



Pathways

Price £ 4.00 (Free to members)

The newsletter of Leger ME/CFS Supporting Myalgic Encephalopathy or Encephalomyelitis (ME), Chronic Fatigue Syndrome (CFS), Post Viral Fatigue Syndrome (PVFS), Fibromyalgia Syndrome (FMS), Patients & Carers.

Welcome to Pathways No. 66. (Winter 2020)

Update Coronavirus 19 and ME/CFS



The Light at the End of the Tunnel, but keep your Guard?

At the time of writing we are just coming out of the second Covid lockdown. In recent weeks, we have seen the long awaited vaccines being submitted to the Medicines & Healthcare products Regulatory Agency for safety checking and approval. It is expected that mass vaccination of one or more of the Covid vaccines will begin later in December. If all goes well, in the new year a mass vaccination will start.

However, for the time being, we are at the end of the lockdown and going back into a modified Tier system. The Rule of six applies to everyone in the country. It is expected that Doncaster along with most of the adjacent areas will be in Tier 3.

There will be exceptions to the Tiers system for Christmas. This is however more for political reasons than health reasons. A number of doctors have warned that families meeting up at Christmas could produce the ideal conditions to spread the Covid virus.

I am advising all Leger ME members to maintain their isolation over the period, and not to resume normal activity until they have been vaccinated against Covid.



Front page Holly Berries.

This picture was taken at Sprotborough shopping Parade. The leaves on the lower branches are more rounded than those at the top of the tree., which are the more traditional spines.

Key differences in England tier system

TIER 1: MEDIUM

- Follow the rule of six if meeting indoors or outdoors
- Pubs and restaurants to shut at 11pm
- People encouraged to minimise travel and work from home where possible
- Spectators allowed at sports events and live performances (limited numbers)
- Personal care including hairdressing allowed

TIER 2: HIGH

- No household mixing indoors
- Rule of six will apply outdoors
- Pubs and restaurants to shut at 11pm
- Alcohol only served as part of substantial meal
- Spectators allowed at sports events and live performances (limited numbers)
- Personal care including hairdressing allowed

TIER 3: VERY HIGH

- No household mixing indoors or outdoors in hospitality venues or private gardens
- Rule of six applies in outdoor public spaces like parks
- Pubs/restaurants closed except for delivery and takeaway
- Indoor entertainment venues closed
- Guidance against travelling in and out of the area
- Personal care including hairdressing allowed

What can I do at Christmas?



Three households* can form a temporary "Christmas bubble" from 23-27 Dec**



They can mix indoors in private homes and stay overnight



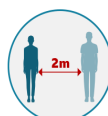
No travel restrictions in the five-day period



You can't go to a pub or restaurant with your bubble



If you have coronavirus symptoms or are self-isolating you cannot join a bubble



You can meet people outside your Christmas bubble outdoors, but only in line with rules of the tier where you are staying

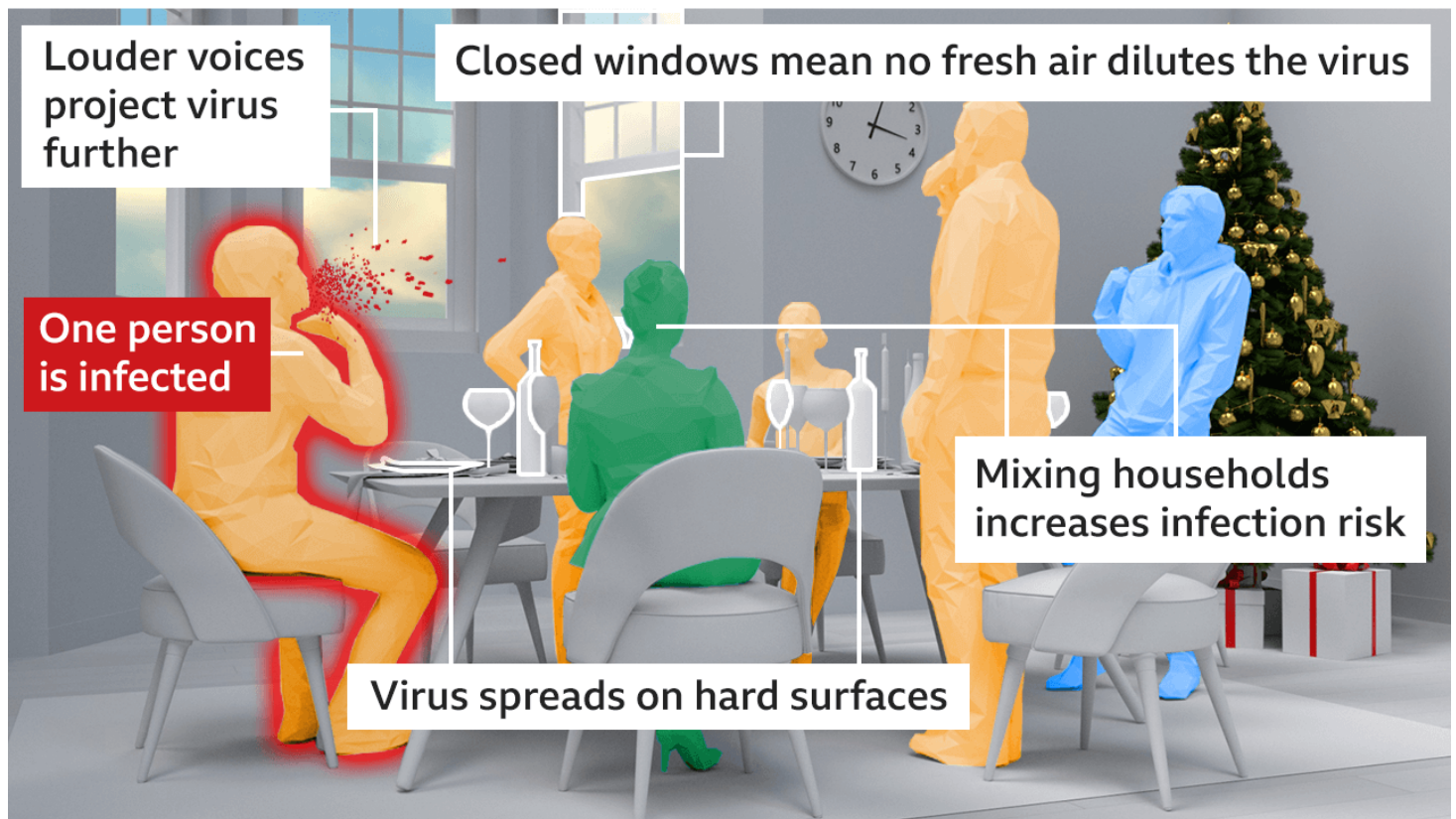
*Max. 8 people in Scotland, not including under 12s

**In N Ireland 22-28 Dec



Covid risks at Christmas

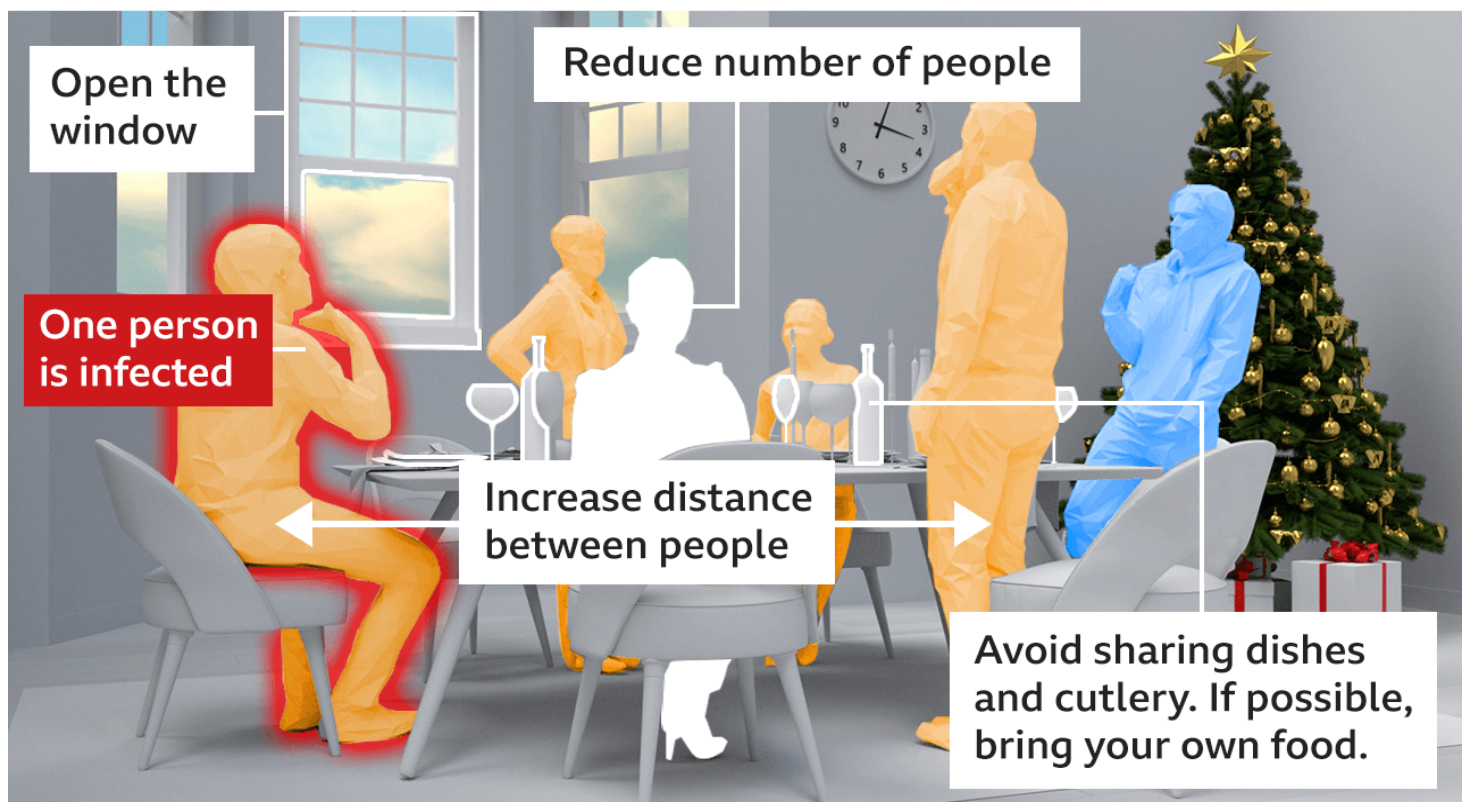
Gathering of six people from three households



