Canadian
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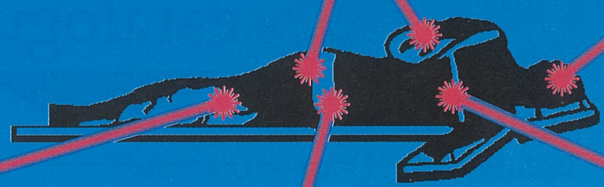

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Technology and its affect on OR nursing

By Gloria Stephens

The constant changing levels of technology has greatly affected the complexity of operating room nursing, patient care, and raises ethical and legal questions for which there appears to be few answers. Unfortunately, the consequences of making mistakes is serious.

The Federal Office of Technological Assessment (USA) states that health care technology encompasses the drugs, devices, and procedures used in health care.

The effects of all levels of technology on OR nursing must be constantly assessed and requires increased emphasis on the overall planning process. Nursing must be involved in this planning if they are to be responsible in the implementation and evaluation of equipment, supplies, and procedures. This is not a new role for OR nurses, historically they have always contributed or recommended the use of products, the need for on-going training, staffing needs, and monitored/controlled cost. True, but now it must be done more knowledgeable and with a more critical eye.

June of '91, CNA requested the National Interest Groups to complete a questionnaire regarding, 'Strategic plan on technology'. ORNAC endorses the CNA Board's position that this subject be given urgent attention as technology has profound implications for health care workers and patients. There is also a need to study technology in the context of 'caring' as in "Novice to Expert" (Benner).

Cost and Benefits

One cannot ignore the escalating costs of technology. The initial capital cost of the new technology is very high, then there is the high cost of specialized staffing, as well as the cost of repair/replacement equipment and associated supplies, and these supplies are often single-use disposables. Disposable medical supplies are probably adding to the waste management problems associated with technology, and this too is a subject the OR nurses are addressing.

It is neither practical nor essential that every facility in the country have a particular piece of equipment of a specific technology. However, there should be reasonable access.

Reasonable access is important from the human or patient point of view. The obvious benefits are improved diagnosis, treatment and patient outcomes. One technology that comes to mind is that of computers in nursing. Some of the benefits I see in computerized data collection are:

- increased time available for patient care due to time saved on recording
- improved outcomes due to increased time for care and teaching
- increased accuracy in monitoring with computer linked measurement capabilities
- increased consistency in data collection
- improved availability of patient information and statistical data

Technology, at times, serves only a small percentage of the population and it is questionable if this adds years to life, or if it improves the quality of life. Perhaps money could be better spent elsewhere, e.g. community health services to keep people out of hospital, and promotional efforts to improve lifestyles. There is a great deal of money spent in Canada on illness rather than health. Something to think about.

Expensive technology adds to the quality of life, such as total joint replacements and pacemakers, to mention a few, and definitely add to the budget deficit.

Nursing research is required to support and enhance nursing practice in the operating room, and this also is costly. Benefits of this must be taken into consideration as well.

The rapid changing technologies must be considered by nurse-educators as they prepare for educational needs of students and staff members. The cost of 'keeping up-to-date' is high in both money and time.

Technology in certain areas of the Health Care System has greatly affected the employment of the Registered Nurse with changes in categories of staff. This must be investigated for many reasons, such as quality of patient care, and the high cost of so many categories of employees.

Further comments on costs and benefits:

- an increase in non-invasive surgery and less invasive surgery with the use of scopes and new techniques for major surgical procedures will result in less OR time being used per procedure, and at best, the patient is discharged much earlier from the hospital. It may result in more patients having surgery and therefore a decrease in the waiting lists.
- more procedures done on outpatient basis will have an impact on inpatient care on the units due to the rapid change-over, no down time, and inpatients will be more acutely ill requiring complex care, a highly skilled nurse, and probably expensive technology.
- patients with less invasive procedures will benefit as they return to work much faster than in the past.

Safety

The safety consideration for patient and staff is of prime importance regardless of the new technology. ORNAC has published two documents and many statements refer to the safety aspect of OR nursing: "Recommended Standards for Operating Room Nursing Practice" - 1986: "Recommended Technical Standards" - 1988. The knowledge and skills required to administer patient care, operate all the complicated high technology equipment compels operating room nurses to assume primary responsibility and accountability for maintaining competence. If the nurse does not maintain competence in every aspect of nursing care and use of equipment, obviously, there will be more potential for injury to patient, staff, and damage to this very expensive equipment.

Social Impact

Within ORNAC's philosophical statement about Operating Room Nursing Practice it states; "Nurses are essential to the operating room as they respond to the need of society. This society is composed of individuals who are unique beings with dignity and worth. Nurses value man as a bio-psycho-social being who possesses needs basic to his existence."

Having this belief, which is necessary for the implementation and evaluation of operating room nursing practice it becomes frustrating when, with decreasing funding, decisions have to be made regarding who gets what treatment. Dollars are not unlimited, so capping often exists and will probably increase in the future. The lack of dollars has also pushed procedures to the point where decisions have to be made affecting standards of care.

The miracles of the new technology present new ethical dilemmas for health professional - to treat or not to treat. Who makes these decisions, and what will influence their decisions?

There are political implications too as election promises are rarely fulfilled and there is the potential demise of Canada's Health Care System. It appears the pressures of hospital care are moving to the community health care workers. Are they prepared for this transition with necessary resources, human and material ? Another expectation is that family look after family which may not be feasible for a number of reasons, one especially being education.

Increased introduction of technology will promote the use of treatment directives and/or living wills. Nursing will have more responsibility to be knowledgeable regarding the new technologies, treatment directives and durable power of attorney. The nurse will have increased responsibility for explaining, clarifying and generally dealing with patients and families concerning these sensitive issues.

Gloria Stephens is President of the Operating Room Nurses Association of Canada, and the Clinical Instructor, St. Paul's Hospital, Vancouver, B.C.

Announcing the ORNAC - Johnson&Johnson Bursary Fund for OR Nurses Seeking Advanced Education

Information

1. Purpose of the Fund

To financially assist ORNAC members in furthering their education.

2. Factors Influencing Assistance Available

1. Other financial assistance requested and / or granted.
2. Previous bursary funding granted by ORNAC.
3. Length, place and content of educational program.

Note: Financial assistance is not available for salary replacement.

3. Application Process

1.Fill out application form and submit an application form to ORNAC.

2.Reference letters- two, (2) from most recent employer which states the applicant's professional competence and experience, (ORNAC will request the reference).

3.Reference letter should address applicants potential to succeed in the program.

4.Submit autobiographical to include career accomplishments, education, goals.

5.Proof to be submitted of registration for the program.

4.Responsibility of Applicant Receiving Funding

1.Signed contract to be returned to ORNAC Executive within 30 days of receipt of contract, otherwise funding will be withdrawn.

Criteria For Selection of the ORNAC-Johnson&Johnson Bursary Fund

1. Applicant must be a member of a provincial group for minimum of three (3) years.

2. Primary employment focus - the Operating Room Nursing (staff,education, administration).

3. Applicant has actively participated in their respective Provincial Group and/or with ORNAC. Applicant's participation to be listed & submitted with application form.

4. References (2) indicate the applicant promotes professionalism, is responsible and accountable, and has potential to succeed.

5. Applicant's future plans at the completion of the program must include perioperative nursing.
**Perioperative nursing defined in (Rules & Regulations) Information Manual.*

For more information or to apply for the Bursary Fund please contact ORNAC"s Awards Committee Chairperson:

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Advances in General Anaesthesia Laser Procedures

By Sharon Ball, R.N.

Lasers were introduced as surgical tools about twenty five years ago. Lasers have become the method of choice in numerous procedures and in most surgical specialties are aiding or advancing them. Many operating rooms today are equipped with one or more lasers.

Laser surgery is exciting, challenging and ever changing as new techniques become possible and older techniques improved. Operating room nurses have taken the challenge of working with these high tech machines very seriously. They have involved themselves whole heartedly in acquiring the knowledge and skills necessary to facilitate the safe use and advancement of this expanding surgical modality. Nurses are important, contributing members of the laser team. From my experience, I have found that this is one surgical specialty that surgeons interact with the nurses as colleagues.

I work at Mount Sinai Hospital, a five hundred bed teaching hospital in downtown Toronto. My institute has had lasers since 1978 but, it has been in about the last six years that the program has expanded and really taken off. We presently have seven lasers in our twelve room operating suite and are currently evaluating another. My hospital offers a nurses' laser training course six to seven times yearly and we have seen a dramatic increase in the number of applicants for the course in the last two years. Our courses are now booked months in advance, therefore it is very obvious that laser use is indeed increasing.

