Transcript: Webinar - COVID-19 challenges and solutions 1. Infection prevention and control | 6 May 2020

Watch the webinar

During this webinar our audience submitted their COVID-19 IPC questions to our expert panel.

Panel members:

- Dr Cariad Evans - Consultant Virologist, Sheffield
- Mr Peter Hoffman - Consultant Clinical Scientist, London
- Mr Martin Kiernan - Infection Prevention and Control, Nightingale Hospital London and Visiting Clinical Fellow, University of West London
- Dr Chris Settle - Infection Control Doctor, South Tyneside & Sunderland Foundation Trust

Chair: Professor Hilary Humphreys, President, Healthcare Infection Society

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1:00 Hilary Humphreys

Before introducing our panel, let me tell you what we're going to be doing for this hour session. We will first of all, for the first 40 minutes or so, have a series of questions which have been sent in, in advance. We will be asking our panel members to give their answers, or to give us some insights into. This will be interspersed with polls, and in order for you to be able to actively participate, you need to open the Slido app, and enter the code #HIS or scan the QR code. This will enable you to participate in the polls. After about 40 minutes then we will have questions that have been sent during the webinar that we will then ask the panel to answer.

After the webinar you will get an email which will ask you for feedback and will also indicate to you how you can claim your CPD points. So, without further ado I ask our panel to introduce themselves, starting with Cariad Evans.

1:34 Cariad Evans

Hi, my name is Cariad Evans, I'm a consultant virologist at Sheffield Teaching Hospital

1:39 Peter Hoffman

I'm Peter Hoffman and I'm a consultant clinical scientist with Public Health England, but on this occasion I am representing the Healthcare Infection Society.

1:50 Martin Kiernan

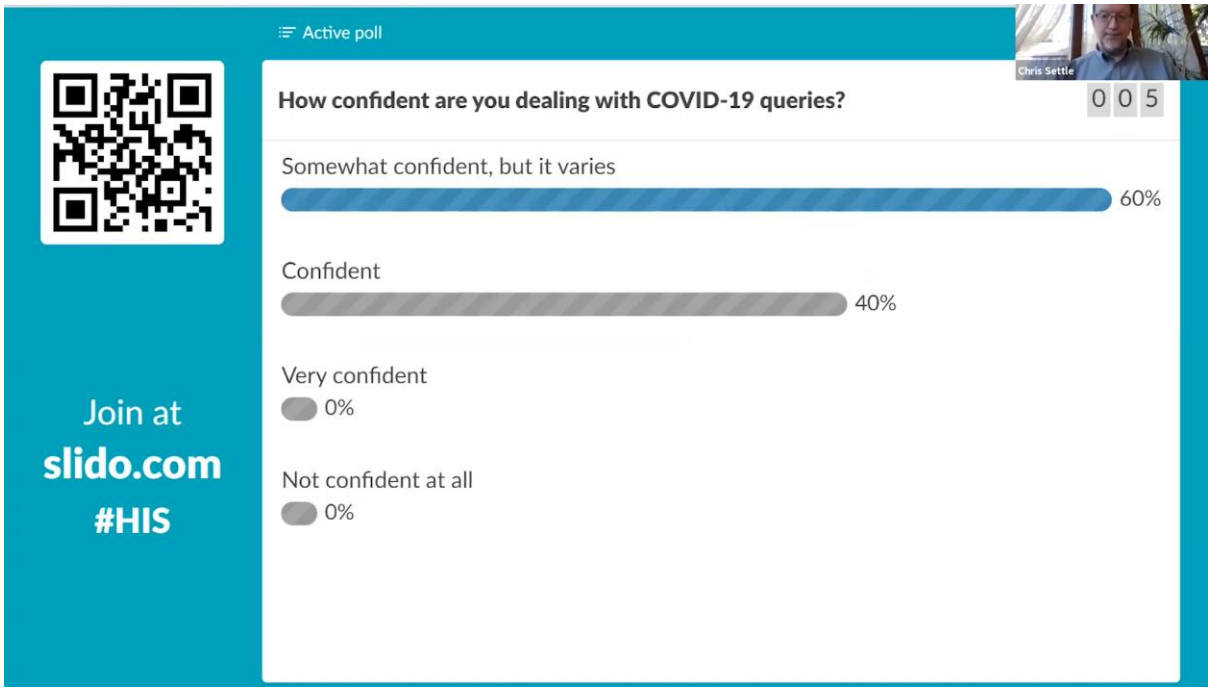
I'm Martin Kiernan currently working in the Nightingale in London - although our last patient left about 20 minutes ago - I also work with the University of West London and currently I'm employed in industry as well with Gamma.

2:04 Chris Settle

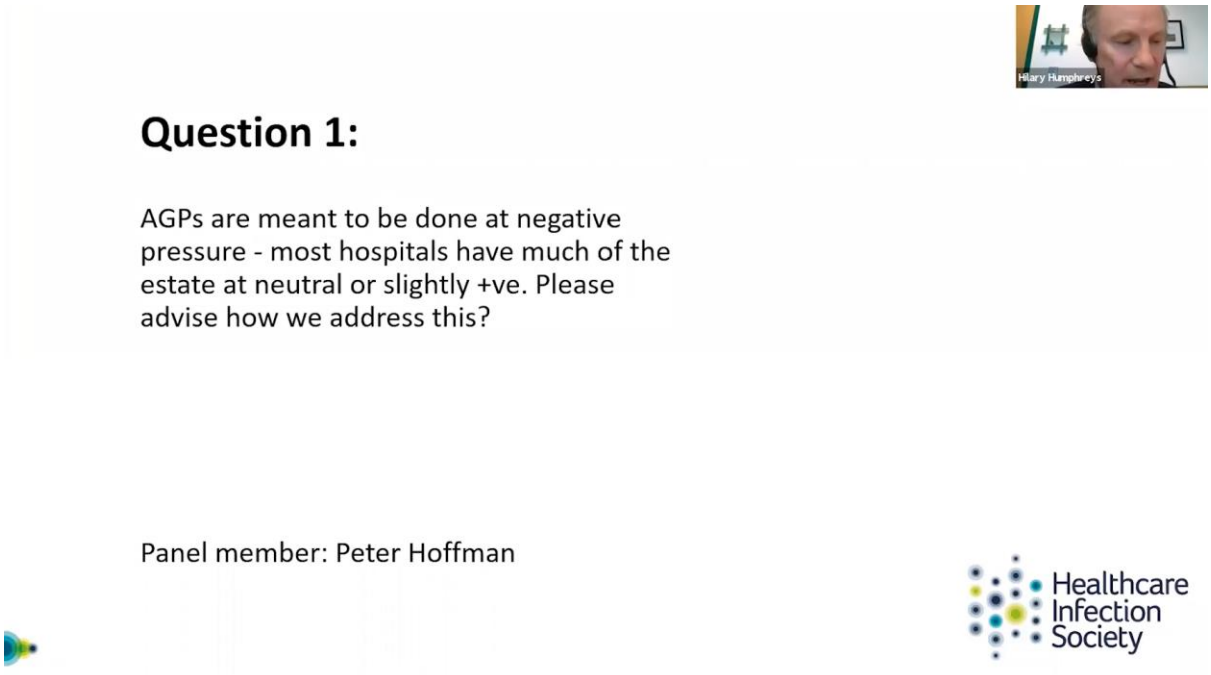
Currently employed as a Consulted Microbiologist with South Tyneside and Sunderland as an infection control doctor.

2:12 Hilary Humphreys

Okay, thank you, everybody, and thank you for those introductions and hopefully we'll avoid some glitches as we go through.



We'll go on to the questions which have been submitted in advance, and which we prioritized on the basis of the importance that the attendees have applied to them. So our first question is “Aerosol generating procedures are meant to be done at negative pressure - most hospitals have much of the estate at neutral or slightly positive pressure. Please advise on how we address this”



3:06 Peter Hoffman

There is no requirement in the national guidance for negative pressure accommodation for COVID-19 patients. The guidance says that for individual patient accommodation, if you've got a negative

pressure room, then use it, that's fine. A negative pressure isolation room will have all the requirements that you need for successful isolation, it will have a good ante room and donning and doffing. But, if you have run out of those, then there's no requirement to use negative pressure. I think I need to give some context on this, about aerosol generating procedures. The problem is that we only have one word for aerosol to cover a whole variety of probable different subtly different infection modes. TB is the classic airborne aerosol mediated infection. This is a true aerosol transmitted infection, an aerosol is a particle that is so small and light, it behaves almost as though it were part of the gas that suspends it. Now, with TB, we have very good evidence of aerosol transmission in the 1960s in a respiratory ward in New York State. They put guinea pigs in individual cages up in a modified extract system for ventilation, and they found TB transmission to them. TB has transmitted in warships where the ventilation system goes from cabin to cabin, they were able to follow TB as the ventilation system progressed, we don't have the same sort of evidence for upper respiratory tract viral infections.

For SARS for MERS for flu and to a certain extent now for COVID-19. The evidence seems to be, and it's fairly weak evidence, that those who acquired the infection, are close to patients during certain procedures, these procedures known as aerosol generating procedures. What happens during aerosol generating procedure is there will be lots of splashes very large particles - particles that you could feel if they landed on your skin, droplets smaller particles but particles that will fall out of the air spontaneously, and also theorized aerosol particles. But the evidence seems to be that the only people who acquire infection are close to these aerosol generating procedures, the distance that you find with TB doesn't seem to exist with upper respiratory tract viral infections. So, the aerosols are at their most infectious when they're at their most concentrated, which is close to the procedure. At further distance, they don't seem to be infectious. So, the current guidance is that it doesn't really matter if some air goes from the room in which the aerosol generating procedure is happening, into adjacent spaces. This is typified in the guidance for operating theatres. Operating theatres pass huge amounts of air from the operating theatre into the corridor. But the current consensus is that by the time it gets into the corridor. It is so dilute that it doesn't pose a danger. There have been some recommendations to try and modify ventilation, such that positive pressure areas are turned into negative pressure areas. Normally, when that's done, it can only be done by restricting the air supply. This decreases local ventilation, and probably increases the risk to those who are closest aerosol generating procedure. So the general approach to ventilation is get as much ventilation as you can, if it's positive pressure, that's fine. Don't reduce ventilation, in order to try and get negative pressure.