■ Household A
 ■ Household B
 ■ Household C

What can be done?

Gathering of five people from two households



■ Household A
 ■ Household B

The Draft 2020 NICE Guideline:

What you need to know

with Thanks to Action for ME

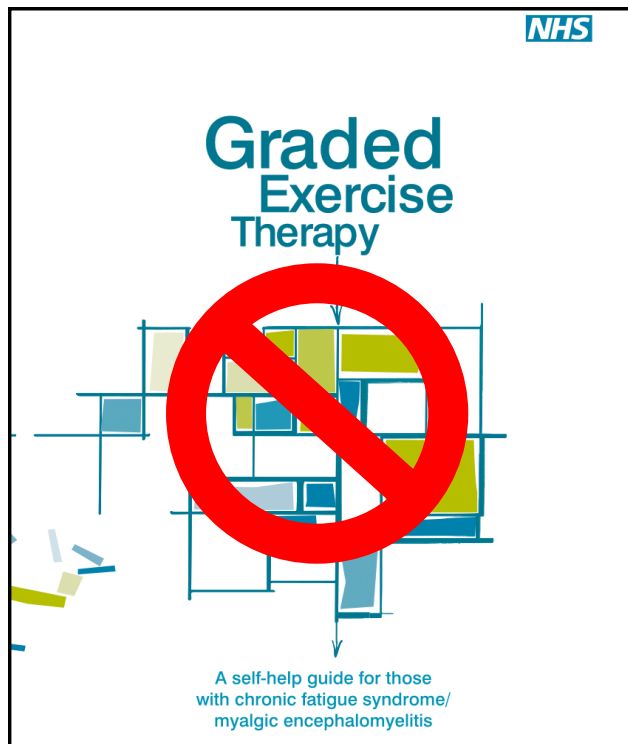
Action for ME in their magazine 'Interaction' have included a feature and a survey of members views about the draft guideline. It is important that everyone with ME/CFS is aware of these guidelines. We have reproduced the feature introduction and grading of ME/CFS. If you want to study the who feature you can find it in 'Interaction' December 2020 starting on page 20.

Key messages about care.

M.E. is a complex, fluctuating condition that impacts each individual differently, and significantly Severe M.E. can lead to substantial incapacity or debilitation. Clear guidance is given about the need to acknowledge the prejudice, disbelief and stigma associated with M.E., and the need to build trust with patients, taking a compassionate, person centered approach. Family members/carers should be included as directed by the patient.

Professionals should recognise the importance of an early, accurate diagnosis and regular monitoring and review, particularly if symptoms are worsening or changing. It must be made clear to people with M.E. and their family members/ carers that they have the right to decline or withdraw from any part of their management plan, and that this will not affect other aspects of their care.

Key messages for managing M.E.



Gone!
Graded exercise therapy

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome: diagnosis and management

Draft for consultation, November 2020

This guideline covers diagnosing and managing myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome (ME/CFS) in children, young people and adults. It aims to improve awareness and understanding about ME/CFS and when to suspect it, so that people are diagnosed earlier. It also includes recommendations on assessment and care planning, safeguarding, access to care and symptom management.

This guideline will update NICE guideline CG53 (published August 2007).

Who is it for?

- Health and social care professionals, including those working or providing input into educational and occupational health services
- Commissioners
- People with suspected or diagnosed ME/CFS, their families and carers and the public

What does it include?

- the recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the recommendations and how they might affect practice

Myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome: NICE guideline
DRAFT (November 2020) 1 of 72

The front page on new guideline consultation documents.

The guideline is clear that graded exercise therapy (GET) should **not** be offered: "Do not offer people with M.E./CFS any therapy based on physical activity or exercise as a treatment or cure for M.E./CFS. Psychological support, such as cognitive behaviour therapy (CBT), may be used to reduce distress and support patients to develop coping skills but **NOT** a treatment or cure for M.E. It should not be assumed that deconditioning is the cause of M.E., or that people with M.E. have 'abnormal' illness beliefs and behaviours as an underlying cause.

Patients should be given information about the risks and benefits associated with physical activity, including that some people with M.E./CFS have found that physical activity programmes can make their symptoms worsen, for some people it makes no difference and others find them helpful.

Patients should be offered support with energy management, to help prevent worsening of symptoms (Pacing). Activity should be reduced, not "pushed through," if it is having a negative effect. Activity should only ever be increased if led by the patient.

Advice should be shared about the important role resting plays in managing M.E., and that "rest periods are part of all management strategies for M.E./CFS." Patients should be given advice, as needed, on managing sleep, orthostatic intolerance, pain, nausea, and diet, with attention paid to the lack of evidence to support routinely taking vitamin and mineral supplements. The guideline advises not to offer "any medicines or supplements to treat or cure M.E./CFS."

In my experience supplements many people with ME/CFS have nutritional problems, and supplements can make a massive difference. Ed

Key messages for severe and very severe M.E.

Personal care should come from health and social care practitioners who are known to the person/person's family/person's carer and are aware of the person's needs. Health and social care practitioners should risk assess each interaction to ensure benefits will outweigh risks to the person. Specialist M.E./CFS teams should offer home visits to carry out holistic assessments and develop management plans. Medical professionals should recognise that symptoms, particularly with severe or very severe M.E., can often be confused with signs of abuse or neglect. Service providers should be proactive and flexible in delivering services. This could include home visits, online consultations, written communication, and supporting applications for aids and appliances that can maintain their independence and quality of life.

People should be referred to a specialist M.E./CFS physiotherapy or occupational therapy service for support on developing energy management plans. When agreeing energy management plans, service providers should be aware that changes in activity should be small and slow. People should be assessed at every contact for areas at risk of pressure ulcers, deep vein thrombosis, and risk of contractures. People should be referred for a dietetic assessment by a dietitian specialising in M.E./CFS. People who are at risk of malnutrition and unintentional weight loss (due to restrictive diets, poor appetite, intolerances, nausea/difficulty swallowing) should be monitored.

Definitions from the NICE draft guideline

The draft NICE guideline describes different levels of severity. The definitions of mild and moderate M.E. are unchanged from the 2007 guideline

:

- People with **mild M.E.** are mobile, can care for themselves and can do light domestic tasks with difficulty. Most are still working or in education, but to do this they have probably stopped all leisure and social pursuits. They often take days off or use the weekend to cope with the rest of the week.
- People with **moderate M.E.** have reduced mobility and are restricted in all activities of daily living, although they may have peaks and troughs in their level of symptoms and ability to do activities. They have usually stopped work, school or college and need rest periods, often resting in the afternoon for 1 or 2 hours. Their sleep at night is generally poor quality and disturbed. The definition for severe M.E. has had the single word "may" added in relation to using a wheelchair:
- People with **severe M.E.** are unable to do any activity for themselves or can carry out minimal daily tasks only (such as face washing, cleaning teeth). They have severe cognitive difficulties and MAY depend on a wheelchair for mobility. They are often unable to leave the house or have a severe and prolonged after-effect if they do so. They may also spend most of their time in bed and are often extremely sensitive to light and noise.

A further definition of very severe M.E. has also been added:

- People with **very severe M.E.** are in bed all day and dependent on care. They need help with personal hygiene and eating and are very sensitive to sensory stimuli. Some people may not be able to swallow and may need to be tube fed.

Welfare Rights by Steve Donnison**Half A Percent Benefits Increase**

It is worth 37p a week to you if you are in the work-related activity group. 57p for support group members. Even a claimant on the maximum award of PIP will receive just 76p a week extra. PIP, ESA and most other benefits will increase by a derisory 0.5% in next year's annual uprating. To make matters worse, no decision has yet been made about keeping the £20 uplift to universal credit and working tax credit after March 2021. And there was no indication whatsoever that the DWP is considering an uplift of £20 in legacy benefits such as ESA and JSA, to match universal credit.



