Going Viral: The non-Covid nasties to watch out for

OPSGROUP Team
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With Covid running rampant across the globe, other risky diseases have been forgotten somewhat, but there are a fair few out there which can pose a threat to crew on layovers.

So here's a quick round up on **the regions where you might need to cover up, dose up, or just be extra cautious** during your international flight operations, split into sections based on the active travel health alerts that the CDC and other health authorities have out at the moment.

Red Warning Level 3: Avoid all non-essential travel

Guinea – Ebola

They had a serious outbreak earlier in 2021. Actually, cases have reduced significantly and the US has just removed their travel restriction which required travelers coming from Guinea to enter the US via 6 main airports only. Caution is still very much advised though if traveling in the country.

Venezuela – Infrastructure

Not a specific disease caution here, just a warning that their healthcare infrastructure is breaking down and if you are taken ill here you may not be able to access treatment. One to think about if you ever have crew on a layover here.

Amber Warning Level 2: Extra caution

Fiji – Leptospirosis

This really prevalent in Fiji at the moment, particularly rural areas. It is caused by a bacteria spread around by animal pee, and can get into water and soil and live there for months. The main guidance is to avoid swimming or wading in water that could have had infected animals in it. Wear protective clothing and

footwear and cover any cuts and scratches with waterproof bandages.

Because people often poke dead rats

Haiti – Rabies

Haiti currently has a big problem with rabid dogs. The bigger issue is that there is an extremely limited supply of treatment drugs in Haiti, so the recommendation is to get vaccinated before you head there.

Avoid dogs, and cats for that matter – even the cute baby ones. You can catch it if you are bitten, scratched or even licked, and treatment is only effective if administered early. Once symptoms present themselves it is often fatal. Plus, getting bitten by anything is never pleasant.

Polio – Africa and Asia

Everyone should be vaccinated against this. If you are not, get vaccinated (or don't travel) because this is continues to be very prevalent in African countries and there is always a risk.

Nigeria – Yellow Fever

Consider getting vaccinated if you head here regularly, and try to prevent mosquito bites (also, because they carry loads of horrid stuff).

International flight crew generally are required to have had Yellow Fever Vaccinations – if you have not then take care because some countries will not allow crew (anyone) to enter who does not have a vaccination booklet if they have traveled to a Yellow Fever region recently.

What else to watch out for

Malaria

This fellow is to blame for a lot of the stuff out there

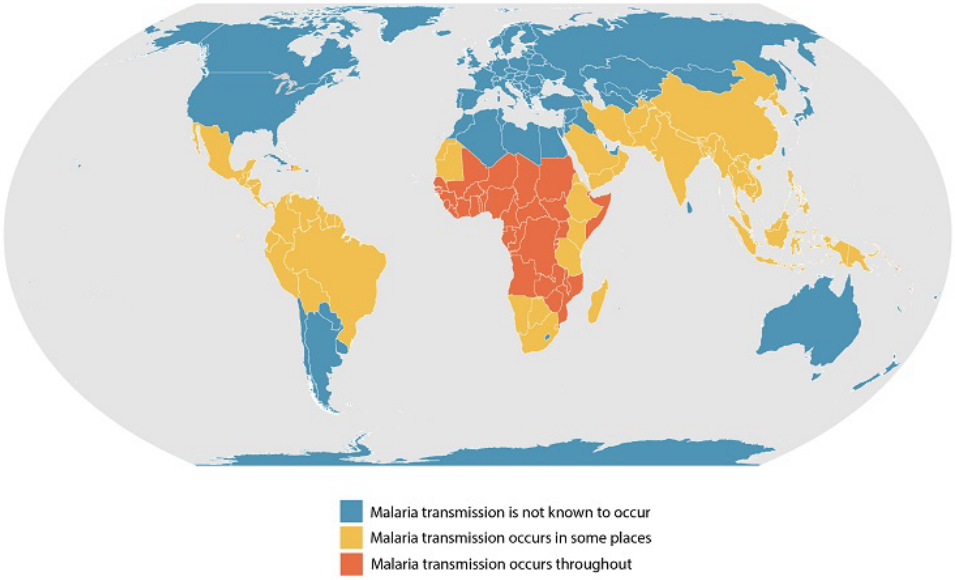
Malaria is a parasite carried around by mosquitos. There are actually four types of it, and it is in a lot of places!

