Surgical Site Infection: A Surgeon’s Perspective

Presented by Ren yu Zhan, 60-minute Webinar, 03-27-2014

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Hello and welcome to the surgical site infection, a surgeon's perspective. At this time all participants are in a listen only mode. (Operator Instructions).

Alan, you may begin.

Hello, I am Alan and I work out of the state of Nevada and it is our pleasure to be hosting this presentation for today and I wanted to introduce our speaker Doctor Ren yu Zhang MD hails from the East Coast, he graduated from the University of Rochester with engineering and biology majors he then went on to earn his medical degree and dentistry tricky completed his surgery training at Strong Memorial Hospital and spent a year and fellowship research in Cleveland clinic focusing on sick outcomes. Research projects were presented at various national conferences. It concludes -- it included colorectal training in 2010. Is published in peer review journals, abstract, book chapters and numerous poster presentations. It is our pleasure to turn this over to Doctor Ren yu Zhang MD.

Ren yu Zhan:

Hello. Give very much for the introduction. I am a colorectal surgeon practicing in Las Vegas and I finished medical school 2003 and there's a lot of fear practicing them sure most of you listening who have more experience in our than I have been to my training and practice, if the topic says here it's a surgeon's perspective, it's a young surgeons for Spector and how I observed in the old or the how we do -- do a surgical site infections. I'm sure many of you have more insights and more knowledge about surgical site infections so by repeating something that's obvious or if you have questions feel free to let me know. We will go through the topic and every talk goes through epidemiology, it's an operative teachers and 2010 in United States were looking at almost two% of the procedures to have infections. It does account to one third of healthcare associated infections. With every surgical infection leads to further morbidity and mortality in its acute economic. Some people is studied and easy wound infection can increase the cost and the 200,000 range per incident. The approach for the surgical site infection is really a team approach and just like that cartoon says. It's an elephant and everyone looks at different perspectives. We look at our own silos, we have surge old -- surgeons, pharmacies, wound care team, patient input look at it we have to the team approach to address this issue otherwise we are all working and not seeing the big picture. Would classification classifies clean, clean contaminated, contaminated them attorney infected. We all know that. As we expected, as the classification goes from clean to dirty there is increase of wound infection and wound infections should be superficial versus deep. From the surgical perspective what can we do to decrease the wound infection. I break it
down to four aspects there's a preop aspect in truck operably, postoperatively and demonstrated intervention. Preop -- preop we have bowel prep, diabetic sugar control, nutritional supplement and even showers. Intra- op the surgeon to do care removal skin prep antibiotic body temperature and carbohydrate loading and postop we can dressing, do use Adreian are not use a drink and administrative intervention is about the disclosure to database outcome being available to the public. Let's talk about the preop bowel prep. One of the things I found on the article is they say we practice medicine with tradition against scientific evidence and that's a very good description of bowel prep. There are different types of bowel trap. With mechanical prep we have the nickel prep we have people with the Mayor Alex prep and all different kinds of prep. Overall there have been studies showing visit increased trend of surgical site infection with a bowel prep. There are some studies showing there is no difference between bowel prep bowel prep patients and there is increase in wound infections but know city shows with a bowel prep it decreases the wound infection. There is a good amount of the study and I think I have the slides in there to show that bowel prep does not decrease load infection. However, there are a lot of surgeons practicing with a bowel prep and you can see can see the subgroup analysis, leaks, overall mortality and there is -- there is no showing that bowel prep if not better why do we still do it. Edition. Surgery is tradition based practice. We have been taught this down from the ages and that's how we do it so that's how we do it. If that person is taught to use a bowel prep and are constantly using it. The other one is ease of bowel handling. Obviously when you have a colon. It's harder to manipulate versus a colon that empty. These are very subjective measures for the surgeon and operators that never capture the actual studies in these objective grandmothers. Ease of bowel handling ethnically make the difference for the surgeon and some surgeons just like a bowel prep beforehand. The other thing is ability to pass a stability device especially for [ Indiscernible ] that's passing through that in this up to the front. And if the person has retained his stool in the rectal stump it's hard to pass that up we have to do the scope or a flexible sigmoid scope to remove the stool. With no stool in their having a bowel prep is easier to pass the stapling. The other thing we have to worry about is the studies are all done in patients with polyps and cancer. With people's emergency surgery or obstructive symptoms there are never any studies that show that. They are cautioned against using and extrapolating this information onto the emergency/obstructive symptoms. The reason being emergency surgery would typically these people had issues and they have. Curial stasis just like obstructive things, the stool has been there for a while, there somewhat septic, there's bacteria translocation so there. Check -- that bacterial load in their body is somewhat different from a person electively coming from home. The thought process is they are a little pre-septic he for the surgery so without bowel prep it's would be different however, people with obstructive symptoms you cannot bowel prep them and they have to station the colon with bacterial location and that will give them a higher accomplish Tatian rate overall including the surgical site so you can't extrapolate the rigorous study on to patients.

