# The Sacred Cows of Asepsis

**By Muriel Shewchuk, RN, BScN, CPN(C)**

## Introduction

The radical challenges and changes in the operating rooms are cracking the massive foundation of six decades of "the evolved art of operating room aseptic technique". Our American colleagues fondly labelled the practices, without a scientific basis, Sacred Cows. The "Society of Sacred Cows" have grazed the hallways, theatres and supply rooms of Canadian operating suites in an even more protected manner. What happens to our Sacred Cows, will they all be slaughtered or temporarily put out to pasture as an integral part of our nursing practice?

The saying, "In God we trust, all others must bring data", (source unknown) probably best defines the current reference point to effectively manage the challenges up against aseptic practices, maximize resources, provide patient safety and protect health care providers. The entire health care system is under scrutiny, evaluation and outcome measures, and aseptic practices are no exception. In our past, information published in a text book or article, was sufficient evidence to establish credibility of practices.

Society in general, multidisciplinary team members, and inquiring nurses are challenging everything. The "burden of proof", accompanied by resource management are forces that challenge and force change within the fundamental fabric of our practice.

Florence Nightingale and Joseph Lister pioneered the concept and foundation of asepsis, based on research, statistics, and the epidemiology of their time, dramatically reducing mortality and morbidity. These principles have withstood the test of time, however, the detailed development and implementation of many of our aseptic practices are based on belief, sense of security, safety, common practice, "expert opinion", without the proof that the rituals and practices really make a difference.


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## Changes in the Past Ten Years

The last ten years have seen tremendous change in many areas, although many operating suites hold on to the traditions for a multitude of reasons. Lack of information, loss of control, disbelief and fear contribute to the resistance and actual non acceptance of radical change. Attitudes of "it's always been done that way", "just do as I tell you", "don't you dare challenge my instructions", and a general feeling of the loss that goes with structure as it is dismantled is quite wide spread. Complete changing of rigid rules is not unlike trying to change values to one of "it's okay to steal". It is also human nature to resist change, and particularly that which makes you feel like the principles you stood up for all those years were a sham. A certain amount of credibility is lost as the "mavericks" appear to take joy in discrediting practices they believe to be bogus and a self-serving tradition.

"Role reversal" in the principles of asepsis has occurred in many instances. For decades the patient was being protected from the harm of the health care providers and the environment, whereas, many principles now are related to protecting the environment and the health care providers from the patient's blood and other body fluids. Three hundred and sixty degrees of change in rationale is undoubtedly hard to accept.

The incredible saviour of antibiotics to treat both gram positive and negative organisms is in serious trouble. The new generation of highly resistive nosocomial organisms, which become colonized in hospitals, are winning many races. The ever increasing viruses, with no treatment in sight, combined with cross species disease transmission provides a new focus to change practice and abandon tradition.

Universal Precautions, with the many definitions and beliefs, have placed a different focus on aseptic practices. As the new organisms are better understood and control measures evolve, so will the recommended aseptic practices.

## Extinct Sacred Cows

Evolution is often accompanied by extinction. Extinct practices, are now a subject for a humor lecture in the aseptic history of operating room nurses. It is somewhat humbling to have been a part of the development of those practices, implementation and enforcement and then having to dismantle and discredit them. The most tolerable recovery is to assure yourself that the only constant is change. Credible, sound rationale will assist you to either change that situation or discontinue practices in an planned, orderly, systematic fashion. If you cannot find a reason for doing things you probably should not do them.

A trip into the not so long ago, yesteryear, finds a multitude of Sacred Cow carcasses, enshrined in "witchcraft", disbelief, and ridicule. Reflecting back on past practices we often laugh at ourselves and the associated rituals. However, it must always be remembered that at the time there were good reasons. One has to ask themselves "will we be laughing at our current practices in 10 years or will we revert back to very rigid controls due to the evolution of organisms".