The big risk here is it can take a while for symptoms to show. They reckon you're most likely to have **symptoms between 10 days and 4 weeks** from being infected, but it could take as long as a year. The little beasties also like to loiter around in your liver, popping out at random times when you're run down, and so can cause recurring illness for as long as 4 years after infection.

Where?

According to the CDC it is **found in warmer regions**, which doesn't narrow it down an awful lot – basically anywhere hot and humid where there are places for mosquitoes to breed and grow. Just after rainy season is likely to be the worst, and rural areas will be more risky.

We have borrowed the CDC map because it is easier than trying to list everywhere to watch out.



Mozzies generally don't like cold or high altitude spots

How to prevent it

If you are going to a Malaria riddled area then you can take preventative medicine, but watch out! Not many are approved for operating pilots because they can have some nasty side effects. Malarone is the most commonly approved (and generally has the least side effects) but **we ain't no doctor so check with an AME** from your licensing state before taking.

The other option is to slather yourself in deet and wear long clothing to prevent the little nippers from getting at you in the first place.

The Symptoms

- Fever, sweats ad chills
- Muscle ache
- Nausea and sickness

So, basically generic symptoms of about a thousand other possible diseases.

If you have been to a malaria area and are thinking **"I got chills, they're multiplying"**, don't write them off as a random cold – tell a doctor so you can get tested because it can get very serious!

Dengue Fever

Another one to blame on the pesky mosquito, Dengue is **common in over 100 countries**, and over 400 million people catch it every year, 100 million getting sick and 22,000 dying. Dengue Fever is **Malaria's bigger, badder brother**, and there is no specific treatment.

Like Malaria, there are also different strains of the virus meaning you can get different sorts, multiply times.

Where?

Outbreaks are coming across the Americas (including North America, although the mosquitoes aren't there, people just head in already infected), Africa, the Middle East and Asia, and the Pacific Islands. It is most prevalent in **tropical and sub-tropical areas.**

There is currently a growing outbreak in Reunion.

Brazil has the highest rate of Dengue fever in the world.

How to prevent it

Best plan, don't get bitten. Insect repellent is smelly, sticky stuff but it works. Here's what the CDC recommends:

- DEET
- Picaridin (known as KBR 3023 and icaridin outside the US)
- IR3535
- Oil of lemon eucalyptus (OLE)
- Para-menthane-diol (PMD)
- 2-undecanone

There is a vaccine but it is only given to people who have been infected before and have a risk of getting severe Dengue, and for kids between 9-16 who live in a Dengue area.

