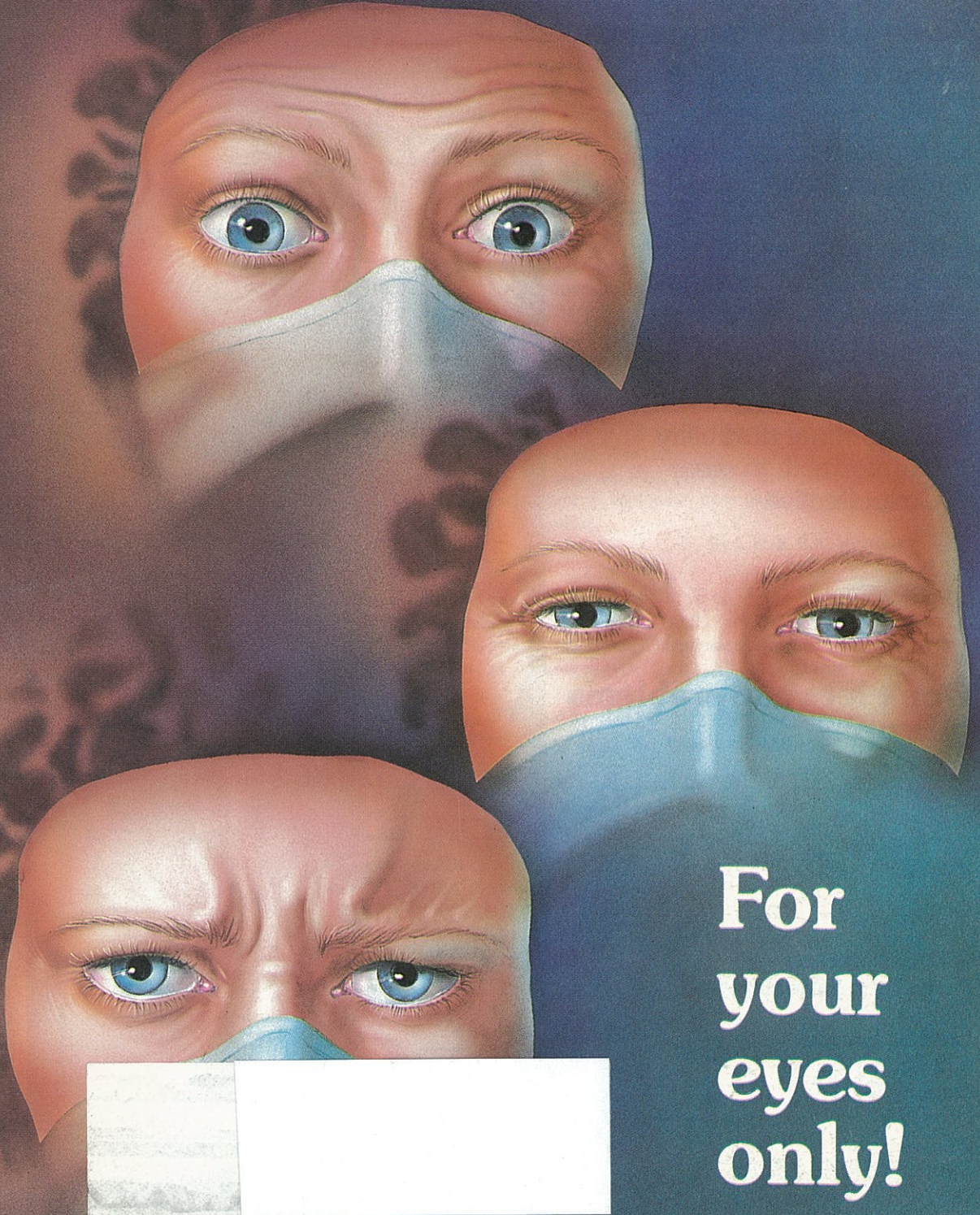


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# Operating Room Nursing Journal

Volume 5, Number 1, February, 1987



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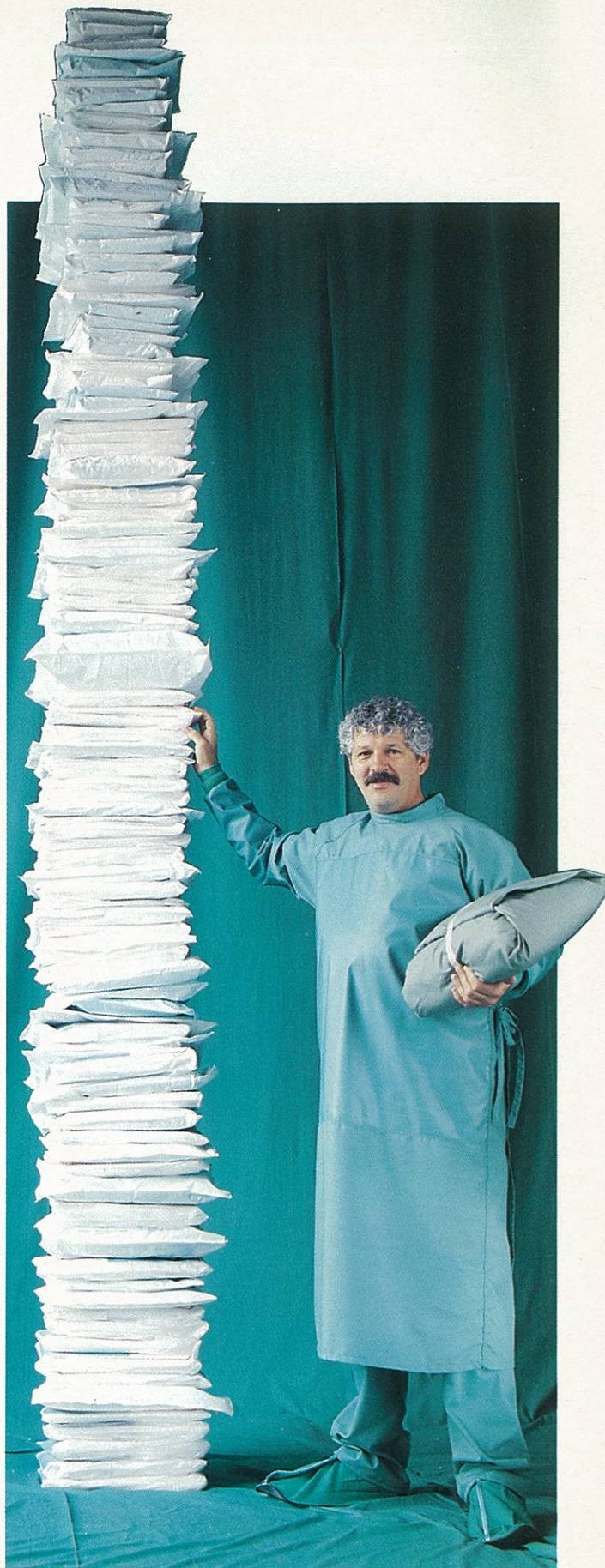
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CANADIAN

# Operating Room Nursing Journal

Volume 5, Number 1, February, 1987

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## Feature Articles

### 06 Infection Control Up-date

Today, modern medicine is experiencing an inordinately high incidence of bacterial resistance to certain antibiotics. Even the United Nations has expressed concern. Why and how some of this bacterial resistance has come about is the subject matter of two brief articles on resilient bacteria.

By Editorial Staff

### 12 Occupational Risks in the Operating Room

In this submission, risk factors associated with the operating room nursing profession are examined. Current concepts relating to these risks are discussed, and a review of who is most at risk is provided.

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The patient arrives in the O.R. nervous, frightened and intimidated by the strange equipment, noises and people dressed in halloween-type garb. All the patient sees are eyes, the only area open to inspection. Are you doing the patient a disservice by what you convey with the eyes?

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## GENERAL INFORMATION

The Canadian Operating Room Nursing Journal is published six times a year (February, April, June, September, October and December) for operating room nurses and related surgical nursing personnel across Canada.

The objective of this publication is the continuing education and professional advancement of the operating room nurse as well as personnel in related nursing services.

Under the guidance and direction of an editorial advisory board, the intent of this publication is to assist national, governmental and allied health care agencies in the process of news and information flow.

The Journal will also assist national, governmental and allied health care agencies in the process of news and information flow to this specialized segment of the health care field.

The Canadian Operating Room Nursing Journal is dedicated to the publishing of original and practical information based on scientific principle and clinical fact. This journal is periodically reviewed by the Editorial Advisory Board, with manuscripts and submissions, whenever possible, adjudicated and assessed in advance by peers specifically chosen by this Board.