Practices of slain Sacred Cows include:

### • FOGGING

Fogging of theatres for infected cases, particularly gas gangrene was a relatively short lived innovation. The process involved the equivalent of a reverse vacuum cleaner, whereby the theatre was filled with aerosolized chemical disinfectant, doors taped shut and a wait of 72 hours before the mop-up process began. The magic did not occur, in fact , while testing the theatre environment, with strategically placed blood agar plates, it was found only to stir up dust and lint particles laden with organisms. Increased environmental contamination resulted. At the same time rotting mattresses and pitting stainless steel became a problem.

### • WHEELS

Forbidance of patient beds into the operating suite and elaborate washing of stretcher wheels prior to entry into the hallowed halls of the operating room have a long history. Operating room designs and the nurses were fixated on preventing a major source of contamination which was assured to be on the wheels. Of course there were organisms on the wheels, but how they were to traverse to the patients wound was not considered. Some operating rooms were designed to utilize a stretcher top transfer, keeping the transport base with "clean wheels" in the operating room and the "dirty wheels" on the outside. Creative systems were developed to clean wheels from chemical baths, to disinfectant soaked sheets on the floor to roll wheels through, and manual washing of each wheel on entry to the suite.

### • SKIN KNIFE

A highly ritualized ceremonial act was performed around the initial skin incision knife, which under no circumstances, could be allowed to touch or traverse the subcutaneous layers. Once the incision was made, the knife was isolated in a kidney basin on the table.

### • APPENDIX TECHNIQUE

All instruments utilized on the appendix stump were isolated in a kidney basin, and ceremonious painting of the stump would occur with cotton applicators and prep solution. Further isolation followed inversion of the stump prior to purse string tightening.

### • BOWEL AND CANCER CELL TECHNIQUE

In all cases where the bowel or stomach were opened and where cancer was expected, double sterile set-ups were required. Two Mayo stands, two sets of instruments and a complete gown and glove change and a great deal of time was involved. Once the viscus was closed or all tumor removed, the entire scrub team changed gown and gloves, dirty Mayo stands were removed, redraping completed, then closure could start with a new set of instruments. A kelly clamp was placed in a special container to allow the scrub nurse to pick an instrument off the back table should the Mayo stand not be complete.

### • FLOOR WASHING

Floor washing between cases was a highly ritualized, lengthy procedure. Evolution has included large mops, two small mops and a two bucket technique. Flooding the entire theatre floor for ten minutes, carefully rolling all the furniture wheels through the disinfectant, followed by wet vacuum, with all furniture moved into the corridor, made change over very long. The size of area to be mopped started to shrink, going from full theatre floor, down to 12 foot squares and then to eight foot squares. Progression continued to only wiping a two foot path around the table, without having to move the operating table, and then of all horrors - not washing the floor between cases.

### • SEPTIC CASE TECHNIQUE

Septic case technique lasted for several decades only recently to be replaced by Universal Precautions. All excess furniture was removed to the hallway, the case, irrespective how sick the patient was, had to be done as the last case of the day, since the room would have to be closed for a lengthy period. In addition the cleaning process could take a hour, including double bagging of all garbage and laundry at the door, flooding of the room, soaking all furniture, beds and mattresses. A "runner nurse" would be stationed outside the OR throughout the entire case to clean up, to manage the isolation and the comprehensive protocols. Once the cleaning had been completed all health team members would stand at the door, take one shoe cover off, put the uncovered foot into the hallway, then like a flamingo on one leg, take the other shoe cover off. I know with confidence that all those organisms in the room knew not to cross the magic line.

### • RESTRICTIONS ON CASE PLACEMENT

A patient with hemorrhoids, open bowel or an infection would never be allowed into an orthopedic or ophthalmology theatre.

### • STICKY ENTRY MATS

Adhesive type mats were placed on the floor, at the entry to the door of the main operating area, once again to prevent the dreaded organisms on the floor from coming into the area, not unlike sticky fly catchers. The mats were quite exciting if you wanted to look at suture pieces, occasional needles, a few blood clots and dirty shoe covers that had been pulled off. The impact on infection rates of course was non existant, but an excellent sales promotion.

