined to the aircraft. The check-in and security areas are areas that are not often thought about. But think about it: the passenger in front of you might have put his dirty shoes in the tray during the security check in. The security official collecting the tray and bringing back has just had a greasy burger and you are next in line. The tray has not been wiped and you have to put your laptop and lunch in the same tray!

There is more research needed to quantify the risk of disease transmission. In the meantime commonsense measures are the most important, and frequent proper handwashing has been shown to reduce the chances to nearly zero. When we travel, we must bear in mind germs travel along; the art is to ensure that they disembark anywhere except on and in us!