The Symptoms

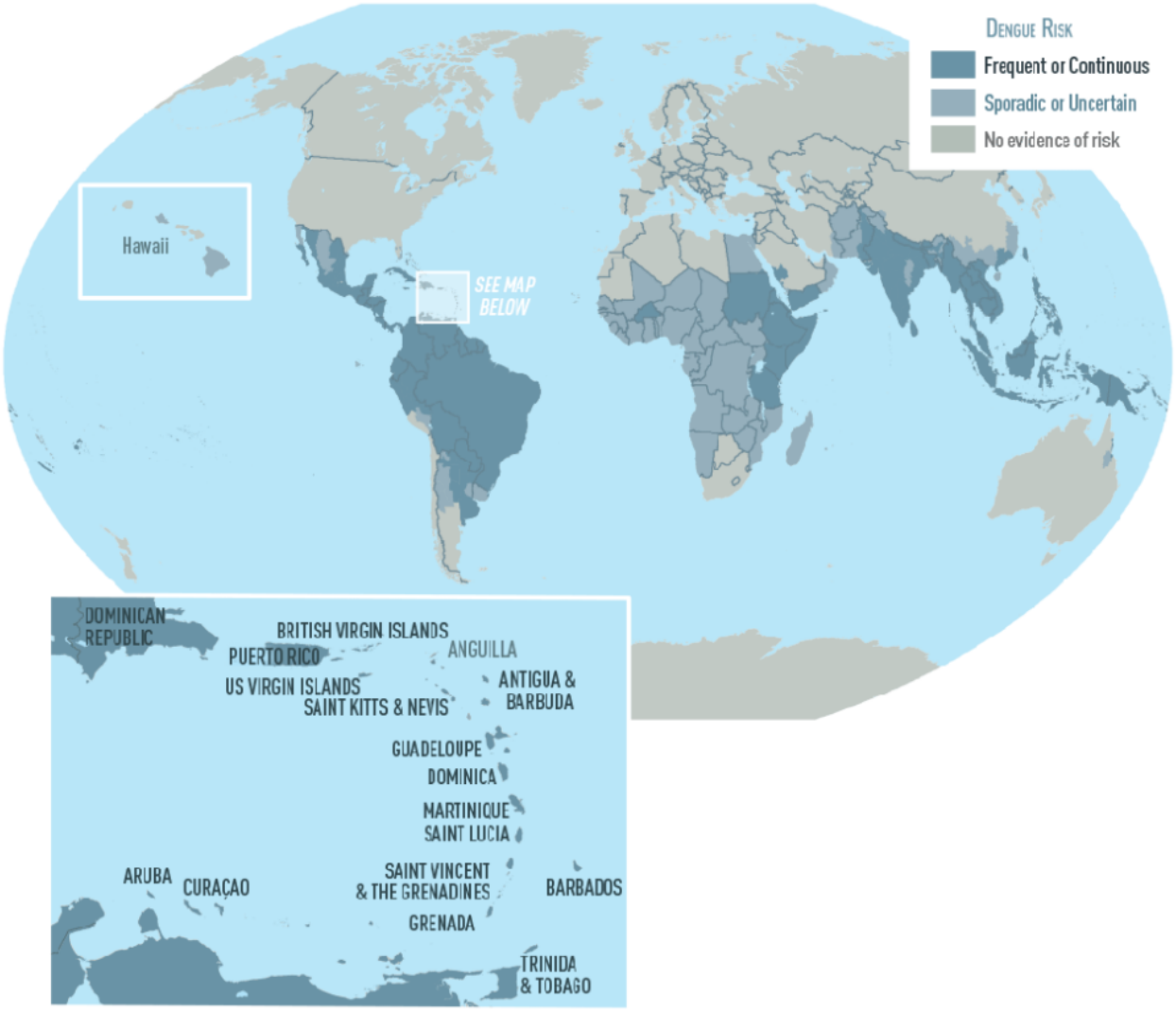
The early, mild ones tend to get confused with other diseases so again, ff you've been somewhere with Dengue, don't assume it is something else. **Go get tested.**

Initial symptoms usually appear within 4 to 10 days:

- Nausea and sickness
- Rash
- Aches and pains, especially behind the eyes and in bone joints and muscles

These last around a week, unless you develop serious Dengue fever, which 1 in 20 do:

- Belly pain
- Vomiting (a lot)
- Bleeding from nose and gums
- Lethargy



Another handy map courtesy of the CDC

Zika

This one made the news a few years ago as it can cause serious birth defects. The symptoms for most tend to be fairly mild though.

It is also transmitted by our old friend the mosquito and there is no particular treatment so your preventative tricks are the best – don't get bitten!

Chikengunya

Transmitted by mosquitoes, this has very similar symptoms to Dengue Fever and Malaria, and is found in all the same spots.

There is no treatment for it and no vaccine to prevent it, so preventing bites is really important.

There are currently serious outbreaks in Brazil, and in Asia (Vietnam, Philippines)

Ebola

This is a nasty one, often deadly, and **causes lasting damage.** They don't really know where it comes

from but it possibly started with monkeys and apes and was passed onto us human folk.

