

Blogs

- 1 Organisational Consequences of COVID-19
- 3 Healthcare Response to COVID-19
- 5 Leadership, Heroism and Heroic Leadership

PPIE

- 7 A PPIE Response to COVID-19
- 10 Public Commitment During COVID-19
- 14 Embracing Digital Tech During COVID-19

Statistics

- Explaining COVID-19 Statistics to Children 17

Global Health

- Locking Down Urban Settlements in SSA 21
- COVID-19 in Cox's Bazar 23
- Preventing COVID-19 Spread in Slums 25

Research Summary

- Super Spreaders and COVID-19 27

- Statistics Answers** 29

ARC West Midlands News Blog: Collection of COVID-19 Articles

This is a collection of articles focusing on COVID-19 previously published in our News Blog from March to May 2020.

Organisational Consequences of Coronavirus, COVID-19

March 2020

*Richard Lilford, ARC WM Director;
Frances Griffiths, Professor of Medicine in Society*

Health services around the world are scrambling to deal with COVID-19. The virus massively disrupts services. Modelling the spread of the disease is allowing governments to formulate public policy. Modelling patient flows – operations research – is helping health care organisations to manage the surge in demand – for example by releasing spare capacity and redeploying human and physical resources from elective to emergency care. Infectious diseases create a conundrum for the services since sick people need to attend facilities, but congregation of infected cases in health facilities increases transmission of the infectious agent. So the trick is to visit facilities virtually (mobile [m] consulting) rather than physically. Enter ARC West Midlands.

We have a well-established programme of m-Health including (but not limited to):

1. Our host hospital, University Hospitals Birmingham NHS Foundation Trust (UHBFT), is working with Babylon Health to enhance its virtual clinic capacity.
2. Building on work of Gill Combes, Sarah Damery and James Ferguson, we plan a more extensive evaluation of the UHBFT m-Consulting programme that is

expanding rapidly to cope with COVID-19.

3. From her UK work on m-Consulting Frances Griffiths has quick guides freely available for specialist teams maintaining contact with their patients managing long-term health conditions at home.[1] She leads projects on m-Consulting in Africa and South Asia and, with her collaborators, is developing policy briefs underpinned by evidence-based principles to guide application.

4. Melanie Calvert is an international authority on Patient-Reported Outcome Measures, which could help determine who should attend facilities and who should not. Modern aeroplane engines incorporate sensors that send signals to land-based workshops. This real-time monitoring, rather than just the schedule, determines the need for repairs. Likewise, patients in future will be monitored by their symptoms and test results, and these will be used to trigger visits to the clinic.

ARC WM members are planning a suite of studies in this country and abroad. The COVID-19 pandemic has precipitated a sharp shift towards m-Health / m-Consulting that is likely to prove indelible. In UK general practice all patients are now having phone consultations before any necessary face-to-face



contact. Many practices have systems in place for video-conferencing. Last week, author FG took just ten minutes to learn how to use the secure and confidential system via her own phone so she could set eyes on an immune-compromised patient with infection, without asking the patient to leave her place of safety. Patients are learning rapidly too. The same patient could not get their sound to work so they used the landline too – but that patient is now urgently sorting out the sound.

We know that many other centres are also gearing up to study the organisational issues of epidemics generally, and m-Health specifically. M-Consulting warrants study – it is open to abuse/fraud, poor quality control and medical error, and can result in inequalities in care received. Experienced health professionals are good at mitigating these dangers,[2] but we need to understand how to systematise and

embed m-Consulting to optimise health gains. We warmly invite other people in the UK and beyond to join our enterprise to share ideas and formulate research plans. In the meantime James Ferguson is leading an initiative to track use of m-Consulting to identify opportunities and barriers, and identify training needs for staff and patients.

References:

1. LYNC study team. [LYNC Study Quick Reference e-book and Topic Guides](#). Warwick: University of Warwick; 2017.
2. Griffiths F, Bryce C, Cave J, et al. [Timely digital patient-clinician communication in specialist clinical services for young people: a mixed-methods study \(the LYNC study\)](#). *J Med Internet Res*. 2017; **19**(4): e102.

An Applied Health Research Insider's View of Healthcare Response to COVID-19

April 2020

Paul Bird, ARC WM Head of Programme Delivery & WM-AHSN Knowledge Mobilisation Lead

Recently our ARC WM Director was relating to me an interview he had heard on the Today programme (BBC Radio 4) with former Prime Minister Tony Blair. Mr Blair made a range of points around the government response to the COVID-19 outbreak, but amongst these he made the point that in extraordinary circumstances such as this, the traditional silos of government departments were not fit for purpose. He suggested a more fluid arrangement was needed with greater cooperation between departments, or perhaps a specific Minister in charge of the COVID response.

This led me to reflect on changes within the University Hospitals Birmingham NHS Foundation Trust, the organisation to which I have returned in order help with their COVID-19 response, and which has afforded me a privileged insight in to their response. With perhaps seven days lag time to learn from the London experience of the outbreak, the Trust delivered a transformational shift in the model of care. Firstly, whilst still strategically working as a single organisation, the decision was made to move to a site-based model across the four hospitals (Queen Elizabeth Hospital Birmingham, Heartlands Hospital, Good Hope Hospital, and Solihull Hospital). To support this, a team of four Senior Responsible Clinicians were appointed to run each site 24 hours a day, seven days a week, with four senior operational managers to work alongside them (of which I am one at the Queen Elizabeth Hospital). So one immediate organisational assumption was that specialist leadership was required, but that this leadership could be across clinical specialties, rather than just within them, as had previously been the case.

Secondly, there was an immediate move to a 24/7 consultant-delivered model of care. This means that a resident consultant will take leadership across each of the six floors of the hospital, whereas previously out-of-hours cover was often provided by more junior grades and/or through non-resident on-call arrangements.

Thirdly, and necessitated by this move to floor-based working, is a more generalised approach to care in order to free up enough clinicians to deliver a resident 24/7 consultant-delivered model. For instance, the clinical consultant lead for a floor might be a colorectal surgeon, who would also be looking after patients from liver surgery, urology and general surgery. Specialist advice is, of course, still available through colleagues, but the consultant lead is responsible for the primary oversight of clinical care for these patients.

Fourth, linked both to the huge requirement for support in the Emergency Department and the Intensive Care Unit as a consequence of the outbreak, some clinicians have been temporarily redeployed to other specialties from those in which they routinely deliver care. This has also necessitated some 'acting down': clearly, however experienced a consultant is in any other area, they are unlikely to be able to operate at the same level in a new area. This breaking of traditional hierarchy has been fascinating to watch, with both great humility being shown by many of those doing so, and considerable zeal for the challenge of working in new areas and with new teams.