Does anyone else have any comments?

8:08 Chris Settle

In terms of patients who've got immunocompromised secondary to bone marrow transplantation. In the best situation generally for those patients is in a positive pressure environment. And isn't it still the case that that remains the case, even if they were infected with COVID?

8:30 Peter Hoffman

It does. The situation there is very similar to the operating theatre situation, but with the addition that you will need to protect those patients from the inhalation of fungal spores, so their accommodation should have HEPA filtered air supplied at positive pressure, so the clean air is lost to surrounding

spaces in the clean air passing out to adjacent spaces. It means that unfiltered air from adjacent spaces can't pass back into the patient room.

9:05 Chris Settle

And a second point about that category of patients if we're looking after them. And we are using surgical masks to protect to some degree from droplets spread to the patients, and some units may perhaps believe that instead of using a surgical mask, they might choose to use a FFP3 mask. But if that's a valved mask, they may actually be increasing the risk to the patient.

9:36 Peter Hoffman

Is this from the staff to patient?

9:40 Chris Settle

Yes.

9:41 Peter Hoffman

What infection we are we talking about?

9:42 Chris Settle

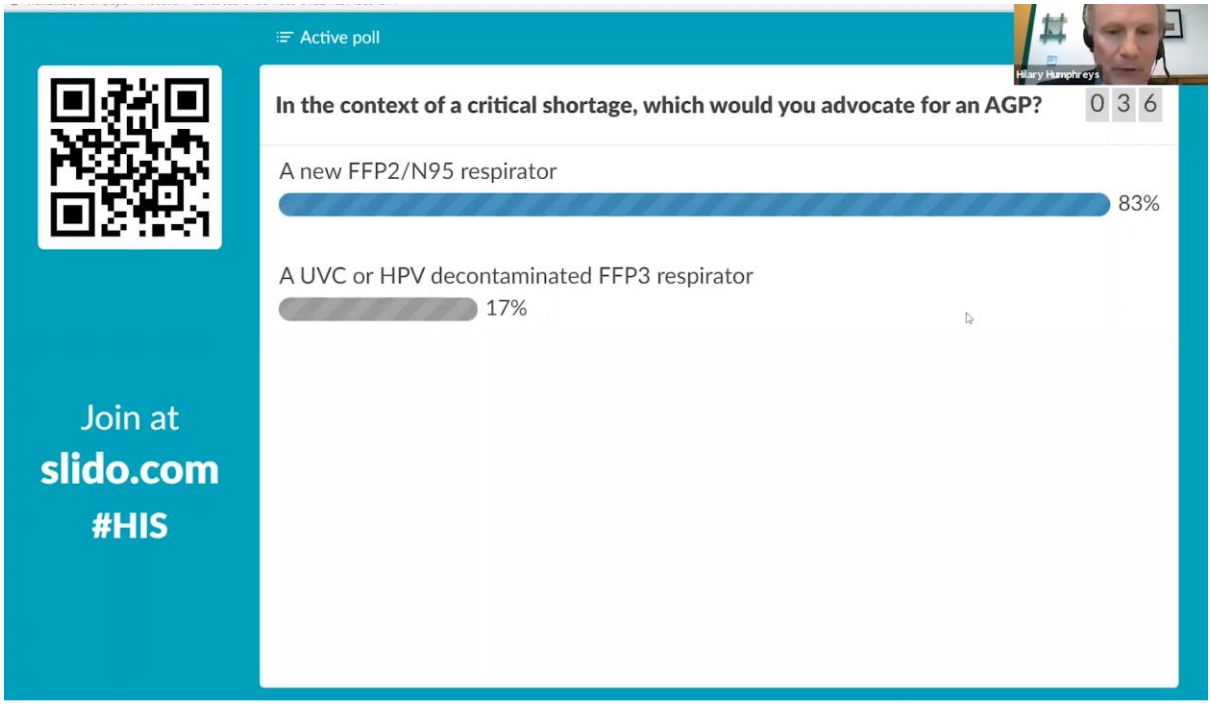
So the staff member has unknown COVID infection, and they're caring for a patient in that situation, and they put on an FFP3 mask with a valve, they will breathe out COVID over the patient

9:57 Peter Hoffman

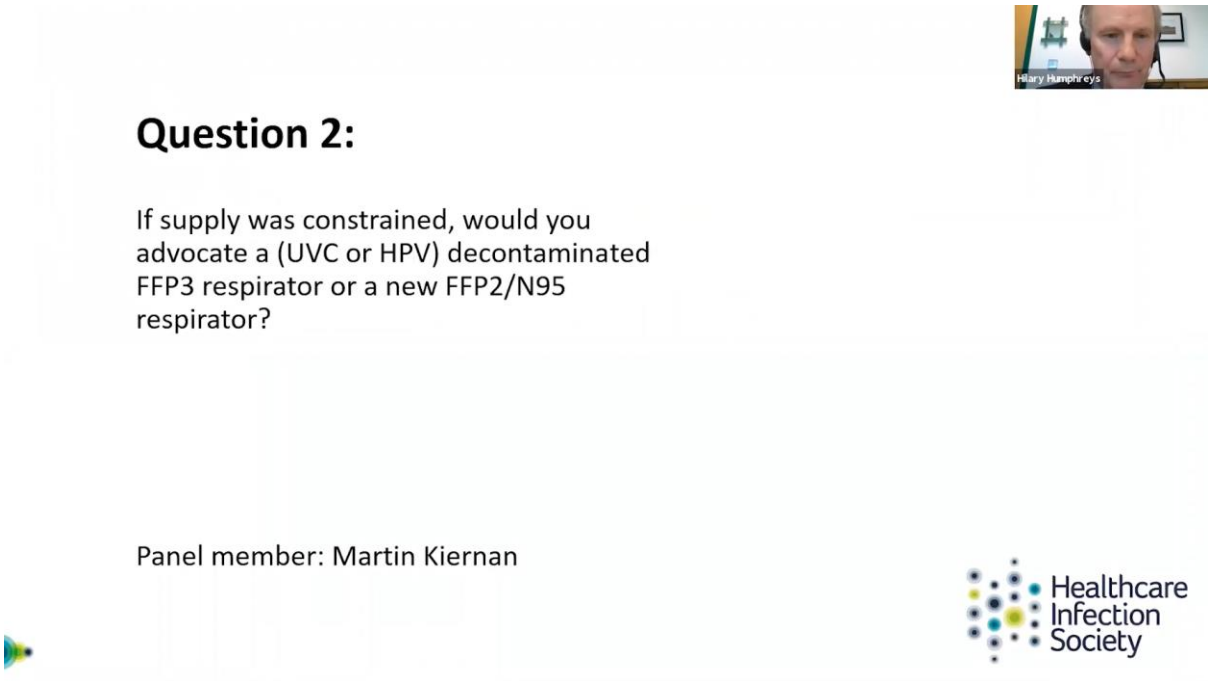
That's a valid point. Thank you.

10:01Hilary Humphreys

Poll question:



So, it looks like there's a majority in favour of a new respirator. And so maybe we go on to that because nicely into the second question.



So now we're going to ask Martin to lead on this.

11:09 Martin Kiernan

Thank you, Hilary. Okay. Great question because I think everybody's been struggling with this one, a bit. And we've all had a look at contingencies for re-using various bits of PPE, and the IPS and the Central Sterilizing Club produced a document a couple of weeks ago - people may have seen - for further consideration when thinking about it. To me, the first thing you got to do is actually try to

rationalize the use of PPE right from the word go, and that's been particularly difficult for us here at the Nightingale because the whole place is an intensive care unit so everybody (according to PHE guidance) goes in wearing full FFP3, even though the cleaning staff, the pharmacists, and plenty of other groups are never going to take part, or even be close to an aerosol generating procedure. However, we've been going through industrial quantities of FFP3 masks. Fortunately, we've had the same masks so, but fit testing has been an issue, because of the national shortage of the fit testing equipment. But we did have some contingencies, and I found the NICE document from Mark Rupp's group at the University of Nebraska, which looked at using UV and you could use UV but I'd be worried about the effect on the components. UV is subject to the line of sight problem, so how you could actually make sure you have decontaminated properly and correctly I don't know. We don't really know the effects of UV or hydrogen peroxide vapor on all the components of a mask, either. If you go and get the manufacturer's datasheet it's not going to tell you anything about that, and the companies are certainly not going to help you out with any advice on what you can do. So, the first thing we need to do is try and rationalize the use which is very difficult because everybody automatically thinks they need an FFP3 mask and we've seen lots of comments in the media, you know, short videos of doctors and nurses saying "I haven't been given the right PPE" when probably they have been given the appropriate PPE for that area.

So, we have to think about "What are the real risks of an aerosol?", rather than this theoretical risk. And, you know, what would I rather do? I would think I would definitely go for an FFP2 myself and fit test people, that is actually what the WHO recommended - that that level of protection would be adequate, and it is in the most recent guidance from Public Health England. I'd be worried about the effects of things like light on the straps and that's actually what we found with some of the FFP3 masks, we've had is the mask is fine but the straps can come under pressure. We've actually looked at other PPE we've had to decontaminate for example, we did launder some gowns because we were getting quite short of gowns sometimes. The gown supply here came through a level just enough to keep my blood pressure, really quite high, and sometimes then when the next batch of gowns arrived, it was like Christmas we had no idea what was in the box, even if it said small, it was Chinese small which is extra extra extra small. And so we did launder some gowns. At the beginning we laundered them three times and then we tested them for moisture repellence and we found that to be perfectly adequate. If you get the material status sheet that shows that it's a polypropylene so you can definitely wash at launderable temperatures through a standard hospital laundry process. And so we did actually launder a batch of good quality gowns once, and put them aside which we ended up using when we only had a choice of gowns that only the very small people would be able to wear, and wouldn't meet round back.