This is in spite of a coalition of 60 charities and bishops urging the government to do just that and warning that “disabled people and carers will be left, once again, without help as they face rising costs, increased barriers to work and heightened risks from the pandemic.” Secretary of state for work and pensions Therese Coffey has, however, used her discretionary powers to increase the state pension by 2.5%. Why disabled claimants are not also the fortunate recipients of her discretionary support, Coffey did not explain.

PIP and ESA Decision Fears: The Social Security Advisory Committee (SSAC) has found that some PIP and ESA claimants are missing out because of the suspension of face-to-face assessments. It has also cast doubts on the accuracy of decision making based on telephone assessments. The report found that there were some claims where neither a paper assessment nor a telephone assessment was appropriate.

As a result of the pandemic, a backlog of these cases has developed leading to ESA claimants being trapped on the assessment rate, and UC claimants stuck on the standard rate. Both groups are potentially missing out on additional income that they may be entitled to. PIP claimants denied an assessment are forced to manage without additional income they may desperately need until a decision is finally made.

SSAC has called on the DWP to establish a maximum time period that claimants can be kept waiting. SSAC also found that advice agencies believe the accuracy of decision making has been affected by the pandemic. Advisers have reported some awards being unexpectedly higher and others lower. The DWP's own statistics show 'distortions' in awards since the start of the pandemic. SSAC has called on the DWP to publish data on what difference the type of assessment makes to awards, looking at telephone, paper-based and face-to-face assessments. Many claimants will be surprised by the idea that accuracy was a feature of DWP decision making prior to the pandemic, but unsurprised to learn that standards may have now fallen even further.

AA Renewals Restart: The DWP have announced that attendance allowance (AA) renewals are to restart. Claimants whose AA award ends on or after 8 March 2021 will receive renewal packs in the coming weeks and will need to return the completed claim pack within 20 weeks, prior to their award ending. AA awards that were due to expire before 8 March 2021 will be automatically extended and will continue to be paid until a new review is set up in the future.

275,000 DLA Claimants Still Waiting to Be Forced to Claim PIP: Over 7 years after personal independence payment (PIP) was first introduced, there are still 275,000 disability living allowance (DLA) claimants waiting for the letter to drop onto their door mat telling them it is their turn to be forced to apply. Justin Tomlinson revealed the figure yesterday in answer to a parliamentary question. He also made it clear that only slow progress is being made in assessing remaining DLA claimants:

“In July 2020, we started to resume some activity on reviews and reassessments where it was possible to do so safely and without compromising the delivery of new claims and change of circumstance cases, which remain our priority.”

Reducing-the-Risk-of-Infection-November-2020.

Adapted from an original feature by Dr. Charles Shepherd, Medical Director of the ME Association.

<https://meassociation.org.uk/wp-content/uploads/MEA-Covid-19-MECFS-Reducing-the-Risk-of-Infection-November-2020.pdf>

Preventing People with ME from getting Covid (Dated 13/11/20)

The Covid situation continues to evolve rapidly. England is currently back in lockdown and Scotland, Northern Ireland, and Wales, are each observing their own restriction measures. Local alert systems are also in place in some areas and many people are advised to stay at home and to work from home - with the notable exception of those attending schools, colleges, and universities where exceptions are applicable.

The death toll from Covid has now passed 50,000 in the UK which is more than for any other country in Europe. The current measures are designed to help put a brake on the spread of the virus and, while vaccines are now in full development and national inoculation programmes may be available in early 2021, the situation remains a significant concern. Most people with ME/CFS should be regarded as clinically vulnerable and will need to stringently follow the latest Government advice. However, there will be those who have other serious medical conditions and may be considered clinically extremely vulnerable and, in England at least, will have been advised to adopt shielding measures. The ME Association will be updating this leaflet as soon as it can and will continue to share the latest news and information on its website and social media platforms. If you are in any doubt about what you should be doing, especially if you develop symptoms that you suspect might be Covid-19, please consult the Government websites:

England: <https://www.gov.uk/coronavirus>

People with ME/CFS are already in a vulnerable/high risk group when it comes to catching this infection - mainly because it is highly likely to cause an exacerbation of existing symptoms, or a more persisting relapse. The general risk from catching coronavirus also increases further if you have any of the factors below that are being identified as likely to make people more vulnerable to the infection. In particular:

- Age over 70 years
- Male
- Are overweight
- Have a Black, Asian or minority ethnic background
- Having other chronic medical conditions – e.g. coronary artery disease, diabetes, respiratory disease
- Vitamin D deficiency
- In addition, there are a number of social, work, and demographic situations which make people more likely to catch the infection:
- Having a high-risk occupation - working in health and social care, retail, and public transport
- Spending all or much of your working time indoors away from home where a lot of people gather in places such as shops or offices or meat processing factories
- Living in a part of the UK where there have been a disproportionate number of cases of COVID-19
- Living in a residential or care home



So, it is important for everyone with ME/CFS to do all they can to reduce the risk of catching this infection. This means adopting a way of living that is based on individual circumstances and individual risk factors.

Here are the risk levels

- Almost zero risk - staying at home, not going anywhere, and not meeting anyone else
- Low risk - staying at home for most of the time but going out for a walk or an occasional visit to the shops
- Higher risk – leaving the house and going to work or school, or using public transport, or living with people who are going to work or school or using public transport

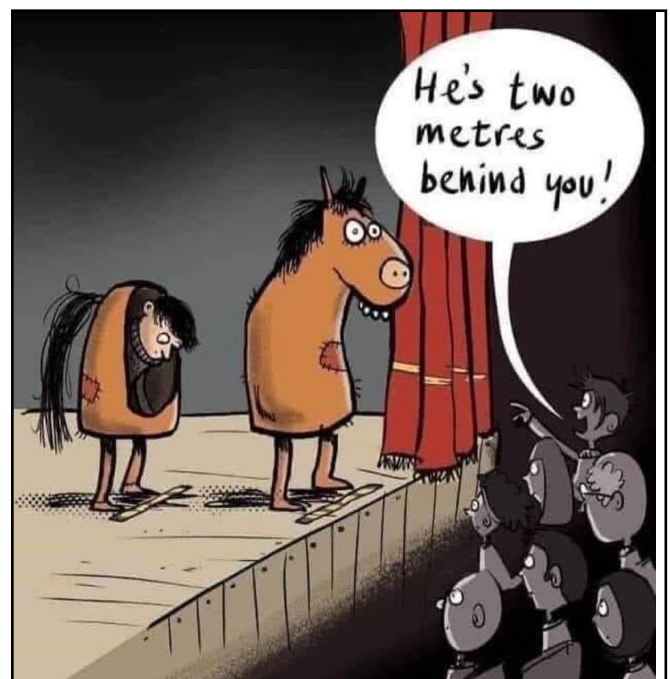
Below is a 10-point guide to the most important measures that will help to prevent you catching this infection. The basis for this guidance is quite simple. People who are infected pass on the virus in tiny droplets that are spread from the mouth during coughing, spluttering and even breathing. Viral droplets can also be passed on by people who are displaying no obvious symptoms. So, a friend, or neighbour, or caller at the door, who looks and feels well could still be infected and spreading the infection. These virus laden particles then land on surfaces where they remain (for up to 72 hours on some hard surfaces) and can be picked up if someone touches the infected surface. An infected hand or finger then touches the eyes, mouth or nose and the virus enters the body.

1. STAY AT HOME

Although the advice here has changed to Stay Alert in England, other regions of the UK are still advising people to Stay at Home. For most people with ME/CFS, Stay at Home will be the most important thing you can do - as this should eliminate almost all contact with people who are infected and surfaces that are infected.

2. SOCIAL DISTANCING

The guidance here is to keep at least 2-metres from other people. But there is good research evidence to indicate that tiny viral particles can travel further than 2-metres, especially when an infected person is coughing or spluttering. Consequently, I (Charles Shepherd) have chosen to try and keep a 4-metre distance where possible. And if you do meet people that you are not living with, try to avoid direct face-to-face conversations. *Remember that dog and children could carry the virus.* -Ed



3. DON'T TOUCH SURFACES OUTSIDE THE HOUSE

If you are out of the home environment try to avoid touching any sort of surface, especially hard surfaces where lots of other people will have put their fingers, as well. High risk surfaces include ATM machines, door handles, handrails, supermarket trolleys and anything that people touch on public transport. And avoid cash transactions in shops wherever possible.

4. DON'T TOUCH YOUR FACE

It is not easy – but if you are outside the house try to resist touching your face, especially eyes, nose, or mouth with your fingers – which may have been in contact with a virus infected surface.

5. WASH YOUR HANDS REGULARLY WITH SOAP AND WATER

Soap is one of the most under rated infection defences. Washing your hands with soap and warm/hot water for at least 20 seconds is still the most effective way of removing the virus from your hands. Soap dissolves the fatty coating of the virus and makes it inactive. Hand washing means making sure that you wash between your fingers and your fingertips with the soap. Dry your hands properly

afterwards (with either a paper towel or one that is not used by anyone else). Never use shared towels away from home. Repeated hand washing can also dry out the skin and cause cracks. So, it is worth using a good moisturiser cream after hand washing is done. If you are out and about carry a bottle of alcohol-based (62% or more) hand sanitiser and possibly a pair of disposable gloves to use if you are going to be touching surfaces. If someone comes to the home, a care worker for example, make sure they wash their hands when they come in and preferably when they leave.