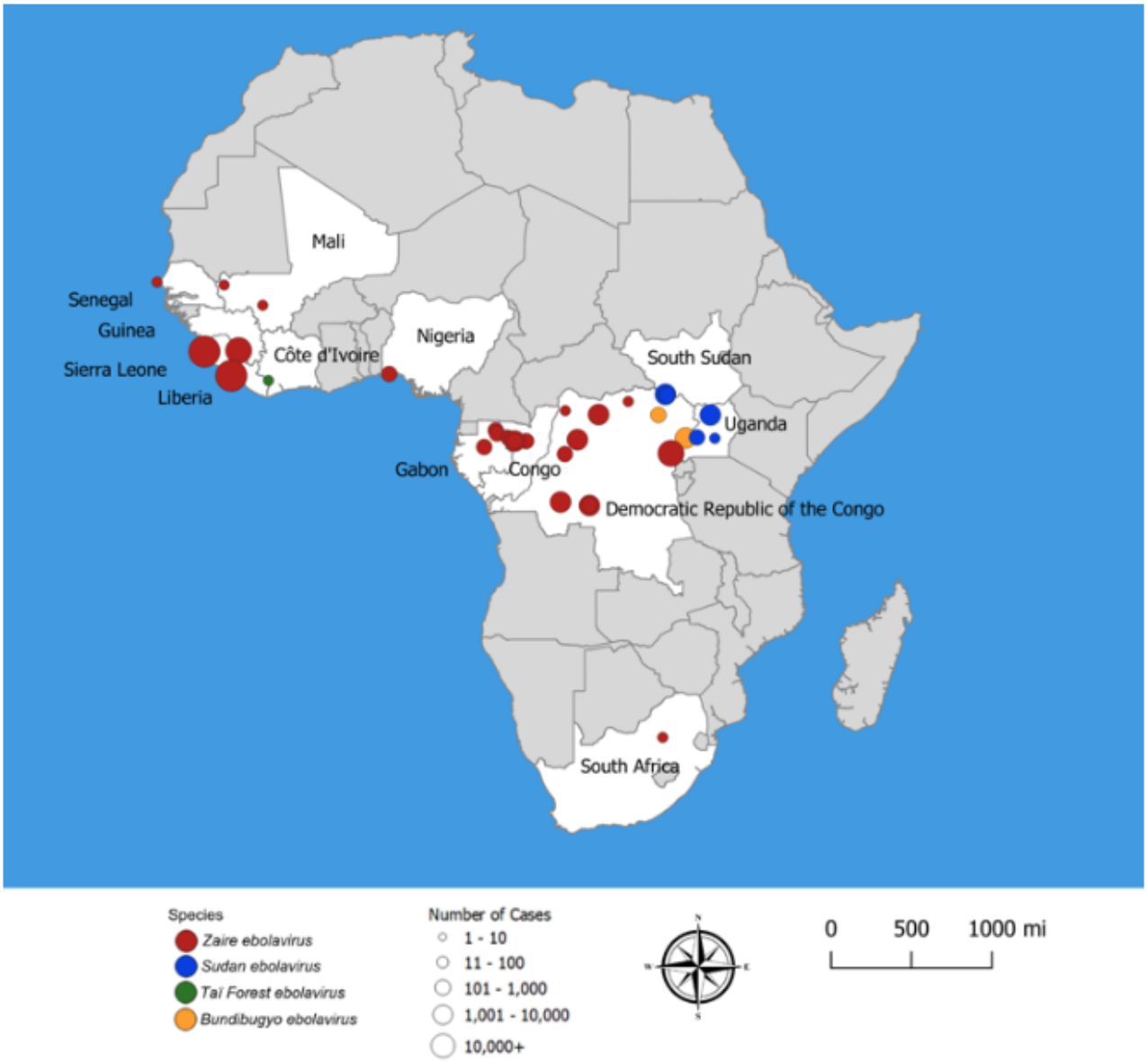
It is spread through direct contact with all the gory stuff that comes out of sick people.

Where?

Guinea had a major outbreak in 2021, but cases have fallen again. The US previously restricted travelers from here, and from the DRC, only allowing entry through 6 specific airports.

In 2020, the DRC (formerly Zaire) had a major outbreak.

It is most common in African countries, particularly the central African countries, and along the north west coast.



Different Ebola virus strain outbreaks

How to prevent it

It is spread through bodily fluids so avoiding contact with these is important. You also should avoid contact

with animals that live in Ebola regions. Bats, primates, forest antelope all carry stains of the virus. **So don't eat them.**

There is a vaccine but it is only used in areas where an outbreak is occurring. There is medicine for treating it, and the do help survival rates. You also need medication to support blood pressure, to manage the fever etc, so this really is a serious disease which you do not want to catch

The symptoms

These can appear between **2 and 21 days of infection, usually around the 8 day mark**. The main symptoms are:

- Fever
- Severe aches and pains
- Sore throat
- Loss of appetite
- Gastrointestinal symptoms
- Unexplained hemorrhaging, bleeding and bruising

Yellow Fever

This is **pretty rare nowadays**, but still on to watch out for across Africa and South America. It gets its name from the fact it generally causes jaundice.

Insect repellant works well. It is transmitted by the mosquito (again)

There is also a vaccine. It has been used for 80 years and it pretty well tested, safe and effective, with 1 dose providing life long protection. In fact, many countries require travelers to have had the vaccine if they are entering from a country (or have visited one) where there are high incidences of Yellow Fever.

Meningitis

This is serious – it makes your brain and spinal cord membranes swell up which sounds horrid and painful. It can be **bacterial, viral, parisitic, fungal, amebic**… so there are a bunch of different sorts all with varying degrees of nastiness.