Personally, I still do the bowel prep on all my patients at even though I've been to many lectures and journal clubs but I still do the bowel prep and I have to say that my practice is on sound scientific evidence. Everything we can do it the diabetic control is the diabetic control before the surgery. Studies have shown that did be blood sugar control is helpful. There's ample study showing cardio surgery if you can have blood sugar control that will decrease the external wound infection in decrease of the postop complications. Right now there is a pendulum swinging from very [ Indiscernible ] control and go to the other extreme. Some people advocating that blood sugar should be kept it one h
hurry -- 130 to 180 and some people want blood sugar less than when 20. When things that I noticed in my hospital are there is going to be a device coming out shortly called intra-op continuous blood sugar monitoring. You can monitor the blood sugar continuously as opposed to right now you get low plug sugar checked before the old are and then you get one into optimally and then you get one check -- checked postoperatively. If you have the patient and they do on the surgery any check the plug sugar and you're all my goodness 250 in you call someone and they give you insolent but the duration of the surgeon the person could still be hypoglycemia and there will be problems with infection. If it's truly that devices? , I think quick to help us a lot and I'm sure Medicare is quick to have another new guideline coming out that we have to have tighter control. And that we all know blood sugar control is there a transient [Indiscernible] factor in there's a long-term factor which is hemoglobin A-1 see. Hemoglobin A-1 see is a correlation on how good the blood sugar control is there a study showing that if you can keep and if you have that HbA1C up 7.5 in a hurry to repair patient the hernia if the HbA1C is about 7.5. At some centers like the of excellent out there like the old Washington DC they actually see the patient electively before surgery than they actually have the patient goes the diabetic control person they typically don't schedule -- their goal is not schedule elective surgery until there -- hemoglobin A-1 see of less than three points very -- zero. Obesity, BMI over 50 increase infection and I don't think we need to go to detail on that.

Nutrition. A study has shown the Sentinel study which is the VA study in they look at people with postop complications and they look at multi-variables in the only parameter that came down if a woman. If you have elements 3.0 above surgery complications rate is lower if it is less than 3.0 typically 2.3 we -- is the number we is a surgery you look increase of complication. This is only for elective patient coming in. If the patient has been in for long period of time that numbers not useful because of all the IV fluid and meds we give. At that time we used pre-L Bowman of the circuit of Alderman. For peoples could electors surgery coming in you at some time ever Tatian to have them have element above 3.0. That the team coach -- team approach, and the patient and the team have to work together. One way to do it it's have the patient see a dietitian he for the surgery and talk about what is a good weight to do it nutritional tuneup. The other way to do this some people recommend to Duke five days of fish oil intake before the surgery and load up on those nutritional factors and that will sometimes help people decrease the infection.

Shower. There's a study out there showing that if you give people the medication and a shower with it five days continuously preop that will actually decrease the bacterial flora and that will actually deep Creek -- decrease the infection. The study is not being done and it's not a subject being studied vary widely and hasn't gone through many vigorous studies however the recommendation is it's really cheap, it adds very little cost to the system so we can pretty much tell our patients can do before surgery without adding cost to the help system and that can decrease the complication that will be very helpful.