6. POST, PARCELS AND SHOPPING

For some people with ME/CFS, these may be the only surfaces that you are dealing with that may be infected. Although the virus may not remain active for long on paper and cardboard, I leave my post in a pile in the hall for a few days, then open it all at once on the floor and wash my hands afterwards. A modified approach can be used for online shopping when it is being delivered by van or by a neighbour.

7. STAY SAFE AWAY FROM HOME

If you decide to leave the house for a daily walk (as I do), or for going to the shops, maintaining social distancing is obviously especially important. If you are lucky enough to live in an area with not many people around this an exceptionally low risk activity – as viral transmission out in the fresh air is far less likely than in a closed indoor area. If you are not so lucky and can only do so in streets with plenty of people on them, this becomes a riskier thing to do.

Being away from home on crowded public transport, or in shops and offices with lots of people about, is a higher risk activity. If you are working indoors away from home, try to have a window open to allow some fresh air in.

8. TAKE A VITAMIN D SUPPLEMENT

Many people with ME/CFS are deficient in the vitamin D - the so-called sunshine vitamin. Vitamin D is essential for bone and muscle/mitochondrial health as well as immune system function and antiviral activity. There is growing evidence to indicate that being deficient in vitamin D increases the risk of developing a more serious COVID-19 infection.

So, everyone with ME/CFS, especially those who do not go outside, should be taking a 10-microgram vitamin D supplement.

Medical reference: COVID-19 'ICU' risk is 20-fold greater in the Vitamin D Deficient. BAME, African Americans, the Older, Institutionalised and Obese, are at greatest risk. Sun and 'D'-supplementation – are these Game-changers? Research urgently required. Read more here: <https://tinyurl.com/y9kckufm>

Locally we have a policy where possible of getting people to ask their doctors for a Vitamin D level check. Everyone checked within the Leger ME group has been found deficient. Either the GP have prescribed Vitamin D3 or people have chosen to buy then. Many members report that supplementing with Vitamin D3 reduced joint pain and brain fog. We think that for PWME that 800 units is the minimum daily amount - Ed

9. FACE MASKS

Simple face masks may help to protect other people if you have a respiratory infection. But they will not provide much protection to you from catching an infection from someone else. They can even be counter-productive if you are touching them and moving them around because they are uncomfortable for long periods of time. The only type of mask to offer this level of protection is the type worn by health professionals.

10. MEETING A FRIEND OR RELATIVE

Not surprisingly, many people with ME/CFS are desperate to see a friend or relative, or new addition to the family. When/if this happens, the same approach to social distancing should be applied. And while children are largely immune from developing serious problems with COVID-19 infection, current research indicates that they can be infected without having any symptoms and so be vectors for further transmission. So, hugging your children or grandchildren is not a good idea at the moment!

Current Medicine Matters

Free Vitamin D Supplements *with thanks to the BBC*

More than 2.5 million vulnerable people in England will be offered free Vitamin D supplements this winter. The vitamin, which helps to keep bones, teeth and muscles healthy, will be delivered to people who are clinically extremely vulnerable, and care homes. Skin makes Vitamin D when exposed to sunlight - but the elderly and those with dark skin need topping up.

The coronavirus pandemic means many more people than normal have spent time indoors. The groups most at risk are residents in care homes, and people with serious health conditions which mean they have spent extended periods shielding from the virus - a total of 2.7 million people. Health officials say that even in a normal winter, everyone should take 10 micrograms of Vitamin D a day between October and March - and it is particularly important this year because of coronavirus.

People on the clinically extremely vulnerable list will get a letter inviting them to opt in for a supply of Vitamin D tablets to be delivered to their homes. Deliveries will start in January. They'll provide four months' worth of free supplements. People who are able to buy a Vitamin D supplements and start taking them now, ahead of a free delivery, are advised to do so.

We have included a BDA Factsheet on Vitamin D in in the following pages -ED

Cut price promotion of Paracetamol Tablets.

with thanks to Sandra Gidley President of the Royal Pharmaceutical Society

The following is a copy from a letter sent about the sale of multiple packs of paracetamol by well known cut price store.

It has been brought to our attention that a cut price store. are selling multiple boxes of paracetamol for £1 and offering a buy two get-one-free deal. As President of the Royal Pharmaceutical Society I have serious concerns about the irresponsible way that these painkillers are being promoted and sold at your stores. Whilst the cut price store has not broken the law governing the sale of these painkillers, the decision to offer your customers this deal contravenes the guidance issued by the Medicines and Healthcare Regulatory Agency (MHRA) on best practice for the sale of medicines for pain relief.

The guidance clearly states that no more than two packs should be supplied at any one time and that promotional offers that encourage the sale of more than one pack should not be used. This MHRA guidance was endorsed by the British Retail Consortium, an association we note you are a member of. As the professional body for pharmacy and pharmacists in Great Britain, the Royal Pharmaceutical Society believes that medicines should not be treated like other consumer products.

All medicines are potentially dangerous and retailers who sell medicines have a responsibility to ensure they are sold appropriately. Paracetamol is a medicine which needs to be treated with particular caution precisely because it is so easy to overdose. Harm from paracetamol poisoning often does not cause any symptoms until it is too late to avoid liver damage, and for some people, subsequent death. It was in reaction to the high levels of death caused by this medicine that the MHRA issued guidance on its sale.

Research carried out by The Centre for Suicide Research at Oxford University has reported that since the 1998 Medicines for Human Use Regulations restricted the pack sizes of paracetamol, there has been "a beneficial effect in terms of reduced sizes of overdoses and numbers of deaths and liver transplantations."

Reducing quantities of paracetamol in the home sufficient to cause harm is key to reducing overdoses. I hope that you will reconsider your company's position on this matter and that you will in future be complying with the guidance issued by the MHRA on the sale of painkillers.

While paracetamol is an effective painkiller - like all medicine they have to be treated with respect.

Vitamin D

Sunshine, not food, is where most of your vitamin D comes from. So even a healthy, well balanced diet, that provides all the other vitamins and goodness you need, is unlikely to provide enough vitamin D. Read on to find out the best ways to get enough vitamin D safely.

What is vitamin D?

You make vitamin D under your skin when you are outside in daylight, which is the reason vitamin D is sometimes called the 'sunshine vitamin'. A vitamin is something that helps our body function – a 'nutrient' – that we cannot make in our body.

Vitamin D is different because even though we call it a vitamin, it is actually a hormone and we can make it in our body.

What does vitamin D do to the body?

Vitamin D works with calcium and phosphorus for healthy bones, muscles and teeth. Vitamin D is also important in protecting muscle strength and preventing rickets, osteomalacia and falls.

Even if you have a calcium-rich diet (for example from eating plenty of low-fat dairy foods and green leafy vegetables), without enough vitamin D you cannot absorb the calcium into your bones and cells where it is needed. Vitamin D may have other important roles in the body, but there isn't enough evidence at the moment to make any conclusions.

What happens if i don't get enough vitamin D?

Some babies are born with low levels of vitamin D and some do not get enough in breast milk; this can result in fits or rickets.

Older children who do not get enough vitamin D can also develop rickets. Rickets can cause



permanent deformities to the bone, weaken muscles and reduced growth.

Adults who don't get enough vitamin D can develop osteomalacia. This makes the bones softer as the minerals needed to keep them strong cannot get into the bone. People with osteomalacia experience bone pain and muscle weakness.

When is vitamin D made in skin?

The amount of vitamin D you make depends on how strong the sunlight is. You will make more in the middle of the day, when the sun is strongest. You will also make more when you are in direct sunlight than in the shade or on a cloudy day.

Sun safety

It is the sun's ultraviolet rays that allow vitamin D to be made in the body. You do not have to sunbathe to make vitamin D. In the UK, ultraviolet light is only strong enough to make vitamin D on exposed skin (on the hands, face and arms or legs) during April to September. However strong sun also burns skin so we need to balance making vitamin D with being safe in the sun - take care to cover up or protect your skin with sunscreen before you turn red or get burnt. Find out more about sun safety on the NHS Choices website.

During the autumn and winter, we get vitamin D from our body's stores and from food sources but these are insufficient to keep up vitamin D levels. The only way to ensure a healthy vitamin D status at this time of year is to take a supplement.

Groups at risk of low vitamin D

- babies and young children, and children and adolescents who spend little time playing outside
- pregnant and breastfeeding people

- people over 65 years old because their skin is not as good at making vitamin D
- people with darker skin tones – people of Asian, African, Afro-Caribbean and Middle Eastern descent – living in the UK or other northern climates
- if you always cover most of your skin when you are outside
- the further north you live, the less sufficiently strong sunlight there is for you to make vitamin D
- anyone who spends very little time outside during the summer – the housebound, shop or office workers, night shift workers
- if the air is quite polluted

Which foods contain vitamin D?

Help your body get more vitamin D by eating plenty of vitamin D rich foods, including:

- oily fish such as salmon, sardines, pilchards, trout, herring, kippers and eel contain reasonable amounts of vitamin D
- cod liver oil contains a lot of vitamin D, but don't take this if you are pregnant
- egg yolk, meat, offal and milk contain small amounts but this varies during the seasons
- margarine, some breakfast cereals, infant formula milk and some yoghurts have added vitamin D

Where are vitamin D supplements available?