It's managing staff anxiety over reprocessing of equipment is a problem, because they automatically assume you're going to be making them unsafe. They took a lot of reassurance that we were going to be going through a validated process, and that we would have some assurance that we can decontamination had been taken place and the product was safe to use. So, once they got used to that idea actually they were fine with it, and we did use the laundered gowns for a short period of time.

As regards to the question I would definitely go down the route of FFP2. But I would also think to people, we have people here going in and out a lot, so they're going out 3, 4, 5 times a shift, and they're here for several weeks. Many staff have been using - and I'm not advertising a particular brand, other brands are available - reusable masks that are cleanable and that you can give to the specific people. These have been very useful for some staff who've got different face shapes, and we found this to be very successful, and very well accepted by staff, they're about 30 or 40 quid each, which

actually if you add up the number of masks that might use over a period of time, that might be worth thinking about getting some of those in stock for the future. So that's my feeling about it.

15:43 Hilary Humphreys

Thanks very much, Martin, Does anybody else want to add any comments there?

15:58 Peter Hoffman

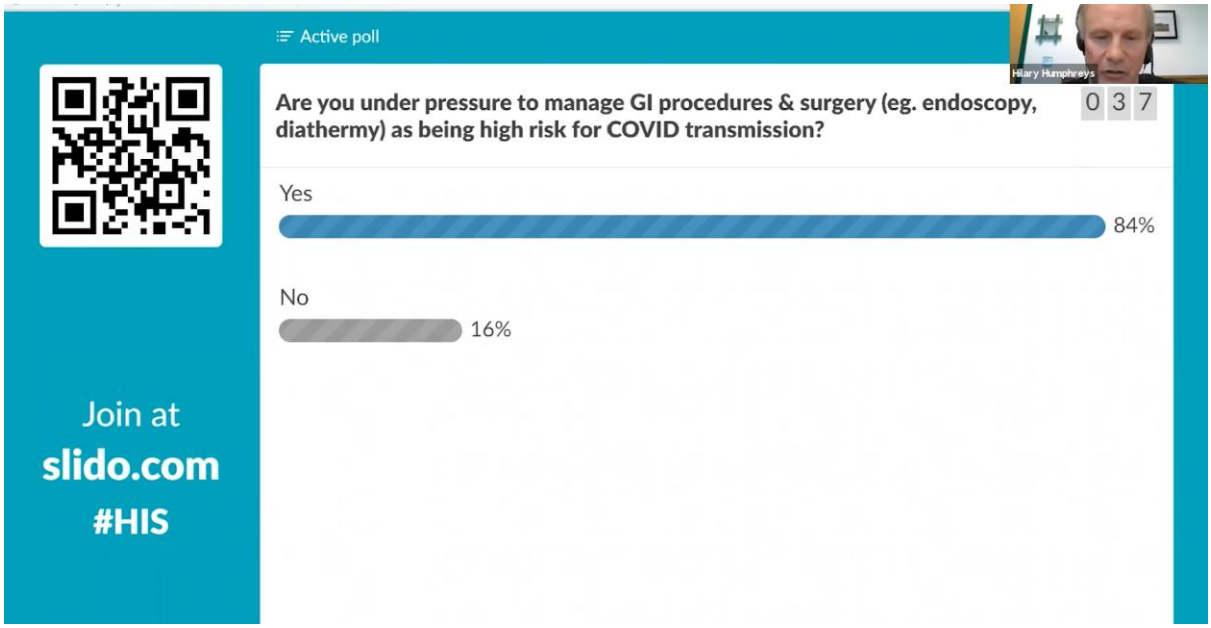
Can I just offer a word of caution. People are producing a lot of data on PPE withstanding a variety of decontamination processes, but the consideration needs to be more than just that. Something like an FFP3 mask can get quite a battering when it's used. The weak point of FFP3 respirators is the seal between the mask and the face. So, even if the medium still functions as a filter. If it no longer fits, it's no longer suitable for purpose.

16:33 Martin Kiernan

And given that they're often moulded around the face of the previous user. It's a bit like cleaning everybody's false teeth in one big bowl and giving them back to everybody, you might not get what actually you're originally started with.

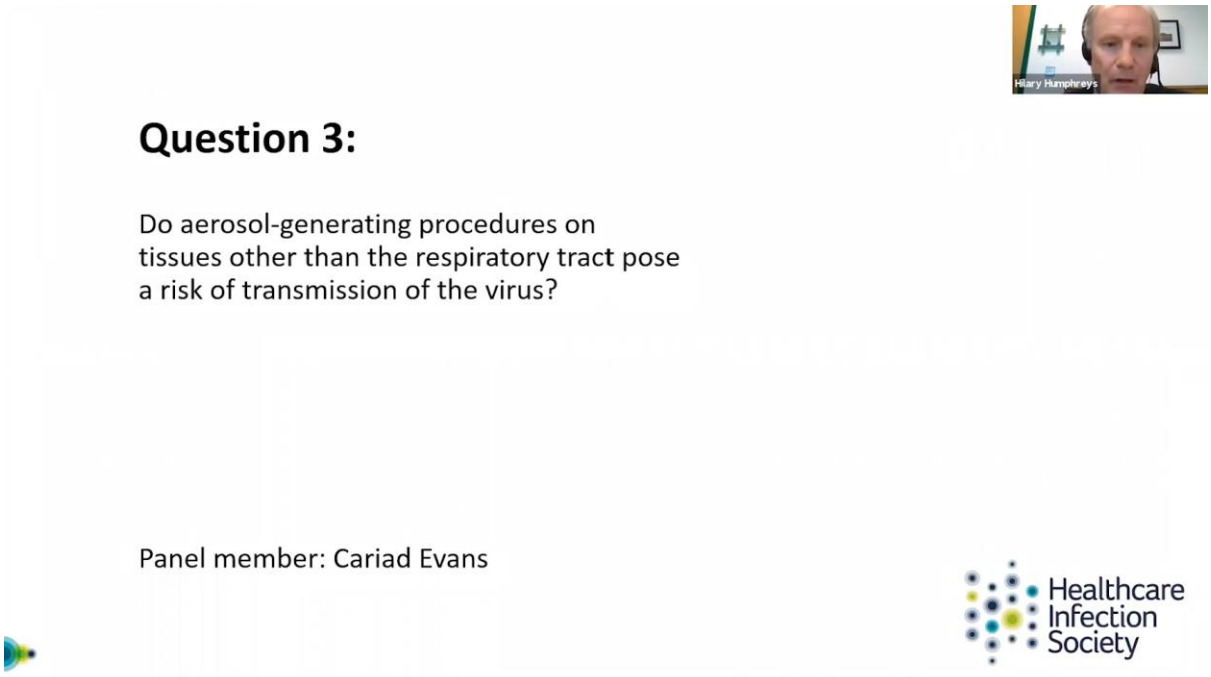
16:46 Hilary Humphreys

Okay, maybe perhaps we'll move on to question three. And again, I think we have a poll that leads into this question if we can go with that, please.



So I think it looks like there's still a large majority who answer yes on that, so let's maybe have going up to 20% let's maybe go to the question that I think.

Question 3 is: Do aerosol-generating procedures on tissues, other than the respiratory tract to pose a risk of transmission of the virus? Cariad is going to lead on answering this one.



17:42 Cariad Evans

Thank you. I think the key point on this question is considering the virus and its replication, that we know that the SARs-CoV-2 virus needs the ACE2 receptor to enter cells and replicate. So, we all are aware that the ACE2 receptor is predominant in the airways. But we've also aware that these receptors, are in other parts of the body as well. There's been quite a lot of publications around this and looking at the distribution of the ACE2 receptors, and some of the recent work that I've seen has been mainly that there are higher numbers of these receptors in the heart, the kidney and the small intestine, but very small numbers in blood and bone marrow and the brain.

So if we think about the receptor where the virus can enter is one aspect of this question, as to what tissues may have viable virus in. And then the other aspect of the question is, the bodily fluids. So again, there's been quite a lot of published literature, trying to look at PCR positivity in various bodily fluids compartments and outside of the respiratory tract, with evidence in the faeces and one paper that assimilated these results they have about 30% PCR detection in faeces. But only about 1% in blood, not found in urine and then there's some individual case reports that reported PCR positivity and CSS and conjunctiva. So, I think, overall, we're not seeing a large blood viraemic phase of this infection. In the blood that we saw, they didn't manage to culture viable virus from those samples either. So, I think this is all very important to consider in answering this question.

19:45 Hilary Humphreys

Okay, I think this was one of those areas where perception perhaps is, is key to what people believe is the risk rather than perhaps the reality from the science or that the scientists or anybody else wants to come in on that particular issue which I think is being faced by many people.

20:02 Chris Settle

Just to ask a little bit more about the faeces, because it's been detected in faeces and that has led groups like gastrointestinal surgeons, or gastroenterologist to infer that if they do a colonoscopy. If they're going into the bowel there's bound to be an aerosol produced, and consequently, they must use an FFP3 mask. I have guided them away from that idea, but I'd be interested to hear what you think about how infective faeces is and maybe what Peter thinks about whether it really is an aerosol generating procedure that produces sufficient aerosol to be a hazard.