The Canadian Operating Room Nursing Journal is indexed in *Index Medicus*, the *Cumulative Index to Nursing and Allied Health Literature*, and the *International Nursing Index*, U.S. National Library of Medicine.

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The opinions expressed in articles submitted to this publication are those of the author or authors and are not necessarily to be construed as a reflection of the point of view of the publishers of the *Canadian Operating Room Nursing Journal*.

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## GUIDELINES FOR CONTRIBUTORS

The Canadian Operating Room Nursing Journal encourages and invites manuscripts and/or submissions of relevance and current interest to operating room nurses and related health care personnel in the area of surgical nursing care.

As a bi-monthly professional publication, the Canadian Operating Room Nursing Journal reaches the following nursing categories subsumed under the heading, operating room nurse. These categories include:

- O.R. nurses
- O.R. supervisors
- O.R. nurse/managers
- O.R. staff nurses
- O.R. technicians
- O.R. circulating nurses
- O.R. scrub nurses
- Nurse educators
- Nursing students
- Post anaesthetic
- Central supply
- Directors of nursing
- Day surgery
- Emergency surgery

All articles/submissions should be geared to this audience range.

### Submitting procedure

Having submitted a manuscript for publication, the author(s) should retain at least one copy. A covering letter should accompany the manuscript and should include the home and work addresses and phone numbers of the author(s). Every submission should be double-spaced with wide-margins on (standard) 8½ by 11 inch paper. However, other formats will not be rejected if the submission is legible and neat.

### Length

Although there is no restriction on the length of a submission, a paper between 5 and 15 pages (excluding illustrations) is advisable.

### Illustrations

Photographs, charts, diagrams, graphs, cartoons and other illustrations greatly enhance a professional manuscript. Photographs should be un-mounted, sharp and preferably, black-and-white. All illustrations should be labelled clearly on the back.

### Notes/References/Bibliography

The Canadian Operating Room Nursing Journal follows the format recommended and used by the Canadian Medical Association (CMA).

### Your autobiography

This information should include: full name; academic accomplishments (no more than three after the name); last university, college or school attended; present position in the profession; and membership or associations of a professional nature.

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# Resilient bacteria making our antibiotics ineffective

By Editorial Staff

Even after a successful operation, the risk of postsurgical complications is still very real, particularly those complications that are caused by infection.

Post-surgical infections can run the spectrum from mild to life threatening. They can be localized, as in the case of wound infections, or wide-spread, as in peritonitis (infection of the lining of the abdomen), or septicemia (an infection of the blood). They may even progress to cause gangrene and necrosis (tissue death).

An important factor in limiting morbidity and mortality due to infection is prevention. Good sterilization and slavish adherence to aseptic technique, as every O.R. nurse knows, are the foundation of infection prevention. Other factors, such as the screening of the patient for a mild infection in an unrelated area can make a significant difference in avoiding a full-blown infection after surgery is performed.

Despite the best efforts of everyone on the surgical team, infections remain a frequent reality; and although all post-surgical infections are of concern, some of the most troubling are those caused by antibiotic-resistant bacteria.

Today, modern medicine is experiencing a high incidence of bacterial resistance to certain antibiotics. Though the phenomena of resistant bacteria is not a new one, its manifestation today is causing much concern for the entire world medical community.

## Special symposium

The alarming ability of bacteria to develop rapid resistance against most of the newer antibiotics was discussed at a special symposium held in Toronto late last year.

The symposium, held during the Annual meeting of the Royal College of Physicians and Surgeons, featured Dr. Robert Moellering, professor of Medicine at Harvard University. His address focused on the number of bacteria that are now resistant to a growing number of anti-microbial agents. Bacterial resistance to anti-microbial agents is not a new phenomena. It was initially observed following the discovery of antibiotics in the 30s.

## Resistance pools

However, of real concern are "resistance pools" where bacterial resistance (invulnerability) to anti-microbials has been documented not only against the drug being used to treat the infection, but against other antibiotics as well. Bacterial resistance pools would be found in those areas or situations where potential infections are or could be endemic: burn units, during certain surgical procedures, intensive care units and patients with chronic illnesses.

## Widening circle

Not surprisingly, drug resistant organisms can make it extremely difficult to rid patients of their infections. This may necessitate the use of more potent combinations of anti-microbial agents. In turn, this increases the potential for more bacterial resistance against a widening circle of antibiotics.

In focusing closer on the phenomena of treatment-resistant bacteria, Dr. Moellering specifically addressed the issue of plasmid-mediated resistance against antibiotics.

Plasmids are extrachromosomal pieces of DNA, or particles in a cell that have a genetic function, but are not found in the nucleus. Dr. Moellering

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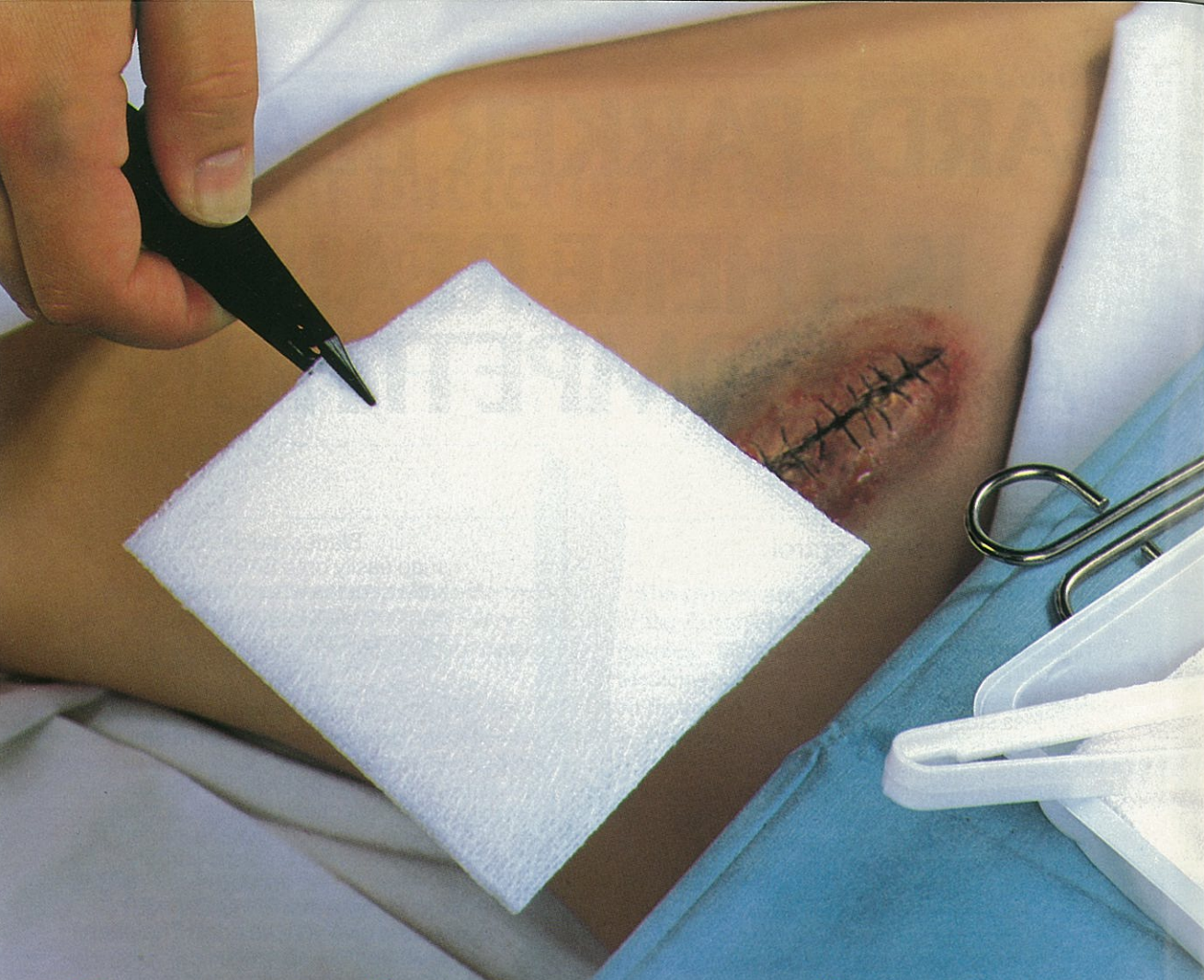
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Reference: 1. Birdsell DC, Davidson JSD: A Report on Clinical Trials of NU GAUZE\* Rayon Sponges, Including In Vitro and In Vivo Comparisons with Conventional Cotton Gauze Sponges. July 1986.

provided a detailed look at how these plasmids play a role in anti-microbial resistance. It has been known for some time that bacterial resistance against a number of antibiotics can be spread from one organism to another by direct cell-to-cell contact. The agents responsible are plasmids.