Intra-op Tivoli, hair removal studies show shaving the here before surgery increases wound infection. I think there hospitals out there that have pictures of now shave and take the shareware out the recommendation is use electrical Clippers. No more shaving. In the Vegas area I see it universal adoption of electrical sit -- Clippers. Cannot shaving the patient before surgery.
Skin prep work what we use? A characteristic of prep should be fact -- fast acting, you can't have the surgeon wafer half-hour for the prep to take effect. Surgeons want to go and push everyone. I'm persistent in cumulative actions. It will be there for a while because surgery, if you have a quick surgery or you could have four or five hour’s surgery so the skin prep be nice to persistent and cumulative. Also not irritating. You have to look at most of them are skin prep but occasionally for patient of mine they have a mucosal involves the want to make sure that's not want to be you're kidding the mucosa. Tradition daily there is a Betadine being be prep scrub and wash your Betadine is good because it does not your take the mucosa however the study has shown the be a be prep is not as good as the new one but corporate and. This study has done multiple studies and let me see if there's a slide there. The study is looking at different -- different prep and the most important thing is actually the alcohol content. The alcohol evaporates. As long as you have good alcohol applied on the skin that will applaud -- killed and bacteria they put another mixer in their these can see it actually now or smell and know how long it takes. Important thing you all probably know is you have to wait for the alcohol to evaporate they have to wait for two minutes. The downside of this is it's alcohol soaked flammable and if you go to quick it can because -- it can called -- it can cause combustion the you are -- in the old are. Some surgeons and hospitals are required to use it, you can't really youth alcohol in the mucosa and then. It gets harder to actually apply in every hospital and some surgeons don't want to go against tradition and try anything else. The other things I was recently approached by infectious control people is they say with their are studies using direct prep work for prep on the skin they should actually try it out to put these preps into abdominal year duration in to see if deck and deep crease it abdominal infection I haven't jumped on the ship yet. I'm never a trailblazer I'm waiting for studies. I think people are pushing more and more application for these preps right now.

Antibiotics. That is a SCIP requirement. This timing collection duration and dosage. Timing, the SCIP preferably -- not actually preferably but the requirement is within one hour prior to the surgical infusion and it really depends on how everyplace is practiced. When I train on the East Coast the way we do is actually the old our nurse will hold it and they will give it to the patient as they make an incision. Where I practice right now, the patient has it by the bedside and when they arrive in the old are anesthesia will start giving antibiotics and then followed by induction of the anesthesia online patient to patient is fishing and it's would prep all these things at that time we are very close to in our Mark. It's 40 minutes or 15 minutes already expired so we have a rushed to make the decision -- the incision within that when our Mark. Occasionally, sometimes that falls off the mark. So that is not a very good practice right now. I think ideally it should be they say the last drop of infusion of antibiotics should go when as the persons making the incision so this way you have the highest amount of this year I'm antibiotic levels in the serum so that would be most useful to prevent the surgical site infection. A good way to do it is to have the old our nurse hold onto the key a rt -- key antibiotic in you can start the infusion issue to the surgical timeout this week as you finish a timeout and adjust drapes by the time you make the incision that's just when the antibiotic infusion finishes. It's kind of hard in Vegas because they get the antibiotics are given to the anesthesiologist and they just like to get it out of the way so I have to talk to anesthesia to hold onto it. The other thing I find it harder to follow the SCIP I think it's a system issue just like the anesthesia. For people coming in for elective surgery that's not a problem because they're here they have the back of antibiotics but the bedside but for people who stay in the hospital and we doing inpatient procedure we typically write the preop person the night before PO wife fluid and right on the bottom too old our what's that's done because nowadays it's all
computerized in order. The pharmacy, the pharmacy robot will pick up the antibiotic it ship it to the bedside and the nurse gets it and the nurses like this is for tomorrow's wire and it's not now so they put it in the chart run the table or somewhere. The next morning a different nurse comes in and they take the patient downstairs and sometimes they take the antibiotic with them and sometimes they don't take them with that. If they went down there and there's no antibiotic on the bedside and the person would to do a warrant nobody thought about it until 15 minutes after the incision and somebody put where's the antibiotic and we've are already a foul of June 14. We follow SCIP they get in antibiotic when we missed the window to get a penalty in the other thing it's bad that for the patient. I think we have to work into a good system or each hospital. For all these inpatient surgeries how we can make sure that antibiotic which was given the night before will not fall through the cracks in the went down for the surgery.