20:45 Cariad Evans

I think it's a really good question. There are a lot of people at the moment, looking at that. So there's two kind of aspects that we need to consider with that one is PCR detection, does that translate to viable virus? So how much can we culture from the faeces. So there's not a huge amount in the literature to show groups that have been successful in culturing the virus from faeces, and I know there's ongoing work in the UK and at PHE to specifically look at that at Colindale.

And then the second point is if there is viable virus there, have we got evidence of faecal oral transmission in this outbreak that would kind of support that theory? If we haven't gotten laboratory evidence. You know there are issues around viral culture and sensitivity. So have we got evidence about faecal oral transmission events? And I haven't seen a huge amount of data that's compelling to confirm faecal oral transmission at the moment.

21:55 Peter Hoffman

This to a certain extent will be almost faecal upper respiratory tract transmission from droplets. It will be a novel route of transmission and Chris's point about the likelihood of aerosol generation, its bodily fluids, apart from urine are fairly self cohesive. It's very difficult to put sufficient energy into them to get any substantial aerosol formation. So I would be very sceptical about lower GI endoscopy aerosol formation, something like an orthopaedic bone saw, yes, I believe that produces a tremendous aerosol, but not lower GI endoscopy.

22:46 Hilary Humphreys

Thank you very much for that I think we move on to a question four, and we're going to go straight into this question, as there's no poll. So it's “What's the rationale behind gown use for aerosol generation procedures versus apron use for non-aerosol generation procedures. Since this could not contaminate areas not covered by the apron” Peter is going to lead on addressing this issue.

23:28 Peter Hoffman

This goes back to what I was saying about aerosol generating procedures for the first question, aerosol generating procedures, you don't just get aerosols, you get lots of splashes, and droplets. And this is where the gowns, are useful. Amongst the large particles to protect against the large particles that because they're larger will have a greater microbial burden on them, it's these particles that are the most efficient at transmitting. So, the gowns, for AGPs are more for the associated splashes and droplets, and not for the aerosols. So, when there aren't splashes and droplets occurring such as outside AGPS. Then, I think, then you don't need the protection of a gown.

24:24 Hilary Humphreys

Okay. And anybody else want to come in and comment on that?

24:29 Chris Settle

Peter, one of the most common approaches that we get in infection control in relation to gowns, or aprons is the concern that a patient who coughs or sneezes will produce droplets that will attach themselves to the sleeves of someone's uniform and form an infective fomite, that they can then take home and cause infection at home. I've been trying to reassure people that that's not realistically going to happen. But I would certainly be interested to hear your opinion.

25:12 Peter Hoffman

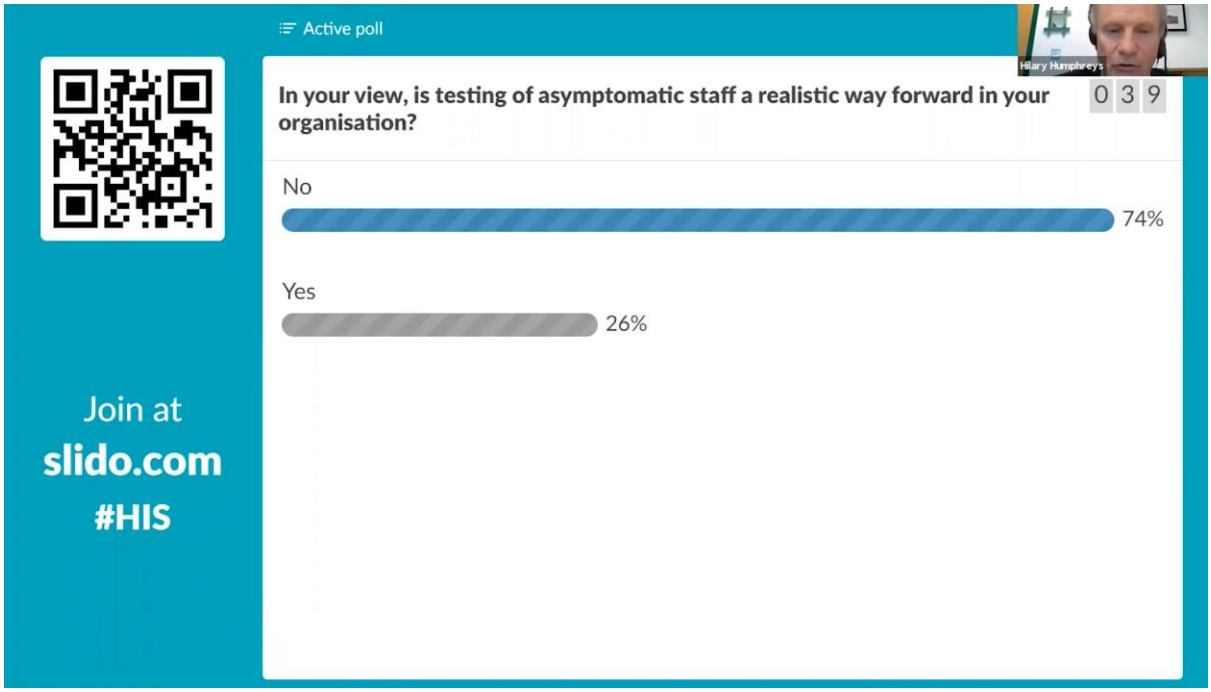
With a cough, I think it all depends on the energy, and frequency that is in the cough, as to the degree of aerosolization it can produce. It was. I think recently agreed between the four nations guidance and NERVTAG that sort of coughing does not produce a sufficient aerosol to transmit……

<lost connection>

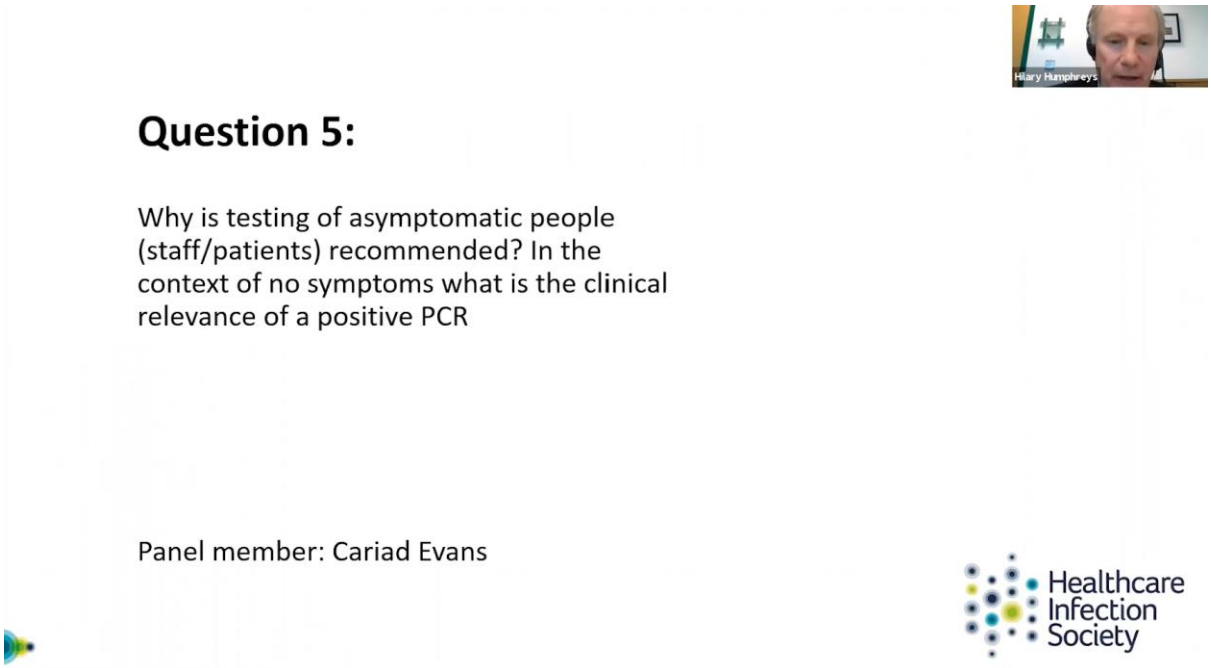
25:49 Hilary Humphries

We lost Peter there..

We missed some of that, Peter, it might come up in in subsequent questions or discussions. So if we go on to question five and again, I think this is preceded by a poll so we can bring up the poll please.



So about three quarters no and about a quarter yes, so maybe we'll bring up the question then please.



Cariad is going to lead on the discussion on this.

26:43 Cariad Evans

So, to start with the first part, 'Why is testing symptomatic recommended?' So the background to this is there's been a lot of kind of snapshot studies looking at staff and patients and close settings and care homes and swabbing them all and looking at positivity rates, and in some particular situations, there are very high rates of what we describe as asymptomatic staff, now as we're learning more

about this area, and with the evolving kind of published literature our greater understanding is that this is actually predominantly, not exclusively, but predominantly a pre symptomatic phase, and our understanding is that it's probably for about 48 hours before the onset of symptoms. Some literature extends that out to about six days before the onset of symptoms.

So, the rationale is if you manage to identify these individuals before they develop symptoms, and you can intervene at that stage, then you could prevent onward transmission and reduce transmission events.

This also is plausible biologically from a virological perspective. We've seen this with lots of other restriction viral infections and particularly flu, that you have a period of time before the onset of symptoms. When the virus can be shed in this what we call this late incubation period. So that's the rationale - is to try and interrupt transmission by identifying these individuals early. And so the clinical relevance of it is that you will prevent onward transmission but also this is an opportunity to implement lots of IPC measures rapidly, and lots of the modeling that has been done on the COVID pandemic has taken into account maybe nearly 40% of individuals that would fall into this bracket, and be contributing to the transmission chain. So that's why there's been a big push in the last few weeks in particular to do snapshots across the NHS of incidents of this. So we actually did it ourselves. Last week we did 1200 health care workers in Sheffield, and we have 1.5% asymptomatic. We're following those up to day 14 but the majority of them so far have developed symptoms within two to three days of having their swab taken.

