

“Don’t panic! Don’t panic! Don’t panic Mr Mainwaring!”

I thought now might be a good time to relaunch the health blog and give my own two penneth on the current crisis that is attacking every aspect of our lives and generating chaos and confusion across the world.

Covid-19 Stage 1 - The containment.

As a single stranded RNA virus Covid 19 is about as basic as they come, which makes it pretty easy to kill by a fully functioning immune system (especially the T-cells).

So the majority of us will be absolutely fine and there will be a lot of asymptomatic infected people - especially children who generally have a very robust and fast acting immune system.

The downside is that this makes it very infectious, hence the exponential spread we are seeing in the world at the moment.

The virus will also mutate easily, and we already have evidence of a ‘L’ type derived from an older ‘S’ type - similar to the H and N subtypes of influenza.

It is also classified as a SARS virus because it causes a severe acute respiratory syndrome - which means it kills by infecting the lungs and causing hypoxia (low oxygen).

As a result, the most at risk are those with a compromised immune system, lung and heart conditions and metabolic problems, like type 2 diabetes.

If I was in one of those groups - I would most definitely be considering social distancing and preparing for a prolonged “lock down” until the warmer weather arrives.

Looking at the worldwide distribution it is apparent that warmer climates especially equatorial countries have a much lower incidence of the virus.

In order for the NHS to cope with the increase demand on services, the key is to delay and spread out infections.

The hand washing advice is sensible, because the virus is easily killed. Masks would be advisable if you have any symptoms, to stop you spreading it, rather than to prevent you catching it.

Avoiding physical contact with vulnerable people will also help to slow down the demand on hospital beds.

As a GP working on the frontline with no risk factors and a strong immune system I have no concerns about coming into contact with this virus, but fully appreciate there are many who are currently struggling with health problems and feel a great sense of panic and helplessness.

The key then is to have a robust immune system to attack the virus before it takes hold and you can help yourself by ensuring you get

- Quality sleep
- Reduce stress
- Good diet
- Moderate exercise
- Sunshine/Vit D

And, should you get symptoms, allow your immune system to do its job naturally, by avoiding anti-inflammatory medication like

ibuprofen, and temperature reducing tablets such as paracetamol which can potentially interfere with your body's immune response.

In addition to strengthening your own defences, you can also weaken the opposition by adopting metabolic tactics to prevent the virus from replicating inside your cells.

Viruses can only survive and replicate by using the machinery and metabolism of your own cells.

So, my tactics when at work and potentially exposed to the virus are to practice intermittent fasting during the day to increase AMPk - an energy sensor in the cell.

<https://www.researchgate.net/publication/304016832> The role of AMPK in viral infection

And, a ketogenic diet to stimulate T cell immunity.

<https://www.newscientist.com/article/2223688-eating-a-keto-diet-may-give-some-protection-against-the-flu/>

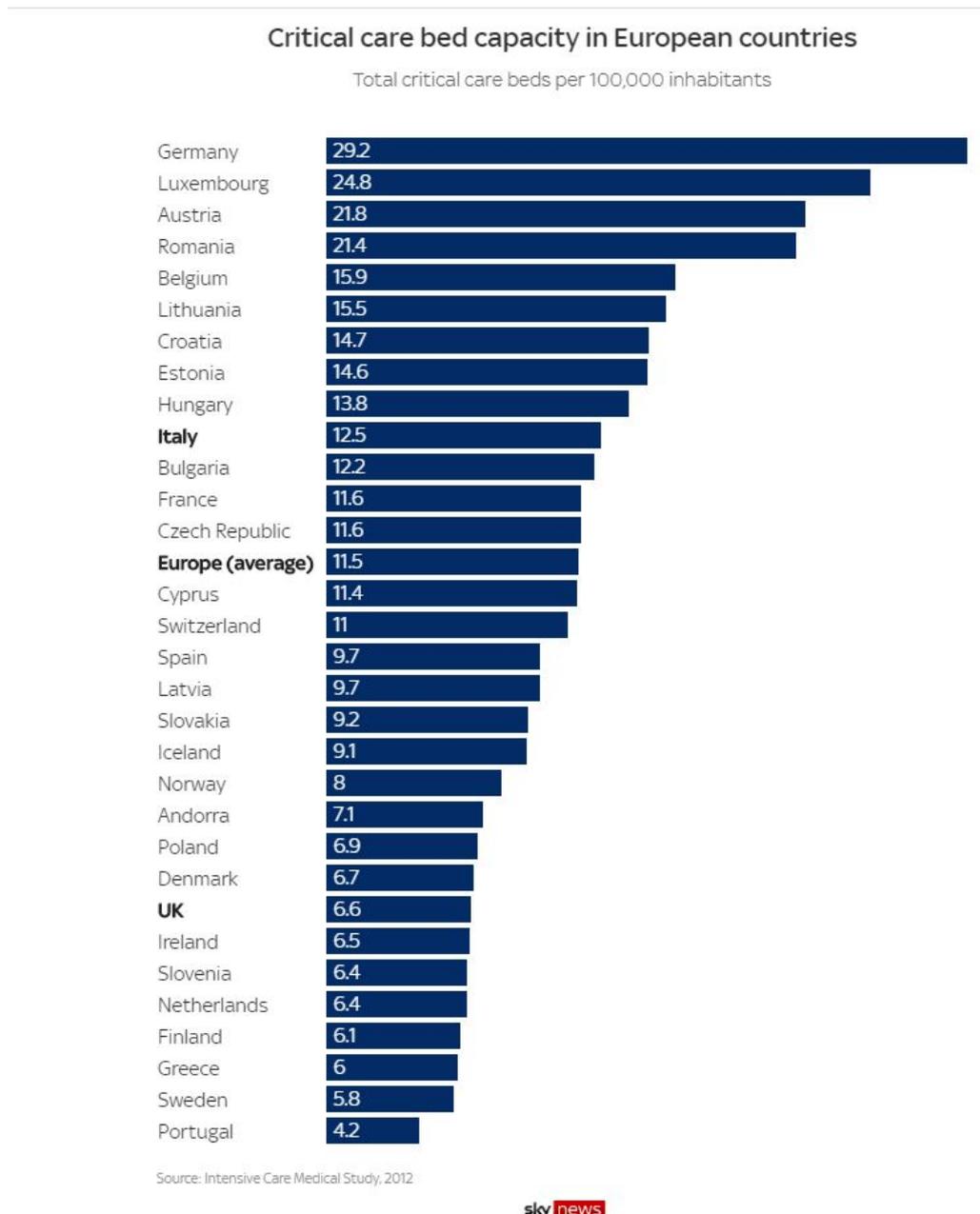
What you don't want to be doing is overeating or consuming too many refined carbs.