These plasmids, in many cases, contain not only genes for resistance to anti-microbial agents, but also genes capable of coding for the information necessary to initiate and cause transfer of the plasmids by conjugation, that is, allowing nuclear material in the two cells to interchange.

**R-factors**

Plasmids containing both the genes, one for resistance to the anti-microbial agent and one for coding information to initiate a transfer of nuclear material, are known as R-factors. They have been shown to be responsible for much (but not all) of the anti-microbial resistance found in clinical isolates of bacteria throughout the world.

Recent studies show a striking homology (similar

in structure and origin but not in function) between the genetic elements of plasmids mediating resistance to anti-microbial agents found in numerous parts of the world and studies in "antibiotic virgin" populations where plasmids were present in nature prior to clinical use of anti-microbial agents.

**Selective advantage**

Where anti-microbial agents are heavily utilized in these antibiotic virgin populations, there is a major selective advantage to the plasmids, as they are capable of mediating or accomplishing the necessary resistance. These plasmids contain the necessary genes to induce and perpetuate a good proportion of the antibiotic resistance observed in disease-causing bacteria today. (See below on "United Nations intervention.")

However, not all resistance to anti-microbial agents is plasmid-mediated. Antibiotic resistance has also been mediated by man's flagrant abuse of our antibiotic resources. (See "MRSA" page 10)

**Growth of drug resistant bacteria worldwide prompts strong United Nations intervention**

Alarmed by the relentless growth of bacterial resistance to antibiotics worldwide, two influential agencies of the United Nations are preparing global guidelines imposing restrictions on the use of antibiotics and other therapy drugs.

**Beyond control**

The proposals, to be published shortly by the World Health Organization (WHO) based in Geneva, Switzerland and the Food and Agriculture Organization (FAO) based out of Rome, will probably be supported by Canada.

A recent authoritative discussion paper issued by the WHO argues that, as a result of over-medication, bacterial resistance to antibiotics worldwide is spreading beyond control.

The problem is particularly acute in the developing countries where most of the older and cheaper antibiotics available are rapidly losing their effectiveness against certain bacteria.

The UN is concerned with overmedication by doctors as well as veterinarians. A high percentage of the animals that are bred for human consumption are exposed to a variety of drugs, including antibiotics, tranquilizers and growth stimulants. This latter concern is the reason for the Rome-based FAO involvement.

The WHO discussion paper on worldwide bacteriological resistance to antibiotics urges governments to implement methods to avert a global emergency by banning the agricultural use of many potent drugs.

**Flagrant overmedication**

The discussion paper also cites cases of flagrant overmedication by doctors and argues that, unless urgent steps are taken to reverse the trend, "...one of the best weapons humanity has devised for the protection and restoration of health could be placed in jeopardy."

## Antibiotic era threatened

# MRSA outbreak blamed on flagrant overmedications

There are numerous reasons why slavish adherence to infection control procedures should be an avid and on-going concern to all operating room nursing personnel. An especially important reason, among others, is the alarming ability of certain bacteria to develop resistances to antibiotics.

The recent outbreak of MRSA (methicillin-resistant *Staphylococcus aureus*) in England this past Summer could be considered a classic example of what some are calling the "creations of diagnostically destitute doctors". Already, the MRSA strain has killed hundreds of hospital patients in England and Australia, where it first appeared in the early 70s.

### Widespread strain

The first outbreak in the UK occurred in 1981, and in a two-month period starting in April of last year, it was reported that in London alone 30 died from the MRSA infection. The strain has also been reported in Europe, the United States, and, according to the Laboratory Centre for Disease Control in Ottawa, there have been a few reported isolates in Canada as well.

MRSA bacteria are a mutation of harmless bacteria that occur naturally on the skin and in the nasal mucosa. Because of careless and indiscriminate use of broad spectrum antibiotics, MRSA has become invulnerable to most antibiotics. Broad spectrum antibiotics are anti-microbial agents effective against a wide variety of micro-organisms; some penicillins, for example, are broad spectrum. The exceptions where MRSA is vulnerable to anti-microbial agents are the more rare antibiotic preparations, and vancomycin, which is often indicated when penicillins and cephalosporins are ineffective.

### Minor infections dangerous

Dr. Richard Smith, one of the Editors of the British Medical Journal (the source for the contents of this article, October, 1986) pointed out that, should MRSA become resistant to vancomycin,

which is a highly toxic anti-microbial drug, "...the practice of medicine could be put back to the days when even minor infections could kill."

Dr. Ken Harvey, director of microbiology at the Royal Melbourne Hospital in Australia, where the outbreak was first reported in the early 70s, told reporters that a MRSA outbreak claimed the lives of hundreds of elderly hospital patients in Eastern Australia.

### Diagnostically destitute

Calling broad spectrum antibiotics "the refuge of the diagnostically destitute," Dr. Harvey said "we may look back at the antibiotic era as just a passing phase in the history of medicine, an era in which a great natural resource was squandered and where the bugs proved smarter than the scientist."

### The ORNAC recommended standards available in slide presentation format

Both English and French versions of the ORNAC Recommended Standards for Operating Room Nursing Practice are available in print form and slide presentation. Originally shown during the last National Conference in Montreal, this slide presentation is available for rental. The cost is \$30.00 plus postage.

If your group is planning on ordering the tape, please allow sufficient time for processing and delivery. The slide-tape presentation is available from the chairman of the of the "Technical O.R. Standards Committee", Gloria Stephens, 2864 West 3rd Ave., Vancouver, B.C. V6K 1M7.

Many hospitals have purchased these Standards for use in their Quality Assurance Programs.

Those interested in obtaining a copy of the Recommended Standards (\$12.00) can do so by contacting either Ann Robinson, for the French language version, or Valerie Shirreff, for the English. Readers will find the addresses to write to under the ORNAC Executive Listings on page 28.

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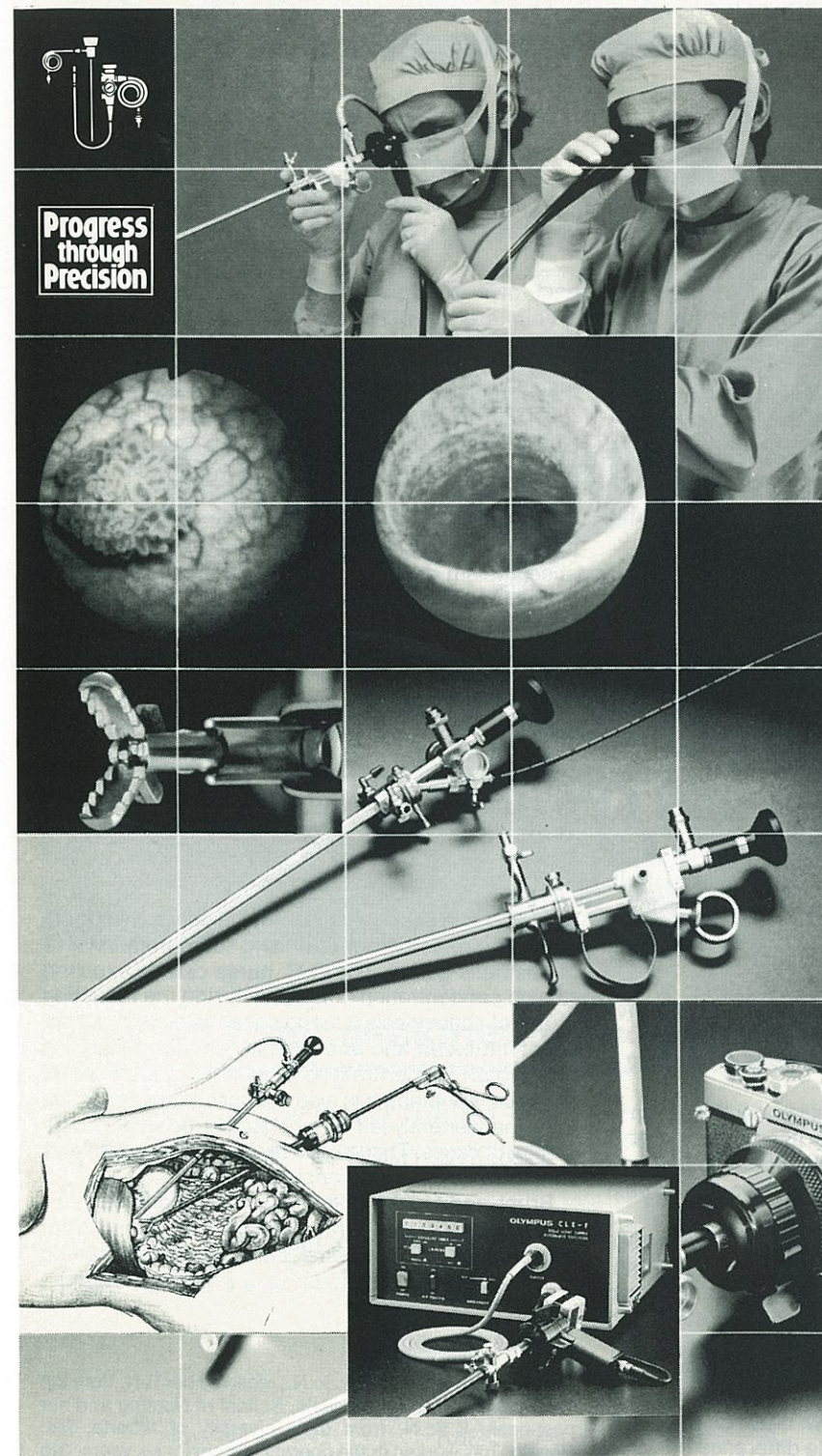
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# Occupational risks in the O.R.