The vast majority of patients having laser surgery at my hospital do so as inpatients. Seventy five percent of those patients have their procedures performed under general anaesthesia. I do forsee in the near future though that many of these procedures will be carried out in outpatient facilities, as in the United States.

I will be discussing the advances in general anaesthesia laser procedures. Many of these I have been involved in, while the others I have learned about through books, journals, conferences, observation and networking. The first area we will look at is Laparoscopic Laser Cholecystectomy.

Laparoscopic Laser Cholecystectomy

This approach has transformed gallbladder removal from a major abdominal operation to a minimally invasive procedure. Through news media coverage, this procedure is attracting wide patient appeal. The advantages of this method are: reduced hospital stays of 24-48 hours, a quicker recovery period with normal activity resuming five to seven days post-op, versus four to six weeks in the conventional surgical method, decrease in post-operative pain, better abdominal cosmetic appearance, reduced costs and minimal scarring. Disadvantages include: the surgeon must become a skilled laparoscopist which takes time, bleeding is harder to control, and there is always the possi-

Author

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bility that, due to complications, an open procedure may have to be substituted. This point must be carefully explained to the patient.

A general anaesthetic is administered to the patient. A nasogastric tube and urinary catheter are inserted to decompress the stomach and bladder thereby lowering the chance of inadvertent perforation. A verres needle is inserted through a lcm incision at the umbilicus with the patient in either a 10-15 degree trendelenberg or supine position. The abdomen is insufflated with $C0_2$ gas. The needle is then removed and a 10mm trocar and sheath is introduced through the same incision. The trocar is removed and a laparoscope inserted into the sheath. A light cord, video camera, suction and insufflation tubing are connected.

The surgeon then inspects the entire abdomen. This is displayed on the video monitors situated on either side of the patient at the head of the operating table. Under direct visualization, three more sheaths are placed in the right upper quadrant. These will allow for passage of instruments necessary during the surgery. The patient may then be placed in reverse trendelenberg, to allow the transverse colon to move away from the surgical field.

The neck of the gallbladder is controlled with a 5mm grasping forcep and the aerolar and fatty tissues are dissected using blunt and sharp instrumentation, until the cystic artery, cystic duct and common bile duct are clearly defined. Once these structures are identified, the cystic artery is doubly clipped proximally and distally at the neck of the gallbladder. It is partially cut medially to the clips from the common duct to this new orifice, to remove any stones that may be present in the cystic duct.

A cholangiocath may be inserted at this time through a sheath or through a stab wound in the abdomen, into the cystic duct. It is fixed into position with a clip placed behind the catheter or partially across. Cholangiograms can then be facilitated in the routine fashion. The catheter is then removed.

The cystic duct is doubly clipped close to the common bile duct. The laser fibre is inserted into the surgical field and divides the cystic duct and artery. The laser is used to precisely dissect the gallbladder from the liver bed while providing good hemostasis. This is facilitated by moving the gallbladder in all directions by means of the grasping forcep holding it. A final inspection of the gallbladder fossa is carried out before transecting the fundus of the gallbladder from the liver. The laser may once again be used to achieve final hemostasis if the fossa is not completely dry.

The gallbladder is held while the scope is removed from the umbilical sheath and then reinserted into one of the upper sheaths. The gallbladder is regrasped by a forcep inserted into the umbilical sleeve and the entire unit is delivered into the abdominal wall. From there, the forcep, sheath and gallbladder are removed through the single layer of fascia under direct camera vision. The gallbladder may have to be decompressed by means of a long needle to facilitate removal.

The abdomen is once again inspected, irrigated and the fluid aspirated. The gas is then allowed to flow out of the abdomen. Sheaths are removed and the incisions closed in the usual manner. The patient is then transferred to the recovery room.

Patients may experience shoulder pain due to the escape of gas into the pro-peritoneal space but, this is easily controlled by mild analgesics. Discharge is usually on the first or second post-operative day.

Laser standards are strictly adhered to during the procedure.Other procedures being performed using the laparoscopic laser technique are appendectomy, hysterectomy, hernia repairs and at my hospital, we hope to start on bowel resections.

As the general surgeons become more skilled in the modality of laparoscopic laser surgery, this less invasive modality will become the treatment of choice in more procedures.

Gynecological Applications

Pelvic endometriosis is rapidly increasing and being diagnosed in a younger age group of patients. The causative agent is ectopic endometrial cells migrating out of the uterus and implanting themselves in various locations throughout the pelvis and abdominal cavities. Severe pelvic pain and inability to conceive bring these patients to their gynecologists.

Traditional treatment of hysterectomy and bilateral salpingoophorectomy are unacceptable for these young patients. Open laparotomy to excise the endometrial implants involves a long recovery period and conservative treatments such as long term oral contraceptives and hormonal therapy can not be tolerated by some patients.

Laparoscopic Laser Applications

The less invasive surgical modality of laparoscopic laser endometriosis vaporization has been shown to effectively control the disease with more successful results.

In the operating room, a diagnostic laparoscopy under general anaesthesia is performed. A uterine mobilizer is inserted in the uterus so that it can be manipulated during the procedure. The pelvic cavity is insufflated with $C0_2$ in the usual fashion. The trocar and sheath are inserted and the trocar is removed. A laparoscope is inserted and if ancillary instruments are to be used, other puncture sites may have to be made.

The abdominal cavity, uterus and pelvic organs are visually inspected with the aid of a dull probe. If pelvic endometriosis is identified, the laser fibre is introduced.

The argon, Nd:Yag and frequency doubled Yag are the lasers of choice due to their color selective ability. The fibre is positioned about 0.5 to 1.0 cm from the endometrial implant and the area is coagulated until it becomes blanched to approximately 1mm beyond the margins of the implant. The darker color of the implants readily absorbs the laser energy while the lighter coloured surrounding tissue is relatively unaffected. This allows for precise removal.

Patients postoperatively may be maintained on hormonal therapy until symptoms subside. Investigators are reporting improvement in 70-75% of the patients. This surgery can easily be performed in day surgery units.

Laser Endometrial Ablation

The primary method of treating women experiencing chronic menorrhagia and metromenorrhagia has been the hysterectomy. The development of the hysteroscope used in conjunction with the laser has offered a new avenue of treatment to these women.

Via the hysteroscope, the surgeon can now diagnose and perform laser endometrial ablation inside the uterus. Patients having this surgical treatment are prescribed the hormone danazol for at least one month preoperatively. This drug promotes endometrial atrophy so that the uterine lining will respond more effectively to laser photocoagulation.

The anaesthetized patient is positioned in lithotomy. The cervical canal is dilated in the usual D&C fashion to accommodate the passage of the hysteroscope. Irrigating solution of 0.9% sodium chloride is hooked up to the scope. Input and output of this solution must be measured accurately so that the amount of fluid absorbed during the procedure can be calculated. Fluid absorption is increased in this procedure due to to the fact that the laser beam may open capillaries during ablation that will absorb the fluid. Fluid overload could result if too much is absorbed. If more than 1,000 mL are absorbed, a diuretic may have to be administered.

A non contact Nd:Yag fibre is introduced through a stopper on the biopsy port of the hysterscope and it is passed out the distal end of the scope. Laser standards are strictly adhered to. The laser energy is then used to ablate the total endometrial lining. The tissue is ablated until blanching is observed. Should bleeding develop, the laser is used to coagulate the vessel. The uterine cavity is reinspected for bleeders or missed areas. Irrigating fluid is removed from the uterus and the hysteroscope removed.

The patient may experience abdominal discomfort for the first 12 hours post op but, this is easily controlled with mild analgesics. Large amounts of bleeding, shortness of breath, severe pain or a high temperature should be reported to the surgeon immediately.

Gas Embolism has been reported in a couple of deaths in the United States during this type of surgery. Air or gas cooled fibres in addition to gas uterine insufflation should not be used when lasering. Minute vessels may be opened and the gas from the fibre and the intra-uterine pressure leads to seepage of gas into the venous system. The liquid distention medium such as saline, provides better visibility, permits adequate cooling of bare laser fibres and minimizes the risks of gas embolism.

The expected outcome of this surgical modality is to achieve amennorrhea or hypomenorrhea. Early studies have shown that the majority of patients were very satisfied with the results. To date, the results have been promising and should improve considerably as the treatment is perfected.

Photodynamic Therapy

Another promising advance in laser surgical modalities is photodynamic therapy (PDT) of cancerous lesions. It has been shown to eliminate cancerous cells with minimal injury to healthy cells. Early investigators found that the tumour cells produced a red-orange fluorescence when exposed to ultraviolet light. It was proposed that this was caused by the endogenous porphyrins found in bacteria.