Good news though, there is treatment for most, and vaccines. You have likely had some already, it is another one that flight crew are often vaccinated for because this can be caught from all over the place. Bacterial in particular can be in food.

General travel recommendations

The CDC has good guidance for flight crew which you can read here.

Many international airlines require their crew to have the following vaccinations, and they are often recommended in general for any traveller:

Cholera – Africa, Asia, Central America and the Caribbean

Diphtheria – Africa, south Asia, former Soviet Union. This protects you against Diptheria, polio and tetanus

Hepatitis A – Africa, Asia, Middle East, Central and South America. This is common in places with poor sanitation and hygiene and can be picked up a lot of ways.

Hepatitis B – Africa, Asia, Middle East, Central and South America. This is spread by bodily contact generally.

Japanese Encephalitus – Common in rural areas of Asia with a tropical climate, after the rain season. It is also found in western Pacific island and near Pakistan, China and Australia. Actually, it is rarely found in Japan because they did a mass immunization program years ago. There is a tick borne version too. Also with a vaccine available.

Typhoid – the Indian sub continent, south and south east Asia, South and Central America, Middle East

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MAYDAY, MEDICAL: In-flight Emergencies

Chris Shieff
25 May, 2021

Fly the line long enough and chances are you'll experience an **in-flight medical emergency.** They are relatively common, but also inherently challenging – they happen in a complex environment, in a confined space and with limited medical equipment often hours from help.

Just how common?

In approximately 1 per 600 flights. Or if you look at it another way, for every million passengers carried, 24 will have a medical emergency.

That may not seem like a lot but wait til you crunch the numbers. At pre-Covid levels four billion passengers were flying annually which meant at least **260 in-flight medical emergencie**s were happening *each and every day.* Other reports suggest the real numbers were much higher.

So it is a risk that we take on every time we launch upwards into the wild blue yonder and yet concerningly

one we practice for **far less often** than almost all other inflight emergencies. It is well worth taking a closer look.

Why do people get so sick at altitude?

One of the most common thoughts we have following an in-flight medical emergency is "*but he was totally fine when he boarded...*"

The reality is the pressurized cabin of an airplane is a **terrible environment** for someone experiencing a medical situation.

Passengers with existing conditions are probably not aware of the environment they are entering and the effect that it may have on them. They may feel fit to fly on the ground, but in the sky it can be a whole other ball game.

In most cases we are breathing **oxygen equivalent to an elevation of between 5000 and 8000 feet**. It's not dangerous, but even healthy people will be mildly hypoxic with oxygen levels almost ten percent lower than normal. At sea level with similar blood oxygen levels an ER would have you on oxygen. Throw in a heart or lung condition and you have a **dangerous combination.**

Then there's the issue of **sitting down for hours on end** which can inhibit the flow of blood in your veins. This can trigger some truly nasty things such as **thrombosis** (blood clots) and **embolisms** which can lead to seizures, strokes and heart attacks.

Then there's the **cabin air** itself. Re-circulated air can expose passengers to allergens and potentially anaphylaxis – a life threatening allergic reaction. Ever wonder why peanuts in planes aren't that common anymore? Even something as simple as dehydration can make a passenger become seriously unwell.

So which ones are the most common?

Almost half of in-flight medical emergencies are caused by **neurological conditions**, and the vast majority of those are **headaches, fainting or dizziness**. In most cases they are not serious but may indicate or lead to something far more dangerous.

In second place are **gastric symptoms** – yep, stomach problems. Beware the dodgy airport taco. Nausea, vomiting and cramping. No one enjoys 'riding the porcelain express,' especially in an airplane, but acute food poisoning can become incapacitating very quickly – and the same applies to crew as well as passengers.

And tied for third are **respiratory issues** (problems breathing) and **cardiovascular symptoms** (heart related things).

Which symptoms do we need to be most worried about?

Human bodies are complex machines but these are historically the **biggest warning signs**:

- Unconsciousness with slow or no recovery.
- Chest Pain.
- Seizures.

So how do we best manage in-flight medical emergencies?

Prevention is your first line of defence. Don't board a passenger you have concerns about unless you are

completely confident they are fit to fly. This may include speaking to a service like Medlink or asking for medical clearance from a doctor. They may be feeling okay now, but not so much after wheels-up.

Have a plan.