Dosage. Antibiotics one-size-fits-all. Rainouts one bag prepared by the pharmacy, they don't see a patient. They see name and sticker and they send the backup the patient gets that bag. But obviously we talk about we need the serum level of the antibiotic and the higher the level the closer to the therapeutic level the better the results it's going to be picked if you give two grams of stuff is old and for little old lady versus the big tall person, the serum level is different so it's something that the hospital system should look into a system think to check the BMI and if the BMI is over 30 you should adjust the antibiotic for higher dosage. If the person has a BMI under 30 than they should use a persons wait for that antibiotic. It's used for colon surgery the lose those shown on this slide. For people with allergies you use clindamycin or quinolone. The most -- and again this is a perspective of each person from the surgeon perspective we want safe and cost-effective we also want broad spectrum. I want and antibiotic is broad spectrum as possible. I colleagues at the pharmacy wanted as narrow as possible. They don't want to use a wide spectrum antibiotic because it can be selective for bacterial resistance. For the surgeons perspective and it's a battle I have with the hospital with my experience I like to youth the [ Indiscernible ] with one dose and 24 hours. Give a dos I don't have to worry about it and it's done as opposed to Flagyl and you want to make sure the orders are written properly so they don't go beyond that are somehow it didn't fall through and then you've got more than 24 hours doses so that the system -- system issue. SCIP selection it's more like the system issue with multiple holes in their can line up and you can have an incident that went through all of the holes and go to the and him cause a problem that would have fallout to train 14. The other SCIP requirement is the antibiotic discontinued within 24 hours. Studies show there's no benefit. Obviously a person coming in with a perforation he went to keep them on an antibiotic before elective patient. There's no benefit to be up debt to go beyond 24 hours. We all know that beyond 24 hours yet sure -- actually put a person at a higher risk of developing infection. Everyone universally agrees that 24 hours is the cutoff. I think the problem is, again, it's a surgeon practice we typically write orders are put computer orders in there and we tend not to put a stop date and time and not specifies the number and timing of the dose and that's what I think the system is very important say Q8 hours for Flagyl. Typically the surgeon would write Flagyl to eight hours times [ Indiscernible ]. However you get the right hours they will get 24 hours and three doses is that the first dosage preop. In reality the person will get for doses, that's beyond 24 hours. Then you have to write acute eight hours know more than two dose to make sure and if you write 28 hours most hospitals have a schedule of to 12 is 9:00 in the morning 9:00 at night and 284:64:12 that the particulars think so the person will come up with the first dosage it could be it in the morning it could be 11:00 in the morning so if it 11:00 in the morning you get Q8 hours you finished your work
you, and you get the next dosage and that will become the regular hospital does one thing is because the system issues you might have or end up with more than 24 hours. Right now I think Medicare's only auditing how many doses but I'm sure down the road they can actually audit the exact time it was given an CFIDS over 24 hours. That's a system issue we have to look at. And that's why I like to keep it simple for surgeons. You give one dose in its good for 24 hours, it's one that drugs that's listed in SCIP and I don't have any stock in that funny -- in that company. I give the patient it's easy of compliant in the patient gets the proper coverage and it's a win-win situation.

The other question is there a need for reducing optimally and in the antibiotic has a half-life, some of them are longer or shorter half-life. For the surgery it that I would have to two hours but if it were the three or four hours the serum levels are already being washed out. Should we do another dosage say three to four hours into the operation to keep the little higher? We're trained in Rochester we actually have a hospital requirement that anything with more than three hours surgery to get another dosage intraoperative leak to reduce but currently in Las Vegas community I don't see guidelines regarding debris dosage for typically long case.

Body temperature. Decrease of immune system when the temperature is lower our body enzymes and cells are programmed or made toward particular temperatures so increase wound infection with colder body temperature that's why we work aggressively to warm them and especially for abdominal surgery, there's a lot of reflective surface and that's why it's very important for us to keep the temperature up and I think the Medicare rule is temperature has to be above 96.8 when they hit recovery however this is a wide Friday of practice in the community.