## Current concepts and a review of those at risk

By Mary-Lou Hopkins, R.N., B.Sc.N.

There are a number of risk factors operating room nurses and related O.R. personnel should be constantly aware of. In the following submission, risk factors associated with the operating room nursing profession will be divided into the following categories for discussion:

- physical
- toxins
- radiation
- infectious agents
- burnout

A description of the most important disease process from the standpoint of productive years of life lost as well as pathophysiology will be discussed. Also, a nursing diagnosis will be established for the workers at risk with respect to the selected disease process.

### Physical

Backpain is the leading cause of lost work time for nurses, with unaided patient lifting thought to be the primary cause. (Stellman, 1982). Gibeau (cited in Holt, 1983) reports that more than 90% of the compensation cases for lost time in the Province of Alberta are associated with sprains and strains due to back problems.

There are several mechanical devices available for operating room staff to use when assisting with patient transfer. However, too often, O.R. staff are in a rush and neglect to use them.

One device, called the roller, fits under the patient's trunk. Even when this device is used, considerable physical effort is required to position the patient properly on the roller. If the patient is obese, the strain is compounded.

Surgery calling for the patient to be in a 'prone position' often entails the use of much physical strength. More often than not, this task falls on the nurse. Even though protocol states that attendants are supposed to do most of the patient transferring, they are frequently absent when needed.

Snook (cited in Levy & Wegman, 1983) stated that some data indicates much low back pain among nurses. Other data indicates little difference between nurses and more sedentary workers in overall prevalence. He does mention that the onset of low

back pain in nurses comes at an early age and is precipitated by factors at work. One of the precipitating factors is the posture that must be sustained for long periods of time. Many surgical cases that the scrub nurse, for instance, is involved with can be of long duration. It is not uncommon for an operation to last four or five hours. During that period, the nurse maintains one position with little or no movement.

Magora (cited in Holt, 1983) reports data indicating that static work posture is associated with increased absenteeism due to low back pain. Brequist-Ullman (cited in Holt, 1983) report that standing on the job longer than four hours is related to the increased incidence of low back pain. Snook, again, mentions that the rate of recurrence for non-specific back pain is extremely high — estimates range as high as 90%. It is also estimated that there is only a 50% possibility of returning to productive employment for a worker who has been off for longer than six months; if off work over one year, only a 25% possibility; and if over two years, the probability of returning to work is zero.

### Toxins

There have been vast amounts of research performed on the exposure of operating room personnel to anaesthetic gases. The O.R. nurse can be exposed to high concentrations of gases during the induction phase of anaesthesia. During cases where the patient is not intubated and anaesthesia is maintained by a mask, high concentrations of gases are to be found in the environment. It is also not uncommon for gases to be inadvertently left on for short periods at the completion of cases. These released gases are not always withdrawn by the scavenging system.

Brunt and Hricko (1983) report an increased risk of miscarriage and birth defects in offspring from operating room personnel exposed to anaesthetic

### About the author

Mary-lou Hopkins, R.N., B.Sc.N., received her R.N. from the University of Alberta Hospitals, School of Nursing and her post-basic B.Sc.N. from the University of Alberta. Ms. Hopkins has worked in the operating room for six years, two years as a charge nurse. Presently, she is an instructor, University of Alberta Hospitals, School of Nursing.

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gases. Corbett (cited in Levy & Wegman) found an inordinate increase in the incidence of reticuloendothelial and lymphoid malignancies with exposure to gases. Corbett also reported that there is an increased incidence of spontaneous miscarriage among operating room nurses.

Biddle (1984) reported an increased incidence of cervical cancer, abortions, and liver disease with exposure to anaesthetic gases. To alleviate these problems most operating room theatres have some type of scavenger system to keep the toxic concentrations to an acceptable level. Further research will need to be done to ascertain if the scavenger systems are effective.

Toxins which the operating room nurse is exposed to are the disinfectants used for terminal cleaning of instruments and equipment. An example of this is the hypochlorite in high concentration used in the theatre following a hepatitis-B surgical case. This solution, used to prevent cross contamination, requires that gloves and protective goggles be worn by all personnel coming in contact with the solution. It can happen that O.R. personnel become careless and allow the solution to have contact with the skin or splash it into the eyes.

Brunt and Hricko further state that dermatitis is very common among women workers including hospital workers because of contact with disinfectant solutions such as hypochlorite. Gluturaldehyde solutions used to soak instruments also emit toxic fumes.

### Radiation

The operating room nurse working in the O.R. environment is exposed to radiation in several ways. In certain procedures, flat plate X-rays are taken during the operation. In this case, all personnel in the theatre are protected by a portable shield. There are certain procedures in which a lead apron must be worn by the operating room personnel in the theatre. A radiation technique called fluoroscopy is a situation where lead aprons must be worn.

Brunt and Hricko (1983) report the potential for increased breast, thyroid and other types of cancer in women exposed during participation in certain surgical procedures requiring radiation techniques. The use of thyroid collars in conjunction with the lead apron is recommended for scrub nurses during fluoroscopy procedures. Kahn and Ryan (cited in Levy & Wegman) state that irradiation of the human embryo early in its development can result in spontaneous abortion or severe fetal abnormality.

### Infectious agents

According to Stellman (1982), needle-sticks are believed to be the prime mode of transmission for hepatitis-B. Gantz (Levy & Wegman, 1983) state that splatters on mucous membranes or breaks in the skin are potential portals of entry. Robbins (1985) reports that indirect transfer of hepatitis-B virus occurs by infective material by way of fomites — any substance that adheres to and transmits infectious material.

In the O.R. environment, needle-stick injuries are commonplace. It can happen that an operating room

nurse may not be aware of such an injury, as some of the needles are extremely small and their pricks may be imperceptible.

When a "known" hepatitis-B carrier is having surgery, special precautions are taken by operating room personnel. Staff members are instructed to report to health services for examination and treatment if they think there is a possibility they have been infected. This is fine where it is "a given" that the patient is a carrier; but, are nurses as likely to report a needle-stick injury if the patient is not expected to be a carrier?

Some nurses are extremely diligent when reporting injuries. This writer, as well as many of the readers, can attest to the fact that not all injuries are reported.

Many hospital workers, especially those in high-infection risk areas such as the operating room, can receive a vaccine for immunity against hepatitis-B. Admittedly, regardless of the fact I only work part-time in the O.R., I have neglected to enquire about the vaccine. How many other operating room nurses have done the same, thereby jeopardizing not only their own health, but the health of patients and fellow workers?

Gantz also states that five to ten percent of hepatitis-B patients will become chronic carriers, remaining surface-antigen positive and serving as a potential source of infection for hospital staff and other patients. Gantz also mentions that chronic active hepatitis will occur in 30% of chronic carriers and may result in cirrhosis.

There are other infectious agents that operating room nursing personnel must be equally cautious of: *Pseudomonas aeruginosa*, *Escherichia coli*, *Candida albicans*, staphylococci; and of more recent onset is "the disease of the eighties," acquired immune deficiency syndrome (A.I.D.S.).

### Burnout

Burnout is pervasive among nurses and is probably the most important entity from the standpoint of productive years of life lost. "Productive years of life lost" is understood here as the entity that contributes most to the reasons for withdrawal from the nursing profession.

Armstrong (cited in Alexander, 1980) defines burnout as the extent to which workers have become separated or withdrawn from the original meaning and purpose of their work. Also included in the definition is the workers' express estrangement from patients, co-workers, the job itself and the institution that employs them.