Vitamin D supplements and multivitamins are now widely available to buy from chemists/pharmacies, supermarkets and health food shops. Some people who are pregnant or breastfeeding and children aged six months to four years may qualify for Healthy Start vitamins which contain vitamin D. Ask your health visitor about this.

A supplement only needs to contain 10 micrograms to meet the recommendation – those with a higher content of vitamin D are unnecessary and could be harmful in the long run.

Who needs a vitamin D supplement?

- All adults and children over the age of one should consider taking a daily supplement containing 10 micrograms of Vitamin D especially during autumn and winter.
- Those in the at risk groups, as above, should consider taking a supplement containing 10 micrograms of Vitamin D all year round.
- All babies under one year should be given a daily supplement of 8.5-10 micrograms unless they have more than 500mls of fortified formula milk.

Taking a vitamin D supplement as well as eating foods rich in vitamin D and spending a lot of time outside in sunshine is not a problem.

However do not take more than one supplement containing vitamin D (count cod-liver oil as a supplement) as you could exceed the 10 micrograms recommendation. Always choose a supplement tailored to the age group or condition, as fish liver oils and high dose multivitamin supplements often contain vitamin A, too much of which can cause liver and bone problems, especially in very young children, and the elderly.

Summary

Vitamin D works with calcium and phosphorus for healthy bones, muscles and teeth. You make the most vitamin D under your skin when you are outside in the middle of the day in the summer months.

You can get vitamin D from some foods including fortified foods and everyone is recommended to take a supplement, especially during autumn and winter.

There are some at risk groups who are recommended to take daily vitamin D supplements all year round. If you are concerned you are not getting enough vitamin D, speak to your doctor, health visitor, or ask to be seen by a dietitian.

Children's Corner Here is a Christmas Picture for you to colour in.



Santa has told Pathways exclusively that although you will not have had chance to see him in person, he will be doing his usual round on Christmas eve.

If you follow this link in Christmas eve you will be able to see Santa on his rounds. See this website:




<https://www.noradsanta.org/>









Puzzle Corner *By Nichola Stockton*







I hope you enjoyed the puzzles in the last issue Pathways 65. Here are the solutions.

 +  +  = 30
 10 10 10

 +  +  = 14
 2 2 10

 +  +  = 8
 2 3 3 10

 +  +  x  = ?
 3 1 1 10 = 14

Word Search

H	O	E	V	B	F	T	B	K	H	S	A	N	D	C	A	S	T	I	E	M	A	K	B	F	L	O	W	E	R	S	C	A	N	O	E		
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L	I	D	A	V	K	S	P	S	T	H	B	A	U	N	C	B	O	U	T	E	N	O	I	W	L	Y	U	S	E	O	F	A</					

Three circles are shown, each divided into three segments by lines meeting at a central point. The numbers in the segments are as follows:

- Circle 1 (top left): 64 (top left), 5 (top right), 40 (bottom).
- Circle 2 (top right): 81 (top left), 7 (top right), 63 (bottom).
- Circle 3 (bottom center): 16 (top left), 4 (top right), ? (bottom).

If you divide bottom Bottom/Right, and then square the result you get the number on the left.

- 1) Top left
- | | | |
|----|---|-------------------|
| 64 | 5 | $40/5 = 8$ |
| 40 | | $8 \times 8 = 64$ |
- 2) Top right
- | | | |
|----|---|-------------------|
| 81 | 7 | $63/7 = 9$ |
| 63 | | $8 \times 9 = 81$ |
- 3) Bottom
- | | | |
|----|---|---------------------------|
| 16 | 4 | ?/4 has got to be 4 |
| ? | | Because $4 \times 4 = 16$ |

GENIUSES ONLY
Look Closely at the details

Which Tank will Fill up First?

The diagram shows 11 tanks (A-K) connected by pipes. Tank A is the highest and has an incoming faucet. The pipes connect the tanks in a way that creates a series of potential bottlenecks. Two red circles highlight specific connection points: one at the junction of tanks C, D, and E, and another at the junction of tanks H and I. A red arrow points from the first circle down to the second, suggesting a path of water flow.

Blocked

Which will fill up first Answer = F

A flows into B and B flows into C

C cannot flow into D because it is block and so flows into J.

J will prefer to flow in to L rather than I because the water level is lower.

L cannot flow into H because it is blocked and so goes to F

F will fill up before L because again the level of F is lower than L

Christmas Wordsearch Puzzle

Frosty the snowman Father Christmas Santa's workshop Merry Christmas

Jingle Bells Wrapping paper Gingerbread Decorations

Poinsettia Gift giving Greetings Jack Frost

Snowflake Mistletoe North pole Fruitcake

Presents Ornaments Reindeer Snowman

Yule log Mince pie Pinecone Festive

Carols Tinsel Candle Elves

Bells Garland Holly Bow

Recipe Corner: Mexican Style Turkey Meatballs

The recipe is an ideal way to use up the turkey leftovers from your Christmas dinner. You can swap the turkey for chicken or any other suitable meat. You could substitute tomatoes for sweet peppers, and the kidney beans for borlotti or even baked beans.

Serves 4. Preparation time 10 mins.
Cooking time 20mins

Combine the mince, breadcrumbs and half

- 1) the spices and dried herbs in a bowl.
- 2) Roll the mixture into 20 balls.
- 3) Lightly mist a non-stick frying pan with cooking spray or oil.
- 4) Cook the meatballs over a medium heat, turning occasionally, for 5 minutes, or until browned all over.
- 5) Set the meatballs aside and spray the pan again.
- 6) Add the onion, cook for 5 minutes,
- 7) then add the remaining dried spices and herbs, along with the tomatoes, kidney beans, 125ml water and the meatballs.
- 8) Stir, then bring to a boil. Reduce the heat and simmer, covered, for 10 minutes or until the meatballs are cooked. Serve topped with the coriander and yogurt.

Ingredients

500g turkey breast mince
50g bread, whizzed into coarse breadcrumbs
1 tbsp mild chilli powder
1 tsp smoked paprika
1/2t sp ground cinnamon
1/2t sp ground cumin
1/2 tsp garlic powder
1/2 tsp dried oregano
Calorie-controlled cooking spray
1 onion, finely sliced
2 x 400g tins chopped tomatoes
400g tin red kidney beans in water, drained and rinsed or serving
5 Fresh coriander leaves or dried coriander powder
2tbsp zero fat natural Greek yogurt

CHRISTMAS BRAINFOG TEASERS**1. ELVES AND REINDEER**

The Elves and Reindeer are getting ready for a meeting with Santa. 14 of them have arrived but Santa hasn't yet. If they have 38 legs between them, How many Reindeer and how many Elves are at the meeting?

**2. CHRISTMAS CARDS**

Four friends give each other Christmas cards. If each one of them gives out a card to each of their friends, how many Christmas cards are given out altogether? How many cards would be given out if 7 friends give each other cards?

**3. GIFT WRAPPING**

Jenny and Marcus are wrapping Christmas gifts. Jenny has wrapped 5 more than Marcus.

Together they have wrapped 17 gifts.

How many has Marcus wrapped?

**4. SNOW FRIENDS**

The snowmen and snowwomen are comparing their heights. Frosty, Snow White, Jack Frost, and Snow Flake are lining up in order of shortest to tallest.

Frosty is not the tallest or the shortest.

Snow White is taller than Jack Frost and Snow Flake.

Jack Frost is shorter than Frosty.

Jack Frost is not the shortest.

In what order are they standing?



CRAFTY CORNER by Nicola

Firstly here are Ann's creations with her signature acrylic pouring technique, has produced this excellent Nativity set that she first crafted from paper m^{ché}.

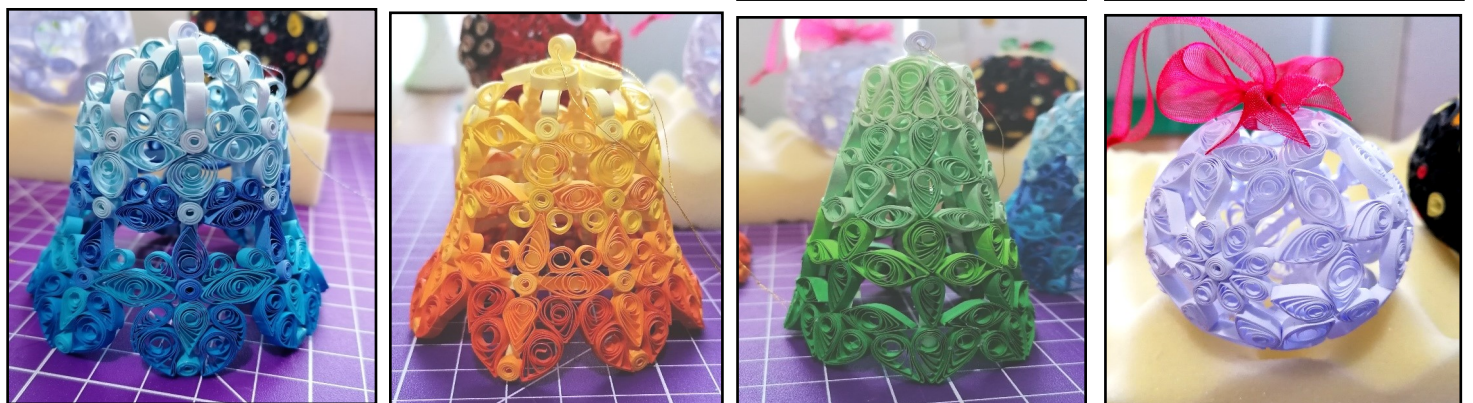


Meanwhile ,Claire has been very busy continuing to make high quality face masks and, more recently, crocheted poppies for the Royal British Legion.