This transformational shift in hierarchy and silos of care has been embraced by the overwhelming majority of the clinical teams with the predominant attitude being “we can’t go back to the way we used to work”. Of course, in some ways the biggest organisational challenges still lie ahead: for instance how do you maintain the best elements of this new model and at the same time begin to re-introduce elements of specialist and standard care, such as surgery, whilst maintaining the flexibility to revert back to a full pandemic response model in the

case of a second peak or new outbreak? For applied health researchers there are a wealth of topics to explore around which of the changes endure, and which have the greatest impact in the short, medium and long term. As an ARC we hope to provide leadership on this, in turn rapidly disseminating our findings through partners, such as the West Midlands Academic Health Science Network, to shape future service transformation and pandemic response.

Leadership, Heroism and Heroic Leadership

Richard Lilford, ARC WM Director

Some years ago, two outstanding academic leaders, Peter Pronovost and Lord Ara Darzi, wrote an article in which they argued for an end of heroism in medicine.[1] I responded in the pages of our previous CLAHRC WM News Blog along the lines of, be careful what you wish for.[2]

I was reminded of this interchange by the evening celebration of health workers seen across many countries of the world during the COVID-19 pandemic. What were members of the public doing, if not allowing health service to feel just a little heroic? Quite right too, health staff risk their lives on an almost daily basis and have a higher mortality compared to other people of similar ages.

One recent morning I heard a poem about nurses on the radio. The poet was making the point that nursing is not just another profession. I have been a doctor and a patient and I can tell you that

from my perspective being a doctor or a nurse is certainly not just another profession. Yes, it is a calling, even if the call comes from inside.

Doctors and nurses put their lives on the line when necessary. They will work all night. They will stay on at the end of the afternoon if they still have patients to see. These are the things we do, we like to do them, and we are admired for doing them. We put ourselves out and we go the extra mile. The patient is not a client, or rather they are privileged clients.

But let us also be aware of the dangers of heroism that might turn self-indulgent and become almost narcissistic. Leadership involves determining a course of action, often an unpopular or dangerous one, and then carrying people with you. Leadership can be demonstrated anywhere within an organisation. My business colleagues talk about dispersed leadership. I have both led people senior to me and I have been led by



people junior to me. So there is no room for arrogance in leadership and leaders must listen. They must listen to others and to that quiet, still voice within.

Can leadership be taught? James Stoller has conducted a systematic review of leadership training.[3] On self-reported outcomes, leadership training provides consistent improvement. But objective evidence is hard to find. People who have done leadership training are more likely to go on to senior management roles. But this hardly proves cause and effect. Indeed, trainees who score highly on leadership qualities, such as emotional intelligence at base line, are more likely to gain senior management positions than those with lower scores. So, I would guess leadership training helps a bit, but most of the variance is explained by innate characteristics.

References:

1. Pronovost PJ, Ravitz AD, Stoll RA, Kennedy SB. [Transforming Patient Safety: A Sector-wide Systems Approach](#). Doha, Qatar: World Innovation Summit for Health. 2015.
2. Lilford RJ. [Can We Do Without Heroism in Health Care?](#) NIHR CLAHRC West Midlands News Blog. 20 March 2015.
3. Stoller J. [Developing Physician Leaders: Does It Work?](#) *BMJ Leader*. 2020;4(1): 1-5.

A response to COVID-19: Where there's a will, there's a way!

Magdalena Skrybant, PPIE Lead

We are all living and working in extraordinary times. Everyone is having to adapt and respond very quickly to changing circumstances: this includes self-isolating and working from home.

For academic and clinical colleagues, adapting to the new working environment is made easier by the fact that most people already have experience of remote working. Discussions within project teams frequently take place over email, and video conferencing tools have been invaluable in connecting experts from different sites working on the same project.

How does this changing situation affect public involvement activities though?

As Community and Public Involvement Lead for NIHR ARC WM, I have seen how restrictions from COVID-19 have had an immediate impact on our activities. The changes I have seen include:

1. Postponing/cancelling face-to-face meetings with public contributors, many of which take place on university campuses or venues, such as community centres, that have now closed.
2. Suspending engagement events, many of which have been cancelled.

3. Change to clinician/researcher working arrangements, which may restrict their capacity for research activities.

How can we overcome the challenges?

The changing circumstances do not mean that we have to cease all public involvement activities. Although we should limit social contact, which rules out face-to-face meetings, there is a wealth of technologies available to us that can help sustain involvement activities with our public contributors. Of course, we can still use email and telephone as reliable methods of communication, but for group discussions and dialogue we should not be afraid to explore alternative methods of involving public contributors, such as video conferencing. In this time, which offers so many challenges, we should all be prepared to step out of our comfort zone and try something different.

I'm by no means an expert in this area, but over the last week I've had to adapt quickly to new circumstances. Here's my top tips so far:

Top tips for adapting public involvement activities

- 1 **Keep everyone in the loop.** Things are changing rapidly and we are all having to adapt to changing circumstances. Communicate with public contributors involved on projects as soon as possible, just to let them know what's going on – even if it's just to say that you don't know!
- 2 Explore **alternative methods of communication.** If you're used to meeting with public contributors face-to-face, think about alternative ways you can communicate. Can some activities take place over email/post or perhaps could you arrange telephone calls? Just because we're familiar with a particular way of working doesn't mean it's the only way of working.
- 3 Be prepared to **step outside your own comfort zone.** I'm not that confident at using digital platforms (confession - I spent 15 minutes yesterday trying to figure out my Skype ID), and I really don't like videoing myself, but I'm just going to have to deal with it.
- 4 Consider arranging a **video conference.** If you are used to meeting a group face-to-face there are various platforms available that support video conferencing (some allow up to 200 participants). Explore with your public contributors whether this would be an option and what support they would need (e.g. what instructions/guidance they might need; are there any ground rules you need to set).
- 5 **Consider inequalities.** Not everyone has internet access/a smart phone/confidence using digital technologies and some people might not want to do this. Consider whether using digital technologies is appropriate for involving people in your research and potential issues of involving some people using digital technologies and not others.
- 6 **Plan, plan, plan!** Whatever method you choose (email, telephone, video conference), approach involvement with the same effort as you would normally.
- 7 **Be respectful.** Although the methods of communication might be different, remember that you are taking up contributors' time. If you usually offer honoraria payments, these should still be offered.
- 8 **Get feedback.** If you're changing your ways of working, make sure you get feedback from public contributors and reflect yourself on how things went. What worked well? What didn't work? How can you improve for next time?
- 9 **Report what you've done.** We're navigating uncharted territories here, so capturing any learning is really valuable. It might be that some approaches are really successful; all the more reason to share the experiences with others.

Team work makes the dream work!

The good news is that the Public Involvement and Engagement Community is coming together to share resources/information to help ensure that we maintain public involvement activities through this period. Over the past few days, there have been some useful resources provided - see the box below.

