Credentialing (in laser surgery)

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The success of a laser program, like that of any multidisciplinary project, depends on co-operation among many individuals and institutional departments. Consistent monitoring of the function of the entire laser program, done by the laser committee, and strict adherence to safety requirements by all involved staff will make the program a source of pride for the institution and ensure state-of-the-art care.

The most significant limitations of laser procedures are not necessarily those of the technology itself, but those related to the knowledge and skill of the practitioners utilizing the equipment, and that of the support staff.

A crucial issue is the credentialing of nurses and physicians who participate in the program. This credentialing process is usually administered by the laser committee. **(See "Laser Committee" next page)**

The ultimate authority and responsibility for awarding medical staff privileges, including laser privileges, rests with the governing body of the institution. Each institution, however, will have its own unique requirements for obtaining privileges and pathways for obtaining them.

Laser nurse requirements

Generally, the medical staff bylaws insist that a physician applying for laser privileges provide evidence that all required training has been obtained and that the individual has competence to perform procedures using lasers.

This also applies to laser nurses, who must have evidence of special training before being assigned to surgical laser cases.

Physicians requesting privileges to use lasers should first meet all the standards of the particular institution with respect to eligibility, special training, ethical character, judgement, etc.; and surgeons should have interventional privileges before requesting laser interventional privileges.

For example, a gynecologist requesting privileges for laser surgery of lower genital disease must first (or also) have operative privileges for the procedures. Likewise, a general surgeon wishing to obtain privileges for laparoscopic YAG laser cholecystectomy must have operative laparoscopic experience with that laser and privileges for conventional cholecystectomy. Finally, the safe and effective use of lasers, like other modalities, requires that the surgeon understand the disease as well as the particular laser delivery system.

Training and privileges

An applicant for hospital or other institutional privileges (such as a centre for a free-standing endoscopy unit), should be familiar with the pertinent contemporary literature and should have completed a basic laser training course. The course must have covered the principles of lasers, including physics, properties of the laser beam, the calculation and surgical importance of power density, physiological effects and hazards of the various wavelengths, safety precautions and the indications and surgical techniques appropriate to the specialty or sub-specialty. Specific and comprehensive course content is recommended by the *American Society for Laser Medicine and Surgery*. 1

The laser committee: composition and responsibilities

It is essential that an institution with an established laser program, or one considering a program, provide proper controls of laser activity in order to minimize hazards and provide optimal care for surgical laser patients. This is best accomplished by instituting a laser committee which is responsible for all laser activity within the institution. It could be a sub-committee of the OR committee. The following members are usually recommended:

- the chief of surgery
- a representative of each sub-specialty with an interest in lasers
- a representative from the dept. of anaesthesia
- a representative from administration
- an operating room supervisor
- an operating room nursing team leader
- the biomedical or clinical engineer
- the laser safety officer
- the medical director of the institution
- a representative from nursing administration

The laser committee should be the ultimate authority and responsible for the institutional laser program. If laser credentialing is in their mandate, it is this committee that usually administers the credentialing process.

Laser committee members should be chosen wisely. The chair-person should be the most knowledgeable regarding lasers, laser procedures and their application.

This committee should routinely meet to discuss any problems that have occurred or are expected to occur. It should review the progress of probationary and fully credentialed surgeons and nurses and evaluate new applications to the program.

The laser committee designates the laser safety officer who is best qualified. The chief laser surgery nurse or an alternate should be present at each laser case. These individuals should be given the authority to suspend, restrict or terminate a laser procedure should any hazard arise. ■

A basic laser course should consume at least eight hours (as suggested by the *American National Standards Institute's ANSI Standard for the Safe Use of Lasers in Medical Institutions)* 2 of which forty percent should be allocated to practical sessions in which the novices use surgical laser systems and their various delivery mechanisms (such as hysteroscope, microscope, bronchoscopic delivery mechanisms or catheter or free-hand delivery mechanisms) on inanimate biological tissue models which simulate human tissue types, and on animals if appropriate and available.

Double this amount of time may be necessary to cover the appropriate material and provide enough time for each trainee to practice with instruments.

Concentrated training

Sometimes a basic course concentrates on one wavelength and a limited range of applications, such as a carbon dioxide laser course in which that laser is utilized exclusively with colposcopy, or a dermatology course in which free-hand use of the argon laser constitutes the entire course content. In this case, the minimum number of hours might be sufficient. Subsequent courses covering different wavelengths or substantially different delivery systems should require another six to ten hours, with the majority of time allocated to hands-on sessions. For any course, a small faculty-to-student ratio, in the range of 1:3-5, is best.