An artificial porphyrins was then developed and it was found that when this was absorbed by the tumour, its fluorescencing ability increased. Later studies showed that when the fluorescing tumour was exposed to light, the tumour would be destroyed by a light reaction within the abnormal tissue.

Much investigation in this area has been carried out by Thomas Dougherty and his colleagues at Roswell

Park Memorial Institute in Buffalo, New York. The most effective combination of specific light and hematoporphyrin dye was explored to produce impressive tumour death results.

This experimental therapy is being investigated and compared to surgical modalities in about sixty centres around the world. The clinical trial areas currently being looked at are esophageal, bronchial and urinary malignancies.

Photofrin, which is the special artificial dye, is injected intravenously (2.0 mg/kg. of body weight) via a freely flowing intravenous solution of 0.5% normal saline and 5% glucose over five to ten minutes. This drug is absorbed by all body cells but, normal cells will excrete it approximately 24-48 hours after being injected.

These patients are brought to the operating room usually 48 hours after this injection. At my hospital, a general anaesthetic is usually administered to these patients,due to their debilitative state. The red light of a 630nm tunable dye laser is administered by a fibre to the tumour.

When the laser energy hits the tumour filled with the light sensitive dye, tissue destruction and tumour death results. Surrounding cells which do not contain the high concentration of dye are relatively unaffected. Research continues into dye composition, duration of light exposure and effective delivery systems as the trial results are being compiled. FDA approval should be forthcoming in the United States by 1992.

New protocols are being developed for the treatment of ovarian cancer and brain tumours. Quadra Logic Technologies Inc. of Vancouver holds the rights to Photofrin.

In the area of bladder carcinoma, patient's diagnosed with carcinoma insitu or non-invasive, recurrent papillary disease, now have an alternative to bladder removal. With cystectomy, male patients are left impotent and all patients must wear an urostomy bag.

PDT therapy allows patients to be treated as often as necessary. Dr. Shumaker, from Pontiac, Michigan, USA reports to have treated eighteen patients to date using this modality. Twelve of these patients have no recurrence of tumour over a period of one to six years. Cancer did recur in the remaining six and they went on to the traditional treatment of cystectomy or Nd:Yag laser treatment.

In the area of esophageal cancer, this therapy is palliative only. Patients having PDT seem to tolerate it better than alternative treatments. Patients following treatment can swallow without difficulty, have less pain, sleep better and are able to eat and enjoy work and leisure activities. Relapses do occur and the therapy can be repeated.

Dr. Balchum, in Los Angeles, California has been active in all phases of the lung research. He reports that patients with large endobronchial cancers, are treated with PDT to open the bronchus. Again, this is a palliative treatment only. The patients' breathing improves immediately which helps improve the quality of their life.

Dr. Balchum is also investigating early stage lung cancer. It appears that PDT may offer a cure to these patients, if detected early. In order for early detection to be achieved, he is taking advantage of Photofrin's capabilities - fluorescent diagnosis. Patients are injected with the Photofrin,in the usual manner. Bronchoscopy is carried out using a violet light. Suspect areas fluorese. These areas are biopsied and if positive, PDT treatment is carried out. This is a safe alternative and a much less invasive procedure than the lobectomy.

Some of the most exciting advances in neurosurgery are being carried out by Dr.Muller in Toronto. He is heading the team developing PDT treatment for brain tumours. As much of the tumour possible is removed surgically. This cavity is then inflated with a large balloon catheter and a fibre is inserted into it. The PDT laser is fired to remove residual tumour. The catheter can be left in the patient for up to three days, to facilitate a repeat treatment. Dr. Muller reports that all patients have shown some response. Brain tumours do not metastasize and thus this treatment could increase patient survival.

At Mount Sinai, we are in the lung protocol study. We are also on the compassionate protocol to treat patients who have inoperable obstructive rectal tumours with PDT. We have treated approximately fifteen patients in the last year, using this method. A water filled glass test tube, with fibre inserted through a locking cap, is inserted into the rectum. The laser is then turned on and the area treated for the calculated amount of time. The patient returns to the operating room two days later for a second treatment. The tumours have shrunk in size, some dramatically, and patient comfort is returned. This is an area where perhaps Dr. Balchum's fluorescing technique could be used for early detection and treatment, thereby avoiding major abdominal resections and perhaps death.

The main adverse reaction to this treatment is the

light photosensitivity these patients experience for four to six weeks post dye injection, therefore, patient teaching is an extremely important aspect of this modality. Teaching begins in the surgeon's office when the patient decides to undergo the treatment. The risks and benefits are thoroughly explained to the patient and brochures are given to reinforce this information. Exposure to sunlight could cause second or third degree burns.

Dark sunglasses should be worn for the first week following injection. Once home, the patient must cover windows that allow direct sunlight in the room where they will be. They are told to only go outside in the very early morning or after sundown. Should the patient have to venture out during the day, all exposed skin must be covered. Long sleeved clothes, gloves, hat, long pants, sunglasses and sunscreens with high SPF rating should be worn. When riding in a car, in daylight hours, the patient should sit in the backseat and cover the windows. Exposure to a very bright reading light for more than an hour, could also cause burns.

After four weeks, the patient is instructed to carefully test a small area of skin on the back of their hand for 10-15 minutes only. If no erythema or edema occurs over the next 24 hours, the patient is encouraged to go outdoors for short periods over the next week and a half and gradually increase the time. During the summer, light precautions should be maintained for up to eight weeks.

Lasers in Otology

Lasers have been used by otolaryngologists for about 15 years. The $C0_2$ was the laser they used to treat laryngeal, vocal cord and nasal pathology. The cumbersome articulating arm of the laser when attached to the microscope, and the slightly inaccurate aiming beam, slowed down the surgeon's expansion into the sensitive structures of the middle ear.

In the late eighties, the KTP laser, with its fiberoptic delivery system, provided the ENT surgeons the accuracy that they required. Today, tympano mastoid procedures and stapedectomies are being performed using the laser.

Laser stapedotomies are being performed on an outpatient basis. The laser is employed along with hand held instruments. Trauma and bleeding are reduced and the patients experience little or no vertigo and are released home a few hours post-operatively.

The patient receives I.V. sedation and a local anaesthetic. A tempanomeatal flap is turned in the conventional manner and the oval window is exposed.

The laser is used to vaporize the stapedial tendon and the posterior crus. Bone char is suctioned from the surgical field and the incudostapedial joint disarticulated. If the anterior crus is visible, it is vaporized and the substructure of the stapes is removed. Six to eight laser firings are grouped circularly on the footplate, creating a fenestra. Bone is removed by a fine suction tip and rasp. A piston is inserted into the fenestra and secured to the incus. The area is then sealed with tissue. The incision is closed and packed in the traditional manner.

Considering the foregoing discussed procedures it can be appreciated that laser surgical treatment modalities are indeed advancing. New applications, wavelengths, and surgical skills are constantly developing. The less invasive surgical treatments are very appealing to patients, surgeons and health care facilities. It is a very exciting area of surgery in which to be involved.

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Laser Nursing - A Perioperative Challenge

By Penny J. Smalley, R.N.

Laser technology, once a dream of scientists and visionaries, has now become an accepted method of surgical and medical treatment in hospitals, clinics, and private offices, around the world. The technology has had an impact on every clinical discipline, including general surgery, otolaryngology, dermatology and plastic surgery, gynecology, neurosurgery, gastroenterology, urology, ophthalmology, podiatry, physical therapy and oncology.

The explosion of high technology in the clinical setting has created the need to redefine the traditional role of the perioperative nurse. The expanded role focuses on a combination of standard nursing practice - evaluation of patient's needs, and implementation of care planned to meet those needs - with an expanded scope of practice focused on technical, operational, and administrative skills. The laser nurse specialist is challenged to incorporate a whole new vocabulary and knowledge base into an already complex practice. That requires training, practice, and dedication, often uncompensated, and rarely recognized. However, the excitement of being part of a rapidly growing, dynamic field of medicine, does serve to reward the nurse who perseveres and takes advantage of his/her opportunity to learn and grow professionally.

In order for a hospital to maximize its acquisition of laser technology, it must first establish organized administrative governance. Lasers affect every aspect of providing care, from clerks to professional staff, and in order to manage it, a laser committee must be formed. The mission of the committee, is to provide guidance and overall supervision of lasers in the facility. Since laser surgery is a collaborative, multidisciplinary effort, the committee should be comprised of: physicians from every clinical discipline using or interested in using lasers; the operating room supervisor; endoscopy or out-patient supervisor (if lasers will be used in these areas); biomedical engineering; risk management; the laser safety officer; hospital administration; anesthesia; planning and development department; and, continuing education (both medical and nursing).