What I have been observing is there art anesthesiologists are very conscious, they give IV fluid warmers and keep the blanket out to people, and take a temperature and if the temperature is not 96.8 and they wait and they document. Everybody has to buy into the team approach and make sure we are doing the things that actually to the patient and not just hit the Mark on the SCIP sheet. What kind of things we can do and the patient coming into the hospital the first thing they have account on them and I see more and more hospitals have individual warming downs. They have a hugger it goes onto the patient. During preop time and I think that's very helpful. The other thing is warming the operating room. The surgeons we like to keep the room down because we are all bound up in the lights on us and I'm stressed and I'm sweaty and I like to keep the room cooler so if you that are. However the patient, the belly is open, they are losing water so the surgeon just has to be aware that. The patient is more important than us are quick to strike a balance. Warming the operating table. Are different ways of warming it. Warm water blanket under the patient that circulates warm water to keep the patient warm, huggers on the upper and lower body, the other thing is IV fluid, the for this taking out to room temperature and confusing to the body and it's 23 degrees versus 37 degrees so the IV fluid needs to be warmed. That are devices being sold that actually -- actually called the hotline and they had a box with IV fluid they try to warm it. Think about it it's a liter of fluid in you have that segment of it being worn, how much are you warming? The best way I see most hospitals do is keep their IV fluid in the warmer they grab it out in this with a flute is warmer it doesn't lose too much of the temperature is it goes into the body. The other thing is irrigation. Irrigation could be room temperature, it could decrease the body temperature and I prefer my scrub has a back warming basin there with temperature setting to keep my irrigation warm and one hospital they trained they went on their way and bought thermometers and
they sterilize the thermometers and they put them into the irrigation basins and they monitor the temperature before we actually reported. Every case when the open impact we have a warming basin we put a thermometer in there so this week the surgeon and circulator can look at what the temperature is and I helpful -- it helps a lot. The other thing about intraoperative. -- preoperatively it's carbo loading. Again it's back to that's insulin and blood sugar. As people develop insulin resistance when the carbohydrate storage is deep-seated the increase of insulin resistance leads to decreased of your point load cell function and your white load cell gets sluggish. We all know that that's why we want to have but sugar control and that's why the insulin is low. However, from the dawn of ages there's nothing to eat after midnight. You don't want to have a full stomach and go on and induction and they vomit and aspirate have another cup location. However we always tell patients step it midnight which is fine for surgery at 7:00 in the morning. If you asserted 3:00 in the afternoon and the NPO's midnight the night before there's going to have a very long period of not eating and when they starve their glucose reserve if the pleaded by the body and at this point once they deplete glucose they're going to have insulin resistance. Are we doing MPO patient for long time we set them up for decrease of their white blood cell function and increased chance of wound i infection. That are places out there that do isotonic carbohydrate. What they do is 800 cc of apple juice or Gatorade eight hours before the surgery solid by 300 cc of the same solution three hours before the surgery PO intake. Eight hours before by the time you get to the surgery it's pretty much gone. 300 cc which is liquid are just three hours before surgery or before the usual pavement without any [ Indiscernible ] I've tended to do anesthesia there should be literate very little remaining in the stock testament so the aspiration risk is lower. This way they look horrible loading before, the insulin this is hike and the white blood cells are more functional so they can decrease their infection rate. That is some new trend out there. Skin barrier, does that help? We use eye-opening and studies have shown that Ioban has infection rate if the operation is more than four hours. First of all if the surgery is over four hours you will have an increased wound infection when you to reduce the antibiotic in the body temperature probably drops a lot and went to guess when do we use Ioban? Let's say do a takedown colostomy I want to use Ioban but to make sure the bacteria doesn't come out. Then I cut the midnight and finally the barrier and then the Ioban discovering this tool has stuff coming out because it is water permeable to keep bacteria output traps bacteria in there at the end of four hours there's a bloke just a pile of blood in stool over the area and we finished the case it would take the Ioban off I think there's quick to be spillage and that will increase the wound infection for sure. Is this something we should do differently? I don't know. I don't think there's a study out there to look at should we cut area of the ostomy to drain the puddle before we take it off or not? I'm sure somebody's going to do a study for that.

Drinks. There's no data supporting the routine usage of draining a surgical wound. There's always a teaching when I go through residency, drained don't stop abscess formation. The reason I put again in there is I'm sure it's going to come up to the market, I was recently in the hospital utilization meeting and there is this vendor that tried to sell a special drain with some special coding on it that they can decrease the wound infection. Again, there's no data to support that but I think with the Medicare pushing the SCIP things and look at at other events is quick to come down the line. The best analogy I is antibiotic center line. I don't think there's any good study out there showing NT -- antibiotic center line. The way to decrease infection is number one assess every patient do they need a line if not take it out as soon as possible, complete sterile technique barrier, cover the face and head and replace the length complete sterile technique and lines no more than seven days. These are studies been shown that
would decrease line infection however every hospital nowadays uses a central line with antibiotic coated because we want to do this to show Medicare we've done that we do everything possible to decrease infection. I won't be surprised if there will be suddenly a search of antibiotic coated dreams come to us and every hospital is to spend extra money to buy those dreams just to show the effort that we have done to decrease that wound. That can -- that's something I can see on the horizon.