29:36 Hilary Humphreys

Okay. Anybody else want to come in on this particular issue? I think it's one that everybody, or many people are facing.

29:48 Chris Settle

That's certainly interesting data and we need more data like that to be more clear over what these test results mean. My concern was that at a time when the overall population of patients and staff with infection is relatively low, and the number of patients who've had infection is certainly higher than that, given that there's a limited number of days where you're positive by PCR before you become ill, compared to the number of days you're positive by PCR, after you've had disease and recovered, the pool of people who theoretically would be detected as a random test with PCR positivity must surely be in favour of those who have had infection rather than those who are going to get infection.

And so if you did a random population test, I would have expected there to be a significant number of positives in patients who've had infection where there is still detectable RNA, rather than most of them being just about to get disease. Now it sounds from what you've done as though that may not be true.

30:56 Cariad Evans

I think that's a really valid point I think we know that PCR detection can extend out to, you know, four to six weeks even. And we did capture a couple of staff members that were PCR positive from a COVID infection that was four weeks beforehand. The way that we did it is because we have quite a big staff

testing program, we could exclude anyone who has had COVID-like symptoms or a COVID positive diagnosis, when we did our snapshot. But I, that there's complexities to how you would set this up how you would run it, you know, and how you would capture the right population to screen.

31:41 Chris Settle

So, if we would just take, let's say, elective patients before surgery, as a group, some of whom may have had infection and some of whom may be about to get infection. My concern is that the likelihood of the positive PCR indicating a patient about to get disease is lower than the likelihood that its a patient who has had disease, and therefore, we might elect to give them advice not to have surgery, when in fact the majority would be perfectly safe to have surgery. So we're not necessarily getting what we think we're getting from the test results.

32:18 Cariad Evans

I think that's a true consideration. I think it has to go alongside like every test result clinical interpretation. So we require discussion with that patient – a history taking whether they recently had a COVID compatible illness. I think also the other consideration is the timing and when you do this in this pandemic. So, if you're starting you know on the back of six weeks of lockdown. And very low levels of virus now circulating going forward. The timing of doing it now versus when circulation might pick up again in the community, that there's so many aspects to it isn't there that would affect.

33:03 Chris Settle

Certainly, to me its the wrong time at the moment to be doing it.

33:07 Hilary Humphreys

Okay, I think we move on I think it's one where we're going to probably come back to at some stage or another and it's a lot of discussion about it out there. So I think if we move on to a question six, and this poll before this so we can go straight into it. Is there evidence for the theory that increased viral inoculation leads to more severe illness, and I'll ask Cariad just to answer this one, and thank you again Cariad.

33:30 Cariad Evans

Thanks, and see it is a tricky question, this one. Um, so, the viral inoculum is dependent on the load of the excreta that is carrying that virus and the amount of excreta that you're exposed to. And then the inoculum then infects the cells around it, and then you obviously have an innate immune response. Essentially, when we're seeing high viral loads in patients with severe disease, are we then thinking that that high viral load and that severe disease was actually due to a high dose, when they originally acquired infection? And I don't think we can really answer that question. The complexity of severity of disease has so many facets to it. And I haven't really seen anything in the literature that really can quantify and can see how much people's, you know viral exposure was before they developed their

disease, to really answer that question. But it does make plausible sense that the, the more frequent exposures you have or the greater number of virions that you're exposed to then the more overwhelmed your innate immune response might be, and therefore it might be more difficult to handle that infectious dose. Hence why we have to approach this by trying to minimize the infectious dose as much as we can.

35:10 Hilary Humphreys

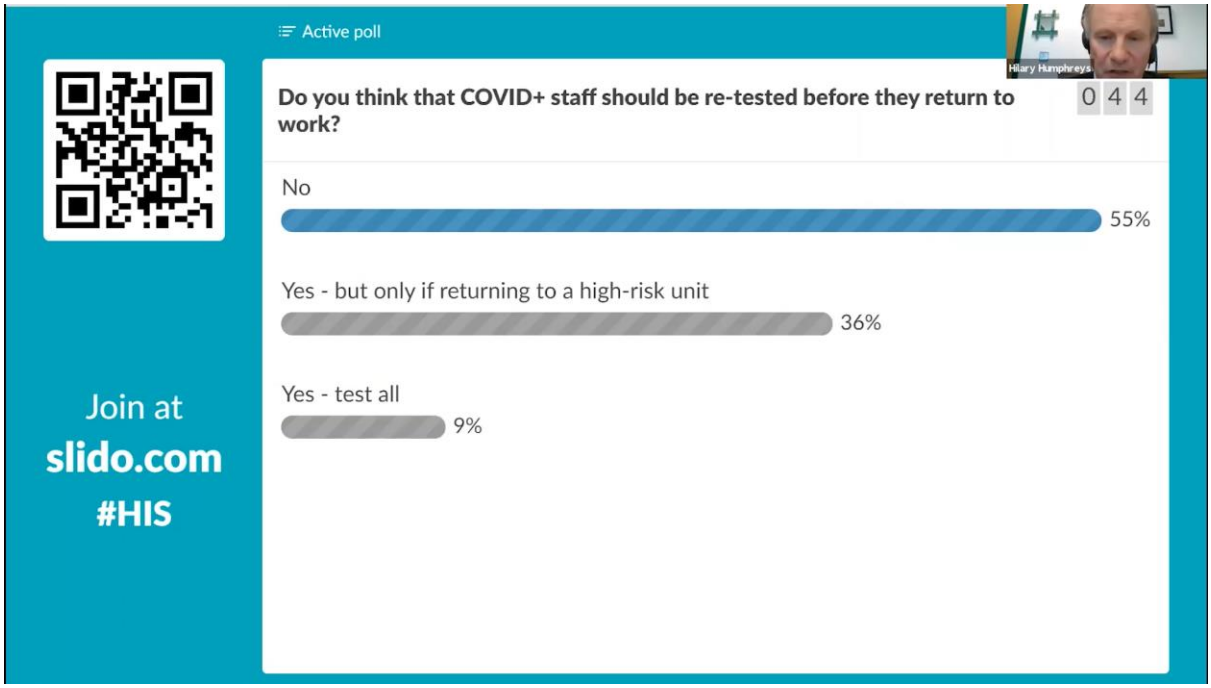
Okay, thank you very much, and I think we might move on to question, seven and again we can go straight into this there's no pre poll. And again this relates to testing, testing of asymptomatic healthcare workers is recommended how often should they be tested. I what should be done? So there's been an overlap with question five, again carry out if you could lead on this one.

35:35 Cariad Evans

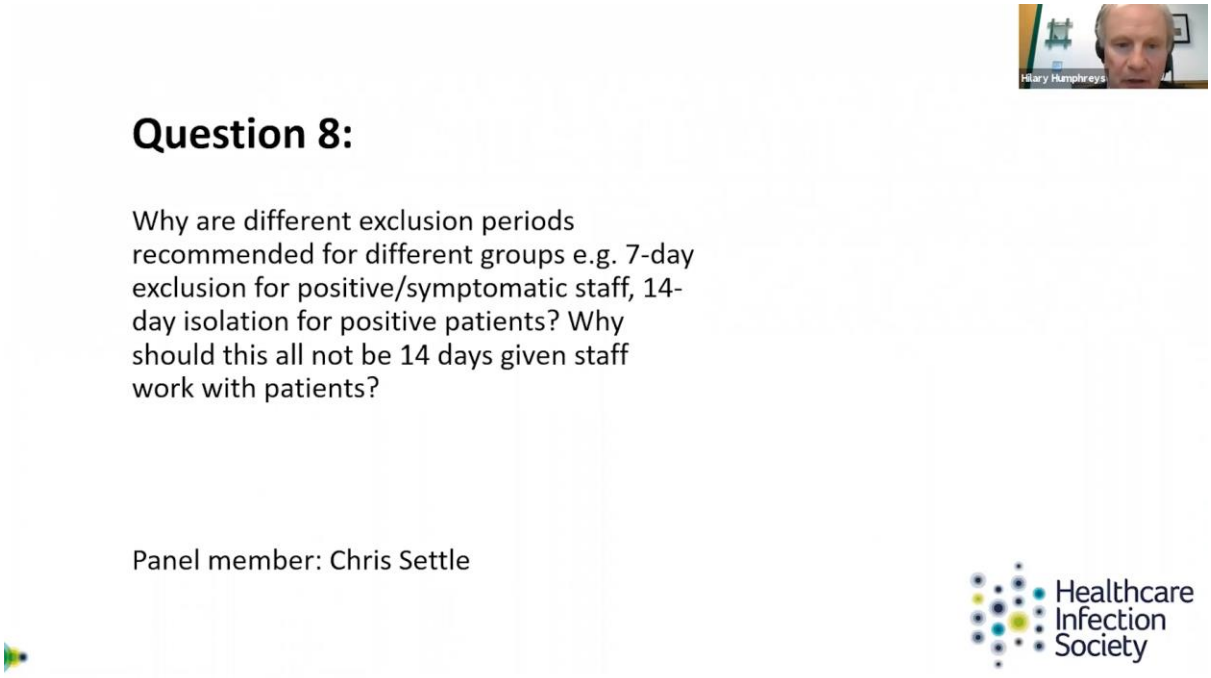
Yeah, so, as, as we've just been discussing it's a really difficult area, isn't it and that's frequency of testing. So, first of all, who you test and when you test them, and the frequency of testing is going to be dependent on all the other aspects: So the consideration of where you are in the pandemic, what the local circulation rates look like, and they will vary across the country. We will also need to consider where they staff work - so there's discussions around screening and testing staff who work in high risk areas and with high risk patients and we can prioritise them. But I think it's the question is 'What are you trying to achieve by it?' as well because if, if we're still continuing to wear PPE for patient and staff interactions, then are we more worried about transmission rates between staff, by doing a program like that, and interrupting those transmissions because theoretically you've got PPE to prevent patient transmission risks.