Laser committee meetings should be scheduled at regular times, with a written agenda, and can address many topics such as: credentialing of medical staff, education and training of nursing staff, acquisition of equipment and instrumentation, new procedures, case reviews, safety audits, development of documentation methods, quality assurance monitoring, engineering concerns, clinical research programs, patient education materials, evaluation of reference materials, and updating of policies and procedures. The chairperson is usually a physician, and co-chair, the laser safety officer. Once a laser program is well established (one year average for start up), the committee meets as needed, with a minimum of quarterly, for review.

Once the committee is functioning, the program plan can be developed. This includes a time line that allows for proper training before the laser is put into clinical use. Educational needs of both medical and nursing staff must be evaluated, and classes must be scheduled. Operational inservice is provided by the manufacturer, but does not include the fundamental theory of laser technology. It is essential for everyone who will work with lasers, to attend formal classes that present: laser physics, tissue interactions of all the commonly used wavelengths, instrumentation and delivery systems, safety, case management, and clinical applications.

Laser education can be obtained in several ways, depending on the facility and its needs. Continuing education courses are available periodically, in the

Ten Point Laser Program Review

1. Organizational structure
   a. Laser committee membership / leadership
   b. Meetings regular / preset agenda
   c. Has the committee dealt effectively with problems
2. Staffing
   a. Laser Safety Officer position established and defined
   b. LSO effective in dealing with problems / concerns
   c. Expansion of position and /or alteration of duties needed
3. Equipment
   a. Timely repairs and PM
   b. Additional lasers / instrumentation needed
   c. Smoke evacuation up to date / additional needed
   d. Safety equipment in good repair / additional needed
4. Policies / Procedures
   a. Annual review of current P/P
   b. Updates complete
5. Quality Assurance
   a. Documentation reviewed
   b. Incidents reported
   c. Statistics
   d. Problems identified / Action taken
6. Continuing Education
   a. Medical staff - new wavelengths/procedures
   b. Nursing staff - annual updates/on-going inservice
   c. Additional staff to be trained
   d. Meetings/professional organization activities
7. Recredentials
   a. Policy established
   b. Implementation
8. Marketing
   a. Strategies
   b. Physician based/community based
   c. Telemarketing
   d. Measurement/data collection
9. Expansion
   a. New procedures
   b. New MD's recruited
   c. Clinical research
10. Further Program Review
    a. Monthly Laser Committee meeting reports
    b. Quarterly/Annual review

United States and Canada, providing the required didactic and laboratory experiences. Appropriate courses will be sponsered by and academic institution (not a commercial enterprise) and will be taught by nationally recognized leaders in the field. Both nursing and medical/surgical courses must include hands-on labs with appropriate tissue models, so that the surgeon can learn to apply the laser safely. Fees for these courses vary, as does the quality, and should be carefully evaluated by the laser committee.

On-site courses are also available. These are beneficial if a large number of people need to be trained, and the facility and administrative support is available. These courses cost less than off-site courses, and are valuable because they utilize the equipment that will be used in the facility. Physicians and nurses do not have to travel and take time away from practice, and instruction is more personalized. On-site courses can be planned with the help of several well established resource companies and consultants. Laser organizations such and the American Society for Laser Medicine and Surgery, Laser Institute of America, and professional specialty organizations, can provide references.

There are no national, international, or professional standards set for educational criteria. Credentialing and certification remains the responsibility of each facility, and is usually based on consensus standards, developed over the past few years.

The laser safety officer should receive intensive training, and participate in continuing education programs for the nursing and support staff. He/she will function as the program coordinator, as well as operational manager. He/she has clinical, administrative, and technical responsibilities, and should be a person who will be available, in the operating suite whenever the laser is in use. This does not mean that the LSO is the person designated to operate the laser for surgery, but is there to back up the laser nurse, trouble-shoot, and assure safe and appropriate laser use. The LSO is often a nurse, but can be an engineer, or other specifically trained person.

Policies and procedures must be written and approved before the laser is in clinicial use. These should address all aspects of laser use, including: credentialing, nursing certification, job description of the LSO, equipment maintenance, operation of equipment, anesthesia and airway management, quality assurance, documentation, ocular safety for patient and staff, control of access, hazard determination and control measures (flammability, electrical, reflectivity), *(cont. p.18)*

laser plume management, and care planning. Sample policies will be found in the appendix. They are intended as guidelines, and should be used to help format individual facility's policies.

Standards, policies, and applications are constantly changing, and it is mandatory for the laser safety officer or other designated person to keep up with those changes if the program is to continue to grow and function safely. Journals, and other laser publications (listed in appendix) can provide current information.

Laser Safety Officer - Position Responsibilities

As a manager, the Laser Safety Officer:

1. Writes, reviews, and updates all policies and procedures.
2. Participates actively in equipment evaluation procedures.
3. Co-chairs the Laser Use Committee.
4. Performs documentation audits.
5. Monitors and reports on quality assurance of the program.
6. Establishes and maintains a resource centre.
7. Contributes to creation of patient education materials, and makes physician office visits for direct marketing.
8. Joins professional organizations and keeps the Laser team current with new technology and applications.
9. Reviews and updates all aspects of the program, with respect to new standards and regulations.
10. Directs continuing education programs, staff orientation, and physician inservice activities.
11. Contributes to clinical research projects.

As a clinical expert, the Laser Safety Officer:

1. Supervises daily operations.
2. Conducts inservice and continuing educations programs.
3. Monitors quality assurance, and incident reporting.
4. Contributes to the Laser Use Committee activities.
5. Functions as a liaison between physicians, nurs ing staff, vendors, and hospital administration.
6. Joins and participates in professional organizations, in order to maintain and expand clinical expertise.
7. Supervises equipment evaluation procedures.
8. Encourages and supports the Laser team.

Nurses working with laser patients have an added responsibility for developing and implementing patient care plans that address their specific concerns and needs. Most patients have preconceived ideas about laser treatment - not all of which are accurate, and it is important for the nurse to be able to sort out myth from fact, and provide realistic answers to questions.

While most patient preparation occurs in the doctor's office, the perioperative nurse must reinforce and reassess that preparation at the time of surgery. If the patient is awake during surgery, anxiety levels can be very high, and most verbal instruction will be blocked. An effective educational tool for pre-surgical consultation, is a photo book showing pictures of both nurses and patients wearing safety goggles, the danger sign on the door, the laser equipment, laser impact on a piece of fruit showing plume, and the inside of the operating room with the equipment in place. Environmental influences such as sights, sounds, and smells are very frightening to the unprepared patient. If they have the opportunity to see photos ahead of time, they will be better prepared, more compliant, and there will be less risk of complications. Overall satisfaction improves for both patient and care givers.

Perioperative laser care planning should also include an overview of discharge plans, since many laser patients require at home follow-up and office appointments. The patient's care provider should attend the discharge consultation, and should be given a copy of written instructions summarizing required steps in follow-up care. It is important to provide a laser nurse's telephone number, because questions often occur after the patient leaves the hospital, and no longer has immediate access to information.

The first decade of laser technology in surgery was concentrated on developing safe, effective, and viable clinical applications. Nurses were involved in learning instruments, and operational skills necessary in surgery, as well as the rationale for the use of the technology. There was a significant change in the laser nurse's perioperative role, with expanded responsibility, and increasing challenges. Now, as the second decade begins, nursing has shifted it's focus beyond the immediate concerns of equipment, and it's operation. Program planning and development, administrative strategies, participation in clinical research, and new technology, have all affected the profession.

The network of laser nurses now encompasses every state in the United States, every province in Canada, and many countries around our rapidly shrinking world. Information is readily available, and nurses have increasing opportunities to contribute to the growth and enhancement of laser nursing as a recognized specialty within the nursing profession.

Ocular Safety

Purpose : To prevent ocular injuries to patients receiving laser treatment, or to personnel working in the laser room.

Policy : All personnel will adhere to eye protection procedures during all laser applications. Service personnel, biomedical technicians, and those involved in demonstrations and equipment evaluations will follow all ocular safety procedures whenever a laser is in operation in this facility.

Procedure:

1. Appropriate eyewear will be worn by everyone in the room while a laser is in operation.

2. Personnel will wear comfortable and properly fitted eyewear, labeled with wavelength (in nanometers) and optical density.

3. All goggles must have side shields to protect from peripheral impact.

4. Contact lens wearers must wear appropriate goggles.

5. Eyewear will be examined prior to use for defects in the optical coating. If scratched or cracked, they must be replaced.