Wound care, postoperatively. How do we take care of the wound? There's a wide selection of dressing available. There's silvers, algae, permeable moved in nine permeable wound. When I train in New York we have cardio surgery that is been scrutinized very closely so every dressing is being used in the dressing is getting more and more expensive there's a joke that would take we're going to have right now the silvers impregnated because it's heavy metal kills bacteria one date. [Indiscernible] that the dressing is going to come up and maybe that will come were bacteria's. In Las Vegas we typically used ABD and clean gauze. General surgery and colorectal, clean gauze is what we have right now.

Wound care. Back resting. The fact dressing helpful or not? People recommending short-term usage, one or two days after the surgery when a woman is closed put him back dressing over the staple line. What it does is the negative pressure sucks away Dema from the wound because the wound is quick have edema and this way it will decrease the wound infection if there's no evidence to support that and it's costly to do every patient and that's pretty expensive. The other way to do it I have seen surgeons is they believe the wound open. Like [Indiscernible] takedown we don't close the won't. In the old -- old is open appendectomy some people leave the won't someone the -- is the primary disclosure. [Indiscernible]

It's a lot of packing for their the wound and that's expensive. My experience is put awake in the wound. Close the skin up I leave a few gaps put awake and I put [Indiscernible] in their. I don't want the nurse to packet. I pull it back over the course of seven days and it collapses cavity and it doesn't having that space causing an infection. That is what I to personally. Wound protector. It's very fashionable in early 2000 I think every surgery remember gastric byplay -- by plant -- bypass. The study shows there are no -- now scummy back in fashion because surgery would make a small incision. The new wound protector actually has two rings on it so you can stretch them out put serves as a retractor on top of the wound protector. I do see a decrease in the amount of wound -- its objective but I've never done a study. When I see I won't protect sure they tend to have less likely of the wound infection. The other thing is the term a bond is not water permeable. The wound is visible so this case I can actually see the wound every day. I'm only using laparoscopic colon case so there's less likely of wound contamination. The problem is Therma bond is n on-water permeable so traps everything inside. If you actually have a wound infection it makes it worse. Otherwise if you have a skin staple U popout one area that drains easily. The question is do these impacted decreasing length of stay. There's no study on that in the other thing is typically wound infection manifest 10 to seven tend to seven days after the surgery. If you ever procedure and now we are striving for length of stay with the colon resection, medical approved for three to five state and they develop wound infection they will develop after they get discharged. Right now -- right now we only track the wounds in the hospital but we checked the wound infections in the office. I look at it and I can't have of wound infection in my office. These numbers are not being reported. It's a team approach we have to work together on that.
Administratively. The database. There's increased trend toward a base, public database. Outcomes available, everybody can look at it, look at each surgery but there admission rate is etc. There's all these things. I was trained in New York State and we have cardio surgery database we look at every cardio surgery and say I you above the benchmark or below the benchmark. It's a lot of pressure on a surgeon and it's very helpful I think it makes the cardio surgery better in your state however it does make people cut corners. For one example is for one infection we actually have every week we have around to look at infection and what it is this everyone basically the surgeon, the would care specialist and they look at this event is this of wound infection are not in the surgeon arguing thirst no pus coming out. Cellulitis is not reported. So it's a little bit silly with underreporting and it affects accuracy and the validity of the data. But it's good as the benchmark so everybody can look at it and see how am I doing the whole group. The Las Vegas community it's very hard. We lack of access and not that many surgeons around. If you look at it some places only have one surgeon. If you compare that surgeon? In some places that the only surgeon there few look at it and the surgeon number is low what are we to do? A quick to send them away? So think we have to look at least administrative data and how it's constructed to make it useful to the nudity into the patient.