36:55 Hilary Humphreys

Final poll and question.



And again there's some overlap between some of these issues. Approximately a half or slightly more believe ‘no’. So let's go on to the final question then.



This is certainly a confusing area for many people, but we'll maybe ask, Chris in the first thing.

37:52 Chris Settle

I think what I understood about this topic was that, by and large, when we're giving advice about staff who have had infection, they haven't been admitted as patients, they've been in isolation at home with their infection, and consequently the belief is that the severity of their infection is therefore lower, and that the likelihood of the duration of infectivity post infection is therefore less.

So, if there's a person who has been admitted in hospital with a more severe infection that the period after the infection, when they're still infectious is longer. So I think that's why, in general, we would want to give advice to staff that seven days, provided that they've become asymptomatic, provided that they've not got a fever in the last 48 hours is a reasonable timeframe that the Nature paid papers suggested that day eight and then later, they weren't culturing virus. So, that's my understanding.

39:00 Hilary Humphreys

Anybody else want to comment on that?

39:03 Marin Kiernan

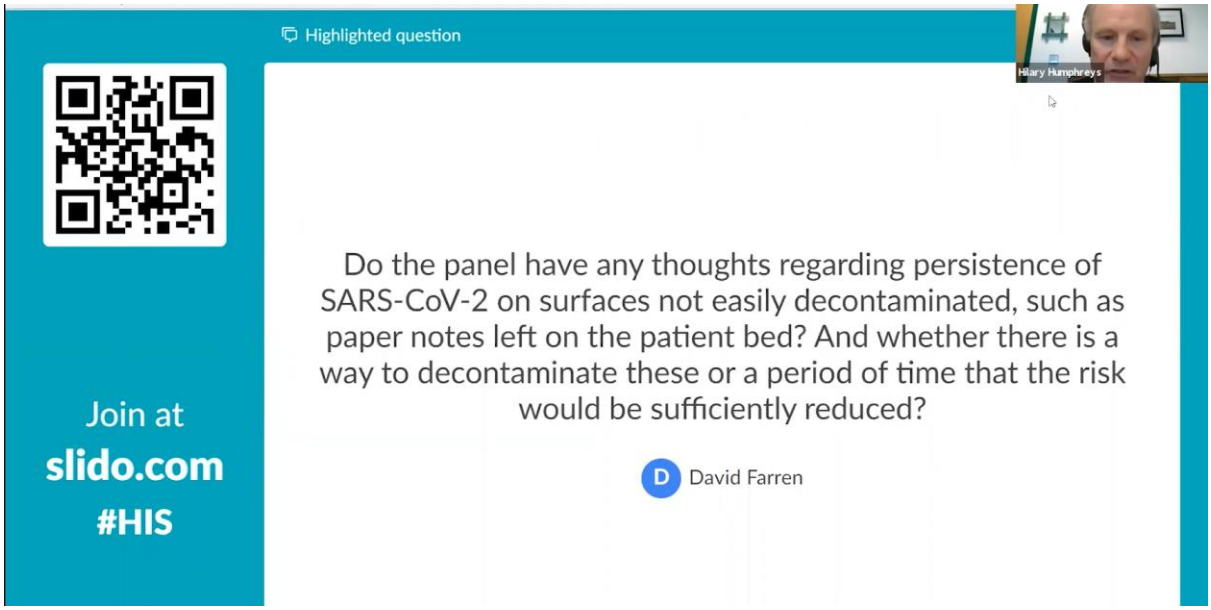
I'm quite interested in this topic, because we have people here for example at the Nightingale who've been on the ventilator for three - four weeks. So they've been ill some time ago, and then they deteriorated and came to hospital, and they've been ventilated for three, four weeks, and we're still doing full barrier precautions - FFP3 etc etc using enormous amounts of PPE, and how infectious really are these folk now and what is the transmission risk? How can we have a de-escalation from, you know, from that level of PPE guideline? Or is there any way we could produce something? Because I dread to think how much PPE has been used in that area where maybe there are other areas in hospital where you might be able to use a gown, or something like that if you're running out if you're short PPE here, and some have been retested they're negative, but, everyone's in an ITU. So, we still got to keep up with the PPE level. So because if that's something that science can tell us from this outbreak about what is reasonable - and how we could get that message over staff I think would be an interesting topic to look at.

40:12 Hilary Humphreys

Okay, if there's one final question on that, and I'll take it otherwise we might move on today.

Okay, so we've covered the eight questions that were submitted in advance and I thank the panel members for their interesting comments and advice, and Richard Cunningham who has been going through the questions that have come in, while we've been on air, and we're going to produce those questions, and go through them.

So, and the first question is:



Is there anybody would like to go with this before I ask somebody actually?

40:56 Peter Hoffman

It's very difficult to translate laboratory experiments to real life. It's not just the fragility of the microbe that's important in these persistence observations, is also the medium that surrounds them. A lot of laboratory work with this would be done in viral culture medium, which is fairly low protein level. So there's very little buffering to dehydration around the virus. People tend to produce the virus in far higher protein content medium. So the virus will probably survive better, but of the little work that's been done on coronaviruses (not just COVID) it's probably around about five days. But, again, a caution on that. Viruses don't just trot along for five days, and then all die at once. There's a steady diminution, so it's a decreasing chance of survivors. And I would think that adding a generous time onto something like patient notes before they could be considered safe would be wise. There's no great knowledge base on this, probably the better approach is to take precautions for quite a long time before they could be considered to be non-hazardous.

42:50 Martin Kiernan

I can give you the approach we have adopted here. We were putting notes into bags for 14 days, which we think is reasonable. I was a bit nervous about actually sealing the bag absolutely shut because then you don't get the evaporation effect that may help. But one thing I do get nervous about is people saying "okay, we can shut the place down for 14 days, the patients are all gone and we don't need to worry about that". But actually, there's plenty of other things we do need to worry about because it's almost like people seem to forget that other infections are happening and, and the COVID is the only game in town. So we've had people going in wearing the full PPE the full FFP3 - the gown the gloves - and then forgetting to change these, and to decontaminate the hands effectively when they're going to deal with an IV line or the urinary catheter. And we've had to get a really strong message out that your base layer, when you've gone to go in, this PPE just protects me and not the patient. We know we have to keep reinforcing that message because we've seen other healthcare associated infections that are potentially quite avoidable. So, it (SARs-CoV-2) will die off half the time we're not dealing with

something really tough. It's not a spore that's going to hang around forever. So, making a reasonable position, but not forgetting the other organisms we still want to get rid of.

44:07 Hilary Humphreys

Okay, a quick comment from Chris before we move on to the next question.

44:10 Chris Settle

My concern over this area of how long is COVID viable on different surfaces, is that we're not in an environment in a hospital or care setting where we expect the environment to be sterile. We know that if we interact with the environment, we need to clean our hands. So I don't really fully understand with this particular organism, apart from many others, that we suddenly need to start putting stuff in bags for how many days, and worrying about the fact that there may be some contamination on some notes or a pan or whatever. Because it still boils down to infection prevention and control using the normal protective measures that are available to us, which is protection against, getting yourself contaminated and where you're using hands or whatever you wash those before you then interact with another patient or yourself.

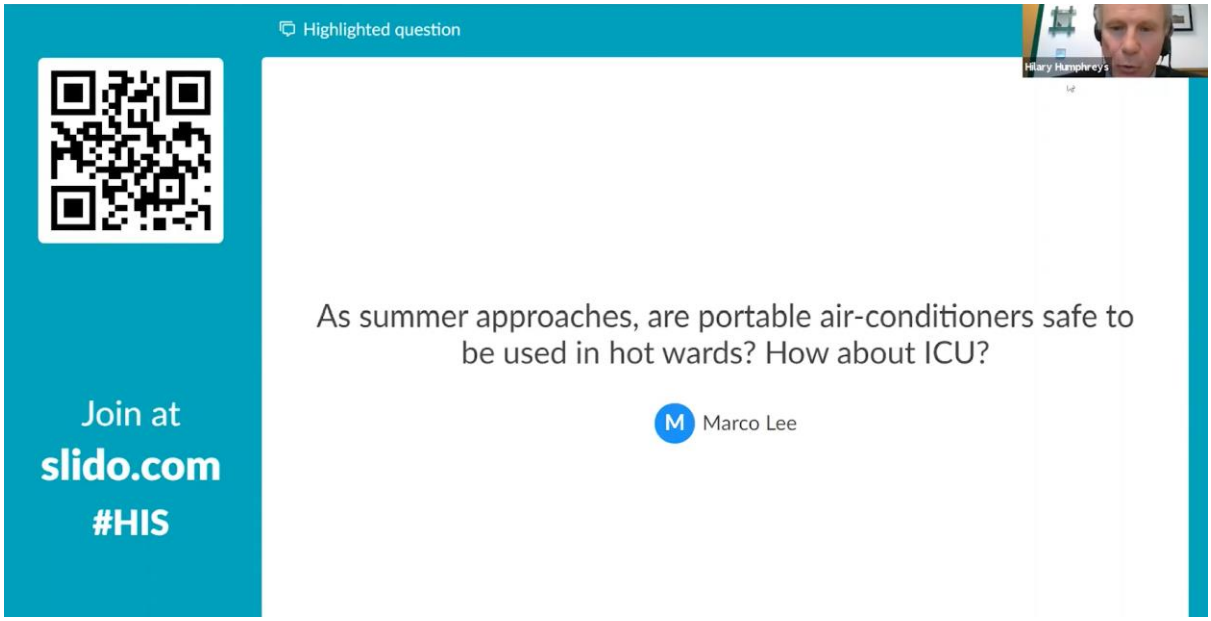
And if you just follow those principles and didn't worry so much about whether our uniforms infected when we're going home, whether the seats of our cars infected when we're going home. You know, it's driving people mad is this, they're all you get people who are undressing outside their houses, putting their mail in the oven. It really, it's just gone insane. And I don't think it's justified.