Edelwich and Brodsky (cited in Gervais and Howard, 1984) refer to burnout as the apathy, discontent, lack of satisfaction, and the pervasive sense of "this isn't what I thought it would be" that so many nurses report. Veninga (cited in Vachon, 1983) calls it a "debilitating psychological condition brought about by work-related frustrations that result in lowered productivity and morale."

The conditions that lead to burnout in the operating room include: insufficient training, client overload, little pay, long hours, inadequate funding and political constraints (Vachon, 1983). Gervais and Howard report

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that disillusionment and frustration can come from trying to juggle problems related to equipment, scheduling, supply and the inevitable paperwork.

The operating room is an area that requires a skilled professional who is constantly being re-educated as state-of-the-art technical advances are pursued. An example of this is microsurgery and the initiation of transplants.

Selye (cited in Fraser, 1983) states that there are three definable stages to the human stress response, namely the stage of alarm, the stage of resistance, and the stage of exhaustion.

### Alarm stage

The stage of alarm occurs as a result of a perceived threat and is characterised by pallor, sweating, and increased heart rate. It is normally short in duration and if the stress persists, it is replaced by the stage of resistance. This resistance is a resistance to those factors which constitute the stress. During the stage of resistance most of the symptoms associated with the alarm stage disappear as the body develops an adaptation to the stressful condition. The capacity to resist is limited, and should the stress be severe or prolonged this stage will be replaced by the stage of exhaustion. It is argued that this stage may be associated with the development of psychosomatic diseases. For example, various emotional disturbances, headaches, insomnia, and abdominal disorders are alleged to be initiated not directly by some external agency but as a result of faulty adaptive reactions.

Human stress exists when an event or state occurs which disturbs homeostasis. The extent of the resulting response is determined by the severity of

the stress. The response is non-specific and it is mediated by way of the neuro-endocrine systems. Faulty adaptation to the stress or failure is alleged to lead to disease. Thus, burnout may be seen as a problem with adaptation to a very stressful environment.

### Nursing diagnosis

All operating room nurses are at risk for developing burnout due to the above factors. The knowledge and skill levels of the operating room nurse should be conducive to educational teaching regarding the risk factors of burnout as nurses are professionals. Motivational factors may be a problem as many nurses prefer to leave the work setting immediately after their shift. Structural factors may also be a major problem depending on the support from the managerial hierarchy.

This author's nursing diagnosis would involve giving anticipatory guidance to the operating room staff regarding the etiology of burnout, the signs and symptoms of burnout, and ways to counter burnout.

### Conclusion

This submission has dealt with the occupational risk factors that the operating room nurse is exposed: physical, toxic and infectious agents, radiation and burnout. The issue of burnout was given more emphasis because it is felt that it is a pervasive entity which must be addressed more thoroughly in the nursing profession.

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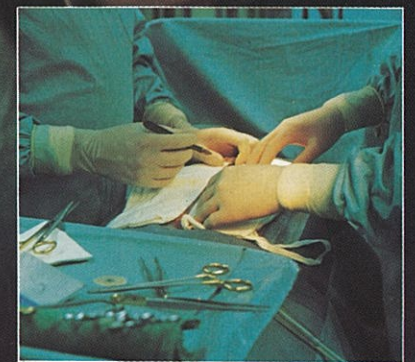
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# Calendar of Events

**April 5-10, Atlanta, Georgia:** Association of Operating Room Nurses (AORN), 34th AORN Congress, Atlanta, Georgia. (For a registration brochure, contact: AORN Meeting Services, 10170 East Mississippi Ave., Denver, Colorado 80231)

**April 27-29, Toronto, Ontario:** Annual Conference, Operating Room Nurses Association of Greater Toronto, Constellation Hotel. (Contact Audrey Macdonald, Publicity, 2301 Mountingrove Ave., Burlington, Ontario L7P 2H8).

**May 8-9, Edmonston, New Brunswick:** Annual Conference, Operating Room Nurses Association of New Brunswick, Howard Johnson Hotel. (Contact Noelline LeBel, Edmonston Regional Hospital, 54 - 21st Ave., Edmonston, N.B. E3V 2C1).

**May 25-29, Regina, Sask.:** Infection Control Course sponsored by Bureau of Communicable Disease Epidemiology, Continuing Nursing Education Department, University of Saskatchewan, Plains Health Centre, Regina. For registration information call (306) 584-1987.

**May 27-29, Calgary, Alberta:** International Nursing Conference, "Clinical Judgement and Decision Making: The Future of Nursing Diagnosis," sponsored by Faculty of Nursing, Continuing Education, University of Calgary; the North American Nursing Diagnosis Association; and Boyle, Letourneau and Associates. (Contact Gerri Behm, Conference office, 2500 University Dr. N.W., Calgary, AB T2N 1N4. (403) 220-5051).

**June 14-16, Winnipeg, Manitoba:** Second Biennial Conference of the Manitoba Operating Room Nurses Association, Delta Inn. (Delegates contact Eva Marie Lessing, 50 Cathedral Ave., Winnipeg, MB, R2W 0W5. Exhibitors contact Audrey McFaden, 38 Mansfield Cres., Winnipeg, MB R2N 1R6).

**May 15, Winnipeg, Manitoba:** First Biennial Post Anaesthesia Nurses Conference of the Manitoba Association of Post Anaesthesia Nurses, Delta Inn. This one-day conference will be held in conjunction with the MORNA Conference. (Contact Sheila McDonald, 874 Kilkenny, Winnipeg, MB R3T 5A5 (204) 269-3211).

**June 19-20, Saskatoon, Saskatchewan:** Operating Room Nurses Group Annual Conference. (Contact Darlene Stuttard, Saskatoon City Hospital, 7th Ave. & Queen St, Saskatoon, Sask. S7K 0M7).

**July 28-August 1, Quebec City, P.Q.:** Colposcopy, Gynecological and Cutaneous Laser Surgery Programs, Chateau Frontenac. (Contact Maryanne Riopelle, P.O. Box 224, Komoka, Ont. N0L 1R0 (519) 471-0300).

**September 9-11, Quebec City, P.Q.:** Quebec Operating Room Nurses Association Provincial Conference, Hilton Hotel. (Contact Mariette Forgues Guay, Hotel Dieu de Levis, 143 rue Wolf, Levis, P.Q., G6V 3Z1).

**September 14-18, Singapore:** 5th World Conference of Operating Room Nurses, Westin Stamford and Westin Plaza Hotels. (Contact A.O.R.N., 10170 East Mississippi Ave., Denver, CO)

**September 17-19, Thunder Bay, Ontario:** 7th Biennial Conference, Lakehead Operating Room Nurses Association, Red Oak Inn. (Delegates contact Connie Riley, c/o McKeller General Hospital, 325 South Archibald St., Thunder Bay, Ont. P7E 1G6.)

**September 26, Toronto, Ontario:** Ontario Post Anaesthetic Nurses Association (OPANA) Second Annual OPANA Conference, Toronto Convention Centre. (Contact Pat Sbrocchi, PAR, St. Joseph's Hospital, 30 The Queensway, Toronto, Ontario M6R 1B5 (416) 530-6286).

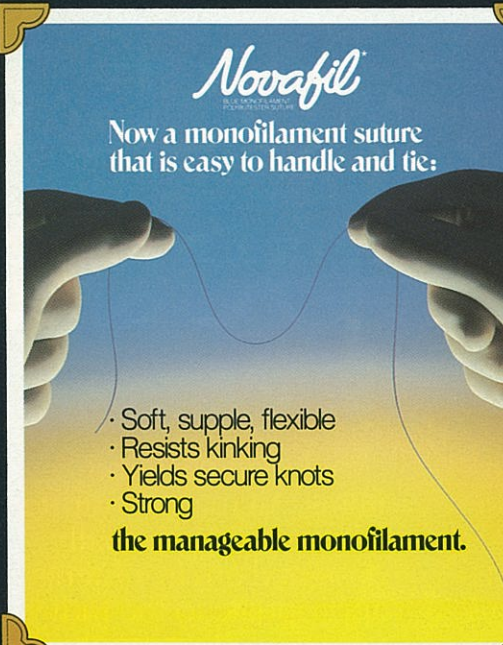
**October 15-17, St. John's, Newfoundland:** 17th Atlantic Operating Room Nurses Conference, Hotel Newfoundland. (Contact Ann Hughes, Health Science Centre, St. John's, Nfld A1B 3V6).

**October 18-21, Red Deer, Alberta:** Operating Room Nurses Association of Alberta Annual Conference, Capri Centre. (Contact Jackie Waisman, 116 Barrett Dr., Red Deer, AB T4R 1J3).

**November 13-14, Hamilton and District:** 3rd Regional Conference, Operating Room Nurses Association of Hamilton and District, Prudhomme Inn, Vineland Station & Queen Elizabeth Way. (Contact Chris Belgrave, Hamilton General Hospital, 237 Barton St. E., L8L 2X2 (416) 527-0271).