And finally...

I love the Benjamin Franklin quote: '*Out of adversity comes opportunity*'. Let's hope that through these challenges we find alternative, different and maybe even better ways of working with public contributors.

Let us know what you're doing.

Steven Blackburn, Research Fellow, Patient and Public Involvement and Engagement Regional Lead for Public Involvement in Research, NIHR Research Design Service is curating a spreadsheet on alternative approaches to PPIE activities where you can record your experiences of virtual public involvement activities. Contributions are most welcome!

1. NIHR INVOLVE has produced this useful 'Guidance on the use of social media to actively involve people in research'
2. NSUN (National Survivor User Network) has produced this document on 'Keeping in touch when we can't meet each other face-to-face'. This resource includes some guides to setting up small group discussions virtually and organising video conferencing.
3. Sarah Knowles (Senior Research Fellow, University of York) is curating a useful document on Digital and Remote Co-Design. In addition to sharing resources,
4. this document has some reflections from contributors on different platforms and methods.
4. NCCPE (National Coordinating Centre for Public Engagement) is curating an online document for 'Meaningful Engagement for Online Events'. This includes some 'top tips for organisers and participants of online events' and a document for people to share experiences of using software when engaging the public.

NIHR shared commitment to public involvement, participation and engagement during the COVID-19 pandemic: *Response from NIHR ARC WM*

Magdalena Skrybant, PPIE Lead

On 16th April 2020, the NIHR confirmed its commitment to Public Involvement, Engagement and Participation (PIE) during the COVID-19 pandemic. You can read the full statement [online](#). The new Director for the Public Voice, [Jeremy Taylor](#), stated:

“Health research should be a shared enterprise with patients, carers and communities. COVID-19 has not changed this. Indeed, the public contribution to research on the pandemic is vital. Let’s renew our commitment to partnership working.”

The Senior Leadership Team for NIHR have developed eight Commitments, which are aligned to the UK Standards for Public Involvement. The Commitments will help ensure that PIE is maintained and progressed during this period.

We at NIHR ARC WM share this commitment to maintain and progress PIE during this period. The examples below demonstrate how we are

doing this at this time. We will continue to work with our public contributors and the wider ARC WM community to shape not only how we maintain meaningful involvement, engagement and participation during these challenging times, but also how we encourage innovation and development.

Now, more than ever, we need to work in partnership with our local communities to ensure that we continue to improve the way health and social care is designed and delivered.

Our Commitment will be available on our ARC WM website and this will be a living document, which we will continue to develop.

If you would like further information about our approach to Public Involvement, Engagement and Participation, please contact our Public Involvement Lead, Magdalena Skrybant (m.t.skrybant@bham.ac.uk).

We will stay informed and keep contributors and colleagues informed – in a timely way – of developments across NIHR research (commissioning and programmes) that relate, or are relevant to, COVID-19 (*UKPI Standards: Communication*).



National COVID-19 research and opportunities

Our Public Involvement Lead, Magdalena Skrybant, has already circulated opportunities for involvement in national COVID-19 initiatives and will continue to share these as they become available through national networks. This includes the NIHR 'Be Part of Research' website, which has been updated in response to COVID-19.

ARC WM COVID-19 research

Through regular communications, public contributors in the ARC WM community will be sent information on how each Theme is working during COVID-19, including information on any COVID-19 projects.

Feedback will be provided to public contributors that are involved in COVID-19 related projects in a timely manner.

We will reach out to emerging COVID-19 and other research funding programmes and activities to offer support and help facilitate effective PIE, including helping to adapt methods and approaches where needed (*UKPI Standards: Support & Learning*).



ARC WM's Public Involvement Lead is the first point of contact for researchers wanting to involve/engage the public in research. The Public Involvement Lead will provide ongoing support to researchers with suggestions for how the public can be involved in shaping the research and discussing mechanisms for involvement, which are informed by discussions with public contributors in the ARC WM network.

Our Public Involvement Lead has sent communications (via email/post) to public contributors, and is also contacting them on an individual basis to identify preferred means of communication during this period, as well as to identify any barriers to involvement, engagement and participation and how these might be overcome.

We will involve the public and patients in planning ahead for how COVID-19 may affect work, to develop contingencies and to manage risks (*UKPI Standards: Governance*).



ARC WM has recently recruited public contributors to be either Community and Public Involvement Contributors (16 Advisors recruited) or members of the wider ARC WM community.

ARC WM's Public Involvement Lead will ensure that there is regular communication with our Contributors and keep them updated with developments in ARC WM.

ARC WM Community and Public involvement contributors have received a letter from ARC WM Director, Richard Lilford. Throughout this period, ARC WM Contributors will receive a virtual induction to ARC WM, as well as each of the Themes, and a range of materials will be made available.

We will be flexible, and co-develop adaptive ways of working, which demonstrate understanding of – and are responsive to – the needs and concerns of individuals, groups and communities whilst respecting Government and institutional guidance (*UKPI Standards: Working Together*).



ARC WM's Public Involvement Lead will continue to work with researchers and public contributors to identify and develop appropriate and practical ways of working in the current situation. This includes using electronic communication, video conferencing platforms and mail or telephone communication.

We will identify and review support needs for adaptive ways of working (e.g. remote or digital) and work together to address these (*UKPI Standards: Inclusive Opportunities; Support & Learning*).



ARC WM's Public Involvement Lead will be responsible for gathering feedback from researchers and public contributors on the methods of communication from ARC WM and different ways of working.

Where relevant, support/guidance may be created and shared on alternative ways of working (e.g. how to use digital technologies). In particular, ARC WM's Public Involvement Lead will ensure that mechanisms for involvement are as inclusive as they can be.

Reporting what works and what doesn't work on the platform curated by the Research Design Service on alternative ways of conducting Public Involvement during COVID-19.

We will share skills, knowledge, ideas and resources freely and in a timely way to support effective PIE, and to help identify and address obstacles across the system (*UKPI Standards: Support & Learning*).



ARC WM's News Blog will serve as a platform for sharing and discussing the latest resources, either those developed by NIHR ARC WM or outside NIHR ARC WM, with the wider ARC WM community. Information will also be made available on the Public Involvement pages of the NIHR ARC WM website.

Any resources created by ARC WM relating to public involvement during COVID-19 will be uploaded to the NIHR Learning for Involvement website.

ARC WM's experiences of working with public contributors during COVID-19 will be uploaded on the shared resource curated by Research Design Service West Midlands, to share learnings/best practice on PIE during COVID-19.

Resources will also be shared through various communities, including the West Midland's regional network for Public Involvement, Public Involvement and Lay Accountability in Research (PILAR), and the network of ARC Public Involvement Leads. Being part of such communities is an effective way for sharing resources/best practice relating to public involvement in COVID-19.