Finally, I've also had a very busy time making any number of Christmas cards to complete orders for friends and family. I wanted to show you these handmade Baubles though because Quilling is a new skill that I am enjoying very much.

Merry Christmas.



You Write In - A section of topics from the office inbox

Maria Writes: Regarding your question. *Does the weather affect M.E?* It affects me a lot. In summer the hot days make me very drained. As I have POTS, when I stand up it makes me feel more lightheaded, headaches and fatigued. When it's been raining for several days it usually brings on fibro flare up where I feel in a lot of pain, deep achiness, fatigue and mental fog. In the cold weather I ache a lot more. I try to keep as warm as possible in the home. I use heated wheat bags and blanket when resting on the sofa. If I go out I wrap up well. I'm very stiff in the morning and can take a while to get moving. In the winter months when it's dark a lot I feel more mental fog, cannot concentrate and feel sleepy.

Julie Writes: I find that weather, very much affects my mood and sense of well being. Earlier, darker nights at the moment, affect my sleep pattern. I'm sure, in a previous life, I was an hibernating animal! But, the other day, the sky was leaden, it was breezy, but, there was sunlight, and the colours of the sky were a weird mix of greys, golden rays, reddish times. It felt apocalyptic, as though something eerie was in the atmosphere. And it definitely had an affect on my mood. I felt, amazed at the colours in the sky, but also, a bit anxious, as if I should be on alert from something. Bright sunshine makes me feel sleepier than normal. I can doze off in a chair, and only wake up when the day cools a little. Leaden skies, weigh down on me, if walking it feels like walking through thick molasses syrup! Does anyone else find this? By the way, I'm not necessarily feeling worried, but the emoji seemed to fit ~

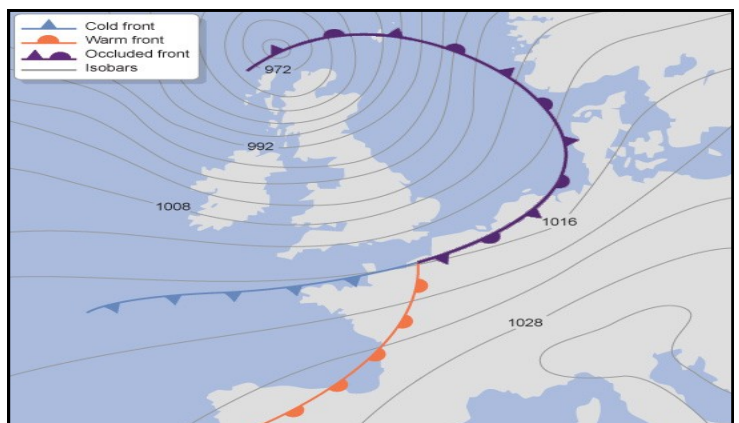
Mick Writes: I do find that the weather affects my symptoms and mood, but not to that extent. I'm not alone in that either

Lets think about what has happened this year. Most of us will have been limited to our homes, unable to visit or mix with people. That in itself is enough to make people feel depressed or in a low mood. Add to this that we have a neurological disease which in some cases oversensitive or dulls our senses. Added to this that most people with ME have emotionally labile (abnormally sensitive). It is well known that in Scandinavian countries where the light is limited during winter that the occurrence of self harm is more prominent. There is something called Allodynia. This is a type of pain that comes from something that wouldn't normally be painful. For example, just running a handkerchief over someone's arm could be felt like being crushed with a heavy weight. With thermal allodynia, temperatures that don't damage tissues or even bother healthy people may cause extreme pain in us. Sometimes with ME doctors are not aware of this, and may prescribed strong analgesic, antidepressants or neuroleptic drugs. It's far far better to use physical methods like heat lamps or light boxes that are used for Seasonal Affective Depressive Disorder. Everyone has their own way to get around the problem - and that is what a support group is about, learning from the experience of others

I also know that when our members come under the weather, they all do it at the same time. Apart from cold weather, changes in air pressure associated with weather depressions seem to affect people with ME. People with ME also seem to do better with an anticyclone (high) on the weather map.



This map show high pressure over the UK. This pattern is associated with stable weather that is unchanging and keep out weather fronts. Generally this pattern changes very little over many days, and is associated with stable mood. It gives hot days in summer and cool clear or still foggy days in winter.



This map shows a low (depression) cantered over North Scotland. This pattern is associated with changing and moving fronts which change in a matter of 3 - 4 hours. With each low comes a warm front and then a cold front. This is associated with changing moods, aches and pains.

Gene writes: Thanks for the advice about getting a Egg free flu vaccination. As you said I did have a lot of trouble getting it. I first contact my GP's surgery, and was put in touch with the nurse dealing with the flu vaccinations. After explaining all about the trouble I had last time I had a flu vaccination, and refusing an egg based one I ended up seeing my doctor. After a bit of hassle I ended up with the 'Flucelvax'. I took a antihistamine before the jab, and had to wait a while in the surgery just in case I had a reaction. This was fine on the day and I didn't notice anything different. However, the following day I got a headache, flushing, joint pain and nausea which lasted for four days. On the 5fith day I got a bounce of energy, bit like a remission and then from sixth back to normal with my ME/CFS. Is this an adverse reaction or just something to be expected ?

There are some people who react adversely to flu or any vaccination. With the old type of flu vaccines, they are grown on eggs, and will always have a minute trace of egg in them. I can remember a rather cruel experiment from my university days. A guinea pig is injected with egg albumin. Nothing happened. The same injection is given three weeks later and a guinea pig dies from a massive asthma attack. The first dose sensitised the poor animal to egg, so that on the second dose its immune system over reacted. Guinea pigs are very sensitive animals and overreact easily. This is why they are used as experimental animals. Because you reacted adversely to a egg based vaccine, on receiving egg free vaccine your doctor wanted you to wait just in case you got an anaphylactic reaction and/or got into breathing difficulties. If you were going to get a reaction it would have happened fairly quickly. So you will be protected against flu, and really you should consider the same type of vaccine next year.

The idea of a vaccination is to give your body either some dead germs or bits of dead germs. Your immune system then knows they are foreign, reacts against them and remembers them. So the next time a flu bug comes along you are ready for it. The headache, flushing, joint pain and nausea are the well know side effects of the vaccine you had. In effect your body went through a mini bout of flu because it saw a few dead germs - but the next time it sees a flu bug it will be ready and you'll hardly notice it. But just think of what would have happened if you had been infected with real live germs.

The fifth day remission is some something we see in people with ME/CFS after an immune challenge. Typically this can happen after an insect bite or sting, an is only short lived. There was a movement in America where people with ME/CFS deliberately stung themselves. It worked, but they got dangerously allergic to inset bites and stings. I have put a table in with the main adverse effect of the particular flu jab you had. Incidentally, the new Covid vaccines are egg free, so you don't have to worry about that.

System/ Organ class	Very common (≥1/10)	Common (≥1/100 to <1/10)	Uncommon (≥1/1,000 to <1/100)	Rare or Frequency not known
Immune system disorders				Allergic or immediate hypersensitivity reactions, including anaphylactic shock
Metabolism and nutrition disorders		Loss of appetite		
Nervous system disorders	Headache			Paraesthesia
Gastrointestinal disorders		Nausea, Diarrhoea, Vomiting		
Skin and subcutaneous tissue disorders				Generalised skin reactions including pruritus, urticaria or non-specific rash
Musculoskeletal and connective tissue disorders	Myalgia	Arthralgia		
General disorders and administration site conditions	Injection site pain, Fatigue, Erythema, hardening skin at site of injection	Ecchymosis (bruising), Chills	Fever (≥ 38°C)	Extensive swelling of injected limb

According to the manufacturers data sheet, the vaccination may contain traces of the following:

Beta-propiolactone, - use in the manufacturing process to clean and sterilise the equipment
Cetyltrimethylammonium bromide (Cetrimide), a soap like disinfectant or antiseptic.
Polysorbate 80, - used as a surfactant to clean or suspend particles. Used in foods.

There above are common excipients used somewhere in the manufacturing process. If you were sensitive to any of then you could get an adverse reaction,.

The other ingredients are:

Sodium chloride (salt), potassium chloride, magnesium chloride hexahydrate, disodium phosphate dihydrate, potassium dihydrogen phosphate and water for injections.

These care buffering agents contributing to the stability of the vaccine. It is unlikely you would be sensitive of any of these. All of these are naturally present in blood.

Julie Writes: I got my thyroid result, TSH is 6.22 and T4 is 12.3. I think this may be called "primary hypothyroidism" will have my second test in a few weeks. I just wondered if this is partly why I'm so fatigued, have developed very easily tired achy arms and legs! Can phone if you have time and energy?

