

## Draft guideline webinar - Rituals and behaviours in the operating theatre | 25 January 2023

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This webinar is a part of the external consultation process for the: [Rituals and behaviours in the operating theatre – the joint guidelines of Healthcare Infection Society and the European Society of Clinical Microbiology and Infectious Diseases \(ESCMID\) and its study group \(ESCMID Study Group for Nosocomial Infections \[ESGNI\]\)](#).

In advance of, and during, the webinar attendees had opportunity to ask questions to a panel who were involved in the guideline development and give their feedback on draft recommendations.

#### The panel:

- Professor Hilary Humphreys, Senior Clinical Educator, Royal College of Surgeons in Ireland; Chair of RBOT working party
- Professor Margreet Vos, Professor of Medical Microbiology, Erasmus MC University Medical Center, The Netherlands
- Professor Peter Wilson, Honorary Consultant Microbiologist University College London Hospitals
- Deborah Maria Xuereb, Senior Practice Nurse, Mater Dei Hospital, Malta and representing IPS
- Dr Aggie Bak, Researcher in Evidence Synthesis, Healthcare Infection Society

**Chair:** Joanna Walker, NHS Grampian

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**Jo Walker** 00:06

Good evening, everybody. Welcome. We're just giving time for people to link in. Thank you for joining us tonight for this draft guidelines webinar. Today we're focusing on rituals and behaviors in the operating theatre. These are the NICE accredited joint draft guidelines of the Healthcare Infection Society and the European Society of Clinical Microbiology and Infectious Diseases. And the ESCMID Study Group for Nosocomial Infections. This webinar is a fantastic opportunity to be able to invite you to contribute to the external consultation process for the draft guidelines, which is currently underway at the moment and due to complete on February the third and I'll give you more details on contributing to that process in just a minute. So, first of all, the draft guidelines themselves. These are looking at the activities and the behaviors of individuals present in operating theatres. And these behaviors have been adopted and relied on sometimes for decades as a means of managing and reducing risk of infection associated with surgery. So the aim of these current guidelines has been to review the evidence base for these accepted practices and to give advice on these and also to identify gaps in the evidence in our knowledge that will require future research. So we're really lucky tonight, we're being joined by an international webinar panel of all whom are members of the working party who've developed these draft guidelines so we'll be able to hear them discuss live tonight and understand their thoughts on the draft guideline. So can we start by introducing... inviting you all to introduce yourself and where you're from. Hilary.

**Hilary Humphreys** 01:58

Good evening. Thank you, Jo. Hilary Humphreys is my name. I'm Emeritus Professor of Clinical Microbiology in the Royal College of Surgeons in Ireland. based in Dublin, senior clinical educator and I have the pleasure of being a chair of the group.

**Jo Walker** 02:12

Great. And Margreet.

**Margreet Vos** 02:14

Thank you. I'm Margreet Vos. I'm a clinical microbiologist at Rotterdam, the Netherlands. And I'm the chair of the ESCMID Study Group on Nosocomial Infections.

**Jo Walker** 02:26

Peter.

**Peter Wilson** 02:28

I'm Peter Wilson. I'm a retired consultant microbiologist University College Hospital in London and professor of microbiology at UCL and I'm a member of this group. Thank you.

**Jo Walker** 02:40

And Deborah.

**Deborah Xuereb** 02:43

I am I'm Debbie Xuereb. I'm a senior infection prevention nurse at Mater Dei Hospital in Malta. I'm also here representing the Infection Prevention Society.

**Jo Walker** 02:54

And Aggie

**Aggie Bak** 02:55

I'm Aggie Bak, I'm a Researcher in Evidence Synthesis here at HIS.

**Jo Walker** 03:04





Thank you very much, everyone. We're delighted to have you here tonight. And behind the cameras, we're very grateful also to have a fantastic producing team Bee, Helen, Moira and Kay at HIS headquarters in London. And I'm your chair tonight. My name is Jo Walker. I'm a doctor working in microbiology and infectious diseases in NHS Grampian in Scotland. So let's begin. Firstly, tonight I'm going to hand over to Hilary, our Working Party chair to introduce and explain more about the production of the guidelines. Give some background and context to the panel discussion before we then move on to considering some of your questions. So, thank you very much, Hilary.

**Hilary Humphreys** 03:42

Thank you, Jo. Okay, thank you very much. So I'm going to present for about five minutes just to give some background.

**Why was an update to the guideline needed?**

- **Last report was published in 2002. Since then:**
  - **New technologies emerged - some practices became redundant**
  - **New evidence suggests that some practices may be unnecessary**
  - **NICE accreditation: guideline process more robust and transparent**

So, an update was required since the last report was in 2002. And there have been many changes, new technologies, new methodologies, and of course, a NICE accreditation, which is the National Institute of Health and Care Excellence in the UK. Next slide, please.

**Terminology**

**Rituals**      **Actions & or behaviours regularly & usually followed**

**Behaviours**      **The way in which we conduct ourselves; how we respond**

**Document does not cover well established practises with solid evidence base, e.g. avoiding hypothermia, surgical antibiotic prophylaxis**

**Operating Theatre** = **complex, including anaesthetic room, corridor etc.**

**Operating Room** = **where surgery takes place**










So what we're talking here is about rituals and behaviours, actions or behaviours regularly and usually followed by the way in which we conduct ourselves, sometimes referred to as tradition or discipline. We don't cover, you know, issues which are well described and well reviewed, such as antibiotic prophylaxis or avoiding hyperglycemia. And in the document operating theatre refers to the complex, the corridors, the anesthetic room, etc. Whereas the operating room is actually where the surgery takes place. Next, please.