6. All personnel will wear appropriate safety eyewear during all endoscopic, video, and/or ophthalmic procedures.

7. Patients receiving local or regional anesthesia will wear appropriately labeled eyewear while the laser in in use.

8. Patients receiving general anesthesia, will have wet cloth towels placed across the eyes, or will be fitted with properly labeled eyewear. No metal or disposable materials will be placed on the patients face or eyes.

9. The Laser Safety Officer will inspect all safety eyewear monthly, and replace defective goggles filters, and lenses.

Approved:
Date: Date Reviewed:

Appendix - Recommended Laser Program Policies and Procedures

1. Laser Committee - Structure and Function
2. Laser Safety Officer - Job Description
3. Credentials for Medical Staff
4. Education and Training for Support Staff
5. Equipment Acquisition / Maintenance
6. Equipment Operations
7. Medical Surveillance of Health Care Personnel
8. Quality Assurance / Risk Management
9. Anesthesia / Airway Management
10. Ocular Safety - Patient and Personnel
11. Control of Flammability Hazards
12. Controlled Access
13. Electrical Safety
14. Laser Plume Management
15. Patient Education / Discharge Planning
16. Documentation

Controlled Access to the Laser Room

Purpose: To define the area in which controls must be applied, and to describe the control measures necessary in order to maintain a safe treatment working environment for patients and a safe working environment for personnel.

Policy: Lasers will be operated only in areas where traffic flow and compliance with all safety procedures can be controlled and monitored.

Procedure:

1. Regulation *Danger* Laser signs will be prominently posted at eye level on all doors that access a room where a laser will be operated. These signs will state the wavelength and class of laser to be used.
2. Safety goggles of the appropriate wavelength will be placed with each door sign posted.
3. Glass windows will be covered with _____ whenever a fiberoptic laser (Nd:YAG, KTP, Argon) is to be operated. Coverings will remain in place while the laser is operational.
4. Laser keys will be kept in _____ and signed out only by those authorized to do so.
5. All procedures will be followed during service calls, demonstrations, and evaluations, as well as during clinical procedures.

Approved: Date: Date Reviewed:

(cont. p.22)

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Laser Safety - Fiber Optic Delivery Systems

1. Only laser trained personnel will operate the laser and it's delivery systems.
2. All policies and procedures will be followed whenever a laser is used.
3. Lasers and accessory equipment will be positioned in the procedure room and checked prior to use.
4. Appropriate eye safety filters will be used with endoscopes, and microscopes.
5. Windows that access the laser room, will be covered completely with shades, blinds, towels, or appropriate filters.
6. Position laser, fibers, smoke evacuation unit, foot pedals, hoses, and cords, for safe traffic patterns in the room.
7. Examine the fiber for breaks or damage of the distal tip, the proximal connector, or along the catheter sheath.
8. Calibrate the fiber according to the manufacturer's directions.
9. Always use appropriate coaxial cooling with a fiber. **Never use gas/air in uterus.**
10. Never fire the laser unless you visualize the distal tip of the fiber, at least one inch beyond the end of the endoscope.
11. Never fire the laser unless you see the aiming beam.
12. Monitor the patient, the equipment, and the environment, throughout the laser procedure.
13. Monitor the fiber for :- distortion of the beam
    - decreased power transmission
    - accumulation of debris on the tip
    - proper handling at all times
14. Never place the fiber directly on paper drapes, or in water for cooling. Wait until tip is cooled (usually 20-30 seconds, but may be longer if contact tips are used).
15. Never use alcohol in the operative field. Fibers may be rinsed in hydrogen peroxide or saline intraoperatively.
16. Always put the laser in standby when not aimed at target.
17. Dispose of fiber, or repolish according to manufacturer's directions, after use.

- Do not reuse disposable fibers -

Laser Plume Management

Purpose: To effectively remove laser plume contaminants from the laser impact site, in order to reduce the risk of transmission of potentially hazardous particulates to personnel in the laser room.

Policy: A laser plume management system, appropriate to the laser wavelength and clinical application, will be employed whenever a laser is in use.

Procedure:

1. Position smoke evacuator, or recirculation unit for closed procedures, in room whenever a laser case in anticipated.
2. Check the operation of the system, prior to the beginning of the case.
3. Install a clean filter on the system, if it has been used_____, or for contaminated cases. (HIV, Herpes, Condyloma).
4. Follow standard hospital procedures for han dling of biohazardous materials.
5. In-line filters with 0.3 micron filtration, will be placed between wall suction and the fluid cannister for: a. suction lines not connected to evacuator
   b. cases producing minimal plume
   c. evacuator fails before or during procedure
6. Distal collection port of the smoke evacuation system must be no more than 2 cm from the impact site.
7. Laser masks (minimum 0.3 micron filtration) must be worn by everyone in the laser room.
8. All tubing, connectors, adaptors, and wands will be changed_____.

Approved:

Date: Date Reviewed:

References, Resources, and Publications

American Society for Laser Medicine and Surgery
2404 Stewart Square, Wausau, Wisconsin 54401
(715) 845-9283 Fax: 848-2943

Laser Institute of America
12424 Research Parkway, Orlando, Florida 32826
(407) 380-1553 Fax: 380-5588
Secretariat for the Ansi Z136.3 Standards

American Board of Laser Surgery
Stanley Stellar M.D. - President
2722 W Oklahoma, Ste 202, Milwaukee, Wi 53215
(414) 643-1066 Fax: 643-5219

(Continued page 25)

Test Firing the CO_2 Laser

Purpose: To determine the operational status, beam alignment, and beam geometry of the CO_2 laser prior to use.

Policy: The CO_2 laser will be test fired on the day it is to be used, prior to a scheduled laser procedure. It will also be tested if it is moved from room to room, or involved in service, demonstrations, or other non-surgical uses.

Procedure:

1. Set a room up according to controlled access procedures.
2. Drape mayo stand with wet cloth towels (no metal exposed).
3. Follow all ocular, flammability, electrical, and other appropriate safety precautions throughout the test.
4. Place wet tongue depressor on wet towel surface.

-Be sure target is placed at the same angle as the laser delivery system (Microscope,handpiece,etc.)

5. Set laser for 5 watts, with single short time exposure.
6. Fire onto the wet tongue depressor.

-Never fire if you do not see the Helium - Neon beam.

7. Examine test spot for alignment and proper geometry.
8. Fire once in all modes on control panel

-continuous wave
-super pulse
-all time exposures, single and repeat

9. Turn off laser, or place in standby if it is to be used right away. Do not leave laser controls while it is in operation.
10. Document test results on log sheet.

Approved:
Date: Date Reviewed:

Author:

Penny J. Smalley, R.N., is the President/CEO, Laser Concepts International, Inc., Chicago, Illinois. Ms. Smalley has consulted in several hospitals in Canada.

(See Laser Survey pages 28 & 29)

Conference Calendar

British Columbia
Operating Room Nurses Group
Provincial Conference,
Hotel Vancouver - Vancouver, B.C.
April 9 - 11, 1992
Theme: "Value, Vision,Venture"
(See page 35 of this issue for details)

The Operating Room Nurses of Ontario
Sponsoring their 2nd Provincial Conference
April 12th-15th, 1992
at the Harbour Castle Westin Hotel, Toronto.
(See page 33 of this issue for details)

Manitoba Operating Room Nurses
meeting jointly with the
Manitoba Association of Post Anaesthesia Nurses
June 7 - 9, 1992 - Winnipeg
(See page 34 of this issue for details)

1993
Quebec City, Quebec
13th National
Operating Room Nurses Conference
June 6th - 11th, 1993 .

Theme: "Global Vision of Care, Guide in the Midst of Automation".

The 1993 ORNAC national conference will be hosted by the Quebec Operating Room Nurses Group.

World Conference of Operating Room Nurses - VIII - September 6-10, 1993
Adelaide, Australia

ORNAC has decided the same mountie shirt and red hatwill be the official Canadian dress at this Australian World conference. The costumes are still available for sale. Announcements will be made in the Journal and Provincial newsletters.

Brachial (upper arm) vein approach to venous access favoured by nurses

A simple alternative to subclavian or jugular approaches to a long-term central venous access is through the brachial or axillary (upper arm) veins according to a radiologist who calls the approach not only safe, reliable and simple, but much favoured by nursing personnel - and patients as well.

Easily accessed

Dr. James Andrews, assistant professor of radiology at the University of Michigan, Ann Arbor, said that the mid-upper arm route (brachial or axillary area) is easily accessed even in patients with poor peripheral veins. He also pointed out that it permits patients to hide the external catheter or implanted port under a shirt.