We will ensure that patient and public contributors continue to be recognised and rewarded appropriately for their effort, and adapt how we do this together (*UKPI Standards: Impact; Working Together*).



ARC WM will uphold existing mechanisms for recognising public contributors for their input to research projects. This includes acknowledgements in reports, publications.

Public contributors will continue to be offered an honorarium for involvement and any out-of-pocket expenses will be reimbursed. Researchers in ARC WM will use the 'Opportunity for Involvement' template to ensure that, prior to undertaking an involvement activity, there is transparency about the nature of the involvement and expected commitment.

ARC WM's Public Involvement Lead will work with host institutions to ensure that, wherever possible, payment will be timely. If there are delays in processing payments, communication will be maintained with public contributors throughout.

We will agree appropriate contact plans (e.g. between public/patient contributors and Leads, or between Leads), to support each other's social contact and emotional wellbeing (*UKPI Standards: Governance; Communication*).



Public Contributors in ARC WM will receive regular communications from ARC WM. ARC WM's Public Contributors are encouraged to provide feedback on the frequency and content of notifications.

In all communications, it is clear that engagement/participation/involvement in NIHR ARC WM activities during this time is completely voluntary and that ARC WM appreciates that contributors may have competing demands on their time. Contributors

will have the opportunity to opt out of receiving communications during this period.

ARC WM's Public Involvement Lead will respond as soon as possible to public contributors and provide signposting to further information/support as appropriate.

Included in communications is information made available through host Universities/NIHR on health and wellbeing during COVID-19.

The Times They Are a-Changin' Embracing Digital Technologies During COVID-19

Magdalena Skrybant, PPIE Lead

Outpatient Appointments: Stuck in a rut?

“The way we deliver care remains locked into the service model largely created when the NHS was founded in 1948.”

This statement, which appears in Chapter 5 of the [NHS Long Term Plan](#), might raise a few eyebrows, but although the NHS has embraced some great technological advances, in other ways my experiences as a patient could be considered broadly similar to the experiences of the first patients that walked the corridors of the first NHS hospitals. Take attending outpatient appointments, for example. Whilst I now receive appointment letters that have been produced through a

centralised booking system, I am reminded to attend through text message, and though my hospital notes are now digital, I, just like the first NHS patients, visit the hospital, see a nurse who confirms my name, date of birth and the first line of my address, have my weight checked, and then wait patiently in the corridors waiting for those words: *“The doctor will see you now.”*

The vision, as set out in the NHS Long Term Plan, is that patients should expect a ‘digital-first’ option. This would enable ‘richer, face-to-face consultations with clinicians where patients want or need it.’ Providing video consultations is one way of offering a ‘digital first’ option. Instead of visiting the hospital

to see the consultant, you could have the consultation from your home/workplace. It’s still a face-to-face interaction, although you wouldn’t need to attend in person.

Through the COVID-19 pandemic many of us have experienced connecting with others through video-conferencing software: it might be connecting grandparents and grandchildren through *FaceTime*; chatting with friends through *HouseParty*; or meeting with colleagues through *Zoom* or *Microsoft Teams* (with many other video conferencing tools available). Whilst we all may have experienced teething problems ‘learning to drive’ the new technologies, most of us have now learnt to embrace this new

way of communicating. Unlike telephone calls, it's so nice to see the other person and their reactions. I'm definitely a convert.

Video consultations in the NHS: a patient perspective

Although video consultations are currently on offer to some patients, this practice isn't widespread: it's something I have never personally been offered. I'm no expert in video consultations and there is already a large body of literature on the 'barriers and facilitators' to digital technologies in healthcare. However, if I draw on my personal experiences as a serial outpatient-appointment attender there are some definite positives to video consultations and some things that I think merit further consideration. I've listed these below:

Video consultations in the NHS: needs of the services

Whilst there are plenty of things that I would need to consider as a patient before agreeing to have a video consultation, I can only imagine the hurdles that need to be overcome before services can offer this 'digital first' option. In addition to the challenge of winning over hearts and minds to embrace this newfangled way of working, there are many practical and technical factors. I've listed a few below, but I'm sure you can think of others:

- Deciding which video-conferencing platform to go for.
- Providing support to patients to use the new software.

- Providing training to staff to use the software.
- Ensuring patient confidentiality.

COVID-19: needs must!

All this consideration takes time: fools rush in where angels fear to tread. Where patients are concerned, and their health and wellbeing is at stake, getting things wrong isn't an option. Services need to ensure that the quality of the patient-clinician interaction is the same as attending a physical appointment. It's also important to get things right first time: if the first attempt at video consulting doesn't work, will patients and clinicians have the patience and determination to persevere?

Pros

I will save money – I won't be spending money on traveling to hospital, or any parking charges.

I will save time – I won't need to travel to hospital, which includes factoring in time to find a parking space and booking into the appointment.

It will be more convenient – I could have the consultation from the comfort of my own home; I might even make myself a cup of tea!

It may be less disruptive – Having several autoimmune conditions is disruptive enough. Video consultations would allow me to have the meeting at work, making it less disruptive to my daily life.

Considerations

Will I have the right equipment? – What technology do I need (i.e. will my ancient phone/laptop support the technology?) // Will my internet connection be good enough to support the software?

Training – I am no IT expert, so can I get the technology to work and get support if things go wrong?

'Laying on of hands' – Whilst this might work well for conversations about my health, what if the doctor wants to examine me? How is that going to work?

Trust – I would be fairly comfortable with a consultant or nurse that I know well, but what if I've never met the person before? How important is a physical interaction in establishing a good relationship?

Monitoring – I usually get my bloods done at my appointments, along with other routine monitoring (blood pressure/weight). How will that be managed?

During the COVID-19 pandemic hospitals have not had the luxury of time to develop different ways of working. Staff have had to adapt quickly and find alternative ways of 'seeing' patients without them attending in person. Service providers have had to use 'digital first' options out of necessity (and necessity, as they say, is the mother of invention). Whilst some barriers may have taken weeks, months, even years to overcome in 'normal times', now teams in hospitals have come together and solutions have been found. In the case of video consultations, these are being offered to some patients, enabling them to receive the ongoing care they need to help them manage conditions.

No going back?

What we will all want to know is whether these changes will last? COVID-19 has forced many of us to make significant changes in our lives, and I've

read many articles in the media saying that it's unlikely that things will return to the way they were before. Surely, this is true for health and social care. Patients and clinicians are embracing new ways of interacting in these strange COVID-19 times, but are these forever-changes?

I'm in no doubt that having to make changes quickly without careful preparation will mean that clinicians and patients have experienced teething problems adapting to these new ways of working. I'm sure everyone would agree that the change could be better supported in other circumstances. But surely now that we've seen that barriers can be overcome very quickly, perhaps it leaves a door wide open to really explore the range of 'digital first' options and the technological possibilities available to us.