### Methodology





- Scoping 15 PICO questions (updates & some new)**
- Panel include microbiologists/infectious diseases, surgeons, operating theatre & IPC nurses, systematic reviewers, & two lay members**
- Systematic reviews included 91 studies**
- We appraised quality & quantity of evidence using GRADE system**
- Recommendations & Good Practice Points based on level of evidence, clinical experience, practicality & impact on patients**

So the methodology involved 15 PICO questions, which is Population, Intervention, Control and Outcomes, which were discussed and, what we had said back, us, the panel, includes a multidisciplinary group of microbiologist nurses, surgeons and so on. And we had two lay members. Systematic reviews were then undertaken with 91 studies. And we used the GRADE system which many of you will be familiar with, resulting in recommendations and good practice points. Next slide please. So the GRADE system rates the quality of the evidence based upon the study design and particularly randomized and non randomized controlled trials the evidence is strong, but can be downgraded if the quality of that is poor. And other studies the evidence is considered weak but again can be upgraded depending on the quality and the characteristics of the study. Next slide please.

### Quality of the Evidence

- **GRADE System rates quality of evidence based on study design:**
  - **Randomised (& non-randomised) controlled trials: evidence is strong**
    - *Can be downgraded to moderate/weak/very weak if the quality is poor*
  - **Other designs (cohort studies, before-after studies, other): evidence is weak**
    - *Can be upgraded to moderate when certain criteria (volume, quality, consistency) are met*
    - *Can be downgraded to very weak if the quality is poor*

So our terminology is based upon the evidence so we used terms like 'provide' or 'offer' when the evidence was strong, and 'do not offer' when this evidence was weak and some recommendations have weak evidence, based on weak evidence. And then 'consider' when the evidence is moderate or weak. So, a lot of the questions that we looked at the evidence, you know, there's not a lot of scientific evidence, and that's the reason for this terminology. We included good practice points for those areas where there wasn't evidence for us to make a recommendation, but we felt it was important to comment, either based upon our experience, common sense, or what I call 'biological plausibility'. And I think these will hopefully be helpful too. Next slide please.

## Recommendations Reflect the Quality of Evidence

1. **'provide' or 'offer' when evidence was strong; 'do not offer' when strong evidence against the certain practice**
  - Some recommendations may have weak evidence but represent **what happens & what experts agree should happen** (e.g. thorough cleaning)
2. **'consider' used when evidence moderate/weak but the intervention may be beneficial sometimes; "conditional recommendation".**

### 'Good Practice Points'

When evidence is very weak or no evidence with no recommendation possible; based on **expert opinion & clinical experience**

So the questions cover an operating cleanliness, blood splashes. Next slide, please.

- Q1 a) Does operating theatre cleanliness/disinfection have any effect on surgical site infection (SSI)?**  
**b) How important is operating theatre cleanliness outside the sterile field?**

**Q2 If blood splashes and other forms of contamination with body fluids occur, can they be a source of infection?**

**Q3 Does bringing in beds & associated linen from wards & other clinical areas into the operating theatre result in increased bacterial counts or increased infection post-operatively?**

**Q4 a) Does the order in which patients are operated on, i.e. contaminated/infected patients at the end of a list, reduce post-operative infections?**

**b) Should these patients recover separately from other patients before going to a ward?**

Bringing beds into the operating theatre and whether it results in increased bacterial counts, the order in which patients are operated upon. I'll come back to that as an example later. Next slide please.

**Q5. What is the clinical effectiveness of pre-operative showering/bathing before elective surgical procedures using 1) Non-disinfectant bath/shower 2) Disinfectant bath/shower?**

**Q6 What is the most effective preoperative skin antiseptic? Existing NICE Guidelines**

**Q7 a) Should surgical instruments be laid up (unpacked and exposed) as close as possible to use?**

**b) Should surgical instruments used in ultraclean ventilated theatre procedures be laid up under the canopy or in a prep room?**

**Q8 What is the most effective surgical scrub procedure for scrub staff? Existing NICE Guidelines**


What's the clinical effectiveness of preoperative showering, preoperative skin antiseptic, which are already covered by NICE guidelines, surgical instruments being laid up, and then the most effective surgical scrub procedure. Next slide, please.

**Q9 Does the movement of theatre staff in and out of the operating room impact on air counts of bacteria & infection rates?**

**Q10 Should the surgical team remove jewellery before entering the operating theatre facilities?**

**Q11 a) Should staff cover their hair?**

**Q12 What is the impact of wearing operating room theatre outside the operating theatre complex?**




Issues about the movement of theatre staff and what impact that has, should the surgical team remove jewellery before entering the operation theatre, staff covering their hair. What's the impact of wearing operating theatre attire outside the operating theatre? Next slide please.

**Q13 Should patients remove jewellery, false nails, nail polish before being brought into the operating theatre?**

**Q14 Should patients cover their hair before entering the operating theatre facilities?**

**Q15 a) What should parents/carers/accompanying person wear when accompanying the patient to the operating theatre?**  
**b) Do patients or other individuals dressed in ordinary (street) clothes in the operating theatre result in increased bacterial counts or increased infection post-operatively?**



Should patients remove jewellery, false nails and polish before being brought into the operating theatre? Should patients cover their hair? And finally, what should patients, carers accompanying the person wear when they're in the operating theatre or indeed in the operating room? Next slide please.