Public disclosure. Where he trained in Pennsylvania -- passed a law and they require a hospital to disclose to the patient and the family for every complication in the hospital such as a UTI, of wound infection or C diff. It's a lot of work for the hot but up. Every time people come in with a little something and you have to send a letter. The letter and this is usually what happens in the hospital they did find and they went home and the chart went home -- the chart went to the coding and compliance department and they say Baird is is a UTI listed documented so we have to send a letter to the family. That's several months after the event. All of this is coming from the administration so the letter is approved by the lawyer. It's very bland. During your recent stay there was an event that happened to you. If you need further events -- information will be happy to talk to. Most of the family get home they have their hospitalization they were happy with that they went home and the doctor probably explain to them that there's a UTI and you need extra antibiotic and three months later they get a letter from a compliance officer that there -- there was an adverse event. They call their doctor they see what was going on was I in danger and it causes confusion and unnecessary anxiety the patient and family. The law was a very good idea that we had to disclose everything to the patient but in the reality the unintended consequence is I have one surgeon that left every won't open that way he said if I don't have a wound infection I don't have to report to anyone. And conclusions and I went to these quickly and this is a perspective from a young surgeon and obviously my surgeon is not a -- my experience is not as good issuers. This is a team approach we have to look at it from our perspective try to make it together working. Education plays a major will because you can't come in and tell person they have to do this. Ever hospital with one person in all are doing and they said you know today we're going to start using Chlora Prep. In the surgeon says now I'm going to use my prep. Exchange of ideas locally and nationally we talk about all these things and every stage state of the center of excellent and that's what we talk about we get together to talk about it. I think that is the end of my s lide.

Are we back on?
Yes, would you go -- would you like to go to the question and answer portion expect yes. We will now begin the question and answer session. (Operator Instructions).

We are now standing by for questions pick.

I see there is a chat part in their. You want me to address those questions first?

From past and it says will fish oil increase the risk of bleeding?

Yes. It's a team approach we have to look at every aspect. Is no magic pull it out there and one thing that does everything. It's just perspective and fish oil can increase and boost your mission -- your nutritional status and lipid levels that can also have some side effect. This is something you have to think about and this is something worthwhile to do and I think you could talk with your surgeon to see if it's worthwhile to do. That's why these things like fish oil and shower they are very -- cost very little to the patient and hot little and it's something you can start on the low risk patient such as an incisional hernia repair and let's try that and see if it works. The increase risk of leading? I cannot address that. And the shower part, the five days showers with Mupirocin. The easiest thing that I had in my experience and my training date is we actually used the CHT the scrubbed things -- do not I'm talking about? The award scrubbed things? The packets with that handed nail pick. When I trained in New York State, for the cardio patients we actually give them five packs and they take it home to use that induce showers two to five days before the surgery. This is what we do. It's a lot easier than going to the pharmacy and buying things. You can have them any elective cases. Again this is a team approach and you have to have your surgeon buy into it, your hospital biting into it.

One thing we did in New York is a preop visit in the office we actually give them 225 packs depending on the surgeon and patient will take the shower into the scrubbed at home before the surgery. Here you can do the preop registration and give them back something they can do.

That's a question for Cindy. Have dosage requirement changed? It could depend on every hospital. There are again -- that's why we should do exchange of ideas local and nationally. Some hospitals to one to two grams, some to to three grams, the idea is you can't do one dosage only for every patient that walks through the door. We have to have individualized parameters. It is not one size fits all.

What studies show fish oil effective in food and nutritional value in preventing infection? There is a study, can't give evening. I learned this in a conference recently. It was done in Seattle. Have a center of excellent in hernia repair and have a look at their patients and it was fish oil that actually had a decrease in wound infection. These studies are not very rigorously done studies. The little things that are put out as -- again it's very cheap, it doesn't cost that much and if it can have an added benefit to the patient it doesn't hurt much to give it a try.

The studies show that decreased infection of lemon of three. That study was done in 80, it was a veterans affair be study done back then. Actually look at a wound infection and they look at a large population because the pH you keep track of all the status. It was a study that's always been quoted and they don't have the number or the exact titles. They talk about in they look at multiple various and they...
find out it's all the mid-level less than 2.3 has increased complication in more than three have less complication. This that he is being criticized. One is that the VA studies of the population is very homogeneous. Caucasian male and their age. This study that's always caution how good these patients are. To have more comorbidity? Sometimes they had different diseases. To look at these. Even though the study shows the difference. The other thing people criticize has never been replicated in other places but to have a large study like this can be very costly so it has never been done. I think the correlation of that study is waiting to the next study and looking at nutritional supplement the next study shows only 70 is a preop will help you to improve your outcomes and PPM more than seven days is actually increasing a complication. That's why assertions want PPM no more than seven days. Some they -- sometimes they just want seven days for to not. The problem with that study I think it was done for patients with gastric cancer at that time. The people can't eat and it's a very specific group and they try to extrapolate to the general population. Again these are my perspective. It's not a full scientific study. I think the [ Indiscernible ] is the insert to start with. Stephanie, what did you say you're using as abdominal are cages and?

