00:00:03  
*R:* Yes, so as you know, I've been recording the different cleaning methods of laproscopic instruments in places in India. And the aim of this is that we can design a more effective cleaning method, more effective cleaning solutions that are safer for both the patient and staff. So it's easier to clean instruments, but also it's more effective way of cleaning.

00:00:45  
*R:* Basically the first question is if you could introduce yourself.

00:00:49  
*S:* My name is Nandakumar and I'm the general surgeon working here for the last 30 years.

00:00:56  
*R:* And actually, the first question I had is that I have been talking with Many. And we've talked about cleaning of laparoscopic instruments. And so what we find or what he told me was that they're first rinsed with water and disinfected with bleach powder, then rinsed and cleaned with soap powder and then put into Cidex. So could you. But do you agree with that, that that is the cleaning process?

00:01:31  
*S:* Yes, that is the process now.

00:01:57  
*S:* If the person is that HIV or hepatitis positive then it's kept in bleaching powder for 24 hours. So we always do those last. We don't have a separate (unintelligible), so we use that. We leave it for 24 hours.

00:02:14  
*R:* Right.

00:02:16  
*R:* So this process. Why do you think they're cleaned like that in terms of your workflow, instrument availability and cost.

00:02:25  
*S:* I'm sorry. What?

00:02:26  
*R:* Why these instruments cleaned in this process and not a different method?

00:02:37  
*S:* Yeah, this is a technique taught us by the people who supplied the instruments. From the olympus company.

00:02:43  
*R:* OK. Do they also recommend Formalin chambers?

00:02:54  
*S:* Are you talking about the endoscope?

00:02:57  
*R:* No the laparoscopic equipment.

00:02:57  
*S:* Ah laparoscopic equipment.

00:02:57  
*S:* Yes we keep them in the formalin chambers. They came in and said that this would be adequate. So we bought these chambers, put in the formalin tables, and to put all the instruments in there.

00:03:27  
*R:* Did they specifically say not too steam sterilize that equipment?

00:03:32  
*S:* I don't think that's. As far as I can remember there's also discussion of steam sterilisation. I mean, we didn't do it. The other thing that you've mentioned, although as you point out, the instrument actually that the telescope is autoclaveable.

00:03:48  
*R:* And that is the reason the reason why are you choose Cidex and not some other solution?

00:03:53  
*S:* We use Cidex and we that was a good agent. We also use it for endoscopy, across the board.

00:04:05  
*R:* And are you satisfied with this method of cleaning?

00:04:09  
*S:* So far, I don't think there are any problems.

00:04:11  
*R:* OK. And it doesn't cause any risk for a patient or staff.

00:04:16  
*S:* No

00:04:29  
*R:* Are you aware of things you could improve in the system?

00:04:34  
*R:* Not really. Once we started, we just kept doing the same thing. Because we don't run into any problems, so we don't see any (big) change unless someone points out this is an improvement or something we could do better and simpler and less expensive.

00:04:49  
*R:* And also in terms of speed

00:04:53  
*S:* Speed, that's important because we need to wait between the cases so that since we only have one scope, that actually would be useful if it could to some degree be shortened.

00:05:18  
*S:* Yeah. So between the moment the case is over it's cleaned and put into cidex, waiting for the next case and used 20 to 30 minutes in Cidex.

00:05:27  
*R:* Yeah.

00:05:29  
*S:* That's what that's what we're doing. So if there's something quicker than that, that would be great. But actually it takes 30 minutes anyway for the room to be cleaned and the new patient is brought in and so on. So and by the time they need the instruments, 30 minutes is okay. So if its a less expensive method, that'll be ok.

00:05:54  
*R:* Right now, it seems like you have one set of laparoscopic instruments.

00:05:58  
*S:* Yeah, yeah,

00:06:10  
*R:* One way of making it faster is if you would keep the cidex at a slightly higher temperature. So if it's at thirty five degrees, the soaking time is decreased from twenty minutes to I think six.