**Example of One PICO**

**Q4 a) Does the order in which patients are operated on, i.e. contaminated/infected patients at the end of a list, reduce post-operative infections?**  
**b) Should these patients recover separately from other patients before going to a ward?**

- **Evidence (a)**
- **Meta-analysis of two retrospective cohort studies found no difference in SSI for patients after infected patients. Considered very weak evidence (against)**
- **One case series reported 1/35 patients acquiring infection from a preceding case. Considered evidence very weak (against)**

**Our rationale**

- **If theatre adequately cleaned & disinfected between patients, infection status does not impact on order of list**



So I'm gonna give you one example of that, which is PICO number four. Does the order in which patients are operated on, contaminated or infectious, such as patients with MRSA, at the end of the list, reduce postoperative infections? And secondly, should these patients recover separately from other patients before going to a ward? So the evidence for... for Part A there was a meta-analysis of retrospective cohort studies saw no difference in surgical site infection (or SSI) for patients after infected patient so considered very weak evidence against this. One case series reported one of the 35 patients but it was very circumstantial, and it wasn't backed up by genomic studies. So, rationale was if the theatre is adequately cleaned and disinfected, between patients and ventilation is working, infectious patients do not impact on the order of the list. Next, please.

**Evidence (b)**

- No studies





**Our Rationale**  
if patient on contact precautions in ward, maintain in theatre/recovery in separate area

**Recommendations**

**4.1: No need to place contaminated/infected patients at end of operating list if operating room sufficiently cleaned & disinfected between patients, & the theatre ventilation continuously running**

**Good practice point**

**GPP 4.1: Allow patients on isolation/contact precautions to recover in the operating room or in a designated section of the recovery area**

So, the second question, there were no studies and again our rationale was, there was nothing in the literature. So, our rationale was if the patient is on contact care precautions on the ward, maintain those in theatre or in a separate area of the recovery area. So overall, then a recommendation was no need to place contaminated/infected patients at the end of an operation list, if the operating room is functioning correctly, and there's a decontamination between patients. And the good practice point was 'allow patients on isolation contact precautions to recover in the operating room before going back directly to the ward or in a designated section of the recovery area. Next slide please. So what we're really very interested in... in having from you and from others is feedback on the guidelines by the third of February and the link is there for you to... to use and then the feedback is provided to the email that's in the bottom of that slide. Thank you very much. And I'll hand back to Jo.

**Jo Walker 08:46**

Thank you, Hilary. So now I've said tonight, we've invited our participants to pre-submit some questions and for the first part of the webinar, the panel will discuss these. Then in the last part, the panel will be able to answer your live questions that have been submitted tonight. So please, as you're watching, you're very welcome to put down any questions or comments you have for the panel and can do this using the Slido app. So you download Slido and use the event code hash and HIS to submit the questions and comments. And you can also like questions there that have been submitted by other people so we can prioritize the most popular questions, comments, etc. to be answered. And then the panel answers as many as there's time for in the last part. It's also worth saying that we'll keep a record of the Slido text so it can be reviewed as part of the consultation process. And also as a quick reminder, once the webinar is over, remember, for those of you interested in giving further contributions to the draft guidelines consultation, you go to guidance under consultation on the HIS website, resources and guidelines section and you'll find details as Hilary was talking about by emailing into consultations@his.org.uk.







And I'll remind you about those details again later. So let's move on to our panel discussion. And let's start with the first question. So question one.

So Aggie, I think you are going to lead on this if you're happy.

**Question 1:**

What is the status of Good Practice Points compared to Recommendations? Some may disregard them and consider them as optional, and or of little significance.

MANAGING INFECTIONS  
PROMOTING SCIENCEESGNI  
ESCMID STUDY GROUP  
FOR NOSOCOMIAL INFECTIONS  
European Society of Clinical Microbiology and Infectious Diseases

**Aggie Bak** 10:43

Thank you. So the main difference between recommendations and good practice points is that recommendations are based on evidence and good practice points are essentially made when there is no evidence or there's very little evidence and when the working party decided to sort of make a conditional recommendation on something that they think should be happening in practice based on either their experience or biological plausibility. So it could be seen as something optional, but then in a way this is this is still something somebody's essentially saying this is probably what you should be doing.

**Jo Walker** 11:31

That's great. Does anybody wants to add anything to that?

**Peter Wilson** 11:35

I think the good practice points so are born out of many years experience. It used to be that guidelines were almost entirely good practice points. But now of course we have guidelines with an enormous infrastructure to analyzing the literature, but they're are still good, still a good place for these practice points where the literature is lacking. And sadly in infection control, that's quite a lot of the time.

**Jo Walker** 12:10

Okay, let's move on to the next question. The next question: Is the advice under good practice points in PICO five, not very weak? Are we really saying that patients can come to the operating room dirty and perhaps unwashed for some days? Okay, so Deborah, are you happy to lead on this?

## Question 2:

Is the advice under good practice points in PICO 5 not very weak? Are we really saying that patients can come to the operating room dirty and perhaps unwashed for some days?