This is something I got into the hallway, I have an infectiously come to mutate tenure use for your abdominal your Duchenne at your end of case in you get your abdomen can use Duracast -- Dura prep, whether you use Dura prep?

I don't know, lady, that's kind of wishing the envelope. The reason I don't like to use Dura prep intraoperative lee is one there is no study or guideline to it and I don't know if Dura prep applies because it it's all geared toward a skin flora. The flora splits from the colon it could be different flora in different bacteria. If the coverage the spectrum right? I was reluctant to use that. I'm just using normal sailing right now. I don't use your Duchenne routinely. Shared will cover that, have you considered novel dosing strategy to promote use of and it's patient [ Indiscernible - low audio ]

Yes. Talk about what to do. I think there is a lot of just the question is in reality how much antibiotic do we use? Again it's a tradition versus scientific evidence. We have always been using antibiotics for the surgery so you been using antibiotics and ever since the antibiotic comes out we've been using it for the surgery anything that antibiotic has come , in the 1940s. For 70 years we've been using these antibiotics and at this point we finally educate all the surgeons that now need to give antibiotics beyond 24 hours 30 years ago they got antibiotics for the next 14 or 20 days in the hospital and now we are finally convinced that's 24 hours is all you need and you don't need to anything beyond that. I don't know if anyone has studied out there and I will be surprises somebody has a study coming out to 12 hours is as good as 24 hours. So for preop strategy I think if it's over 30 minutes -- [ Pause ] -- the novo technique -- over 30 minutes? You want to do over 30 minutes slow so close in a steady state as opposed to everything runs in there in five minutes. However, if you do 30 minutes my concern is that a team approach and everyone has to buy into it and it requires a lot of court nation among the surgeons and him it's each it circulating nurse to make sure it's going in there for early minutes and when you finish the infusion it's within an hour the incision so falls within the SCIP criteria. Otherwise you fall out of SCIP criteria, you're going to be them trouble. Fit [ Indiscernible ] can't breathe resistant exteriors. That's why the infectious disease doctors and pharmacies don't like to use it. Again from the surgeons perspective we one wide spectrum, as wide as possible and hopefully cover everything in the world. One dose to be done. However, it does breed resistance we have to have a balance between
these two. The way I look at it is the hospital has two people against using it. One is the pharmacy because it is very expensive and the second is the controlling infectious disease doctors. I don't like it because theoretically I can increase the resistance. I met in infectious disease person and I don't look at what's the word -- my big serial resistant chart every month and I'm sure every hospital keeps track of bacterial micrograms. However, there's never been a study to show that wide uses of it in the pre-upsetting has altered the hospital community and nosocomial bacteria resistant chart. That's a theoretical concern but we don't have that document in many places. I'm not saying it's not going to happen but I don't have any evidence to show that universal usage of [ Indiscernible ] that breeds [ Indiscernible ].

We are close to the end, other any questions on the phone? (Operator Instructions ). We have no audio questions at this time.

I did date -- did see one question there about infection, what would you like and infection prevention us to do is follow follow-up if one of your patient had a surgical site infection and we will make that our last question. How do you see her role and that? What you want to do is collaborations?

I think my will is very important. If I don't report and five and infection in the hospital I'm I office federal report and communicate to other people's than the data is not being reported up and now it's good to look at it and you can keep constantly doing and not really sure the problem. I would be happy to review every case with Mike infectious control person and to look at doing of a trend. It would be too late if you have C diff happening on the floor and one% on a colectomy. That would be too late. As a surgeon we should be actively involved infectious control to talk about it what's the trend, what's the bacteria resistant in the hospital, what is my usage and what is my number of falling off my charts. I think you know it's important to have surgeons be on the infectious control committee to look at it because infection is more than just giving antibiotic him it's about surgical technique, how they select their patient and prepare the patient. I think it's a very important. I think you know like outpatient clinic they have -- of patients surgical center they sent me a letter and after checked either any procedures -- any complications X I have to report that. The hospital should call the patient and safe you're just discharged two days going I'm just going to make sure you're okay. I think the hospital should call the surgeon and talk to me and say other any other problems, a wound infection any follow-up and make sure the patient care is proper exchange of information would be helpful.

Thank you Doctor Ren yu Zhang MD very much. I did the questionnaire pop up on the screen. We appreciate all of you coming along. Any closing remarks?

I would like to thank you ladies and gentlemen to -- for attending today's conference. This concludes the conference. Thank you for participating. [ Event concluded ]