45:35 Martin Kiernan

I suppose everybody seems to be an expert now in infection control, who won't be particularly expert in the future. It's not their field, yet they feel quite happy to do this. Eli Perencevich said to me: "I've eaten cheese all my life - I wouldn't consider myself to be an expert".

45:50 Hilary Humphreys

Okay, and thank you for that maybe we move on to the next question that's come in to us while we've been live.



Who'd like to take this?

46:09 Peter Hoffman

Portable Air Conditioners work by taking air from a space, passing it over a heat exchanger, which has cold coolant running through it. So they remove it….

<lost connection>

as we get into summer staff wearing lots of occlusive PPE, and they need to be kept cool. I can't see a COVID problem with using portable air coolers, or split system air coolers, that are already in place.

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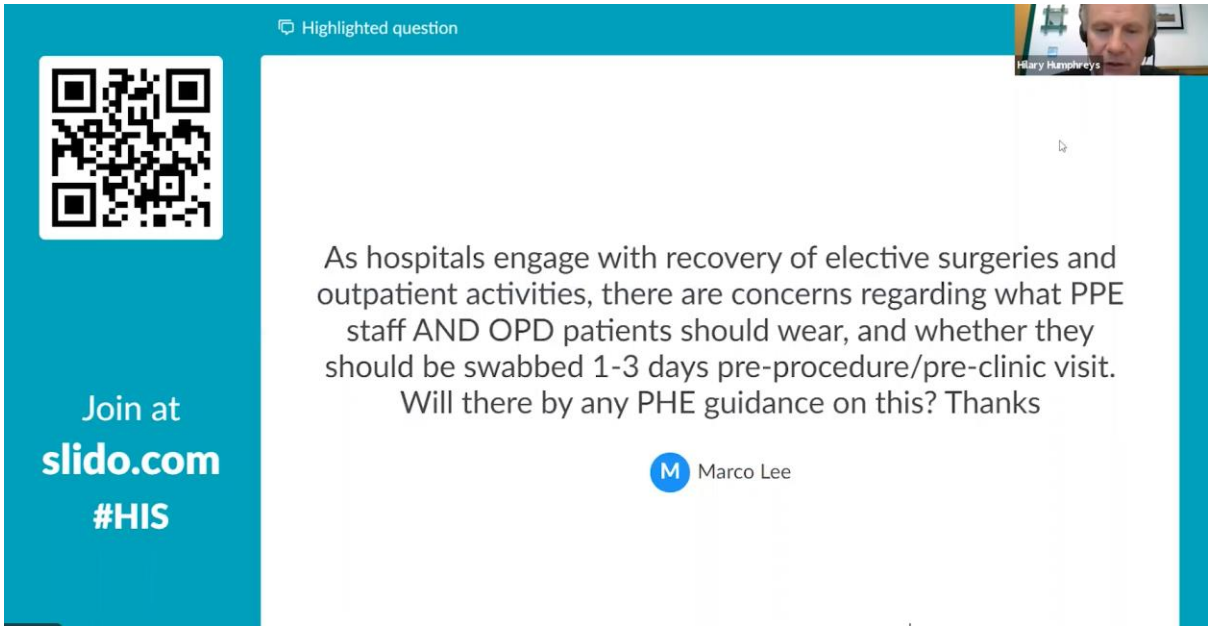
47:15 Hilary Humphreys

Anybody else want to comment on that? Okay, maybe if we can put up the next question please.



Yes, I think that's something that's coming up a lot for many of us. Do we have any volunteers to look at this one.

47:56 Peter Hoffman

Can I just make the point that the national guidance is not just PHE guidance, it's four nations guidance.

48:06 Hilary Humphreys

Okay. Anybody want to comment on this?

48:09 Chris Settle

I could say a couple of things about the situation that we're considering which is as the question that we are considering is asking about recovery phase. And we've moved away from high frequency COVID infections in our hospitals, we've got some space. We want to start doing some normal work, but we're in a slightly difficult situation where use of PPE is pretty much universal for all sorts of things including surgery in many cases, although not in every Trust, but certainly for anaesthetising patients, the additional PPE is indicated, and we're doing that universally, and at some point it seems logical to discontinue doing that universally, and to do it for those patients who you've got the most information to suggest they've got the infection. And, because that's a very small minority of the total number of patients.

Otherwise we just get into this loop of burning through enormous amounts of personal protective equipment, until well forever and forever from this point onwards until as, Martin points out maybe we introduced the use of reusable FFP3 masks universally in our hospitals that everyone has got, and then we get away from this disposable equipment being needed, and people arguing they want an FFP3 mask but they can't get one because they've got one in a bag at the side of them at all times.

And that's the position which I think we look towards reaching in some 12 months, or I don't know how long. But in the interim, it doesn't feel that it's sustainable just to use disposable PPE with FFP3 masks and gowns, for every single patient who's say going to surgery or having an endoscopy.

50:01 Hilary Humphreys

Cariad did you want to come in there I think?

50:05 Cariad Evans

Yes, I was just going to add to what Chris has said. If we're not going to change PPE guidance then what has also come along with this guidance is that we should be testing all of these patients 48 hours beforehand. We've talked about the issues of testing asymptomatics. But my concern is the actual practical reality of doing that. It's quite easy to come up with a recommendation 'screen everybody 48 hours before they come in', but they're all at home. How do you get packs out to them, can they take their own self swabs? How can they drop them off safely, can they get them to you in a timely fashion? You know the complexity - not everyone's got a car, not everyone can drop them off, you can't rely on posting them back in time. The complexity to the diagnostics, of a huge screening initiative for asymptomatic elective planned surgery and in my experience here it's been really, really hard and we've been working on it for weeks and still have many questions.

51:11 Hilary Humphreys

Anybody else want to comment on that?

51:16 Martin Kiernan

Just on the sampling yourself. We've been testing staff here and the staff were originally asked to take their own specimens and they're really terrible at it. And that's healthcare staff, who aren't used to taking that specimen but they just do it and they don't do it very well. So what chance of a patient doing that and giving us false assurance that the swab has been taken correctly, maybe, if you're going to do it you have to do it properly to make sure you get the right result or more chance of getting an accurate result.

51:48 Hilary Humphreys

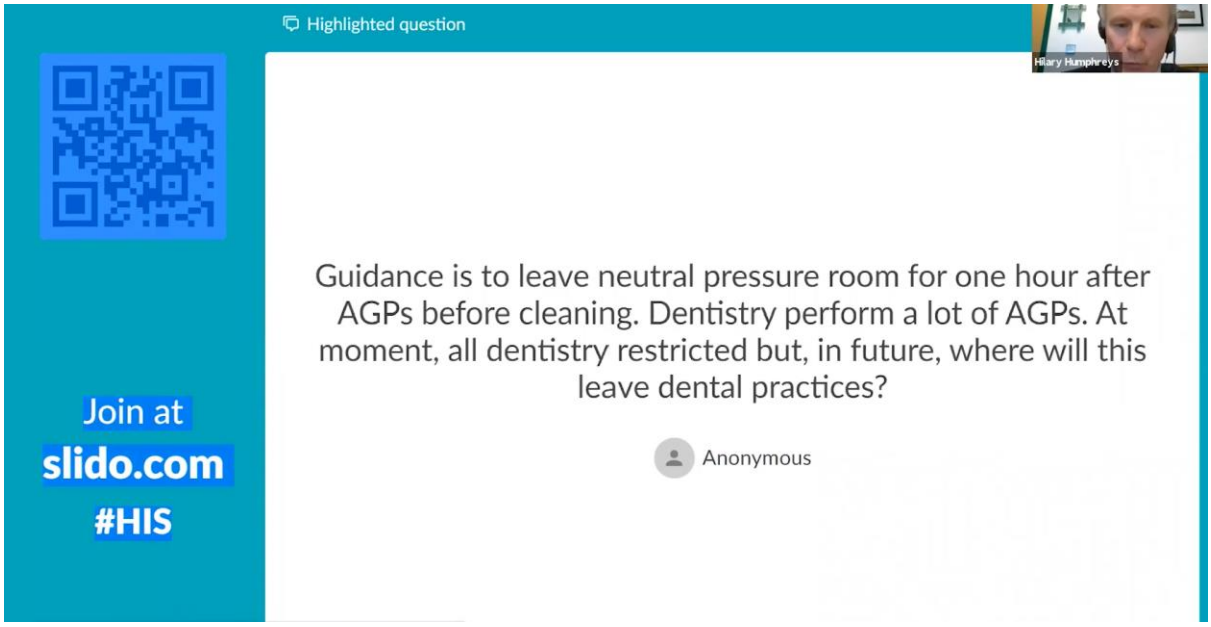
Okay. Shall we move on to the next question then. Okay, so we've had a request for Peter Hoffman to repeat what he said about coughing procedures, producing aerosols. And you remember, Peter in the context of that?

52:03 Peter Hoffman
I can. This was about do coughs and sneezes produce sufficient aerosol to be COVID infectious. Um, I think what I said was, along the lines of, it takes a lot of energy to break up self-cohesive respiratory

tract mucus to produce true aerosols. You get lots more splashes and droplets than you do aerosols, and the general consensus is that coughing does not produce sufficient aerosols to be COVID infectious.

52:53 Hilary Humphreys

All right, thank you for that and apologies that you were cut off earlier. Okay, so maybe we go to another question



53:25 Hilary Humphreys

Does anybody want to try to answer this question?