### Deborah Xuereb 12:39

Yes, can you hear me okay? So in PICO five, we looked at the clinical effectiveness of pre-op showering and using either soap, plain soap, or disinfectant soap such as chlorhexidine. And pre-showering is commonly used as a way of reducing transient microorganisms which can potentially enter the surgical wound. And essentially we make no recommendation as there was no evidence supporting the use of plain or disinfectant soap as a measure to reduce SSI risk. However, we do say, with the good practice recommendation and practice points, and we say the patient should be encouraged to wash on the eve or the day of surgery. But if the patient cannot physically shower, that should not kind of be imposed on the patient. And we should also remember that skin antisepsis in the operating room will still happen at the incision site. So, this would also remove any microorganisms that the site.

### Jo Walker 13:57

Okay. Aggie, as well you were going to follow in maybe with...

### Aggie Bak 14:04

Yes. I think it's also worth pointing out that this is specifically a shower before... a night before or on a day of the surgery. That has nothing to do with decolonization, which is.. which has been shown to be working for certain types of patients, but this is completely different. This is this is a much longer regime, usually accompanied by some other treatment as well. And I think it's also important to point out the evidence that if antimicrobial agents don't work, then normal showers probably are not going to work either.

### Peter Wilson 14:43

Yeah. I mean, there are other reasons for showering of course, and if the patient, just for aesthetic reasons, may prefer to do that. And to be clean on going into the theatre. And it is well recognized that there is always a spike of Staph aureus infections in very hot weather. We've seen, with the temperatures of 40 in UK this summer, in some areas, you've got a spike of infections. So it's a reasonable precaution, if not supported by the evidence.

### Hilary Humphreys 15:20

I think one other comment I would make is compared to the previous set of guidelines. I think there's a general feeling that hospitals and operating theatres are under greater pressure. So I think anywhere

where the evidence isn't there and there isn't, you know, very good reasons otherwise, we should be trying to facilitate the quick and efficient movement of patients, you know, into and out of the operating theatre as much as possible.

**Jo Walker** 15:47

Okay. Are we happy? Shall we move on to the next question? So, question number three: does unnecessary theatre staff movement not increase air bacterial counts? This is in PICO nine. And if so, should the guideline not be stronger in advising against this? The opening of doors and staff coming in and out of operating places during surgical procedure procedures is quite common and should be strongly discouraged. Okay, so, Peter, are you happy to lead on this one?

### Question 3:

Does unnecessary theatre staff movement not increase air bacterial counts (PICO 9), and if so, should the guideline not be stronger in advising against this. The opening of doors and staff coming in and out of operating theatres during surgical procedures is quite common and should be strongly discouraged.



**Peter Wilson** 16:24

Yeah. This is actually quite a complex question. We've certainly, over the last 20 years, I'm sure, advised against people coming in and out of the theatre as much as possible. But that's not simply because of a risk of infection. It's... the evidence is relatively weak even now even on reviewing the evidence since the last guidelines in 2002. The evidence is quite weak. There are some studies that suggest there may be an increase in surgical site infection when you've got a very high number of door openings. There are other studies that suggest well that the numbers of organisms may increase. But there there's equipoise upon a lot of the literature so there's a lot of negative studies there as well. What it... what it seems to be is it's the length of time that doors are open are probably the most important factor and the number of people coming into the theatre. So every unnecessary person in the theatre who doesn't really need to be there is a source of bacteria, and potentially would increase the numbers of airborne bacteria over the wound if they're adjacent to the table. So it is good practice to keep the number of people in the theatre to the minimum. There's also evidence that if you have a crowded theatre, behavior is going to be affected. If people are continually coming in and out, the operator may be distracted. There'll be people talking, they won't be concentrating on the procedure. So a calm, quiet environment for the surgical procedure is... is optimal. And finally, a lot of these studies are done in a variety of ventilatory apparatus. So, ultraclean-air theatres have such a high throughput there, that really you wouldn't expect the opening of peripheral doors to have much effect. But turb... in turbulent ventilated theatres, it then depends on how good that ventilation is and how susceptible that ventilation is to door openings. Is it as good when the door is open as when it is closed? Clearly in most cases it is not. So it's not... it's not a very dogmatic answer, I'm afraid. But this is based on good practice, good behavior, and a calm, peaceful environment of the theatre.

**Jo Walker** 19:15

That's brilliant. That's very helpful. I don't know if anybody... Certainly in the UK, this is a big concern. I'm not sure in other countries whether there's different practice in terms of coming in and out of the theatre, certainly very common practice in in the UK.

**Deborah Xuereb** 19:37

Same. The same in my country.

**Margreet Vos** 19:39

I think that here a number of years... about 10 years ago we added it to a bundle in the Netherlands, to minimize door openings. So, there were some studies on the effects on surgical site infection but because there was a bundle of about five components, we really could not measure the effect of only this measure. And it's also plausible explanation that they would open the door, you disturb, of course, the flow of the air and contaminated air from the corridor can enter the operation room because of the high air change per hour. You can imagine this disturbance by particles, even microorganisms in the air. They'll be diluted quite rapidly. So the effects may, wheather there should be effect the effects will be minimal. But again, it's the behavior, the corridors, all the people coming in and out with their own microorganisms. So maybe we should keep it to a minimum, the door opening. I agree with that. I think it will be difficult to... to have any studies on just studying the effect of door opening itself.

