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**From:** Whitty, Chris [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0B3EE62E0CA04E978730B14F9B416A1E-WHITTY, CHR]  
**Sent:** 22/02/2020 11:16:22  
**To:** Vallance, Patrick (GO-Science) [P.Vallance1@go-science.gov.uk]  
**Subject:** RE: Local spread in Europe

I think Sharon should lead on pneumonia screening etc as they have operational responsibility.

The question of how far to go on planning for a cluster is not straightforward, as it really depends on exactly who, when and where. I think the key thing is for SAGE to concentrate on the possible building blocks and their scientific basis. The Chinese have done this by throwing the kitchen sink at it: we will have to be more targeted so identifying the interventions with the greatest likelihood of pulling R below 1 is the key (and ideally ruling out ones with little chance of success).

I don't think there will be any difficulty on lab capacity now (they are operating at about 45% capacity, I will send you the data).

C

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**From:** Vallance, Patrick (GO-Science) <P.Vallance1@go-science.gov.uk>  
**Sent:** 22 February 2020 11:06  
**To:** Whitty, Chris <Chris.Whitty@dhsc.gov.uk>  
**Subject:** Fwd: Local spread in Europe

How do you want to handle this? It would be good for PHE to lay out plans re pneumonia screening and broader surveillance and then tackle the question of how to respond to a local cluster. Do you want to lead that? Is Sharon the right person to do it? We will need to manage the discussion carefully

Patrick

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**From:** Vallance, Patrick (GO-Science) <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>  
**Sent:** Saturday, February 22, 2020 10:07 AM  
**To:** Wainwright, Stuart (Go Science)  
**Subject:** Fwd: Local spread in Europe

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**From:** Vallance, Patrick (GO-Science) <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>  
**Sent:** Saturday, February 22, 2020 10:06 AM  
**To:** Ferguson, Neil M; Whitty, Chris; Van Tam, Jonathan; SAGE Mailbox (Go-Science); Government Chief Scientific Adviser (GO-Science)  
**Cc:** Jeremy Farrar; [john.edmunds@i&s](mailto:john.edmunds@i&s); Peter Horby; Van Tam, Jonathan; Harries, Jenny  
**Subject:** Re: Local spread in Europe

All

Thanks. We will pick up on SAGE on Tuesday and it will be helpful if SPI-M can come with some numbers to aid the discussion.

Patrick

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**From:** Ferguson, Neil M <[neil.ferguson@I&S](mailto:neil.ferguson@I&S)>  
**Sent:** Friday, February 21, 2020 11:00:40 PM  
**To:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>; Vallance, Patrick (GO-Science) <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>  
**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [john.edmunds@I&S](mailto:john.edmunds@I&S) <[john.edmunds@I&S](mailto:john.edmunds@I&S)>; Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>; Harries, Jenny <[Jenny.Harries@dhsc.gov.uk](mailto:Jenny.Harries@dhsc.gov.uk)>  
**Subject:** Re: Local spread in Europe

Happy to continue at SAGE. But to clarify - I am really not suggesting we abandon containment. Just accelerate plans for what happens if it fails.

Best,

Neil

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**From:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>  
**Sent:** Friday, February 21, 2020 10:55:46 PM  
**To:** Ferguson, Neil M <[neil.ferguson@I&S](mailto:neil.ferguson@I&S)>; Patrick Vallance <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>  
**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [john.edmunds@I&S](mailto:john.edmunds@I&S) <[john.edmunds@I&S](mailto:john.edmunds@I&S)>; Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>; Harries, Jenny <[Jenny.Harries@dhsc.gov.uk](mailto:Jenny.Harries@dhsc.gov.uk)>  
**Subject:** Re: Local spread in Europe

Thanks Neil

I think these debates are best done within SAGE not by email. I suggest we wait til then.

The implications of the UK being the first country in the world to abandon containment on the basis of this analysis, which is the logical implication if we are certain, are non trivial. We need to be very confident before we give scientific advice that leads to that, and it should be through the SAGE mechanism. That is what it is for.