Addressing a meeting of the American Roentgen Society in Boston recently, Dr. Andrews told delegates that over the past two years over 200 central venous access devices had been placed in 195 patients through the brachial, axillary or basilic veins under fluoroscopic guidance in a 30-to 60-minute procedure.

Nursing endorsement

Admitting that patient acceptance had been "outstanding," he stressed that it was the active endorsement of nursing personnel that had made the technique the success it was.

The majority of the referrals for the new venous access approach came from oncology cases which require prolonged central venous access for delivery of chemotherapy and other medications. Other patient referrals included those with AIDS, cystic fibrosis and osteomyelitis,

Dr. Andrews pointed out that the conventional approaches for chronic venous access has usually involved the subclavian or jugular veins. When these veins are not available, he said, a recently adopted option has been the trans-lumbar route to the inferior vena cava. Another choice used is the peripherally inserted central catheter or PICC line.

Limitations

However, all these choices and options have limitations. For example, any puncture of the subclavian or jugular veins has an attendant risk of pneumothorax. In addition, the cost and logistics of scheduling operating room time for such procedures are significant and always are associated with the risk of a catheter malposition.

As well, chest wall devices cannot be placed in some patients who have undergone prior chest or head and neck surgery, or those who with an active disease, i.e., inflammatory breast cancer.

Also not candidates, particularly for the PICC line are those patients with poor peripheral access.

By far the major drawback to traditional venous access routes, Dr. Andrews said, is patient acceptance. They dislike the tubing hanging out of their chest wall.

Obstacles circumvented

Admittedly more acceptable to patients has been the totally implanted port, which also accesses the superior vena cava via the same veins. Although thousands are implanted annually, patients object to the visible scar.

All these obstacles are circumvented, Dr. Andrews points out, through the brachial approach. He told his listeners that he has already placed over 179 devices in 174 patients ranging in age from 17 to 91 years.

Dr. Andrews says he has had a 100% success rate, some involving patients requiring two devices in the same arm and, in three cases, the opposite arm was accessed after attempts failed with the other arm.

The catheters threaded into the superior vena cava have remained indwelling and functional for up to 81 weeks, with the medium duration being 15 weeks.

The procedure

The procedure is performed in the angiography unit and does not require a surgeon. A small intravenous line is started peripherally in the same arm and a little contrast is injected and observed under fluoroscopy. The largest selected vein is punctured in the mid to upper third of the arm and once a dilator is inserted, a guidewire and then the catheter is advanced into its position with the tip in the superior vena cava.

Disadvantage

A disadvantage of the brachial-arm approach to venous access is that these arm veins cannot accommodate large diameter catheters such as the triple lumen Hickman required in bone marrow transplants.

The upper arm (brachial vein) approach is also not applicable for those patients who need two hands to self-administer medications, such as hemophiliacs. ■

Laser Safety Survey

Introduction

This is the first formal survey conducted by the *Canadian Operating Room Nursing Journal.* The response to this safety survey will have benefits of itself, but will also greatly influence the Journal's decision to undertake a major national survey of operating room departments in Canadian hospitals in the coming months. It is our hope, in collaboration with the Operating Room Nurses Association of Canada to establish a data base of ORs in Canada, which will eventually provide to the Association and the Jouranl information on personnel, equipment, procedures and practices. Therefore, we urge your earliest response whether your hospital is a single laser user or a major laser centre with 10 lasers. Please ensure the Laser Safety Officer or the OR Supervisor in your hospital submits this survey to the Journal. We thank you in advance for your interest and cooperation.

Hospitals have experienced rapid, fragmented growth of laser technology over the past ten years, thus safety standards have been applied with some inconsistencies. Physicians and nurses learn different interpretations of what constitutes proper safety practices, resulting in poor compliance in the operating room, and difficulty in enforcing policy.

Health and Welfare Canada, Canadian Standards Association (CSA) and the College of Physicians and Surgeons of Canada are all working on their own standards of training and practice for the safe use of lasers. CSA Standards will be available in June, 1992.

This Safety Survey was conducted in the United States by Penny Smalley, Pres./CEO, Laser Concepts International, , Chicago, Ill., and was published in the *Journal of Laser Applications*, Winter, 1991. It is reprinted here with minor modifications with the kind permission of the Laser Institute of America.

Please answer all questions as completely as possible by **circling** the appropriate **yes or no**.

Please mail or **Fax** a photocopy of this completed survey (p.28 & 29), along with your comments to:

Laser Safety Survey
Canadian Operating Room Nursing Journal
14453 29A Ave.
White Rock, B.C., V4A 9K8
Fax: (604) 535-9000

1. Does your facility have a copy of ANSI Z136.3 standards? yes no
2. Does your facility follow ANSI Z136.3 standards regarding:
   a. Laser Committee function yes no
   b. Laser Safety Officer job description yes no
   c. Baseline Eye Exams for employees yes no
   d. Eyewear selection and labels yes no
   e. Controlled access yes no
   f. Environmental hazards / controls yes no
3. Do you require safety goggles worn during:
   a. video procedures yes no
   b. endoscopy yes no
   c. ophthalmic procedures yes no
4. Do you post regulation Danger signs on all laser access doors? yes no
5. We have written policies/procedures for the following:
   a. eye safety for patient yes no
   b. eye safety for personnel yes no
   c. controlled access yes no
   d. control of flammability hazards yes no
   e. physician credentialing yes no
   f. nurse/support staff certification yes no
   g. documentation/log sheets yes no
   h. airborne contaminants yes no
   i. operations of the laser yes no
   j. equipment maintenance yes no
   k. airway management yes no
6. Do you have a Laser Safety Officer? yes no
   If yes, the LSO is a:
   a. Nurse
   b. Biomedical Tech
   c. OR Tech
   d. LPN e. other _____
7. Who operates the Laser (RN, LPN, ORT, etc) ?
   _____
8. Do you receive current laser literature:
   a. Clinical Laser Monthly yes no
   b. Laser Nursing Magazine yes no
   c. ASLMS journal yes no
   d. LIA journal yes no
   e. other _____

9. How do you manage laser plume during procedures:
   a. smoke evacuator
   b. in-line filters
   c. laser filter masks
   d. biohazard waste disposal procedures
10. What type of window covering do you use for fiberoptic lasers?
    a. Opaque window shades
    b. green cloth towels taped over windows
    c. blinds
    d. filtered glass or plastic panels
    e. other _____
11. Do you have a dedicated laser operator (3rd person) in the room during laser procedures?
    a. Always b. Sometimes c. Never
12. Have you ever had an incident regarding:
    a. staff using safety eyewear yes no
    b. physicians using safety eyewear yes no
    c. use of wet draping materials yes no
    d. use of standby mode yes no
    e. use of flammable solutions / materials yes no
    f. use of reflective instruments yes no
    g. anesthesia / airway management yes no
    h. mechanical accident yes no
    i. electrical accident yes no
    j. patient burns yes no
    k. staff burns yes no
    l. physician burns yes no
    m. methane gas ignition yes no
    n. accidental activation of laser yes no

    If you checked yes for any of the above, or had incidents not mentioned above, please briefly describe the incident.

    _____
    _____
    _____
    _____
    _____.
13. Do you have a nursing certification process? yes no
    a. classroom lecture yes no
       -number of hours _____
    b. demo / return demo yes no
    c. written exam yes no
    d. skills checklist yes no
    e. preceptorship yes no
       - number of cases _____
14. Who is trained in your facility?
    a. Full staff - number _____
    b. LSO only
    c. Core group - number _____
15. Laser education was provided by:
    a. Manufacturer - _____ CEU's
    b. In-house staff educator - _____ CEU's
    c. Attending outside courses - _____ CEU's
    d. Consultant - on site - _____ CEU's
    e. Video/Correspondence - _____ CEU's
16. Do you have periodic laser updates?
    a. annually yes no
    b. as needed yes no
    c. never yes no
    d. plan to, but haven't yet yes no
17. How would you describe your facility's approach to lasers?
    a. We are a laser center
    b. We plan to become a laser center
    c. Laser is a product line
    d. We offer laser as a treatment option to our patients
    e. other _____
18. Demographics
    a. hospital bed size_____
    b. number of ORs (including cysto and OP)_____
    c. number of lasers: CO_2_____
       Argon_____
       Nd: YAG_____
       KTP_____
       Ophthalmic_____
       Flash pumped Dye_____
       Tunable Dye_____
       Metal vapor_____
       Other_____
    d. number of laser procedures per month_____
    e. number of physicians currently credentialed_____
19. Optional information (please complete if you wish to receive a report of the findings of this survey).
    Name_____
    Title_____
    Institution_____
    Mailing Address_____
    _____
    Telephone_____Fax_____
20. What concerns you most about laser safety in your practice?
    _____
    _____

(Please do not pull-out pages - **Photocopy pages 28&29** and submit to the Journal for tabulation. Watch for the results to be reported in a forthcoming issue.)