**Peter Wilson** 21:05

Yeah, I think it's when the door opening is accompanied by somebody coming into the theatre, standing next to the patient, who doesn't really need to be there. I think that's important. I agree. And the worst thing I've seen is a surgeon poking his head round the door, unscrubbed, to talk to somebody in the theatre. That, really, is behaviorally a bad thing.

**Margreet Vos** 21:29

Yeah, I usually prefer not just the door opening from... Don't focus on the door opening itself but focus on who is entering the operating room and if needed.

**Jo Walker** 21:45

Okay, that's great. Let's move on to the next question. So, question four: Is it not better to simply insist that if the staff just leave the theatre complex, they don fresh scrubs/theatre attire on returning? So that's PICO 12. Okay. So, Margreet, are you happy to lead on this one?

#### **Question 4:**

Is it not better to simply insist that if theatre staff leave the theatre complex, they don fresh scrubs/theatre attire, on returning (PICO 12)?

**Margreet Vos** 22:15

And again, the answer of this PICO, there was not much evidence and the evidence there is, is quite mixed. There were some studies done which showed the reason. To summarize there's a trend towards protection of the attire when it's covered with a gown. So, there have been experimental studies on just measuring bacterial count on the gown covered or not covered and that a covered gown is better compared to the one not covered. But then the question comes from should you cover when you leave the operating room? And then, of course, an important question, what are you going to do? Are you going into the canteen or doing some administration or are going to visit patients in the ICU with infections? And that makes us wonder that it's important to know what they're going to do? And then then again it's difficult to comply to change, so when you say you have to change your attire when you leave the operating room, it is difficult to measure and to ask people to do that. Then comes the idea that they just cover or you can go outside room and come back because they did not find a proven effect on surgical site infections increased by that. So when you say you can cover or you can just go in and out, then you will see every surgeon or staff from the operation feature going everywhere. From outside to the ICU, to the canteen etc. It's difficult and it's also a matter of behavior. And it's also a matter of, that we know that gowns are going to be contaminated more when you wear them for a longer time or you also wear them on places with more bacteria and especially virulent bacteria. So we came up with the clean, good practice point that you should change or cover your attire, and footwear. If you leave the operation theatre complex with the intention to return. So then it comes to the question on how are you going to implement this? In Rotterdam we found the solution to just say because they are everywhere in the surgeons scrubs within the hospital, and we say we only want to see you in scrubs outside the operation complex when you are either running because there is an emergency. Or you are, for instance, discharging patients from daycare because the patients want to see the surgeon, so that's allowed with the covering of your attire and then go back to the operation complex. But you are not allowed to be seen with covered attire in the canteen, administration buildings and so on. Although these are the best ways to be to become contaminated. And but also you are not allowed to be seen on ICU or general ward doing some visits with other patients. Because that's not an emergency case. Therefore our hospital does this, so maybe that's a suggestion for you.

**Jo Walker** 26:12

Yeah, it's an interesting thing, because often a lot of the complaints are people being seen in cafeterias in their lunch hours or whatever. But from the discussion, that's not necessarily the highest risk place that you might be wearing scrubs in the hospital to bring back to the theatre.

**Margreet Vos** 26:33

The canteen is better than the ICU of course, but also we didn't find any evidence on the increase of surgical site infections for this PICO, it is biologically plausible that if you go with your attire to the ICU, visit the patient and then come back and do clean procedure that doesn't feel very good. So that by the good practice points to cover but it's difficult and you have to have a look at your own hospital on how to deal with whatever you're going to do and what you are going to ask from the staff.

**Jo Walker** 27:17

Aggie am I right, were you going to come in as well on this question.

**Aggie Bak** 27:21

Yes, so I think it's actually quite interesting to report on the types of studies that we found and I think one important finding was that nobody actually reported on surgical site infections or even contamination of the theatre. So it is essentially a speculation on whether whatever you find on surgical

attire is going to influence surgical site infections as well. And I think another thing that came out from the studies was that the compliance was really difficult to achieve. So even though a lot of studies have said, we found no difference on whether somebody is going out and coming back and operating in the same attire, considering the people in a group that was supposed to cover up or change haven't exactly followed the procedure like they were supposed to, we can't really say that there is really no effect because we could actually see that there was a contamination of the data essentially. And it's really difficult to make inferences if we know that somebody wasn't complying with the intervention. And we think that might have had some kind of an impact as well.

**Jo Walker** 28:47

It is interesting when you start really looking at the evidence that we actually have. Does anybody else want to come in on that or should we move on to the next question? Okay, let's move on. So question five.

### Question 5:

Recommendation 10.1 says: 'do not allow scrubbed staff to wear jewellery below the elbow' This may be difficult to implement across the board. Other infection control guidelines allow a plain wedding band. Can you explain why this recommendation was made?



Recommendation 10.1 says, Do not allow scrubbed staff to wear jewellery below the elbow. This may be difficult to implement across the board. Other infection control guidelines allow a plain wedding band can you explain why this recommendation was made? And, Peter, you were going to lead on this one. Thank you.