Just like you have a checklist for a mechanical issue in the air, you should have a **standard operating procedure** for inflight medicals.

Serious health problems often begin with very mild symptoms. Be alert for any medical issues, however minor. A report from the cabin that someone is feeling unwell is your cue to become **diversion minded**. Start thinking about what is around you, what the weather is doing, and of course those pesky Notams. But the point is: work hard now so if things escalate you are already ahead of the airplane.

Stay calm.

Things are going to get busy but don't forget that your primary responsibility is to **protect your airplane**. Remember to fly. If you are multi-crew, make sure one pilot is **actively monitoring** and has the radios at all times.

Communicate.

This is vitally important. If you plan to use a service like Medlink the first thing they will need is **information** – **and lots of it**. Establish communication with the cabin and get that pen and paper out. There are also forms available online to help. Don't wait until you have the doctor on the line.

Ask for help. You'd be surprised how often you carry passengers with **medical experience**. In the US they are protected from any liability by the Good Samaritan Law, while in most other countries they have their own provisions which will allow them to assist. Unless they are grossly negligent they simply cannot get in trouble for helping.

Use a **medical advisory service.** They are invaluable and put you in direct contact with a team of physicians who are trained in ER medicine and **airline protocols.** They are multi-lingual and available around the clock. They will work with your cabin crew with confident instructions including the use of a physician's kit. Medlink is a solid example and widely used by carriers around the world. You can contact them via SATPHONE, HF/VHF radio or even ACARS.

Don't forget **ATC**. Don't be afraid to declare an emergency, or a PAN. They will assist you with priority handling, an ambulance and paramedics on arrival and can even contact your company for you.

Remember security.

It is easy to be **distracted** during a medical event. Your cabin crew will likely be busy, and you may have to open the flight deck door multiple times. Be aware that medical episodes have previously been used to create a distraction for someone else to try and **gain access to the flight deck.** Or you may be carrying someone who simply seizes the opportunity. Stick strictly to your security and access procedures.

Decide. The hard part.

The decision to divert is a **complicated** one and unfortunately no two situations are the same. But there are a few operational considerations you need to take into account before you hit the old direct-to button.

It's important to remember medical advice from a service like Medlink is a *decision making tool.* **They cannot make the decision to divert for you** – that responsibility sits firmly in the hands of the pilot-in-command.

They can advise you to divert, but remember, they are not aviators. They may not be familiar with the **operational risks** to you and your passengers of nearby diversion airports. Beware of inherent risks of where you decide to point the nose.

By no means an exhaustive list, but here are some of things you might need to consider above and beyond the emergency on hand:

- Are we over weight? Do we need to dump fuel?
- What's the current weather? Can we even get in?
- What about terrain? We're not familiar, are there special procedures?
- Is ATC on watch?
- What about the NOTAMs? Is the runway open?
- Is the runway long enough?
- Is there customs there?
- What do we do when we land? Are there services available?
- Can we gas up there?
- What about the security situation?

You get the picture.

Then there is the standard of *medical care*. You may give a sick passenger better odds by diverting further afield to land somewhere with better medical response. **The closest airport is not always the best one.**

And of course **cost** – the elephant in the room. Some symptoms are clearly life threatening and that must always come before cost. But in other cases it is not always so clear. Professional medical advice does not always take into account the sometimes extreme cost of diverting. For a jet aircraft this can range from $20,000 USD up to $700,000 USD for a large one in logistical costs.

What about illnesses that are contagious?

Now, more than ever before, we are aware of germs. A passenger may suffer a medical emergency because they are carrying something **contagious**. It is very important that if you suspect a passenger might be infectious that you report it to the right people.

In fact ICAO requires it. If you delve into the depths of **ICAO Doc 4444** you'll find that the pilot-in-command must report to ATC if they suspect they have an infectious passenger on board.

How would you know? ICAO can help with that too. It you have passenger with a **temperature greater than 38°C/100°F** along with symptoms such as vomiting, coughing, problems breathing, rashes or confusion you can suspect they're carrying something nasty.

The exact procedures vary from AIP to AIP, but in the US the FAA require pilots to advise either ATC or your company. You can read more about that here.

The problem's not going away.

Unless you have discovered the ultimate cure for all things medical, in-flight medical emergencies **aren't going away.** It is a risk we take every time we take passengers or ourselves into the air. It is up to us to

mitigate through knowledge, procedures and preparedness. Chances are when one happens, you won’t be expecting it…