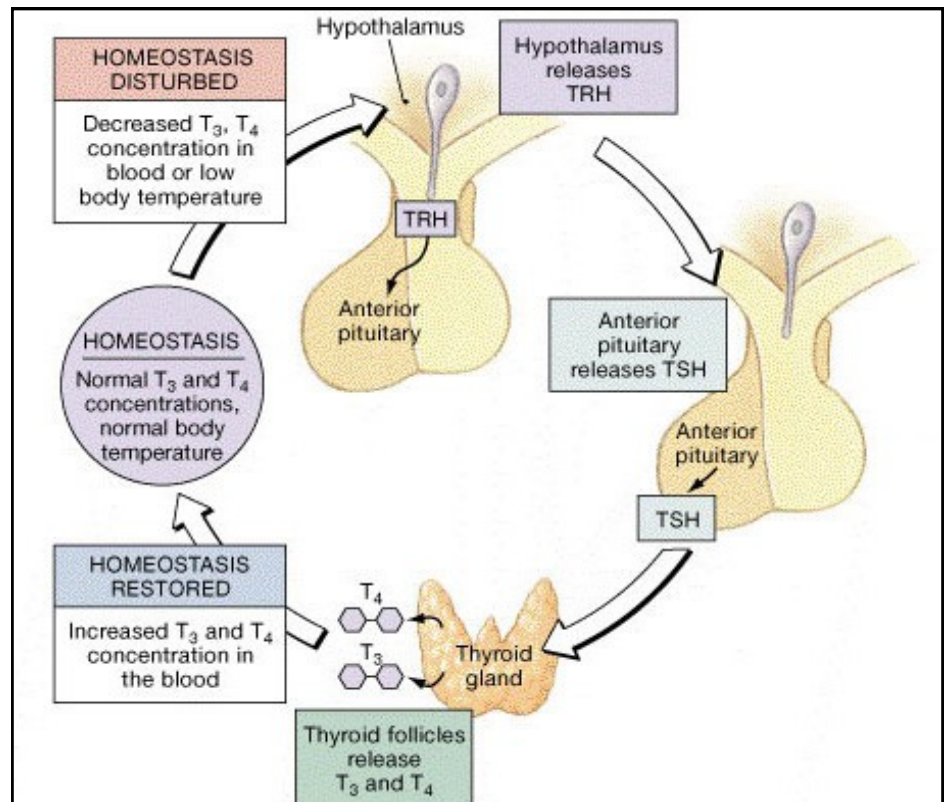
Your T4 level is fine but a TSH level of 6.22 is high and outside the reference range. This indicates that your thyroid is being driven hard and may ultimately fail given time. With a TSH of 6.22 this implies a higher risk of cardiovascular disease. The fix is simple, just a daily dose of l-thyroxine, and regular testing every year once things are stable.

People with ME/CFS usually have an issue with T3 and it is that which gives the most reliable indication of fatigue. I would recommend that you ask your doctor to include a check-up on T3 level in your next test. I will write you a letter if need be.

Getting T4 (Thyroxine) on the internet is not a good idea because levels need to be checked frequently. Too much thyroxine can cause heart arrhythmias, so it is important that the blood levels are maintained and checked regularly. In any case if you are prescribed thyroxine by your doctor, you can get all your other prescriptions free for life.

A normal thyroid gland will produce about 75ug of thyroxine a day, but I've know some people be given as much as 150ug a day. Personally I would think for you that anything up to 75ug would be fine for your doctor to prescribe, and the dose made higher if there is something called thyroid resistance detected with a low T3 result. But your doctor may not be fully aware of this.

Just go along with what your doctor advises and if possible get your T3 checked. When you get your next



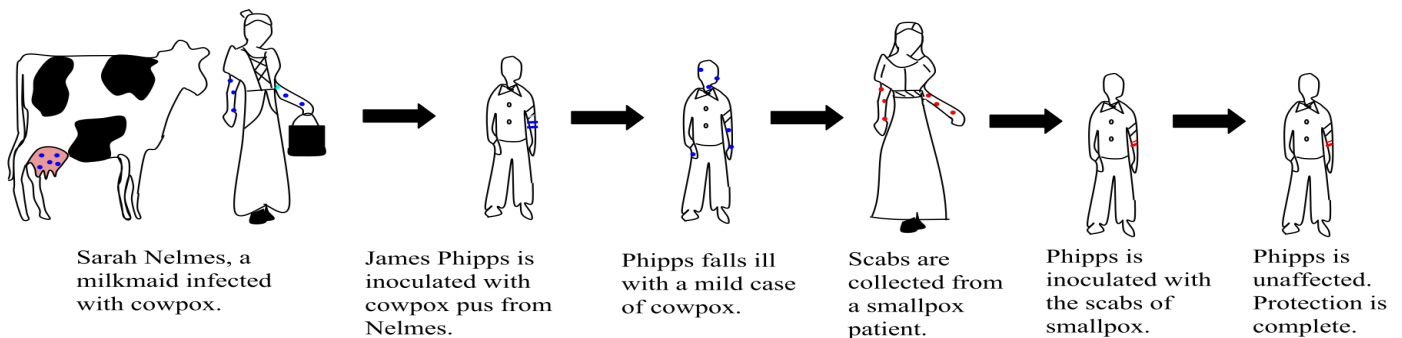
The level of thyroid hormones are controlled by TSH (Thyroid Stimulating Hormone). When one goes up the other goes down. If the thyroid starts to fail, naturally the body tries to compensate by increasing TSH. If levels get too high, the thyroid is being overstimulated and failing. The fix is thyroid hormones like T4 or in some cases T3 by mouth. Treatment is usually for life, and does need reviewing regularly.

Edward Jenner and the Milkmaid.

Edward Jenner was born on 17th May 1749. He was a pioneer of the smallpox vaccine, his work would go on to save countless lives; it is not hard to see why he is often referred to as “the father of immunology”. Whilst he was still very young he received a treatment against smallpox. This was an inoculation also known as a variolation, whereby samples are taken from infected patients, with the desire that a mild infection would provide future protection. This had a long-term impact on Jenner.

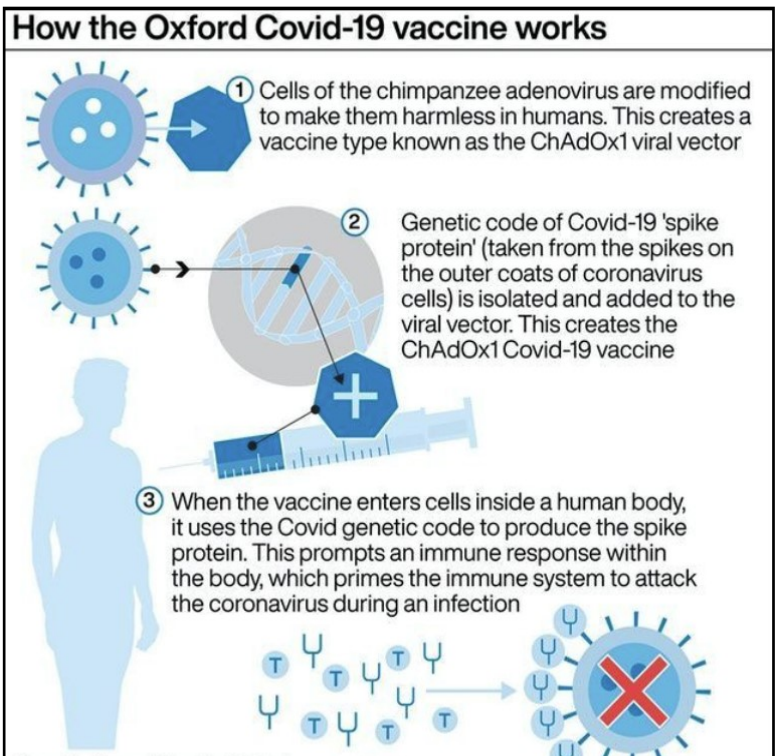
As an apprentice surgeon, he overheard from a local milkmaid that she was now safe from smallpox because she had already had cowpox. This remark intrigued Jenner, who would go on to study in London and still recall the words of the young milkmaid. Jenner would work amongst the rural and farming communities. The connections made by Jenner relating to cowpox and smallpox would also impact the creation of later vaccinations up to the present-day.

Jenner had always remembered the milkmaid who claimed immunity from smallpox, something he would scrutinise further. As his work found him largely surrounded by country farming people, he had repeatedly heard this claim of immunity whilst also noticing that many milkmaids would be clear from the unfortunate pox-ridden complexions suffered by others. The common denominator proved to be the cowpox, which whilst working with cattle proved fairly unavoidable to catch. Jenner's theory that he wanted to prove was therefore that cowpox somehow produced a level of immunity against smallpox, a hypothesis backed by local folk who told Jenner of their attempts to deliberately infect themselves to avoid smallpox.



With this in mind, Jenner was determined to find a way to prove this theory. In 1796, he did just that when he conducted an experiment with Sarah Nelmes, a local milkmaid infected with cowpox, extracting pus from her hand and then inserting it into an incision made into the arm of a young, eight year old local boy called James Phipps. The unethical approach was risky, and wouldn't be accepted today, but after several days, Jenner exposed the boy to smallpox, finding the boy to be subsequently immune.