Chris

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**From:** Ferguson, Neil M <[neil.ferguson@I&S](mailto:neil.ferguson@I&S)>  
**Sent:** Friday, February 21, 2020 9:16:12 PM  
**To:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>; Patrick Vallance <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>  
**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [john.edmunds@I&S](mailto:john.edmunds@I&S) <[john.edmunds@I&S](mailto:john.edmunds@I&S)>; Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>; Harries, Jenny <[Jenny.Harries@dhsc.gov.uk](mailto:Jenny.Harries@dhsc.gov.uk)>  
**Subject:** Re: Local spread in Europe

Thanks Chris. I will respond more fully tomorrow. I agree with 90% of what you say. But I really do feel that it is not a matter of if but when. That is not just my personal opinion, but is where all the data is pointing. I agree that it may be that China has reversed spread - but using interventions on a scale it we would be hard to implement here, and at an enormous cost. And likely only buying temporary respite.

That degree of control is also too late for the rest of the world. There are likely several hundred cases in Iran, and likely the similar numbers in Italy. And very likely in several of not most large European countries. Many more in Japan and Korea.

So I am reminded of the BSE enquiry conclusion of >30 years ago that governments should not view absence of evidence as evidence of absence. I think the epidemiological data - while patchy - suggests that we should be acting on the assumption that sustained transmission is happening now in the UK. And only de-escalate if we can demonstrate - through surveillance - that it is not.

Best,

Neil

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**From:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>

**Sent:** Friday, February 21, 2020 7:04:06 PM

**To:** Ferguson, Neil M <[neil.ferguson@I&S](mailto:neil.ferguson@I&S)>; Patrick Vallance <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>

**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [john.edmunds@I&S](mailto:john.edmunds@I&S) <[john.edmunds@I&S](mailto:john.edmunds@I&S)>; Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>; Harries, Jenny <[Jenny.Harries@dhsc.gov.uk](mailto:Jenny.Harries@dhsc.gov.uk)>

**Subject:** RE: Local spread in Europe

Dear Neil and John

Thanks for previous emails, and this from Neil v useful on the data. Patrick and I have discussed.

An event like this in the UK could obviously happen at any point. It is not easy to predict when; it may be very soon, in weeks or (if the epidemic recedes in Asia and elsewhere) never. Failure of contact tracing is obviously one possible reason, but failure of people with minimal symptoms to identify their importance, or choosing not to come forward even if they do (eg because of risk of stigmatisation) is another. This becomes more difficult as the geographical spread makes targeting both case identification and messaging about what to do with symptoms based on geography less useful.

It is important we separate out issues of science, issues of informed opinion/speculation, and issues of policy or operations. SAGE is about science, including uncertainty. How we should respond if/when we get such an outbreak will depend on multiple factors including in particular whether we are still in a global containment phase (still the current global stance), and the scale and location of any outbreak in the UK.

There will as you imply be a tradeoff between epidemiological effectiveness of an intervention to an outbreak, and the social and economic costs of these. We are going to rely on SAGE, and modelling specifically, for the epidemiological effects of different interventions, as without understanding this it is not possible to balance these against the negative social impacts. SAGE behavioural science may help with some, but not all, of the other side of the equation (eg social costs); SAGE it is not constituted to determine economic or operational costs which are considered elsewhere. At the end the decisions on the tradeoffs between these will have to be a policy one, probably by Ministers informed by the science. The clearer the science is (including the degree of uncertainty) the easier it will be to make rational policy decisions. But I am keen to keep science and informed speculation reasonably clearly separated.

I am very much of the view we should be making clear what we know, and where we are less certain, to the public, as well as laying out our tactical aims (contain, delay, research, mitigate) which are clearly predicated on the idea that containment may not work. I have said explicitly in the media both that this could become an uncontained global epidemic (but also may not), and that even if not we could have some onward transmission in the UK. I am however not convinced that presenting speculative scenarios are always helpful in public understanding.



To John's point about surveillance – Patrick and I agree about the need to look at pneumonia and agreed with PHE (Sharon) early this morning to start this in Brighton and London as soon as feasible. We also are going to do what we can to accelerate accurate serology, as this is likely to be very helpful in mapping any spread accurately provided it has good UK specificity.

I hope this is helpful.

Best wishes

Chris

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**From:** Ferguson, Neil M <[neil.ferguson@I&S](mailto:neil.ferguson@I&S)>

**Sent:** 21 February 2020 18:37

**To:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>; Patrick Vallance <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>

**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [john.edmunds@I&S](mailto:john.edmunds@I&S); Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>

**Subject:** RE: Local spread in Europe

A little more detail on Italy & Iran, from our internal daily sitrep. It is particularly concerning that the Italian cases are severe, given it implies that there are many more mild cases as yet undetected. Same for Iran.