### Extinct Sacred Cows Role

Extinct Sacred Cows serve as a reference point to ask yourself, what are we doing? Why do we insist on specific practices? Does it make a difference to the infection rates of the patient? Are the health team members being protected? What is the fundamental microbiological principle?

## Current Sacred Cows Under Attack

### • PATIENT PERSONAL CLOTHING IN THE THEATRE

The radical advances, particularly in ophthalmology surgery, over recent years have had a great impact on the rigid rules of patient dress for surgery. In Alberta, patients may have their cataract surgery in the hospital or in a private clinic. The same attending surgeons and anaesthetists work in both settings, each very carefully monitoring infection rates.The trend has been to minimize the time and inconvenience for the patients. Undressing of the elderly patient for eye surgery has been changed in a number of settings where the patient comes fully clothed, shoes and all, into the regular theatre. The patient lays down on the operating table for surgery, stands up and immediately sits back in a comfortable lounging chair on-wheels, has a snack and goes home, with no change in infection rates. In addition, a large number of patients walk to the OR and need to have their shoes on for safety. It makes no difference in infection rates.

### • SHOE COVERS

The historical purpose of shoe covers started with an essential need for conductive rubber soles to ground static electricity to reduce the risk of explosions. Shoe covers were also believed to protect the operating suite floor from the dreaded organisms on the floor outside the red line of the "Do Not Enter"!! sign. The only use of shoe covers now is to protect shoes from the blood that results from trauma cases, and in procedures where high speed drill and pressurized irrigation systems spray body fluids. Bloody shoes in lockers and taken home present a potential risk to staff and family members. Whether shoes are worn outside the hospital or not, probably makes no difference. The important thing to remember is that bacteria do not walk, fly or crawl.

## • MASKS

A number of hospitals, with the approval of the Infection Prevention Committees, have deleted the requirement for the circulating staff and the anaesthetist to wear masks.Masks are not worn during the entire sterile set up and surgical procedure. Procedures where prosthesis are being implanted have been maintained as the exception. Rates of infection have not changed. Significant cost savings can be achieved, however, the practice will likely take a long time to change. New concerns are being raised about the exposure to the aerosols with body fluids liberated from the pneumoperitoneum as instruments move in and out of ports during endoscopic surgery, particularly near the anaesthetist. Masks provide some protection from splatters. Some Scandanavian countries have only used masks for the scrub team for years.

## • COVER GOWNS

Rigid rules existed for nurses to wear specific cover gowns, buttoned up, when leaving the operating suite, again to protect their operating attire from the dreaded organisms outside the suite. The theory was challenged that if surgeons and anaesthetists do not wear cover gowns and definitely do not button up, what purpose does it serve? Is it conceivable that only nurses contaminate the environment? Highly unlikely.

A study over a one year period was done at Foothills Hospital in Calgary, with the approval of the Infection Prevention Committee and the Operating Room Management Committee. Parameters to monitor infection rates were established and all cover-up gowns were removed. The change made no difference. The cover up gowns were permanently eliminated with significant cost savings for the laundry.

## • CLOSED PANT CUFFS ON SCRUB SUITS

The long discussed topic of perineal fallout and skin shed having to be contained with closed pant cuffs was also studied at Foothills Hospital. The impact of closed versus open cuffs was measured using a slit sampler technique. There is no need for a closed cuff.

## • SKIN PREP SOLUTION

The use of aseptic paint is being challenged, some areas use only a scrub brush and rinse with saline, others believe a saline wash may be just as effective. The psychological comfort of the prep solution color within draping margins probably will sustain the practice.

## • SCRUB TIMES

The times have been reduced from ten, to five, to three minutes. Some challenge the use of a brush and claim a wash and disinfectant dip will be just as effective. Much ritual surrounds scrubbing, and it also can be somewhat of a social event with little real attention paid to the clock, except of course for the nurse.