00:06:58  
*R:* Another thing is, we were talking bleaching powder just now.

00:07:05  
*S:* It's not ideal. We're supposed to be using sodium hypoc. But it's much more expensive. So we're using bleach powder with Surf.

00:07:16  
*R:* Yeah, I think even sodium hypochlorite and bleaching powder, they're both no longer recommended by actually everyone. It's because they're corrosive to instruments. Yeah, they cause pitting.

00:07:29  
*S:* So what is used?

00:07:34  
*R:* Actually, the whole disinfecting step is skipped. Instead what you should do is have suitable cleaning clothing for staff. So that you have like long waterproof aprons, thick gloves. And you keep it directly and you clean all of the equipment directly.

00:08:01  
*S:* We've been using bleaching powder all through the hospital for all the instruments to make sure that it's a very simple way of killing the bacteria. They're soaked, after we use our instruments we have a dish of bleaching powder and we put it in. And that really helps. Most of the surgical instruments that we use are not very good instruments so it doesn't really matter. But if this does cause problems... Because the only thing with bleaching powder is that it has some particles. But sodium hypochlorite is a liquid. But you're saying it could damage the instruments?

00:08:42  
*R:* You get small pits in the instruments. So they're small pits. They cause a build up of material. So they become more difficult to clean. So it's actually bad for the whole life of your instruments.

00:09:08  
*S:* Because what happens is that we need to treat them with something so that the people are using it, that are actually doing the cleaning Are not affected by this.

00:09:20  
*R:* And so why not look into appropriate clothing for people that clean the instruments?

00:09:26  
*S:* Because the same person has to put it on, take it off. It's going to be time consuming to do all that stuff. If you can have some other chemical which is not so corrosive, it might be quicker to do all this because you see, he's he's involved with endoscopy also. And we have a set of OR clothes. Then you need to have something else put on to go into the operating room. And then taken off again, it's going to take time. Everything is basically right there (points at the OT area).

00:09:54  
*R:* So even even a waterproof apron and thick gloves and a mask.So so that you just put over your clothes.

00:10:01  
*R:* Not going to happen

00:10:01  
*R:* No?

00:10:01  
*S:* From a practical point of view, it would be difficult

00:10:06  
*R:* Because in fact that's also recommended for working with Cidex.

00:10:10  
*S:* Cidex also?

00:10:10  
*R:* Cidex is. Even the fumes can be quite damaging to staff.

00:10:20  
*S:* I haven't notices it causing any fumes. I mean, because we stand right next to the Cidex when we do the cleaning.

00:10:26  
*R:* Cidex is odorless. Cidex is not something that you smell because it's an odorless liquid. But so the fumes coming off, it can be quite.

00:10:42  
*S:* Formalin that's for sure. But the Cidex.. So how are you to prevent that unless you have some kind of charcoal mask? You're not going to prevent. An ordinary mask is not going to prevent it. It's going to go right through.

00:11:03  
*R:* With Cidex, yes, that would be quite complicated.

00:11:11  
*S:* But that doesn't make any sense to me. Anywhere in the world it's not going to go through an N95 mask.

00:11:25  
*R:* Well, in other places where Cidex is used, in Europe it is used in endoscope reprocessing. And then you have like a whole separate unit to handle the Cidex. You don't touch it, the fumesew are taken away.

00:11:39  
*S:* Exactly. That'll make sense. But how are you going to duplicate that here?

00:11:42  
*R:* Yes that will be difficult.

00:11:57  
*S:* For one thing, we can put a fan in such a way that the fan blows the fumes away. A small table fan. At least that will prevent you from breathing it directly. As they do the cleaning.

00:12:17  
*R:* I don't know if it's a problem because again you have indicators for Cidex fumes. So you have these badges you can hang on the wall that change colour if the concentration in the air is too high. So I don't even know it's a problem if you just keep a tray around here.