Covid-19 - Stage 2 - The delay begins

They have been using sophisticated computer modelling to track this virus, so they have a good idea of its location, velocity of spread - measured by doubling time (the time it takes for cases to double) - currently 4 days, and its lethality.

It then becomes a numbers and probability game.

The number of cases, the probability of catching it and most importantly the mortality rate.



Because, the big big concern, is the lack of capacity in hospital beds, especially ITU that the critically ill will need to recover.

The UK has a relatively low number of critical care beds compared to the rest of Europe - Germany has the highest, which is one of the main reasons they have a low death rate.

If you are in a high risk group and become very unwell from covid-19, then your best chance is on a ventilator in an ITU bed.

This is the problem in Italy, a lack of ITU beds and a elderly population, which means doctors are having to make life and death decisions about who gets ventilated - described, somewhat grimly as battlefield-style triage.

This is why the average age of mortality from covid-19 in Italy is 81.

The younger, healthier patients are getting the beds.

There is potential for a similar scenario in the UK, this is why the top priority must be to stop the spread of the virus to those most likely to need a critical care bed - Over 70s with underlying health problems.

If I was in one of those groups I would be looking at self isolation, avoiding physical contact with family members, ordering online, and preparing for an extended lock down period.

For those who rely on carers for help, the situation is more precarious and carers need to take extra care - hand washing, masks, surface cleaning and reduced physical contact.

Visiting relatives in care homes and hospitals needs to be severely restricted - In my practice we are now stopping all routine appointments and telephone triaging all urgent requests, to reduce face-face consultations and keep waiting rooms relatively empty.

So, although the majority of people getting covid-19 will be perfectly fine - we do need to protect the vulnerable and ensure

everyone is aware of the potential risks, because, if there are no ICU beds available we could all be affected - young as well as old.

Nobody knows with any degree of certainty how this Covid-19 pandemic is going to pan out and how each individual is going to be affected.

However, I feel I can say, without hesitation, that the determining factors will be the functioning of each person's immune system in combination with their metabolic health.

The immune system is essentially your defensive team that attempts to keep out the opposition. (Virus).

If it is strong, fast and appropriately reactive you are going to block this particular opponent with relative ease.

Trouble ensues if this attacker gets past your first line of defence - the innate and interferon players of your immune system.

It looks like this particular virus strikes the pneumocyte cells in the lungs and gets in via the ACE 2 receptor on the cell membrane. The same receptor used by drugs like Ramipril.

These cells make up the tiny alveoli air sacs which carry out the oxygen exchange with the blood capillaries and allows oxygen to be transported all around the body to carry out aerobic respiration and therefore energy production.

The end result is a lack of oxygen to power the cells of the body - in particular the heart - which has the highest concentration of mitochondria - the batteries of life (5000/cell).

Without enough oxygen/energy the systems of the body go into meltdown. Panic sets in creating a tremendous amount of inflammation and collateral damage - not dissimilar to how the economic markets are responding to the Covid crisis right now.

Unfortunately, just like many businesses are set to go bankrupt because they run out of money/energy, some vulnerable people - especially the elderly and those with metabolic dysfunction eg type 2 diabetes, are going to run out of oxygen/energy and go into multi organ failure and cardiac arrest.

Extending the football/business analogy - you need a good cash flow (metabolism) to keep all departments of the club functioning and a solid defence on the pitch, so you don't let in too many goals and get relegated.

And just to reiterate how you can achieve this:

Quality sleep - Give your players adequate rest

Reduce stress - Don't waste valuable energy worrying

Good diet - ensure players get all the nutrients they need.

Moderate exercise - don't overtrain and risk injury -

Sunshine - To boost the immune system

My tactics include ketogenic diet, intermittent fasting and short periods of high intensity (resistance) exercise.

https://clarivate.com/wp-content/uploads/dlm_uploads/2020/01/CORONAVIRUS-REPORT-1.30.2020.pdf