53:31 Peter Hoffman

I can start off, but I don't think it's going to be terribly conclusive.

So, there are a number of factors here.

It's not just the dilution of an aerosol within a room. It's the diffusion of a localised concentrated aerosol into the whole volume of the room, which is one dilution factor, then there are also various sizes within an aerosol will settle out. I think for 10 micron particle, which is where aerosols tend to start there tends to be the largest aerosol particle - will settle out at about, I think it's two metres, every 10 minutes, so there's going to be a loss there. I don't think that the guidance has yet focused in on that. I think an hour is probably a very generous time.

54:40 Hilary Humphreys

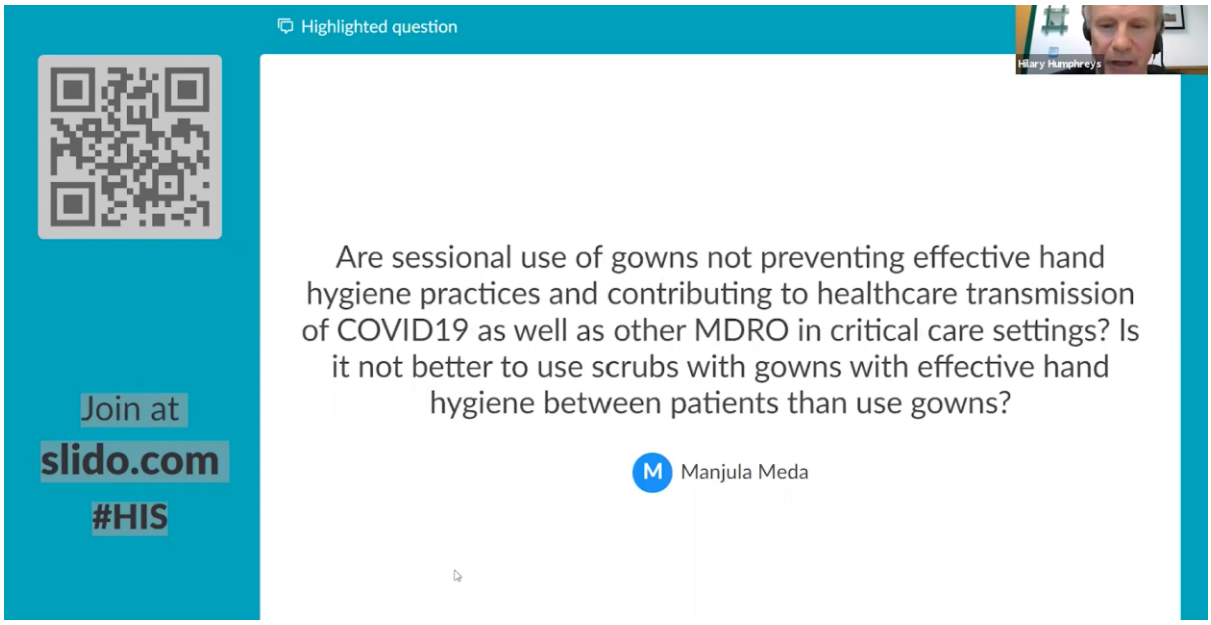
Okay. Anybody else want to comment on that? Before we might take our last question.

54:46 Chris Settle

Well, I think it does highlight this other aspect, which is presumably not all aerosol generating procedures or other procedures that might produce aerosols - are equal to each other in terms of the degree of aerosolization, and consequently the risk involved of going to clean after a given procedure will be dependent on that initial size of the generation of the aerosol, and obviously if we're going to move in the future, towards being able to run dental lists or other endoscopy's or other things of this nature. We aren't going to be able to slot in 20 minute breaks or one hour break between every single case. So, some at some stage, I think is going to need to be given guidance about how dangerous are the different potential AGPs, because that has to have an effect on deciding how long we might wait between one case and the next case.

56:10 Hilary Humphreys

Okay, maybe we just go to our, our final question and I think we've time maybe just one more, we can bring that up please.



Okay, good practical question and first of all I should thank all the attendees who have sent in questions - really good questions. Does anybody want to volunteer to look at this one?

56:32 Martin Kiernan

I'll kick off, we thought about sessional use of gowns, but trying to find somewhere to actually put them, and trying to doff in a way with not contaminating yourself anyway, and how you could store

it, and make sure that's your gown …and it just became too unwieldy to actually manage sessional use of gowns so we were using it per block of practice, because it just didn't seem feasible to us.

56:59 Chris Settle

Our experience of using a gown in, as Martin says a block of care is, and you've got different patients during that block of care. So you need to perform hand hygiene as Mandula mentions, and you can't, take off a pair of gloves and wash your hands, when you've got a long sleeve gown in the way and you can't move the gown out of the way and then contaminate your hands to move them back down after you've washed the hands.

The only solution we found to this in some of our care settings was the person wearing the gown and gloves, has two pairs of gloves on, and can then take one pair of gloves off. And with the gown still underneath the other pair of gloves can either decide to use some gel or some method of decontaminating those gloves, or simply just put a new pair of gloves over those first ones, but it's not very easy to do it in a, what we would call satisfactory infection prevention control style way.

58:08 Martin Kiernan

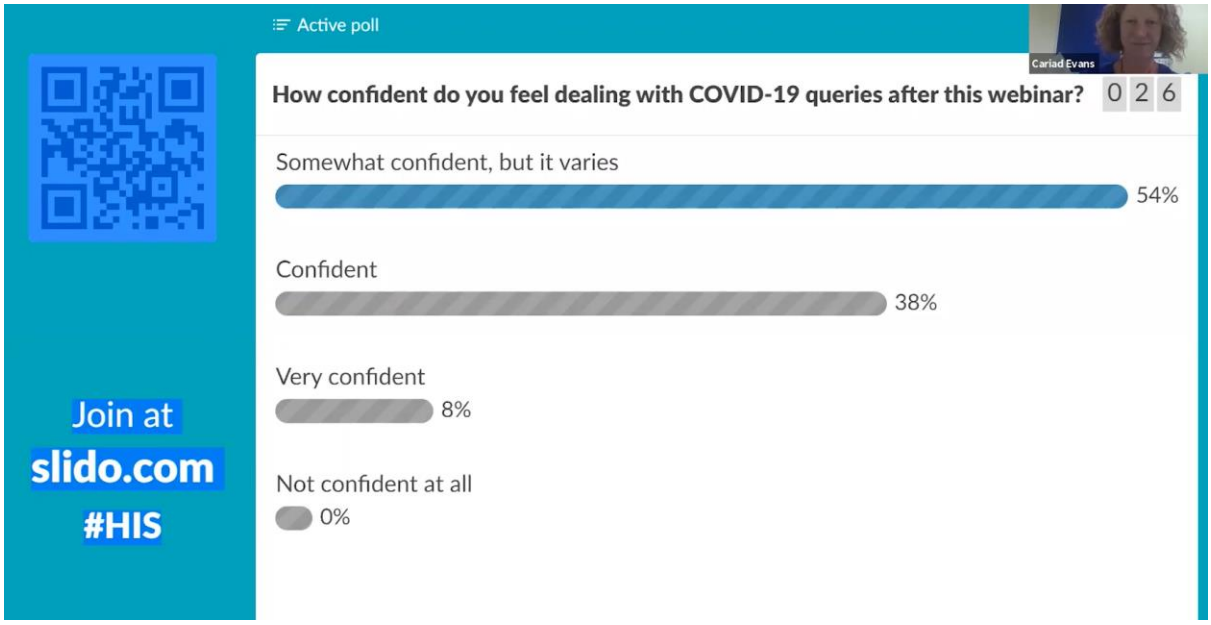
Picking up on that Chris, we had a fairly unique situation here (Nightingale Hospital London) in that we didn't have many sinks - it's only cold water - because at the end of the day we're an exhibition centre. So we took the view that when you put your first layer of PPE on, your gown and your gloves, its effectively your 'skin' and your normal uniform.

And then at the bedside you put on a plastic apron and a pair of nitrile gloves for a procedure, you would decontaminate the nitrile glove with the alcohol hand gel, and then take the glove off that so you're back to 'skin' and then put on a fresh pair when you're doing a new procedure. And we were gelling the glove and taking off because you don't want to contaminate the gown, or the glove underneath.

We did think about re-gelling the gloves, but there is some evidence that after a certain number of times like about 10, the glove material can deteriorate and we didn't feel confident that staff would count to 10 effectively and change those gloves, and then if you're going to wash your hands, you're going to wet the cuff. So we felt that was a pragmatic thing to do, getting people to do that because they were still going into the thinking that the base layer was their PPE when it wasn't really - it was their 'skin' was that was the challenging bit - but they did get it after a while.

59:13 Hilary Humphreys

Okay, thank you very much. I think we've just gone past the hour so just to let attendees know that there will be a recording of this webinar available, and we will also try to answer some of the outstanding questions that have not been answered to try and ask for more comprehensive information. Just as the next webinar will be on the 20th of May and focus on hospital or hospital acquired COVID-19, and again at the same time of details, that would be sent on. And I think before I thank everybody I think we might have a final poll do we.



Pretty good. Okay well that sounds like it's been helpful. So first of all, could I thank all our panel members who gave up their time both in advance of this webinar, but also during the webinar for sharing with us, their activity, and their knowledge and their views. And could I thank all the attendees who dialled in, and contributed to the polls as well as sending in really very interesting questions. Apologies for any of the technical issues such as went on to start, but I think they ironed themselves out at the end. And I'd also like to thank the staff of the Healthcare Infection Society particularly Adel who was behind the scenes doing a lot of work, as well as the Officers, and indeed the staff of the HIS and also to Richard Cunningham HIS Council member who was looking at the questions as they come in. So, I bring this to a close, and wish you a pleasant evening, and hope that you all stay safe. Thank you very much.