# The Future for the Sacred Cows

Where do we go from here? Immediate answers are not in front of us, we must search, study, review and be brave to lead the revolution. Laying on the track as the train moves forward, usually results in one of two situations - dead or cut off at the knees. Neither is acceptable. Unless we are able to prove the principles and practices make a difference, the aseptic practices will be dismantled like the Berlin wall.

The other scenario, is that the antibiotic resistant organisms, the new viruses and the resistant tuberculosis may become out of control. A reign of fear could bring back many of the Sacred Cows currently in the pasture to once again stalk the halls of the operating room suite. An attitude of "I told you so", might be in the offing, however it may be far enough down the road that the new investigative research teams will develop new strategies we have not imagined.

Every health care provider should read *The Hot Zone*; Richard Preston; Anchor Books Doubleday, a pocket book currently on the high profile newstands and book stores. The book describes the real, horrific disease process of the deadly *Ebola virus*. Major cities in Canada that receive international flights have protocols in place to deal with an infected patient. When this virus, or its hemorragic relatives arrive, there will be a terror that may well bring a whole herd of Sacred Cows back, on the gallop.

## Summary

The black and white Sacred Cows are clearly having a tough challenge against extinction with the lack of scientific proof of validity. The profession is increasingly challenged by increased work and stress, leaving little time to step back and study what is happening. We must not be defensive but seek to find the truth in the best interest of patient care, health and safety of the health care providers and a safe environment. Credibility of our specialty must also be preserved through thoughtful, focused, research based change. Finally maximizing the use of resources with cost reduction is also very high on the agendas of health care reform. ▪



# Bowel Technique in the O.R. Is it Really Necessary?

**By Joan Porteous, Delores Gembey & Marlene Dieter**


## Abstract

Existing inconsistencies in the practice of bowel technique prompted a study to validate this operating room procedure. Minimal reference to intra-operative bowel technique was found in the literature. Needle drivers and tissue forceps utilized to anastomose large bowel were cultured, and the results were analysed. Needle drivers and tissue forceps used to anastomose small bowel were also cultured and used as a control group. Only elective bowel surgery cases were included in the study. The study demonstrated that there was consistent contamination to those instruments used for bowel anastomosis, with significantly greater contamination for large bowel resections. These results indicate that isolating those instruments and equipment which come into direct contact with the bowel lumen is a perioperative practice which will reduce the surgical patient's risk of postoperative wound infection.


## Introduction - Research Problem

The perioperative nurse has a responsibility to provide quality care to all surgical patients during their surgical experience. An integral part of this responsibility involves serious efforts to reduce the post surgical infection rate. A major nursing goal is to prevent contamination to the surgical wound.

During surgical procedures involving the bowel, bowel technique may be carried out to prevent the spread of microorganisms from the gastro-intestinal tract to the peritoneal cavity and the tissues of the abdominal wall. In bowel technique, instruments which have come into contact with the intestinal mucosa are not used after the lumen of the intestinal tract has been closed.

The use of bowel technique is often based on surgeon's preference, and each surgeon may want to use a different technique during bowel resections. Some surgeons use bowel technique for every bowel case, others use a modified bowel technique, and some surgeons use no bowel technique at all.

During bowel surgery, the scrub nurse is in a position to isolate instruments which have come into contact with the bowel mucosa. Does this procedure contribute to the safety of the surgical patient? As one of the patient's advocates during surgery, the perioperative nurse is responsible and accountable for providing optimal nursing care. It is essential that nurses be persistent in their efforts to provide the rationale for the care they give.

**Research Problem:** There is an inconsistency in the practice of isolating surgical instruments which have come into contact with the contaminated mucosal lining of the bowel.

**Purpose of the Study:** The purpose of the study is to determine if there is significant contamination to surgical instruments which have come into contact with bowel mucosa.

## Authors

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