Thank you very much for your participation!!!

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- LEVEL I TRAUMA CENTER

TEMPLE UNIVERSITY HOSPITAL OR NURSES WILL:

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Experts in preventative medicine say the key to good health: Eat more, exercise more, weigh less

Research is suggesting that the key to good health may be eating more, not less. In fact, low calorie intake may be placing millions of people at increased risk for heart disease, osteoporosis, and perhaps some cancers.

Dr. Peter Wood, a professor of medicine at the Stanford Medical School, argues that the key to health is eating and exercising more.

"Simply getting people to eat less food is not a very good idea," Dr. Wood said at a recent conference sponsored by the Dairy Council of California. He reported that when the incidence of myocardial infarction was measured over a 12-year period in Goteborg, Sweden, it was the women with the lowest daily caloric intake who were likely to suffer a heart attack.

In explaining this phenomena, Dr. Wood said that people eating more food are usually more active and burning off the extra calories. It could be as well, he continued, that those eating the fewest calories are fighting a weight problem and instead of increasing their activity level are restricting their food intake instead.

He itemized the health benefits that accrue when people start exercising more, eating more and weighing less:

- On an average scale, moderate exercise increases high-density lipoprotein (HDL) cholesterol by about 10 mg/dL compared to sedentary controls. This translates into approximately 30% less risk of developing heart disease.
- Obesity in the abdominal area probably carries most of the risk associated with being overweight. Exercise is particularly good for reducing abdominal fat.
- Studies performed by researchers at Stanford University indicate that both men and women over 50 years of age who run or exercise regularly (up to three miles a day or its equivalent in other exercise forms) have a 40% higher spinal bone density compared with sedentary controls.
- Active people make better food choices. In the preceding study, the runners ate 45% of their calories in the form of carbohydrates compared to 40% for the controls.
- The best weight-loss approach is still a combination of exercise and diet. In a recent study published in the *New England Journal of Medicine*, a team from Stanford University reported finding that adding exercise to a moderate diet almost doubles the percent of body fat loss for men, with slightly less loss of fat for women.

The Operating Room Nurses of Ontario
Present the 2nd Provincial Conference

"Present Concerns, Future Visions The Responsibility is Ours

Harbour Castle Westin Hotel, Toronto, Ontario
April 12th-15th, 1992

The Program topics are applicable to all operating room and day surgery nurses.

Sunday, April 12
Registration
Welcome Cocktail Reception

Monday, April 13
Opening Ceremonies
Keynote Address-Change and Challenges
ORNAO Information Meeting
° **Visits to the Exhibits**
- Excimer Laser Correction of Myopia and Astigmatism
- I Don't Want to Go to Work Today!
- Image and Impact

"Ethicon Night" sponsored by Johnson & Johnson Medical Products

Tuesday, April 14
- The Complexities of Limb Salvage Surgery
- Take Charge, it is Your Career!
- Cinderella Doesn't Work Here Anymore
- Finding the Balance

° **Visits to the Exhibits**
- What is Financial Planning and Tax Implications
- Laparoscopic Surgery
- No! Nurse You Don't Have to Take It!

Exhibitor's Cocktail Reception
Dinner/Dance - "Swing into Spring"

Wednesday, April 15
- Micro TUMT
- Mandatory Testing and the Right to Know
- You the Person
- Wen-Do: Effective Self Defence for Women
- Oral and Maxillofacial Surgery: The Hidden Art

° **Vists to the Exhibits**
- Jest for the Health of it
- Closing Ceremonies

Delegates Fees:

Three Day Rate (does not include banquet ticket)	
Member	$180.00
Non Member	$225.00
Daily Rate	
Member	$60.00
Non Member	$75.00
Dinner Dance Ticket	$50.00

For further information please contact:
Judi Tyndall
16 Hackney Ridge
Brantford, ON. N3P 1S8

Exhibitors Contact:
Carole Starr, Operating ROom,
Peterborough Civic Hospital, Peterborough, Ont.

The Conference Committee Members are:
Hilda Gatchel, (Conference Committee Chairperson), Oshawa General Hospital, Oshawa. **Vija Hay,** (Vice-chair and Protocol), Queensway Carelton Hospital, Ottawa. Sharon Ball, (Program Convenor), **Jocelyn Staynes**, (Treasurer), St. Catharines General Hospital, St. Catharines. **Carole Starr** (Exhibitors), Peterborough Civic Hospital, Peterborough. **Wanda Ward**, (Hospitality), Orthopaedic and Arthritic Hospital,Toronto. **Darlene Beaudet**, (Registration) Metropolitan Hospital, Windsor. **Judi Tyndall**, (Publicity), Henderson General Hospital, Hamilton, and **Diana Jorgensen**, (Hostesses), North York General Hospital, Toronto.

The Manitoba Operating Room Nurses' Association and the Manitoba Association of Post Anaesthesia Nurses present the First Joint Provincial Conference

Perioperative Nursing - Sharing The Experience

June 7 - 9, 1992 Fort Garry Place, Winnipeg, Manitoba

Sunday June 7, 1992

Registration / Wine & Cheese Reception

Monday June 8, 1992

Registration (Lobby, 5th Floor)

Welcome Address

MORNA President-*Audrey McPhaden* R.N. Special Procedures, Angiography Health Science Centre

MAPAN President-*Erin Billson* R.N. P.A.C.U. Children's Hospital, Winnipeg.

Opening Remarks

Conference Chairperson-MORNA-*Christina Shymko* R.N. OR- St Boniface General Hospital.

Conference Chairperson -MAPAN-*Gisele Milloy* R.N. P.A.C.U. Misericordia General Hospital.

Shiftwork and Performance-Understanding the role of stress and shiftwork-Sleep Research-Adapting to shiftwork using chronohyglene. Key Speaker: *Jon Shearer*, President Jon Shearer & Associates, Ottawa.

Concurrent Sessions:

- **Common Suturing Techniques for Skin Closure** *Dr. Rick Bendor*-Samuel-Dept of Plastic Surgery, University of Manitoba, Winnipeg.

- **Anaesthesia for Ambulatory Surgery Patients** *Gerry Lefevre*, M.D., Dept of Anaesthesia, St. Boniface

- **Handling of Abuse-Empowerment or Enabling** *Belle Gowrfluk*, Nursing Mgr, Nursing Admin, Seven Oaks General Hospital, Winnipeg.

- **Pediatric Anaesthesia**-*Cathy Bachman*, M.D. Dept of Anaesthesia, Children's Hospital.

1100-1400 - Viewing of Exhibits & Lunch

- **Extracorporeal Shock Wave Lithotrispy** *Denis H. Hosking* M.B., FRCS Ed, FRCSC , Dir of Lithotripoy Unit Section Head and Pgm Dir, Section of Urology, Health Science Centre Univ of MB.

- **Post-OP Pulmonary Complications** *Gerry Lefevre*, M.D., Dept of Anaesthesia St. Boniface Hosp.

- **Organ, Donation and Transportation** - *Starr Begin* R.N. Co-ordinator Transplant Program Health Science Centre, Winnipeg.

- **Women and Wellness** -*Judith Hale, Employee* Assist Program Councillor St. Boniface Gen Hosp

1830-2230 Murder Mystery Theatre/Dinner

Tuesday June 9, 1992

Registration

Concurrent Sessions:

- **Hospital Waste Management in the 90's.** *David J. Clark* MSc., P.Eng., Environmental Engineering and Planning Group with M.M. Dillon.

- **Ophthalmology Wet Lab**-The use of Phacoe mulsification in Cataract Surgery and Intraoccular Lens Implants

- **Outpatient Pre-Admission Assessment Clinic** Development and Implementation of the program established at Seven Oaks Gen Hosp. *Francis Labossier* R.N. Nursing unit Coord, Pre-Admissions Clinic, Seven Oaks General Hospital, Winnipeg.

- **Keeping In Step With The 90's** - A look at sterilization skills of the past with and update on current sterilization guidelines. *Elizabeth Wyness* R.C.ST, CRCST, Manager, CPD, Seven Oaks Hosp.

- **Ophthalmology Wet Lab** Storz Ophthalmology Canada (Limited to 8 per session)(Repeat)

- **Post-Operative Pain Management** - New Tech niques and Their Advantages in Patient Care *Mary Ann Naugler* R.N., Dept of Anaesthesia, St. Boniface General Hospital, Winnipeg.