So if you can show your immune system something similar to a virus it will remember it and induce immunity. The Oxford Covid vaccine is based on a chimp virus, that is modified and made harmless to humans. To the immune system it looks like a Covid virus and so induces immunity. The thing is that it does not have to be the full virus - it only needs to be part of it. In the case of flu vaccinations, it is only the spikes on the surface (surface antigen) that is capable of producing immunity. The Pfizer vaccine is an RNA vaccine. It induces the body to produce just the surface antigens - which the immune system sees and an invader - and so triggers immunity.



Covid Vaccination Logistics

On the 2nd December it was announced that the first-ever Covid vaccine has been approved for use in the UK by the British regulator, the MHRA, for people aged 16 and over. Immunisations could start early next week for people in some high-priority groups, with 800,000 doses arriving in the first batch.

When will I get a vaccine?













NHS staff and patients are likely to get the vaccine first because storage of the jab at freezing temperatures is easiest in hospitals. Some care home staff will be included too. When more doses are delivered, the Joint Committee on Vaccination and Immunisation (JCVI) has advised that people are given the vaccine in the following order:

- residents in a care home for older adults, and their carers
- everyone aged 80 and over, and frontline health and social care workers
- everyone aged 75 and over
- everyone aged 70 and over, and those who are clinically extremely vulnerable
- everyone aged 65 and over
- people aged 16 to 64 with underlying health conditions which put them at higher risk of serious disease and death from Covid-19
- everyone aged 60 and over
- everyone aged 55 and over
- everyone aged 50 and over

These groups cover 90-99% of those at risk of dying from Covid-19, according to the JCVI.

The older you are, the higher your risk of becoming

How some of the Covid-19 vaccines compare

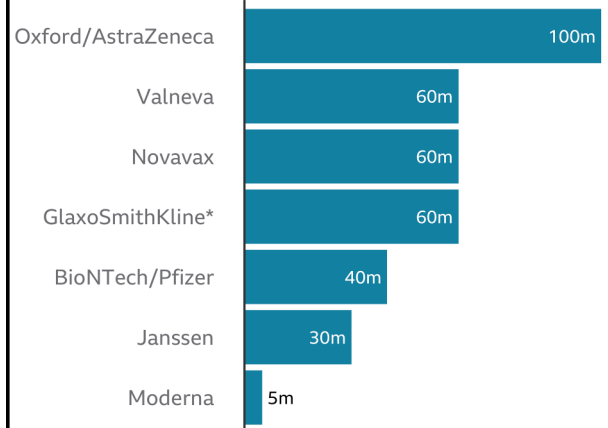
Company	Type	Doses	How effective*	Storage
 Oxford Uni-AstraZeneca	Viral vector (genetically modified virus)	 x2	62-90%	 Regular fridge temperature
 Moderna	RNA (part of virus genetic code)	 x2	95%	 -20C up to 6 months
 Pfizer-BioNTech	RNA	 x2	95%	 -70C
 Gamaleya (Sputnik V)	Viral vector	 x2	92%	 Regular fridge temperature (in dry form)

*preliminary phase three results, not yet peer-reviewed

Source: Respective companies, WHO

BBC

How many millions of doses of vaccine has the UK ordered?



* Joint project with Sanofi Pasteur

The new vaccine would need a deep-freeze delivery chain

- 1 Vaccine sent to destination country in special dry ice packs each holding up to 5,000 doses



- 2 Destination country can choose to store the vaccine in a 'freezer farm' for up to six months at -70C



- 3 In the unopened, dry ice packs the vaccine has ten days to reach the vaccination centre



- 4 Once delivered, the vaccine can be stored for up to five days in a fridge between 2C and 8C



Source: MSF, Pfizer, BioNTech SE

BBC

seriously ill or dying from the virus - and that risk rises sharply

beyond 70. People with underlying health conditions are also vulnerable to the virus.

After these nine priority groups, there will be a second phase of vaccination for other groups in the population. Local NHS and public health teams will be given some flexibility to allocate vaccines to other at-risk groups, including people from ethnic backgrounds and deprived communities. People will be vaccinated twice - 21 days apart - and immunity starts seven days after the second dose.

North of Doncaster. Personal Thoughts from Trevor Wainwright

My Beloved Yorkshire is an album I started on my Facebook page following a visit to Hebden Bridge in 2015. I thought it would be a great way to capture my time in pictures in my home county; the title comes from the ending of an article I wrote about an event I organised to commemorate the 50th anniversary of ME causing the closure of the Royal Free Hospital. "as the train rattled Northwards to my beloved Yorkshire and home".

It started slowly, but this year it has really taken off with being unable to go to Texas and having time on my hands and needing to get away when having time to spare from my voluntary work. As such on a visit to the East coast I found the album had reached 1121 pictures. So, I decided to open a part two album, which begins with a picture of Staintondale

One such visit was to Sowerby Bridge, in part 1, prior to lock down I had been there once a month to open mic poetry events and had once camped there while in the boy scouts, most memorable is that on the way there, one of the train carriages filled with smoke, when we got there it was raining and we had to walk to the campsite, which was reached down a lane, crossing a ford which also formed a small waterfall, and there were some ruins on the opposite side where we set up camp. I decided it would be nice to try and find it again, knowing roughly where it was, thinking it would make for some interesting photos in the album. I managed to find the stream in the area, I would later find out that it was the river Ryburn which joined the River Calder at a fording point where the town originated, taking its name from the historic bridge which spans the river in the town centre. I couldn't find the exact spot so I decided to spend some time taking pictures of the canal "Calder & Hebble Navigation" and lock system, my interest being piqued by a sculpture of a man and boy operating a lock gate, first noticed on a previous visit.



Air photograph of Sowerby Bridge, near Halifax

So, the question is, where to start? The sculpture seemed as good a place as any, called "Jack of the Locks" it depicts the town's lock



Sculpture of Jack of the Locks.

keeper during the last days of commercial carrying. Richard Tiffany was a well-known local character and his great-grandson modelled for the figure of the boy." Towards the canal there is a car park on the right, so car parked and off I went, walking first along the canal basin, the warehouse now a pub and takeaway, the workshops still carrying out maintenance but now for pleasure craft. Past the end of the canal basin crosses the canal on Chapel Lane Bridge and made my way back. Just before the basin the canal goes to the left and runs parallel with the river separated by a row of trees and an overgrown banking which over time has become a home to many kinds of plants and animals.



Walking East past the canal basin



Walking west where the canal leaves the basin



From Lock 1 looking West towards Lock 2

The canal then moves away from the river to go through the town and we come to the Tuel Lane Lock system, the deepest lock in the UK, innocuous at first the system begins with two normal locks (1 & 2). We can see the tower of Christ Church and a canal side warehouse the warehouse situated beyond the second lock, next to the road, the canal wide enough for boats to be maneuvered. From the second lock we see the Tuel Lane Tunnel going under the road beyond which is the actual Tuel Lane Lock. On the top of tunnel is engraved 1996 the year it and the lock were built as part of the canal's restoration, and it replaces two previous locks, locks 3 and 4, from the original canal system. With a fall of 19 feet 8.5 inches, it is the deepest lock in the United Kingdom. Due to its extreme depth, operation of the lock by boat crews is not permitted. Passage is controlled by a keeper and times must be booked, in addition boat crews are advised to wait beyond the tunnel until passage into the lock is clear, as the tunnel is subject to turbulence when the lock is emptying.

From the lock the canal becomes the Rochdale Canal and carries on Westwards towards Hebden Bridge and then into Lancashire, but it does not end there. There is an information board by the lock with an inset that shows the Calder & Hebble Navigation coming away from the Aire & Calder Navigation becoming the Rochdale Canal in Sowerby Bridge, joining the Bridgewater Canal near Manchester, turning right would then take you to the Leeds Liverpool Canal which starts after Wigan, following it past Burnley and Skipton to Leeds where it becomes the Aire & Calder Navigation before South of Leeds splitting off as the Calder & Hebble Navigation to make the perfect round tour of the North of England Waterways.



Looking from Lock 2 to Tuel Tunnel



Where the tunnel comes out below the main lock

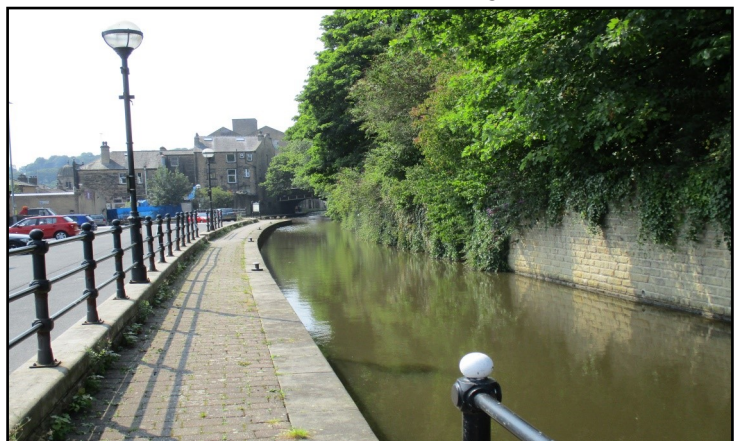


A closer view of the lock gates



Left

Before the opening of Tuel Lane Lock, the deepest lock in Britain was Bath Deep Lock, on the and Avon Canal. This is numbered 8/9, because it replaces two original locks. In this case, a road widening scheme necessitated one lock which has a fall of 19.5 feet or 6 meters.



The Rochdale Canal begins its journey Westwards