Preceptorship training

It is recommended that the novice next spend time with an expert in a clinical setting. Such training opportunities are sometimes referred to as "preceptorship training programs" or "observation periods." Many institutions require them after a basic course, and the *American Society of Laser Medicine and Surgery* recommends this type of clinical activity in their *"Standards of Training and Practice for Physicians."* 3

In a couple of intensive days or even a more prolonged visitation, the new laser surgeon can see how an efficient clinical laser program functions, including nurses in action, instrument set-ups, operative techniques and patient positioning, methods for dealing with complications, protocols for diagnosis and follow-up, appropriate terminology and methods for dictating the procedures and the laser parameters utilized and seeing the safety guidelines

put into practice. It is important that a variety of cases in the particular specialty be observed and discussed with the expert and that documentation of the nature and duration of the clinical training be obtained by the novice.

Applying for privileges

At this point, the new laser surgeon should be allowed to formally apply for privileges through the established institutional channels. The instructions for making application are usually included in the policies and procedures manual for laser surgery. This document should be obtainable from the laser committee, the laser safety officer or from the operating room supervisor. No more than a year should elapse between course and application, or between preceptorship and application.

In most institutions these first privileges are probationary. They require that the novice be supervised during the first several cases or for the first few months by someone of the same discipline who is locally available and experienced in the types of procedures the novice wants to perform. This enables the novice to demonstrate his knowledge and skill to the local authority and to benefit from the evaluation and commentary of the experienced surgeon.

During the first series of cases, the novice should be required to conduct an audit of his or her laser cases, recording in a prospective fashion the indications, treatment approach, treatment outcome and quality of result, accidents, complications and their management. A summary of this audit should be presented to the laser committee at the end of the probationary period when full privileges are sought by the applicant. The committee can then evaluate the results of the series, deliberate on the impressions of the supervisor, determine whether competence is assured and award full privileges or recommend correctional action if necessary.

Wavelength by wavelength

Because tissue effects, instruments, safety precautions, technical difficulty, indications for laser, surgical technique, and follow-up care can be radically different between wavelengths, it is recommended that physicians be credentialed one wavelength at a time. A similar "sub-credentialing" could apply to laser nurses. In some disciplines, such as gynecology, it may be necessary to further subdivide by delivery system, so that, for example, gynecologists who are applying for privileges for carbon dioxide laser surgery used through the colposcope for lower genital disease will have different credentialing criteria and prerequisites than those who want privileges for laparoscopic use of the C02 laser. 4

Training

In lieu of extramural coursework, observation and supervision, an applicant should be able to fulfill the requirements during a residency program if that program has organized instruction which includes didactic and practical sessions incorporating the necessary material. The same minimum number of hours applies as for practicing physicians who take a basic one or two day course. But because these requirements are not always met, the laser committee and the institutional board must scrutinize the details of the residency laser training program. Most important is determining whether adequate training in basic science and safety was provided and whether the individual had didactic instruction in the required theoretical, safety and applications material. It must be determined whether enough time was provided in practical sessions devoted to the surgical techniques for the novice to understand the equipment, develop hand-eye co-ordination and appreciate the variation in tissue effects which can be achieved by varying the laser settings. Too, it is important for the committee to know the amount of time devoted to observation of cases and the number and variety of cases.

Finally, the committee should learn the details of any actual clinical cases performed by the applicant during the residency program and the outcome of those cases. Weakness in the residency laser program should cause the laser committee to require another course, a preceptorship program or supervisory period.

Quality assurance

The laser committee should keep track of physicians in the program who have been granted full privileges to ensure that an adequate number of cases is routinely performed for the surgeon to maintain expertise and that outcomes are satisfactory. Periodic updating in indications, techniques, safety precautions and results of laser surgery is highly recommended. This updating can be accomplished by attending stand-alone extramural or institutional courses, advanced training programs or updates

by participating in the scientific sessions of relevant medical societies.

New instruments and delivery mechanisms, different wavelengths and improved techniques can render older methods and devices obsolete or prove them hazardous. Keeping up with this highly technical and challenging field of medicine requires even more continuing education than the already complicated and challenging surgical specialties. But the ultimate goal, for physicians, nurses and institutions, as a result of training and practical standards, is safe and effective patient care.

Some surgical laser committees may require documentation of continuing education from those with full privileges. Certificates describing the program, listing the faculty and specifying the number of hours of didactic training and of hands-on sessions can be used for maintenance of privileges.

Extending privileges and certification

A significant change in wavelength, indication or delivery system should require further training and another application for laser privileges. For example, the laparoscopist who is routinely using the CO_2, would be required to provide evidence of training in hysteroscopic Nd:YAG laser photoablation before privileges would be granted for this surgery.

At present, there is no widely accepted standard for credentialing laser surgeons or certifying expertise. There is, however, an examining board, called the *American Board of Laser Surgery,* which was formed in 1985 in the United States to administer an examination to laser surgeons to determine their knowledge of the basic science and safety of lasers and of laser techniques in their particular surgical specialty.

This board was formed in response to numerous requests from hospitals for assistance in the credentialing process. This examination, plus the recommendations for course content and standards of training and practice of the *American Society of Laser Medicine and Surgery,* may ultimately contribute to uniformity in institutional laser credentialing in North America.