**Peter Wilson** 29:30

Yeah. So this is another case of the evidence being weak unfortunately. Clearly, if you've got jewellery, it's going to be difficult to effectively scrub that area of your finger, because the small pockets within the jewellery are difficult to penetrate. Also the area between the skin and the piece of jewellery has been demonstrated to harbor higher numbers of bacteria than are present on this superficial skin. You could I suppose have a plain wedding band when you do the scrub, move it down and then move it back up again and then make sure you scrub. But that is really difficult for people to remember to do. It is much safer to remove the jewellery if you can. The other problem is that jewellery particularly larger rings represented risk of perforation of the glove. So then an easy route for organisms to get through a hole in the glove to your skin flora and then back out again through the same hole and into the wound and that clearly does happen. As to enforcement, well yes, of course that is difficult. But I think the point is that anybody wearing jewellery cannot appropriately decontaminate their arms and

their hands and therefore there is a potential biologically plausible, increased risk of infection. But the evidence as I say is weak unfortunately. We do see increased numbers of organisms underneath the jewellery. I think the plain wedding band is a compromise because a lot of people cannot remove their plain wedding bands. So, there, it's not problem with perforation, but it is important that you scrub the surface as best you can underneath.

**Jo Walker** 31:46

In the working party, I remember discussions surrounding the importance of plain wedding band versus for other people other items of jewellery again, that wasn't easy necessarily to remove wristbands etc. What is the situation outside the UK? Is it common for this surrounding a single wedding band as a discussion or is it much more strict?

**Margreet Vos** 32:20

I think in every country, this is a discussion for especially the wedding rings. But they also decided there are no jewellery - so including wedding rings - allowed, just take a solution for yourself, if you are working in the operation theatre and you have a wedding ring and it's too tight, whatever. So we solved this issue, because otherwise it's going to return every day. So, it's no jewellery without exceptions.

**Peter Wilson** 32:56

so it's like artificial nails do, again, cause concern, but there's very little evidence. They do increase the numbers of organisms on the skin and therefore as a potential risk of increasing infection. Fortunately, relatively few people would consider wearing artificial nails in the theatre environment. But, there's a... piercings. Piercings are usually elsewhere on the body, and of course are a source of infection, but usually will not affect the surgical field so their risk is pretty minimal.

**Jo Walker** 33:41

Aggie were you going to add to this

**Aggie Bak** 33:45

Yes, again, evidence is very weak but nonetheless showed that there have been outbreaks because of wedding bands, therefore the preference would be that they shouldn't be worn, because if it happened, even once, even if it doesn't happen very often, it could occur again.

**Jo Walker** 34:12

Okay, I was gonna, I was gonna just check with you, Deborah. Is... is it a similar situation in Malta? I'm assuming it's the same.

**Deborah Xuereb** 34:22

I would say our major issue is relating to artificial nails or gel nails. As they seem to be quite popular in Malta. And I would say that's okay if the evidence might be not so strong, but in this case, we err on the side of caution towards the patient's benefit and we still would agree not to have them, also relating to the length of the nails. For general anyone with artificial nails would want to have them quite long. And this could compromise, as Peter said, the gloves as well. So, yeah, it's one of our major issues, I would say rather than wedding bands.

**Jo Walker** 35:17

Okay, thank you for that. If we're happy with that one, should we move on to the next question? So, question six. If we only asked theatre staff to wear a face mask and hair covers ,i.e., have caps hood in

the operating room and not throughout the operating theatre complex. We will have staff coming into the operating room without either as they will forget to don these first if asked to come into the operating room at short notice? So Margreet are you happy to talk on this one?

### Question 6:

If we only ask theatre staff to wear facemasks and hair covers, i.e. hats/caps/hoods in the operating room (PICO 11) and not throughout the operating theatre complex, we will have staff coming in to the operating room without either as they will forget to don these first, if asked to come in to the operating room at short notice.



**Margreet Vos** 35:57

Well, that's an interesting question. In the working party we discussed wearing face masks and hair caps. For the person present in the operation room itself and discussion is about outside the operation room. So in the complex. Let's first go back to the effect of wearing headcoverings or not and the effect on the surgical site infection and we couldn't find any evidence on that. So there are no studies. But there are some studies that showed that contamination is higher or it's plausible that there was contamination when you are not covering your head vs wearing a headcovering. So there was an experimental study, also shows some difference in contamination between the control including areas versus a disposable cap and you see the more you cover, the lower the bacteria counts, spreading from your head so that's some that it's plausible and you can understand. So that's about the cap. The effect of face masks there is more evidence on that. So there are nine studies and two of the studies reported benefits in wearing face masks. And seven of nine studies also show that when you're not wearing masks, you have more contamination in that experiment, which was not as outcomes surgical site infection. We had a case control study on cataract surgical site infection and quite high odds ratios, by more than three. Significant... and when the surgeon did not wear a face mask. There was also a meta analysis and the odds ratio returned back to one, not significant. So the effect of wearing face masks even on surgical site infection it's not clear and the evidence is weak or whatever. So we decided to say that our recommendation is that ensure that all staff working in operational room to wear a headcovering in the face mask in accordance with local policies and that's also given by in one room that all people wear the same. And this question is about should you then also wear it outside the room, so more people wearing for longer periods, and then now for me personally it comes on what are you going to ask these people working all day where they work wearing hat and mask, just to be sure that they will work to the ideal rationale. I'm not sure about that if it works. Maybe for the headcover, yes maybe, but for the mask is more difficult. And then I'm not talking about the COVID-19, because that was a different situation of course, but just to prevent surgical site infection, and I'm not sure about that. But in the working group it's not a recommendation, it's good practice points to ensure that you wear a headcover and a face mask in the operation room. So that I'm not sure you should ask the people to wear it in the complex for all day for many people working to improve the compliance. I'm happy to hear the view of other people on this difficult point.