What's important now is evaluating our experiences. Both during and after the COVID-19 pandemic we need

to look at what has worked well, what hasn't worked well, and what aspects require further work to ensure that the NHS can deliver on its promises in the NHS Long Term Plan to offer a 'digital first' service for patients. And with the groundswell of support for the NHS that is evident during Thursday evenings, where communities unite in applauding NHS staff, we should capitalise on this support and work with patients to co-design health and care services.

As a Centre with a focus on service design and delivery, ARC WM is well-placed to evaluate digital technologies. Indeed, video consultations is just one area that researchers in our Research Methods and Rapid Response theme are focusing on. We hope this research will feed into the design of services, which will help the NHS design and deliver health services of the future.

Explaining COVID-19 Statistics to Children

Celia Brown, Associate Professor of Quantitative Research

This blog is a mixture of information for parents, and information and activities for children (aged 8-13). Some activities have different versions for older (10-13) and younger (8-10) children, so please read it through and see which parts may work for your family. The idea is for you to go through this together, with parents explaining what I have written where

needed, then children doing the activities. I have purposefully not considered the risk of death related to COVID-19. Please consider the well-being of your family before talking to them about COVID-19 – this blog may not be suitable for all at this time. The answers can be found at the end of this PDF.

Introduction

Another day, another COVID-19 statistic in the news. This pandemic is affecting us all in many, many ways. Fortunately I do not have any serious problems, but as someone used to getting out-and-about every day, I am struggling with “lock-down” and I am sure I am not alone in having my mental health stretched to the limit. But as I tried to explain the risk of catching COVID-19

to my six-year old son (okay that’s not on the national curriculum but we must be allowed a little flexibility when home-schooling, surely?) and a prompt from our PPIE Lead Magdalena Skrybant, I thought finding a way of representing this risk to children would make a good blog.

How Many People in the UK have COVID-19?

As of April 16th 2020, there were a total of **103,093** confirmed cases of COVID-19 in the UK (Public Health England statistics). A “confirmed case” is where someone has had a positive test for COVID-19.

1. *For older children: why might this number of cases be an underestimate of the true number, and how could we find out the true number of cases in the UK?*

What Fraction of the UK Population Have COVID-19?

To work out what fraction of the UK population had COVID-19 on April 16th (or had had it by then) we also need to know how not only the number of confirmed cases, but also how many people there are in the UK. We can use the 2018 estimate of the **UK population of 67,780,000** from the virus-tracking website: [virusncov.com](https://www.virusnCoV.com).

To make the maths a little easier, let’s simplify things a bit by rounding down the number of **confirmed cases to 100,000**. This number of people would fill both Wembley stadium AND Colchester Community Football Stadium.



To work out the fraction of the UK population who have had a positive test (confirmed cases), we need to divide the number of confirmed cases by the UK population:

$$\frac{100,000}{67,780,000}$$

2a **For older children:** Can you simplify this fraction?

2b **For younger children:** Can you cross off as many 0s from this fraction as possible – but the number of 0s you cross off from the top **MUST** be the same as the number of 0s you cross off from the bottom.



Image: *Jeremy Weate, 2011 (CC-BY 2.0)*

What does this result mean? Out of every 6,778 people, 10 would be infected with COVID-19. This is equivalent to 10 people being infected from a full capacity crowd on Centre Court at Queen's Tennis Club in London.

We can also show this statistic as a proportion by **dividing 10 by 6,778**.

3. Can you do this on a calculator?

We can show this as a percentage by multiplying this result by 100.

4a **For older children:** Can you do this without a calculator? Hint: move the decimal point to the right, the same number of places as there are 0s in 100.

4b **For younger children:** Can you do this using a calculator?

This Seems a Very Low Number - What's All the Fuss About?

As a comparator, Cancer Research UK suggest that around 0.5% of the population will be diagnosed with cancer this year, just over 3 times the number of confirmed cases of COVID-19 by 16th April.

The problems are:

- A. The number of people each person will go onto infect. The World Health Organization say this could be as many as 3 people.
- B. The speed at which these new people get infected. This is around 5 days.
- C. The (unknown) number of people who have (or have had) COVID-19 but who haven't had a positive test, probably because they only

had mild symptoms. These people can still pass it on to others.

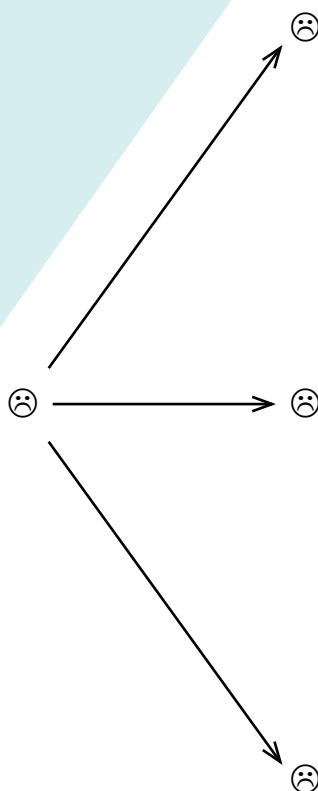
- D. The severity of the disease (how poorly it can make you).

Simple summary: We think that anyone who gets COVID-19 will pass it on to 3 other people in 5 days.

So if we start with 1 person infected with COVID-19 on day 0, by day 5, 4 will be infected (the original person, plus the 3 people that person infected).

5. Can you complete the diagram below to find how many people will be infected by the end of 15 days (just over two weeks)?

	Day 0	Day 5	Day 10	Day 15
Total people infected	1	$(3+1) = 4$		



There's quite a complicated formula to work this out for any given number of 5 day periods. The diagram hopefully gave you an indication of the speed at which the number of people infected would increase if no measures to stop COVID-19 spreading were put in place.