Concurrent Sessions

Practicum in Perioperative Nursing - The Botswana Experience- *Pat Corey-Plett*, .N., B.N. Perioperative Nurse Educator St. Boniface Hosp

Post-Operative Use Of Hemodynamic Monitoring In Hemorrhage & Fluid Shifts *Judy Nixon* R.N. B.N. Clinical Instructor ICU Course, St. Boniface/Health Science Centre.

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Dissatisfying characteristics that induce nurses to quit

According to information gathered from an American study by the Health Education Center, the Health Services Research Center, and the School of Nursing of the University of North Carolina, the principle dissatisfying characteristics of nursing include:

• inadequate salary increase; inadequate RN:patient ratios; non-supportive physicians; work environments that do not cultivate teamwork; and the lack of freedom to exercise nursing judgement.

These characteristics represent desired standards for professional performance, and are some of the reasons nurses, who are currently employed elsewhere, decided to leave nursing.

The study, reported in the June issue of the *Journal of Nursing Administration*, surveyed over 200 nurses who left nursing for other areas of work. Over 65% said they would return if there was more scheduling flexibility and better pay. More than 50%, however, said they were not satisfied with the respect they received from others while they were nurses.

The *Canadian Journal of Nursing Administration*, Nov./Dec., 1991, reports on 21 head nurses in four Canadian hospitals - " The Head Nurse - Perceptions of Stress and Ways of Coping". Their major sources of stress were: Lack of resources, including nursing staff; Workload and Powerlessness. Length of time as a first line manager affected perceptions of stress. ■

Study finds that gastric aspiration during surgery does not reduce - but actually increases - the incidence of post-operative nausea and vomiting

Gastric aspiration during surgery does not reduce, but actually increases, the incidence of post-operative nausea and vomiting, a recent study has found.

"Both nausea and vomiting are particularly annoying in outpatient surgery, where they represent the most frequent causes of unexpected hospital admission," said Dr. Liette Isabel, a resident in the department of of anaesthesia at Hôpital de l'Enfant-Jesus in Quebec City.

In an attempt to prevent post-operative nausea and vomiting in patients, some centres have recommended insertion of a gastric tube and the emptying of stomach contents during surgery. However, this recommendation is based on older studies that did not investigate this variable in a rigorous and controlled manner, said Dr. Isabel.

In a recent study, which was reported at the Canadian Anaesthetists Society meeting in Quebec City this past summer, 264 patients scheduled to undergo a day surgery procedure under gen-eral anaesthesia were enrolled.

All the patients fasted overnight and did not receive any medication. Anaesthesia was induced with fentanyl and thiopentone according to standard protocol. Succinylcholine preceded by d-tubocurarine was given to facilitate tracheal intubation.

The 260-plus patients were then randomly divided into two groups. Those in the study group had an orogastric tube (OGT) inserted and the stomach contents aspirated. Those not in the study group (the control group) did not have a tube inserted.

At the completion of surgery, the OGT was removed from the patients in the study group, and in both groups the trachea was extubated and the patients removed to the recovery room.

Data on nausea, attempts at vomiting, and actual vomiting experiences were collected. The same data were also recorded in the day surgery unit, and 24-hours post-op by telephone.

With respect to the usual parameters, including the type and length of surgery, the two groups were comparable. In terms of nausea and vomiting, the researchers found that the overall incidence did not differ between the two groups.

"However, to our surprise, when we contacted the patients 24 hours later, those in the gastric tube insertion group had a higher incidence of nausea, experienced a higher incidence of vomiting and a higher incidence at attempts at vomiting, Dr. Isabel reported.

She postulated that it was possible that the irritation to the pharynx, esophagus and stomach caused by the OGT insertion may, by itself, be a cause of post-operative nausea and vomiting.

She pointed out that it has also been reported that traumatic abrasions of the gastric mucosa increases gastric secretions, although the relationship of this phenomena to nausea and vomiting are speculative.

After discharge

In conclusion she said: "In outpatients, the aspiration of the gastric content with an OGT during general anaesthesia does not reduce the incidence of post-operative nausea and vomiting, ...but increases it after patients are discharged from the day surgery program unit." ■

Certain lamps with bare globes linked to cancer

Lamps fitted with certain types of light globes could cause skin cancer, warns the Australian National Health and Medical Research Council.

Dr. Tony Adams, chairman of the council, said that just 10 minute's exposure to some lamps could begin to cause eye cataracts. Dr. Adams stressed that not all lamps were dangerous. Only those using metal halide (quartz) globes, also known as tungsten halogen lamps, had been found to emit potentially hazardous levels of ultraviolet radiation. Small quartz globes are favoured because of the intense light emitted.

It is possible for the manufacturers to fit glass filters over the globes to filter out the radiation. Those that do not, Dr. Adams said, should be restricted in sales.

Dr. Adams pointed out that the lamps become hazardous after exposure of 91/2 minutes to a 50-watt globe, and 45 minutes to 20-watt globes. Users, he said, could suffer sunburn, with cancer (melanoma) also forming without evidence of sunburn.

These lamps are operated at a higher temperature than conventional light bulbs, and are particularly hazardous because of the closeness of the unfiltered, bare globe to unprotected skin.

Most people know this type of lamp because it is used in car headlights and photocopiers. ■

Cancer detection possible with simple blood test

A simple blood test to detect early-stage cancer anywhere in the body (when it may still be easily treated) is being used in a number of U.S. medical centres with optimistic results.

Current blood tests for cancer measure antigens, which cancer tumors release into the blood serum in detectible amounts only when the cancer is relatively advanced - and often too late for remedial treatment.

The new blood test, the Anti-malignant Antibody in Serum assay (AMAS), measures antibodies in the blood that the immune system produces to combat malignancies in the early stages of tumor development. This test can often detect the existence of a tumor long before it can be picked up by current screening procedures.

In recent trials, the AMAS assay was used on 677 high-risk but symptom-free patients at 12 U.S. medical centres. 57 people tested positive and 52 were found to have early-stage cancers in follow-up examinations.

Besides detecting early-stage cancer, the AMAS assay can also be used to verify suspicious results from conventional screening tests such as Pap smears, mammograms and CT scans, according to Dr. Samuel Bogoch of the Boston University School of Medicine who, along with his wife, Dr. Elenore Bogoch, developed the blood test. ■

Couch potatoes beware

A sedentary lifestyle is the most prevalent risk factor for coronary heart disease, according to a study performed in the US, and reported in the *British Medical Journal* (Sept. 15, 1991). ■

Risk of surgical blood exposure by O.R. team results in the practice of double-gloving being advocated

Most surgical team members are exposed to a patient's blood through glove tears that are not immediately recognized, according to information obtained by an experienced operating room nurse who interviewed surgical team subjects immediately after exposure to blood.

She reported that exposures to blood were recorded for 163 surgeons, 104 O.R. nursing assistants, 47 scrub nurses and more than 50 other personnel.

Mechanism of exposure

Dr. Douglas Chayette, using the information compiled by the nurse, told the American Association of Neurological Surgeons meeting in New Orleans recently that during a three-month period, operating room staff at the Yale-New Haven Hospital reported 331 exposures to blood, 249 of which were by glove tears.

He said that the mechanism leading to exposure was unknown two-thirds of the time, and that some 92% of the glove tears leading to the exposure of blood to the skin occurred in single-gloved operating room personnel.

Of some 70 sharp injuries recorded in the three-month period, most were caused by needles "when the hand was in the way, holding or acting as a retractor, or, when free sharp instruments were left unattended in the surgical field... Passing instruments actually proved to be quite safe," he added.

Most of the sharp injuries occurred during suturing, in which 80% caused bleeding as a result of penetrating the glove. He cautioned that the fingertips were at most risk because this is where the skin is often broken down by scrubbing.

Dr. Chayette, a neurosurgeon who advocates the practice of double-gloving, estimates that the risk to the surgical team of seroconversion from a single needlestick is about one in 250. ■

Rat species responsible for Black Death almost extinct

The rat that carried the Black Death plague to Britain is apparently heading for extinction.

The species first arrived in Britain with the Romans, with their numbers increasing as trading ships arrived from throughout Europe. The rats, species *rattus rattus*, inhabited the docks and were the vectors for many diseases, chief among them being the Black Death that decimated the population in the Middle Ages.

The death knell (there are only a few individuals of the *rattus rattus* species left) began to sound when shipping lines moved to containerization. With less spillage around the docks, and an indoor rat to boot, the species has never been able to adapt to outdoor life as did the ubiquitous brown rat which continues to flourish - preferably outside. ■

13th National Conference

Operating Room Nurses Association of Canada

Quebec City, Quebec

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Hosted by the Quebec OR Nurses Group

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