**Jo Walker** 40:15

Do others have views or experience, thoughts on this?

**Peter Wilson** 40:20

I think it's much the same as when when you're in an infectious disease ward or you're going in and out of single rooms where there are infected patients. You wouldn't continue wearing your mask throughout the corridor. When you're going back in again. You'd be changing it. I think it's the same argument. It's the risk of carrying organisms from one environment to the next environment by means of your PPE.

**Margreet Vos** 40:51

Yeah, and also there is a risk for people wearing masks for too long a period. Getting that that's also an issue to take into account and also they will get under their mouth all day and then put it on to do the surgery. So there are all things will change in the behavior itself. As for the effects of spreading particles and microorganisms, I should not do that for them. During the operation procedure, yes. But when you're walking in other rooms of the complex than operation room itself, that makes no sense because the air is filtered through the operation room and then there'll be diluted in other rooms of the operation theatre. So it's not because of the contamination of the air. That's not an issue. It is difficult to ask many people to wear all the PPE and then you're going to say it's 'because I want you to comply with that, I'm asking you to wear it all day long'? I think it's too much.

**Jo Walker** 42:21

Okay. If no one wants to add on to that, let's go on to the next question. So, question seven.

### Question 7:

Despite the suggestion that there is no need to have the contaminated/infected patients last on the list (PICO 4), many surgeons may prefer to continue leaving until the last case. Should infection prevention and control practitioners contest this?

Despite the suggestion that there's no need to have the contaminated infected patients last on the list, which is PICO four, many surgeons may prefer to continue leaving until the last case. Should infection prevention control practitioners contest this? So Hilary, are you happy to talk on this one?

**Hilary Humphreys** 42:57

Sure. So this was the question, the PICO question that I gave us an example in the presentation and we went through the evidence, which wasn't suggesting that that was necessary. And if we just go back a

little bit and think about what recommendations are, they're basically advice based upon evidence. And you can decide not to comply with the evidence in two ways, you can decide not to do something that you should do, or you can decide to do something in addition, that is not necessarily based on the evidence. So an example of the first might be you know, we recommend that the skin that the operative site be prepared with disinfectant before the first incision. So clearly, if somebody decided not to comply with that, that would be a major transgression from what would be accepted in evidence based practice. In this situation, however, we're not talking about that we're talking about a precaution in addition to all the other precautions that are taken in the operating theatre, that the evidence doesn't seem to suggest is necessary above and beyond what we already do in the operating theatre. And what we're saying is that from issues of patients flow to the operating theatre and efficiency, it's not necessary to have these patients last on the list. I can understand intuitively that many surgeons might say well, even though I can operate on these patients in the middle of my list, I still prefer to leave them until the end of the list. And I think, you know, that's an understandable reaction, and it's not as if it's deleterious to the patient, unless the patient needs urgent surgery. And what it does do I think, and some surgeons may decide, I'm gonna stick with what I'm doing. However, what I think it does do is says to the surgeon, that when he or she can put the patient last on the list if there is an emergency or there's for some other reason, there has to be a patient on contact precautions in the middle of the list. He or she can take some reassurance from the recommendation, that there's no evidence to suggest that they're compromising the outcome and welfare of that patient by not putting them at the end of the list. So this is an example where some may decide to go beyond what the recommendations are. Even though there may be issues of logistics in terms of the operation theatre, so I personally, I don't think I would contest it. I would explain the evidence the rationale for it, but if the surgeon still wanted to leave his or her patients in these categories at the end of the list, I would leave it at that. I don't know whether others on the panel would agree or not.

**Peter Wilson** 45:37

I certainly think that it's logistically easier to have mixed lists, so not to keep those patients at the end of the list. You got to have a smoother running of the list. And you could argue that a smooth and efficient running of the list maybe is more important. If an infected patient such as that is left to the end of the list, of course the operators will be more tired and more likely to make mistakes anyway. So I think it's acceptable to pursue either path. But it does rely on the importance of cleaning the area between the patient, at least the high contact place.

**Deborah Xuereb** 46:27

I think this would be welcomed in an our setting, especially given that the only operating theatre is available on the island. And it's a very busy operating room. So I'm sure this will be welcomed from our end. And also I agree with you Peter about the duration of the surgery. So some of these patients would require you know quite long surgeries, and we've had requests for them to be done first on the list. So again, we always emphasise on the taking time to clean after these cases rather than anything else. So I'm sure this will be welcome from our side.

**Jo Walker** 47:31

Ok, so I am just going to give a quick reminder and we'll move on to a slido question that has come through live but the reminder in terms of taking part in the consultation draft guidelines consultation. If you go to guidance under consultation on the HIS website, the resources and guidelines section. And you'll find details about emailing into [consultations@his.org.uk](mailto:consultations@his.org.uk) with a quick reminder that the closing date is Friday February the third (3 February 2023). Okay, so shall we have a quick look at one of the live questions that has come through from slido: So UCV theatre use. Some specialties outside of

orthopedics feel UCV equals cleaner, safer operating conditions. However UCV isn't without risk, including drying and temperature control, do the group have a view on this? So I'm not sure does anybody happy to start on this? It's slightly outside the guidelines, draft guidelines.