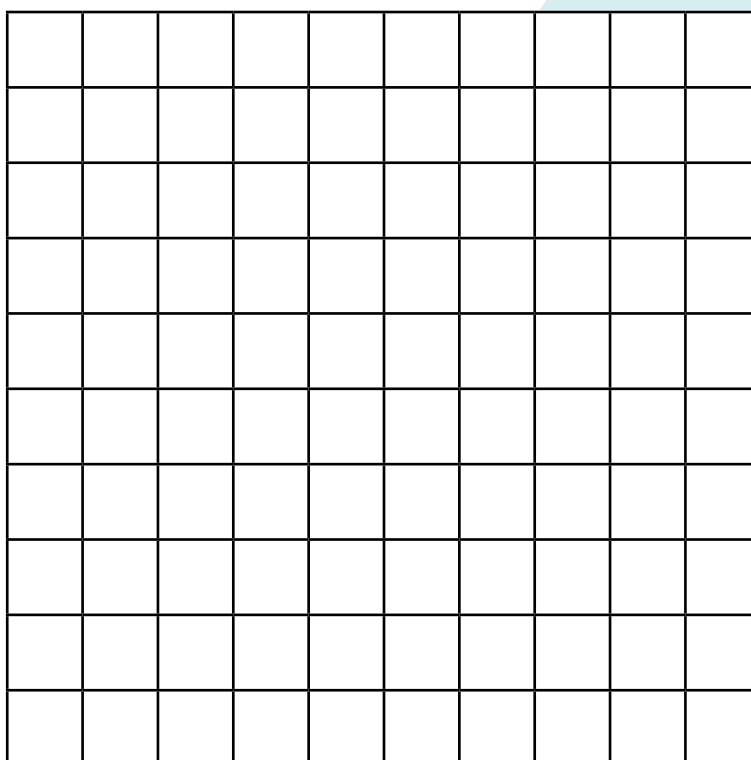
In fact, without any action, almost the entire nation of 67 million people would be infected by day 80 (which is why we are all at home and going out – where we can be in contact with others – as little as possible).

Now we need to think about how poorly COVID-19 can make you. Of **100 people infected**, around **80** would have mild symptoms, **15** would have severe symptoms and **5** would be in a “critical” condition, needing ventilation. Most people who get COVID-19 will recover fairly quickly without

any lasting impact on their health – and this applies to almost all children who are infected. The elderly, smokers and those with other health problems are more likely to be very poorly if they get COVID-19, which is why you may not be able to see your grandparents at the moment.

6a For older children: Can you draw a pie chart to show these data (by hand or using Excel)? Given 103,093 cases, how many would be mild, how many severe and how many critical?

6b For younger children: Can you colour in the correct number of squares of the diagram below to show each of these numbers? Use green for mild, orange for severe and red for critical.



The speed of spread of COVID-19, together with its severity, makes it easy to see how the NHS would quickly be unable to cope if nothing was being done. So I'm off to wash my hands, and perhaps you should too!

COVID-19: Locking Down Urban Settlements in Sub-Saharan Africa

March 2020

Akinyinka Omigbodun, Professor of Gynaecology & Obstetrics
Richard Lilford, ARC WM Director

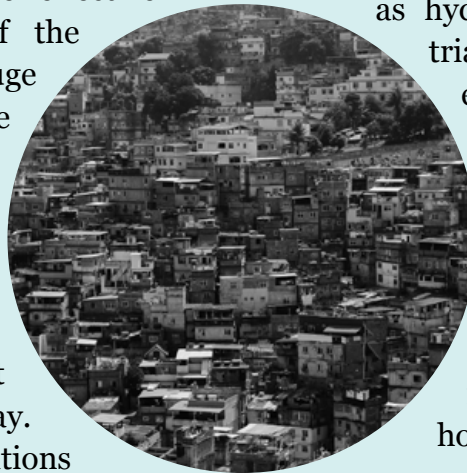
Lock-down may be the right solution in Europe and America, but not in crowded urban settlements in Sub-Saharan Africa.

The problem of COVID-19 has the potential to rapidly overwhelm health systems in Africa, and the effect on the population may be similar to that seen during warfare. The measures that are currently advocated to control the infection in Europe, America and even China, are blunt instruments that may do more harm than good in some places, such as urban Sub-Saharan Africa, for a number of reasons:

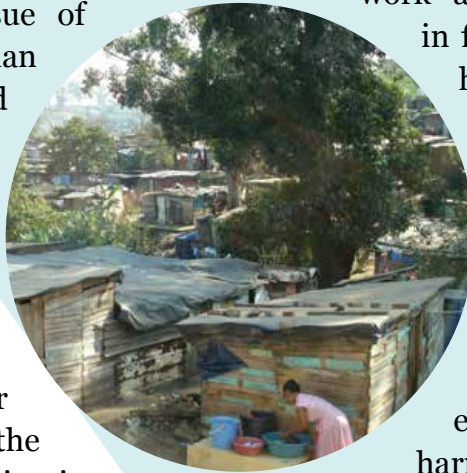
1. The widespread practice of personal hygiene and physical distancing – frequent hand washing, using hand sanitisers, maintaining distance from others – sound simple, but they are very difficult to put into practice in crowded slums, which lack sufficient water for domestic use (running water is a luxury). Improving water supply and sanitation in these settlements will take time. In the meantime hygiene measures may be the best bet.
2. Requiring that the population stay in their homes (lock-downs) may be effective in impeding the spread of the disease, but there are huge practical problems. Income is earned on a daily basis in urban settlements and most workers are in the informal sector. Not going out to work on a single day may translate to the family not having any food for that day. Over time, that has implications for the maintenance of civil order. Lock-downs are just being started in Nigeria and

already there is evidence of suffering in large population centres according to newspaper reports. In these lock-down situations, the population has to be supplied with essentials, much in the same way as refugees from conflicts and natural disasters. And they will still need to leave their homes to access food banks, medicines and lavatories.

3. Provision of temporary health facilities (field hospitals) may become necessary as the caseload rises. Admission to facilities should be limited to those people who really can benefit, in order to limit spread of the disease. It will be difficult to provide sufficient ventilators and people to provide intensive care. But some people will need facility care, for example to manage secondary infections. It is therefore essential for facilities to be equipped with personal protective equipment, masks, disinfectants and essential medication. We are deeply sceptical of some medicines, such as hydroxychloroquine, but if other trials currently underway identify effective medicines, then these should be made rapidly available in low- and middle-income countries (LMICs). However, where possible it would be better to distribute the medicines in communities, rather than assemble people in hospital settings where they would pose a danger to others.



4. Training and retraining of various cadres of health personnel in control of infection methods and treatment of affected patients, is an urgent requirement. Since travelling is impractical, training should be packaged into videos that can be disseminated to different centres. These materials may be used for localised on-site training by local trainers for greater effect.
5. Most important is the issue of testing. Thus far, fewer than 200 people have been tested in Nigeria, with 46 testing positive and 1 death. This is likely to be a huge underestimate. There is a need to roll out testing rapidly. The genomics-based test (at about \$120 per test) detects those having the virus and presumably shedding it, while we understand that an antibody-based test (both IgM and IgG) has been developed that can identify those who had already been infected and who are therefore likely to be immune. Whatever can be done to make both types of tests available in LMICs will make the fight against the virus better focused. The antibody-based test will make it easier to identify health workers who have developed an immune response, and these workers will thus be more effective as care givers since their risk from exposure to infected patients is less.



expand such facilities. In addition, the effect of lock-down, it must be assumed, is likely to be less effective in crowded urban communities, for reasons given above.