**May 30-June 3, 1988, Vancouver, B.C.:** National Conference, Operating Room Nurses Association of Canada, Canada Place Convention Centre and Pan Pacific Hotel. (Contact Mary Raikes-Tindle, Publicity Chairman, 5199 Turquoise Dr., Richmond, B.C. V7C 4Z6; Exhibitors contact Jean Kerr, Exhibitors Committee, 1105 - 2050 Nelson St., Vancouver, B.C. V6G 1N6).

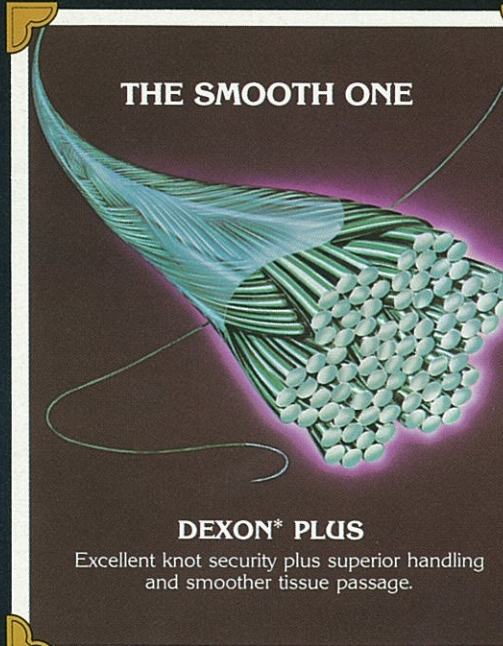
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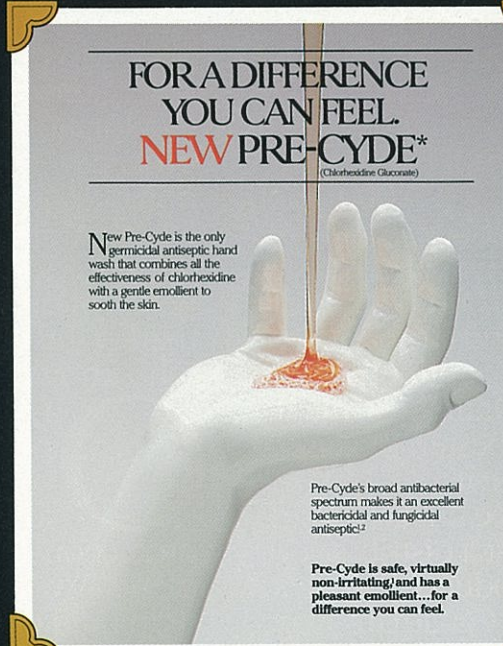
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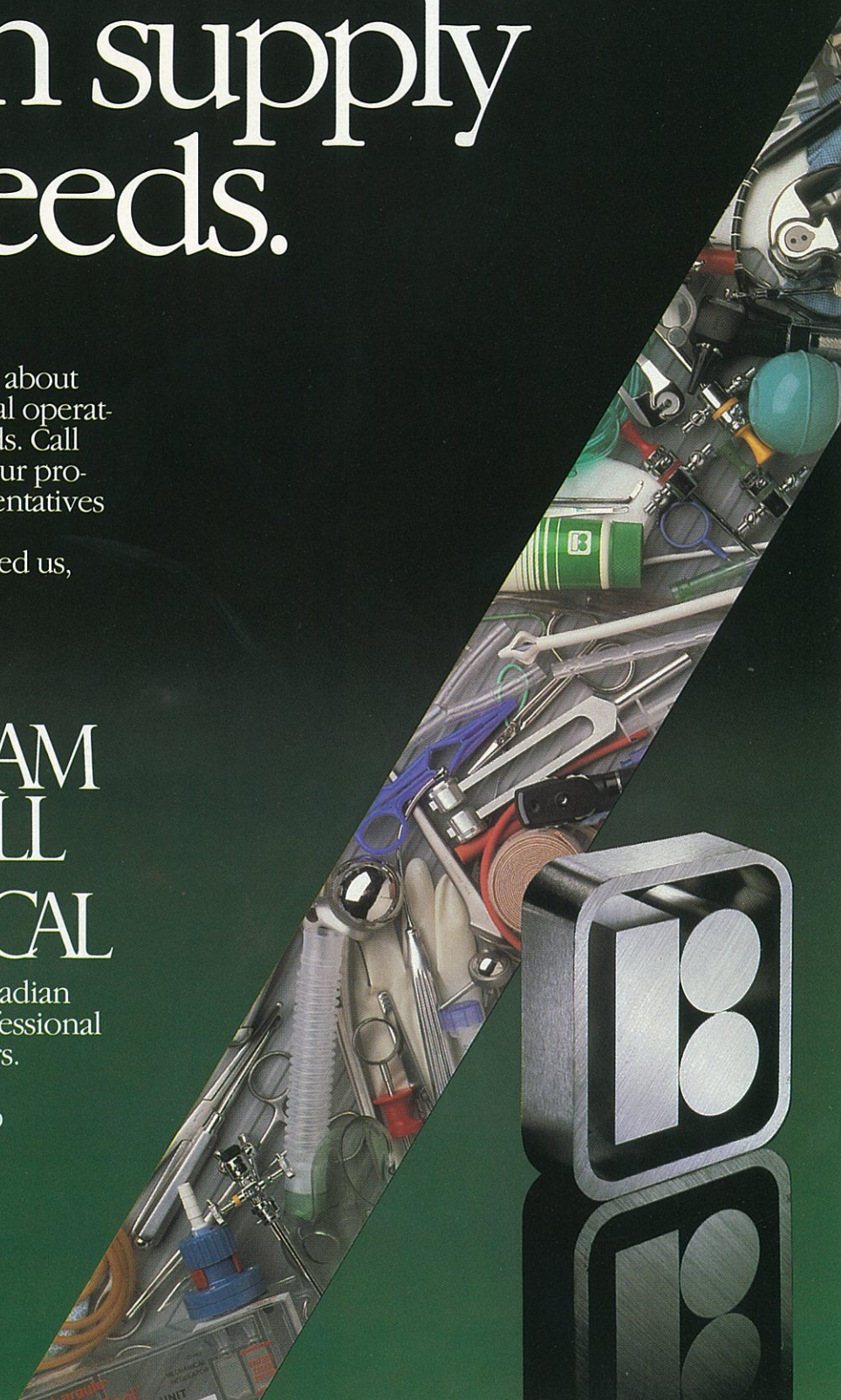
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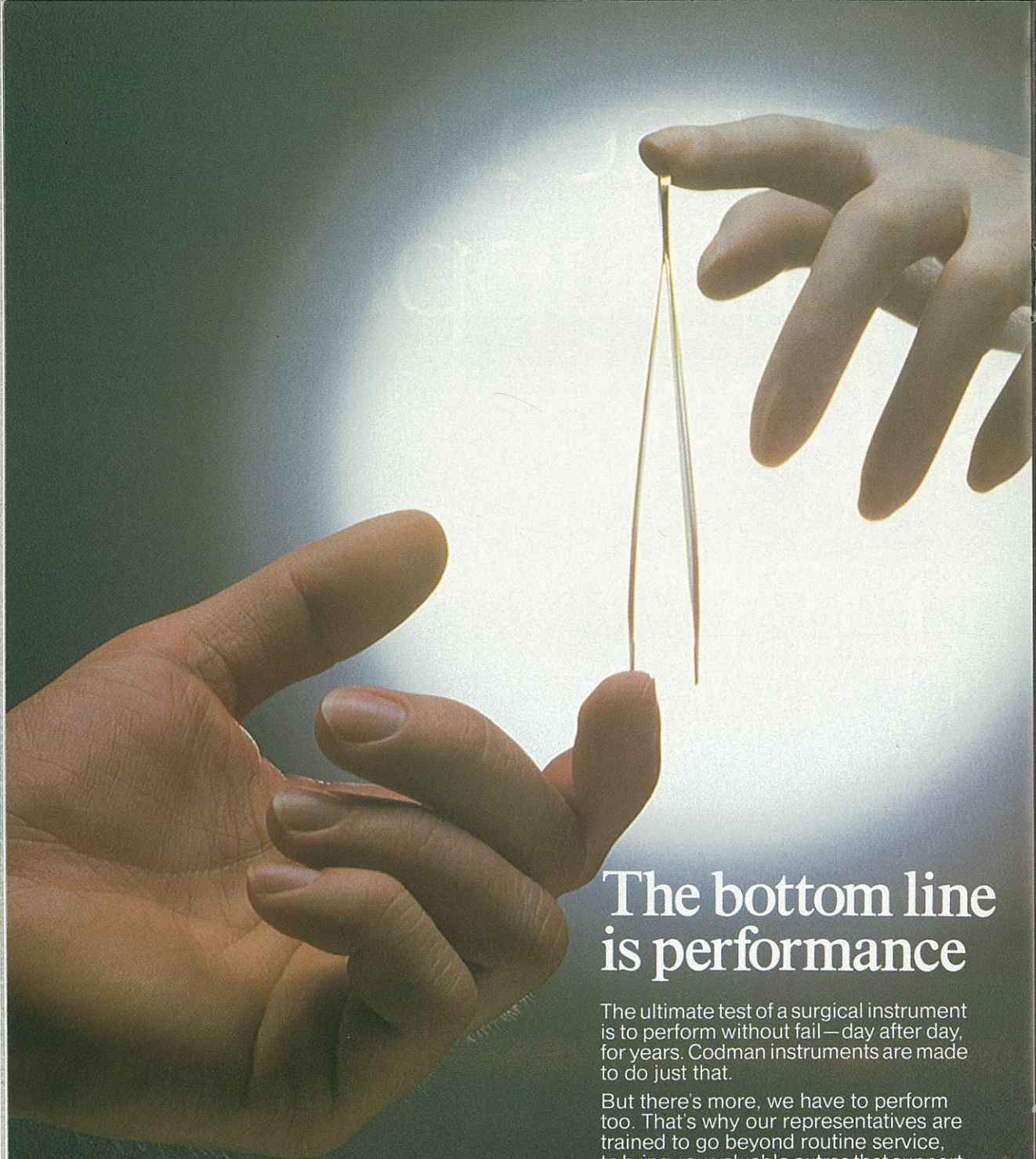
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# Why patients seldom sue nurses