South Korea:

Daily case counts:

- 18/02 – 31 cases
- 19/02 – 51 cases
- 20/02 – 104 cases
- 21/02 – 204 cases

Clusters:

- Shincheonji – 124 cases
- Cheongdo Daenam hospital – 16 cases
  - 5 health care workers
  - 11 patients including 1 fatality in a patient with comorbidities
  - All related to same hospital ward.

Italy:

- 16 new cases – 7 in intensive care
- None have any travel history to China. One had dinner with a friend who returned from China at the start of January, but how that fits with onset of symptoms I'm not sure.
- 1 of these cases is pregnant
- At least one is on life support
- Seeing reports that this includes 5 health care workers among those infected and all the new cases are located in Northern Italy. This information has come out in the last ~ 30 mins so will try and keep as up to date as possible
- [https://www.ansa.it/canale\\_salutebenessere/notizie/sanita/2020/02/21/coronavirus-sono-tre-i-primi-contagiati-in-italia.-uno-e-molto-grave\\_4566075c-ee89-411d-8b3a-56b6b8246fc9.html](https://www.ansa.it/canale_salutebenessere/notizie/sanita/2020/02/21/coronavirus-sono-tre-i-primi-contagiati-in-italia.-uno-e-molto-grave_4566075c-ee89-411d-8b3a-56b6b8246fc9.html) this link has the most up to date information that I've found.

Iran:

- 18 cases, seeing mixed reports as to whether there is 4 or 5 deaths. (first cases were only reported on Wednesday which was 2 post-mortem diagnoses).
- There is some indication from **confidential sources that there may be 100+ cases**. This would also link up to previous reports (~2.5 weeks ago) from Iran saying they had cases but weren't reporting them.
- There is also one case in Canada from someone recently returned from Iran and an importation to Lebanon.

- Based upon the fatality information, the quick analysis Adam Kucharski has done indicates a lot more cases than currently reported: <https://twitter.com/AdamJKucharski/status/1230783400459587584>

**From:** Ferguson, Neil M

**Sent:** 21 February 2020 15:57

**To:** Whitty, Chris <[Chris.Whitty@dhsc.gov.uk](mailto:Chris.Whitty@dhsc.gov.uk)>; Patrick Vallance <[P.Vallance1@go-science.gov.uk](mailto:P.Vallance1@go-science.gov.uk)>; Van Tam, Jonathan <[Jonathan.VanTam@dhsc.gov.uk](mailto:Jonathan.VanTam@dhsc.gov.uk)>

**Cc:** Jeremy Farrar <[J.Farrar@I&S](mailto:J.Farrar@I&S)>; [John.Edmunds@I&S](mailto:John.Edmunds@I&S); Peter Horby <[peter.horby@I&S](mailto:peter.horby@I&S)>

**Subject:** Local spread in Europe

Dear all,

You will likely be aware of the Italian cluster by now - [http://www.ansa.it/english/news/2020/02/21/coronavirus-six-infected-in-italy\\_10bbd4fe-9e6d-4339-bf64-f740acd48145.html](http://www.ansa.it/english/news/2020/02/21/coronavirus-six-infected-in-italy_10bbd4fe-9e6d-4339-bf64-f740acd48145.html)

As I said at the SAGE meeting on Friday, I think the UK urgently needs to formulate an evidence based contingency plan for how it will respond to a cluster of cases unlinked to travel or other cases. While I appreciate contact tracing will necessarily continue for a while, we need a strategy for public communications around risk reduction and what non-pharmaceutical interventions are going to be recommended.

Are we going to follow what the local Italian authorities have done, and effectively shut down the area affected? And if we don't, how will we explain why we're not doing what China, Korea and now Italy are doing? My own view is that such measures are likely unsustainable for any extended period, at least not without incurring a very high economic cost. But I do think messaging (both to ministers, and publicly) around a balanced and sustainable strategy needs to be started very soon. Otherwise I worry the country will get bounced into a policy which is unsustainable but difficult to de-escalate.

Best,

Neil

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Professor Neil Ferguson

I&S

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