None of this should be taken to mean that people living in cities should not be empowered to defend themselves and their families. Our survey work across seven urban settlements in four countries of Asia and Africa has shown that the settlements are served by an extensive network of medicine sellers and pharmacists. In many countries, they are poorly stocked but our household surveys show that they are widely used. We think that this existing infrastructure could be harnessed to disseminate materials and good hygiene practice. People have to leave their homes to access lavatories where they are exposed to the virus, which remains infective for about 24 hours on surfaces. Worse still, reports from S Korea show that people may shed the virus in stool for up to five weeks after infection. People should be supplied with plenty of soap and be instructed on using facilities without touching surfaces. It is perhaps fortunate that, as shown by our surveys, only a limited number of old people remain in slums. Those who remain would be well advised to return to their villages where this is possible.

The fight against COVID-19 in countries with well-developed intensive care facilities has been mainly aimed at smoothing the rate of new cases so that the health care system does not get overwhelmed, rather than materially reducing the total number infected. The case for delaying spread is a logistic one, assuming that we are not going to have an effective vaccine any time soon. We very cautiously suggest that this argument loses force in a place that not only has poor intensive care facilities, but that cannot rapidly

However, drastic lock-downs are likely to do great harm among poor people in crowded settlements; they may well be self-defeating and may become fertile ground for fomenting civil disorder.

May 2020

COVID-19 in the Cox's Bazar Forcibly Displaced Myanmar Nationals (FDMN) Camp

Ryan Rego, University of Warwick

Writing in the BMJ,[1] Vince describes a dangerous, and soon to be dire, situation in the Cox's Bazar Forcibly Displaced Myanmar Nationals (FDMN) camp with regards to the COVID-19 pandemic. The camp in South-East Bangladesh is, for the most part, very densely packed, making separation between people and families impossible. These families, often consisting of at least five people, live in rooms no larger than 16m², with almost no separation from other families – often just a thin sheet or a bamboo wall separates 'households'. Compounding this, large numbers of different households share the same key resources, such as water and toilets, and queue in packed lines to access said resources, as

well as key items such as food, cooking gas, and soap. Further, households and families are often multi-generational, making shielding of vulnerable members near impossible as somebody must venture out of the home for supplies.



Storage of insulin by a person with diabetes - vial sitting in hot water with an ice pack that defrosted months earlier.

Vince correctly states that a possible saving grace in the camp is the high percentage of inhabitants who are children, but tempers this by mentioning that malnutrition and other comorbidities are widespread. In addition, I would suspect that a large number of the adult inhabitants have chronic diseases, such as diabetes and hypertension, due in large part to a lack of adequate healthcare both prior to coming to Bangladesh and also while in Bangladesh. Little evidence exists on this, however. Further, these chronic conditions are likely to be un(der)treated, due to barriers in accessing healthcare. When we visited Cox's Bazar, we heard informally that people fear accessing healthcare in formal facilities due to their perceived

risk of harassment and deportation. Instead, people often seek care at unlicensed pharmacies, but these facilities are likely to provide little effective treatment.

Vince goes on to discuss the interventions taking place in Cox's Bazar, primarily messaging and the provision of facilities for handwashing. While the correct approach for the context appears to be taken regarding messaging (using respected community leaders), the roll-out of handwashing in such a large area is challenging. Although handwashing is likely to be a high impact and cheap intervention, it requires soap and water reserves to be refilled multiple times a day in order to ensure a continuous supply. Even if proper supply was achieved, which in itself is a gargantuan feat given the size of the camp and the camp's proclivity to occasional unrest, I suspect that soap and water from communal handwashing stations would not be used consistently, particularly at night, due to fear of going outside while dark. This fear is mostly experienced by marginalised groups such as women, the elderly, and the disabled. Gender-based violence is a large threat to women in such environments when going outside at night to the toilet, resulting in using a bucket in the home.

In my opinion, which Vince also touches on, the biggest barrier to effective outbreak control in any such setting is the difficulty in testing, tracing and isolation. As Vince states, the testing capacity of Bangladesh is already very limited, with the FDMNs likely being the last group to receive the needed supplies. Regardless, I very much doubt that any FDMN would come forward for testing, especially given the threat of isolation if found positive. Akin to the threat of isolation, recent reports of refolement back to Myanmar, and movement of the FDMNs to the Bhasan Char Island in the Bay of Bengal, create fear of standing out and great hesitancy in being made to go anywhere, even if that is for isolation. We've seen in nations around the world that testing, contact tracing and isolation are the only ways of stopping the spread of SARS-CoV-2 without a vaccine. However, this does not seem to be feasible in Cox's Bazar.

So, what is the solution? If the FDMNs were given adequate rights on arrival, such as being able to live anywhere in Bangladesh and the right to work, we would not have this problem. Malaysia, for example, is home to a large Rohingya refugee population, but due to the legal ability of the refugees to live and work almost freely in urban settings, they do not see large outbreaks among the refugee population. In the camp setting, however, options are very limited – shielding and social distancing do not work due to multigenerational households, the need for supplies, and population density; and testing and isolation does not work due to mistrust. As Bangladesh has fewer than 2,000 ventilators, of which none are in Cox's Bazar, COVID-19 is close to a death sentence for the elderly and those with chronic conditions. [2] In all honesty, other than the eventual vaccine, I see little recourse against the virus.

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2. Save the Children. COVID-19: Bangladesh Has Less Than 2,000 Ventilators Serving a Population of 165m, Warns Save the Children. 6 April 2020.

May 2020

Preventing COVID-19 Transmission in Slums

Jo Sartori, Programme Manager, Global Health Research

Researchers at the University of Ibadan in Nigeria have been sharing rapid research findings across national media outlets in the country to assist the government in making evidence-informed policy interventions in order to curtail the spread of COVID-19 in urban slums. Taming the spread of the virus in densely crowded urban slums, where many residents also have underlying health issues, is particularly challenging.

Through the NIHR Global Health Research Unit on Improving Health in Slums (directed by Prof Richard Lilford), the Nigerian team, led by Professor Akinyinka Omigbodun, swiftly mobilised to undertake some stakeholder engagement within three slum communities based in Ibadan and Lagos. Through this they aimed to determine their awareness of the virus, coverage of the government's COVID-19 taskforce teams in the slums, and what could be done to limit the spread of the virus.

Reported findings included poor adherence to social distancing due to deteriorating socio-economic conditions by staying at home; scarcity of personal protective equipment; a reluctance to access healthcare facilities due to fear of contracting the virus; and also late presentation of the virus at facilities.

Recommendations by the research team for Lagos and Oyo state governments were the following:

- Consider measures to alleviate the social and economic deprivation experienced by slum dwellers in order to help them observe preventative measures to help stop community spread of COVID-19.
- For other states across Nigeria to follow the decision of Lagos state and pay enhanced hazard allowances to health workers.