00:12:34  
*S:* We don't have airconditioned rooms. We have a fan. So it's not like this is a closed space. It's not an AC closed hall like in the Netherlands. Here you have nice fresh air. So the air will blow off. So. But the point is that it's important for us to make sure that we don't start sniffing it and be as close as possible.

00:13:01  
*R:* The idea that the other thing is that if you're reach into the Cidex. Cidex has to be rich rinsed properly off the instruments, before you use it on the patient. But a lot of times. I don't see the gloves being changed when they reach into Cidex, then rinsing.

00:13:17  
*S:* We use discardable gloves. But we use disposable gloves.

00:13:24  
*R:* But do you discard the gloves after they touch the Cidex?

00:13:27  
*S:* Yeah.

00:13:27  
*R:* So you take it off and then

00:13:29  
*S:* yeah. After they do the cleaning and you finish that. You discard the gloves and dispose the gloves.

00:13:33  
*R:* OK.

00:13:34  
*S:* Now we don't use the thick rubber gloves. We use regular gloves to clean. The regular varieties that are not sterile but clean gloves. OK.

00:13:45  
*R:* Ok, that makes a big difference.

00:13:54  
*R:* Last question I had was actually about a laparoscopic instrument. Which is another project. But if you don't perform laparoscopic surgery, do you?

00:14:04  
*S:* I was trained in it. But after coming here. I didn't get involved.

00:14:09  
*R:* So I might do the other project that I'm working on is the design of a reusable vessel sealer. So like a replacement for a ligasure.

00:14:18  
*S:* I don't know much more about that.

00:14:21  
*R:* OK. Then I'll leave this.

00:14:23  
*S:* I am an open surgeon. We have what we called insurgents. Surgeons will come in and perform surgery.

00:14:38  
*R:* OK. That was it. Thanks.

00:15:58  
*R:* I hope the results meetings something to you

00:16:00  
*S:* Yeah, yeah, yeah, yeah. They help you. Yeah. Definitely. And if you design something, you want to check it over here, you're welcome.

00:16:06  
*R:* Okay. Thanks.

00:16:07  
*S:* if you design something and maybe you can give it to us when you finish up.

00:16:13  
*R:* So I've been working on a few instruments as well. It's always difficult to visit as an academic setting. You design something new, something before our ethics review lets us test it. In surgery. It's like a multi-year process before you get that done. And dr. Gnanaraj has been asking me to design a very simple retractor system.

00:16:39  
*R:* What we want, since you've been going round the country. If you can tell us a cheap ultrasound ultrasonic cleaner. We may be keen on buying because we've been looking at something and I was not convinced that they were good. And up to the standards because I don't have any experience. And the one that that I know of, with a compressor. We were using one. But then that goes out of business. So I hope you can get your hands on. You look at the companies that come out, I'm not sure. In India, a lot goes by word of mouth. You know, if someone says, they have been using it, and it's good, that it's worthwhile. But if you find something like that, you can just send me an e-mail. Yeah, something which is fairly decent that you can buy. Because that's going to cut our work time a lot. You know, cleaning would be so much easier with that thing.

00:17:26  
*R:* So that would actually be one improvement to the cleaning that you could imagine.

00:17:30  
*S:* Definitely. Definitely Because I like you, you could see the particles coming off.

00:17:37  
*R:* While I was at a conference once where they had one, I put my glasses in. There's like this whole cloud of black smoke just drifted off my glasses. Yeah.

00:17:46  
*S:* With instruments you can see the flakes of blood. Right. Blood all coming off it. Yeah. So, the only thing that worried me was that if it shook it so much that it would get loose inside. But they actually would have some moving parts in it.

00:18:03  
*R:* Only scopes you might be worried about that.

00:18:08  
*S:* Yeah. Yeah. With all this glass that could get shaken loose.

00:18:13  
*S:* Yeah. I'd be most definitely help. I haven't gotten involved. But nevertheless I think it's a good investment. Because when the surgeons come we do have a lot of cases. Great fact, thank you. Thank you.