By L.E. & F.A. Rozovsky

The current talk throughout the health field is that of malpractice. The feeling seems to be that if doctors are getting sued as often as they say they are, can nurses be far behind?

There is no doubt about it, as nurses expand their role, they automatically take on increased responsibilities. With increased responsibilities and greater potential for harming patients, there will naturally be a greater risk of being sued.

Considering the amount of malpractice that could take place, and may actually take place, it may seem amazing that more suits are not brought against doctors, hospitals, nursing homes — and nurses. However, on further analysis, it becomes apparent that the law is actually very weak in helping dissatisfied patients, even when those patients have cause for complaint. The following factors discourage malpractice suits.

### Reasons not to sue

1. The difficulty of bringing a law suit is enormous. If a patient alleges that a nurse has been negligent, the onus is on the patient to prove to the court on the balance of probabilities that the nurse has failed to live up to the average, reasonable and prudent nursing standards in the circumstances. To do this, the patient's lawyer must obtain the services of an expert witness who is prepared to testify in open court that the defendant nurse failed to meet these standards. Few are prepared to do this. Many experts may say, "I would not have done that," but such a statement is not sufficient.

2. The second difficulty is that the patient must also bring in an expert witness to show that injury has been suffered as a reasonably foreseeable result of the failure of the nurse to abide by those standards. Because this is often purely a matter of opinion and even speculation, it is not enough to convince a court.

3. The third practical problem is the cost. Many law firms want at least their potential costs in advance before they go out hiring expert nurse and medical witnesses. Even in those provinces which allow contingent legal fees by which the client pays the lawyer a percentage of the amount collected and only if the

case is won, the out-of-pocket expenses must usually be borne by the client.

4. The fourth problem is inherent in the negligence rule itself. The nurse is not responsible for her actions unless she has failed to live up to average, reasonable and prudent nursing standards in the circumstances. The nursing care may therefore, be extremely poor but not negligent. The patient has no right to be compensated for poor nursing care, only care that has fallen below these legal standards.

Negligence exists only if the patient has been injured. Therefore, there is no right to compensation for even terrible nursing care, as long as there is no injury.

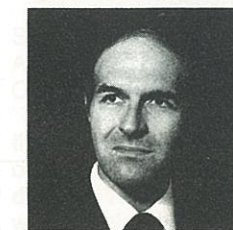
Similarly even when there has been injury or death, there is no right to compensation if the standards have been met.

Considering these factors, it becomes obvious that many patient complaints do not fall within the legal definition of negligence and no successful legal action can be taken.

5. Even when there has clearly been negligence, lawyers regularly talk their clients out of taking legal action. This advice is based on the fact that the compensation which a court would award is not sufficiently



Fay A. Rozovsky is a member of the Massachusetts and Florida Bars and an associate professor of gerontology at Mount St. Vincent University in Halifax and a visiting lecturer in health law at the Harvard School of Public Health.



Mr. Lorne E. Rozovsky, Q.C. is a Halifax lawyer with the firm of Patterson Kitz and an adjunct associate professor of law and medicine and lecturer in dentistry at Dalhousie University. He is also an honorary fellow of the American College of Legal Medicine.

# Southern Maine Medical Center Central Services Eliminates Wet Packs and Reduces Sterilizer Maintenance Costs by 32%

Ray Averill, Central Services Supervisor for Southern Maine Medical Center (S.M.M.C.), Biddeford, Maine, reports that he has eliminated a serious and costly wet pack problem, increased productivity by 25%, eliminated staining of sterilized instruments, and reduced maintenance costs by 32% with the installation of steam filters on his two sterilizers.

Central Services provides all instrumentation for the four operating rooms at S.M.M.C., a 150-bed, 7-year-old institution. This heavy demand requires both sterilizers to be in use 24 hours a day, seven days a week.

"After about three and a half years of operation, we started averaging as many as six wet loads a day, black particulate matter was being blown into the sterilizers, the sterilizer check valves were gumming up to a point we couldn't get through a two-month PMA (Preventative Maintenance Agreement). We were scrubbing the sterilizers every week trying to keep the junk out of them. It was a nightmare, a real nightmare.

"We're one of those hospitals that doesn't have the ideal steam generator. We have hard water, and they treat the water for hardness as well as adding amines to keep the pipe scale down. Things were gum-

ming up to the point where I couldn't keep a (steam) trap element two months. They would gum, stick open, causing steam to pour out of the chamber even with the doors open. It was unbelievable!"

Mr. Averill's maintenance logs showed that every part of both sterilizers was being affected. Some of the problems listed were: sterilizer chamber not vacuuming; blowing off jacket pressure; jacket pressure assembly required repair; intermittent sticking in pre-vacuum; and sticking in cycle, all problems being attributed to the gunk in the lines.

"When you're averaging 24 loads a day and six of them are being rejected because of moisture problems you're losing 25% of your productivity. That's a lot of wasted dollars."

In addition to his moisture problem, Mr. Averill was also experiencing staining of instruments. "We were using muslin at the time. The muslin would come out of the sterilizer brown and stained. If you opened an instrument tray in the O.R. you could see where the stains had splattered onto the instruments. Because we do all the instruments for the operating rooms for the entire facility, our equipment is right there under the spotlight all the time. We were getting complaints about the appearance of our product."

To alleviate the problem, steam filters were recommended and installed on both sterilizers by Balston, Inc., Lexington, MA.

"When we put the Balston filters in, it immediately took care of the moisture and gum. It was like night and day."

Mr. Averill calculates "the two filters paid for themselves in the first two months they were in use." Prior to the Balston steam filter installation, preventative maintenance costs were averaging \$5400 for contract maintenance per year plus an additional \$5000 in replacement parts and emergency service calls. After the Balston steam filter installation, replacement parts were reduced to a nominal cost of \$2500 and engineering service calls were eliminated altogether—an identifiable annual savings of \$2500.

This savings does not reflect in-house labor costs for redoing rejected sterilizer loads, an average of six per day, at a cost ranging between \$150 to \$400 per load depending upon what the load consisted of.

"Our main concern is the quality of product we deliver to the patient. We pride ourselves on producing a quality product because we do a lot more to our instrumentation than most places do. For instance, we hand wash everything before we machine wash, which makes a big difference in their appearance. Now that we've installed the Balston steam filters, we're not getting the spotting, rusting, staining like we did before. Our dirty instrument ratio now is like 1%. You might find one out of 114 instruments that's dirty, but that's because of human error, not because of something the sterilizer did to them."

Comments Mr. Averill, "As far as I'm concerned, Balston steam filters are the solution to my problem. We did have a serious moisture problem, we don't any more."

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high to make the effort worthwhile. While it is possible for a winning party to be awarded "costs" from the losing party, these seldom cover the actual costs.

The trauma of a law suit over a period of several years is emotionally draining in which the suit becomes a focal point of the client's life. Most people do not wish to have their lives revolve around a lawyer's office.