- Distribute free hand sanitisers and face masks across urban slum communities.
- Set up COVID-19 testing facilities within slum communities to improve early detection of the virus and limit community transmission.

These findings were widely reported across the country, with articles published in ten national news outlets [1-10] and one state newspaper.[11] Within days of the newspaper articles appearing, the government's relevant COVID-19 taskforce and communication commissioner went to the specific slum communities where the research took place to raise awareness of the virus, provide more information for residents, and to distribute free personal protective equipment, such as face masks and hand sanitisers.

The findings of this in-depth analysis are broadly in line with findings from a telephone survey that collected information on resident's knowledge, attitudes, practices and needs around COVID-19 across households in five Nairobi urban slums recently published in the Conversation.[12]

Furthermore, a previous article published in an earlier issue of this News Blog,[13] authored by Profs Akinyinka Omigbodun and Richard Lilford, that advised against lock down in urban informal settlements in developing countries was picked up by the Tony Blair Institute for Global Change and incorporated in their advice to governments around the world.

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7. Adebayo R. COVID-19: Health Expert Tasks Makinde, Sanwo-Olu on Urban Slums. *Independent*. 29 April 2020.
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Super Spreading Individuals and Prediction of COVID-19 Spread

Richard Lilford, ARC WM Director

I am grateful to Fergus Hamilton for drawing an important paper in Nature to my attention.[1] This paper compares models of the spread of an epidemic according to assumptions about the variance in infectivity from one infected person to another. R_0 represents the mean infectivity of an infected person, but some infected people seldom spread the disease, while others are super spreaders.

In this paper, a model, which assumes a symmetrical distribution of infectivity around the mean, is compared with more realistic models, which are heavily right skewed towards super spreaders.

The skewed models, when compared with symmetrical models, predict much more rapid spread and shorter lasting epidemics.

Data for the COVID-19 pandemic are not yet available. However, the degree of skewness is

available for many other diseases. For example plague is not very skewed; the proportion of transmissions due to the most infectious cases is relatively low. On the other hand, measles and SARS are more skewed, and over 80% of transmissions are caused by just 20% of infected people.

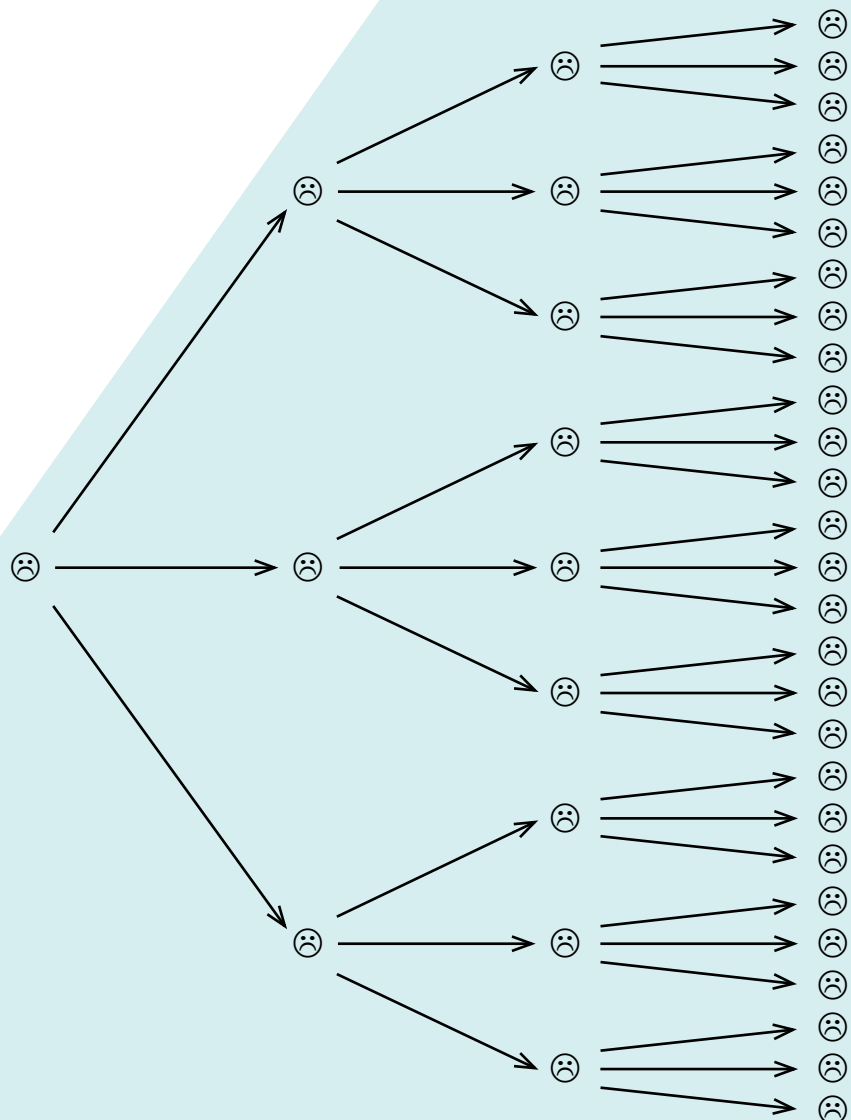
Heterogeneity of infectiousness can explain why only about 20% of spouses catch the disease when living with an infected partner. One hopeful corollary is that a disease can be extinguished when R_0 is greater than one, if infectiousness is highly variable across the population. That said, quarantine can increase heterogeneity, favoring extinction but risking further sporadic outbreaks.

Reference:

1. Lloyd-Smith JO, Schreiber SJ, Kopp PE, Getz WM. [Superspreading and the effect of individual variation on disease emergence](#). *Nature*. 2005; **438**: 355–9.

1. The number of cases is likely to be an underestimate because the number of confirmed cases depends on the number of tests done and not everyone has been tested. We would only know the true number of cases if everyone in the country was tested in a single day: this would give us the point prevalence.
2. $10/6,778$ (or $5/3,389$) – there are four 0s top and bottom which can be “cancelled”.
3. 0.00148
4. 0.148%. This means that around 0.15% of the population had a confirmed case of COVID-19 by 16th April.
5. 40 people (for adults, you can also calculate this using the formula: $\sum_{i=1}^n 3^{i-1}$ where i is period number and n is total number of periods).

	Day 0	Day 5	Day 10	Day 15
Total people infected	1	$(3+1) = 4$	$(9+4) = 13$	$(13 + 27) = 40$



6. 82,474 mild cases, 15,464 severe cases and 5,145 critical cases, all to the nearest whole number (103,093 x 0.8, 0.15 and 0.05, respectively).

Pie chart to show severity of COVID-19 cases