The *American Board of Laser Surgery* is not at present accredited by the *American Board of Medical Specialties.* It is not known whether passing the two-part exam will someday be required by institutions, and, of course, the board can test for knowledge, but not for surgical skill. Nevertheless, passing the exam is further evidence of significant commitment and accomplishment by the individual laser surgeon.

In Canada, *Health and Welfare Canada,* the *Canadian Standards Association* and the *College of Physicians and Surgeons of Canada* are all working on their own standards of training and practice for safe use of lasers in health care facilities.

Laser nurses

During laser procedures which require nursing assistance, at least one nurse must be fully trained and "credentialed" or "certified." Special expertise and constant practice with the instruments and safety precautions are required of nurses in the laser environment.[5] Not every operating room nurse needs to be trained as a laser nurse, but those who are interested should be selected for the laser team. The nurses selected should complete a basic laser course designed for nurses and it should incorporate didactic sessions on basic science and safety of the same calibre and depth as for physicians. The course should also review all wavelengths and applications likely to be performed in the institution, as well as the types and special care and handling of instruments and laser accessories.

Surgical approach, room set-ups including draping and patient positioning, proper operation of evacuation systems, developing policies and procedures and establishment and administration of a laser program should be part of the course.

A hands-on workshop-type session is valuable for learning the couplings of lasers to laser delivery systems and for allowing the nurses to operate the lasers and practice setting the control panel in response to commands.

Manufacturers' inservice sessions

Instruction in troubleshooting is also a necessity. In-service sessions arranged by manufacturers or distributors are necessary for technical orientation but do not replace the didactic and practical basic training program.

The *American Society of Laser Medicine and Surgery's Nursing Section* is developing standards of training and practice for nurses for lasers in surgery and medicine. The final document, expected to be presented to the *American Board of Laser Surgery* in 1991, should be a valuable resource.

Naturally, as the laser program develops and applications are expanded, nursing staff should be prepared for different procedures with additional training programs, including practical sessions, especially when delivery mechanisms or wavelengths change, or when new applications are developed. Nurses are important members of the laser surgical team and the laser program. The orientation of nurses, their training and continuing education needs should not be neglected. ■

References

1. Recommended Course Content, American Society of Laser Medicine and Surgery, 1990.

2. American National Standard for the Safe Use of Lasers in Health Care Facilities (ANSI Z136.3-1988). Laser Institute of America, Toledo, OH, 1988.

3. Standards of Training and Practice for Physicians for Use of Lasers in Medicine and Surgery. American Society for Laser Medicine and Surgery, 1990.

4. Qualifications and Privileges for Performing Gynecologic Intra-abdominal Laser Surgery. American College of Obstetricians and Gynecologists: Committee Opinion (Committee on Gynecologic Practice). 1989; No. 75.

5. Cayton, M.M., Nursing responsibilities in laser surgery. *Med. Instru.*, 1983; 17:419.

The laser nurse - areas of responsibility

It is impractical for all operating room nurses to become involved with laser surgery because of the expertise and constant practice which are required. Only those nurses who show keen interest and can be expected to maintain this interest should be considered for training.

The registered operating room nurse must complete a recognized post-graduate course on laser surgery to be certified. The course should cover basic laser physics, optics, instrumentation, safety, hands-on practical sessions with the instruments, operating room set-ups and the procedures for which the laser(s) will be used.

The laser nurse must demonstrate competence in the practical use of the equipment and the setting up of the surgical suite. An examination pertaining to the laser application the nurse is expected to encounter is useful for credentialing as well. The chief laser functions of a laser nurse can include the following:

1. Assist the laser committee in setting up the laser surgery program.
2. Assembling the surgical instruments and auxiliary equipment required for the procedures.
3. Obtaining and maintaining the necessary safety equipment.
4. Assuring that all safety precautions are adhered to during the performance of laser surgery and between laser cases.
5. Provide training and supervision to novices.
6. Assure that all personnel in the operating room are fully trained and credentialed for the procedure by the laser committee.
7. Contribute to the development of a laser nursing manual for the institution.
8. Discuss with the laser safety committee chairperson any problems or potential problems regarding scheduling of cases, concerns of staff or patients, equipment, etc.
9. Maintain a dialogue with the laser surgeon during surgery to confirm his/her commands regarding exposure and power and activating and de-activating the laser.

It must be recognized that surgical techniques which are used in laser surgery vary from laser to laser, from procedure to procedure and from delivery system to delivery system. Therefore, considerable nursing training is required for all nurses to be familiar with all equipment and procedures pertaining to all laser devices.

The routine maintenance of lasers, laser accessories and equipment is usually the responsibility of nurses and biomedical engineers. It is essential that all those caring for the instruments attend the manufacturer's in-service training sessions which should include a review of the following: the mechanism of action of the particular laser and its clinical applications, provide detailed instruction on the instrument's operations and maintenance, and thorough discussions on applicable safety precautions.