**Hilary Humphreys** 48:59

I'll make a stab at it if you like as a starter, maybe others. So again, this was not one of the PICO questions that we reviewed and because we felt there were others that we should do so, there's been a big discussion about this particular topic in recent years, and really the view is split. So if you go back to the Regional Medical Research Council and multicentre trials in the early 80s, they were very sophisticated at the time but the suggestion has been said that really when you give antibiotic prophylaxis that you actually may negate the benefit of ultra-clean ventilation theatres. Even though you know, there was very good data looking at the bacterial counts in the theatre at the time, suggesting a link between lower bacterial counts and surgical site infection. And the suggestion was made that this is not necessary from data from the New Zealand registry and then from the KISS surveillance data in Germany and from others. But a couple of things to be said about all of this, number one is that ultra clean ventilated theaters differ quite a lot in terms of their specifications from country to country and if you have an ultra clean ventilated canopy, that is actually very small, you may not have the full operative team actually under the canopy. Secondly, sometimes the instruments, we covered that instruments should be opened immediately before rather than left open. Sometimes the instruments may be not under the canopy and they may be contaminated before they're used on the patient. It is true that there are deleterious effects of course these are expensive to build and expensive to maintain. There also may be drying and hypothermia issues. Certainly they become standard practice in many countries and orthopedic surgeons are very clear in their minds that they are necessary. I think it's a very difficult one to judge. I mean, I think intuitively, again, on the basis of biological plausibility, there is an argument that if they're used correctly, either according to the right specifications that they can reduce prosthetic joint infections down to an irreducible minimum. You know, so you can make a case either way, but I still believe that if they're used correctly and appropriately, they do give you added benefit. I'm happy to hear other views.

**Peter Wilson** 51:17

I mean, the WHO guidelines went into quite a lot of detail and did not actually find in favor of UCV at all. I think you're right that, and certainly I've come across quite a number of places, where these UCV canopies are being put in retrofitted where the actual size of the operating theatre is far too small for a proper useful canopy. But because they're there, the surgeons feel that they are protected and they feel that everything is safe and they don't need to worry about anything else, including the disinfection and their technique sometimes, so it can give a false sense of security. I think it is... it is a difficult one. I'm not sure that the vast expense of these is fully justified. But sadly we are not going to win the argument while all the professional bodies say, especially the orthopedic professional bodies, say no you must put in use UCV. What I wouldn't do though is start to say well it should be used for other types of surgery. I think that is a retrograde step not necessary. But this is all personal opinion because of course this was not part of our remit. I mean, just to come in there before those ones come in. I think that one way I mean it would be I've always thought that there's a lot of data that you could mine or analyse if we all collected similar data across countries and across situations. So it may be that if you look at the different specifications of the theatre, how they're used and the practices, you might see what are those circumstances where it may not contribute. Now that would require multicentere observational, if you like surveillance, I don't think you're ever going to be able to do a repeat of the randomised control trials that were done. But I do think sometimes we could we could actually learn

more from our surveillance data, if we did it in a more systematic way, and particularly if we did it across centres and indeed across countries.

**Margreet Vos** 53:38

Yes, I fully agree with this and with surveillance we have a shared discussion also. Either you want to follow all the evidence that is there, but orthopaedics are quite convinced that you should use a laminar flow, so UCV, in our guidelines there was an exception only for prosthetic during surgery, but this question wasn't about what do you think for other procedures than orthopaedic surgery, and I should say they will see all the evidence, meta analysis the data from Berlin and other data and it is cleaner air on the side of the operating room. But it's the behaviour that disturbs the quality of the air and I think that it is together with the attitude to me. Well, I think it's still difficult but it's quite difficult to have a study on this because that also you should see and try to find out whether it's an endogenous or exogenous infection because we are here talking about prevention of exogenous infections by the air from the staff through the environment to take that into account as well by doing such a study.

**Peter Wilson** 55:14

With a prosthetic any prosthesis in a wound of course, the numbers of organisms that have to land on that prosthesis to cause an infection are far less than you would if the prosthesis was not present. So I think it's the rationale behind the ultra clean canopies is going to be much more difficult to shift when you're dealing with prosthetic implants. But in anything else, or particularly where it's going to be endogenous flora, clearly the ventilation is going to have much less of an effect. So I don't think it's worth the investment and the difficulties in maintaining these theatres for the vast majority of operations.

**Jo Walker** 56:06

Okay, I think that's probably about all we have time for now. So if we wrap up I just want to thank everybody on our panel for joining the web webinar. Thank you very much, Hilary, Aggie, Margreet, Deborah and Peter for sharing your thoughts on these draft guidelines. It's been really valuable. I don't know if anybody has anything that they would like to add as we finish this point?

**Hilary Humphreys** 56:43

Maybe I just might make a comment just to thank everybody who has or will provide us with feedback. It's really very important. I'd also like to thank all the members of the working party for their input and it was challenging at times due to the pandemic and yet people engaged with this and I would particularly to thank Aggie for all the work that she did in terms of the literature and so on. We're not quite finished yet, but I hope we're getting there. And so we really look forward to and welcome feedback. Thank you.

**Jo Walker** 57:14

That's great and as we're showing on the slide at the moment, just as a reminder of where to go in order to join into this external consultation process. I'd like to also finish by thanking very much are his producing team Bee, Helen, Moira and Kay from HIS headquarters in London, and I wish everyone a good evening and hope you're able to join us for future webinars. And remember, the recording of this webinar will be available soon on the HIS website and thank you very much everyone. And goodbye.

**Thank you for watching**

**If you have any other questions or comments, please:**

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