6. In many injury cases, there have been no permanent injury and no expenses since most of these costs have been paid for by Canada's health insurance programs. As a result, the patient is left to sue for pain and suffering. Because these amounts are generally not very high, the patient simply wants his bills paid and that has been done.

7. In small towns, the social pressure against suing a local hospital or nursing home and a local nurse may be sufficient to dissuade even the most disgruntled patient.

## Cause for joy

This may send the most defence minded nurses, their insurers and their solicitors into smiles of satisfaction. It certainly does keep lawsuits to a minimum.

However, it does result in an increasingly large number of unhappy patients who have received what at least they think is poor nursing care. They have been discouraged from taking legal action, and must therefore turn to other avenues of complaint.

The first shock they get is that in following other methods they will not be compensated for their alleged injuries. They can complain therefore, solely to get it off their chest. The question is: how can they do this?

The obvious place to go is the licensing or registration authority for nurses in the province. Until very recently, their bodies have not been particularly active in discipline matters though this appears to be changing. The second problem is that discipline bodies for all professions seem to be losing their prestige. There seems to be a growing public suspicion of professions that are "self-governing" in the interests of the public.

Patients can also complain to employers though with the advent of unions, many employers are timid about disciplining nurses even though collective bargaining agreements allow for such action to take place.

## Limited access

Complaints to government are invariably passed along to the "self-governing" authorities and complaints to provincial ombudsmen are frequently brushed aside since that official usually has no jurisdiction in the matter.

The result is a growing number of patients who have limited access to any complaint mechanism. They do nothing, but are certain to tell their friends and families of the injury which they have suffered at the hands of what they consider to be over paid, under-trained,

under-worked, incompetent nurses. In many of these cases, there may have been a small kernel of truth, though as time goes by the incident may become in the minds of those who hear about it, an event akin to a major catastrophe — it happened and there is nothing that can be done about it.

Such a development has already begun to hurt the medical profession and is beginning to show its face among other disciplines. Public support of the professions decreases regardless of any justification.

The answer is to prevent complaints from getting out of hand. Patients must be given a mechanism which is simple and honest in dealing with their dissatisfaction, regardless of whether their feelings are legally based or not.

## Conclusion

Within health institutions, a patient representative is one way of overcoming this problem. In the health field as a whole, a health ombudsman, such as exists in Great Britain, may be the answer.

In any case, the nursing profession must examine this problem and come to terms with it. Law suits are not the answer — neither for nurses nor for patients.

## Study suggests that proper handwashing still neglected by medical care givers

The first medical practitioner of record to advocate that hands be washed in order to interrupt the transmission of hospital infections was a Hungarian physician, Dr. Ignaz Semmelweis. When he introduced his theory in the middle of the last century, he was ridiculed in such a manner that he became psychotic. Shortly after, he committed suicide.

## Procedures still neglected

A recent study on handwashing introduced in the United States suggests that Dr. Semmelweis' theory may not have been received any more favourably today, judging from the percentage of times that hands are washed by hospital care givers between patient contacts.

Dr. Semmelweis' theory has been accepted for some time now, but is largely ignored, according to a study at the University of Virginia Medical Centre in Charlottesville, Virginia.

Dr. Leigh Donowitz, a professor of pediatrics, found that overall, doctors, nurses, occupational/physical therapists, respiratory therapists and radiology technicians wash their hands only 30 percent of the time between patient contacts.

These findings were presented at the American Society for Microbiology Interscience Conference on Antimicrobial Agents and Chemotherapy held in New Orleans recently.

Although the study mentioned that nurses washed their hands significantly more than physicians (37% of the time vs. 21%), this rate still leaves much to be desired. The next step Dr. Donowitz said was to find ways to change behavior.

# The eyes have it ...

By Wendy Ann Morgan, R.N., B.Sc.N.

Have you ever stared at someone, without saying a word or making any gestures, until you finally got their attention? This illustrates the power and influence that eye contact can exert!

The nonverbal is the oldest form of communication; it is the feeling level of communication. What is said with the eyes is a unique expression of a nonverbal phenomena. (Harper, Weins & Matarazzo, 1978). By looking at someone's eyes, often their thoughts are shown to you but at the same time, you are telling them something of yourself. It is difficult to camouflage the thoughts that are expressed by the eyes — your lips may be smiling, but your eyes may be giving a completely opposite message. By meeting someone's gaze, you can signal a desire for communication to take place or you can let someone know that you are listening to them; by avoiding a gaze, communication is usually terminated.

The patients often come to the operating room nervous and very frightened. What do they see? Equipment — strange; noises — unfamiliar; people — dressed in Hallowe'en type garb; and eyes — mostly what they see are eyes.

## Eyes communicate

What do your eyes convey to the patient? Caring — you know they are all individuals with different needs and you want to protect their right to that individuality; boredom — ho hum, not another gall bladder, this is the fourth one today; anger — this doctor is the physical pits, he was so nasty to me last month but I'll get him today.

The operating room is a unique area in the hospital as far as nursing is concerned. Many people, including some operating room nurses, consider operating room nursing to be a purely technical job and not really nursing at all. True, operating room nursing has many technical aspects, but the human element remains and cannot be removed. Every patient

is different and responds to approaching surgery in a different way; they have special needs that must be met so that they can consider their surgical experience in a positive rather than a negative way.

## Sensitivity

Communication in the operating room takes place on a different level — much of it is nonverbal and as the saying goes, "actions speak louder than words."

Patients in the operating room often have an increased sensitivity to their surroundings due to their usually high anxiety level. When all that is revealed to them is a pair of eyes — or ten — a very real barrier to communication may be presented. The operating room nurse must be very sensitive to the needs of the patient; the nurse must look for nonverbal cues, often revealed in the patient's eyes, (Davis, 1978) and present herself as a caring person interested in that patient as an individual, not just an operation or a disease entity. The patient is totally dependent on the nurses in the operating room, whether having a general, local or block anaesthesia.

## The art of listening

Your eyes tell a story; they tell the patient that you are listening and that what they have to say is important. According to Munn (1977), listening "makes people feel special, and it's the special OR nurse who can listen." It is important to let your patients know that you are listening to them, just as it is important for your co-workers to know that you are also listening to them. Often combined with a touch, your eyes tell the patients that you care and you will give them the best care possible while they are with you. It is important to be responsive to your patient's needs. Usually you have such short contact with your patient

"Your eyes are the most revealing part of your person, because often in the operating room, it is the only part ... revealed for inspection."

that you must pick up immediately on any cues that they give you.

If you are angry with a co-worker, be it a nurse, doctor, aide or orderly, a patient may sense that anger displayed in your eyes and your manner and perceive that you are angry with him for some reason and he may go to sleep wondering how well you will be taking care of him. This could conceivably affect his post-operative recovery period.

## Humour in its place

Humour also has an important part in our lives, but there is a time and a place for it. If the patient reads in your eyes that life is a big joke to you, he may drift off to sleep wondering if he really is important to you or is he just another joke.

It is also important to attend to what you say with your eyes to your fellow workers. It can make either a very comfortable work situation or an uncomfortable one depending on what you are communicating to each other with your eyes. Caring — that you make a difference to how well the day goes; boredom — don't bother me with any of your problems, I have enough of my own; disbelief — I can't believe you actually did such a dumb thing; anger — I don't like working with you and I know we are going to have a rotten day; humour — even in the face of all adversity; listening — what you have to say matters to me and is important.

## Clarify the message

The people that you work with are also under a lot of pressure. It is very important to remember this as you work closely together in a series of high stress situations throughout the day. Clarify the messages that are being received. If the eyes are telling you one thing but verbally a different message is coming through, get it out in the open and see which message is the real one. It is probably the nonverbal one that is the true one. Unless the air is cleared, the patient is the one who loses out by lack of caring personnel too caught up in their own missed messages to respond to the patient's messages.

In the helping professions, communication is very

important. It can make the difference between a patient knowing that you are really interested in his personal welfare or wondering if he is a minor irritation in your otherwise perfect day. In the operating room, because much of the communication is nonverbal, via the eyes, it is important to be aware of the messages that you are sending. As the nurse and head of the operating room team, it is up to you to set the example for the other members of the group. Even in everyday life, you should be aware of the messages that are being communicated with your eyes. Even a raised eyebrow at the wrong moment may cause no end of grief. If you happen to be at an auction, you may go home with the white elephant.

As mentioned before, it is important to be aware of what you are communicating nonverbally to others. This point cannot be stressed enough. People may easily misinterpret what you are telling them: the patient because he is nervous and upset, your co-workers because they are working under stress and may have too high an anxiety level to accurately perceive the true message. Your eyes are the most revealing part of your person, because often in the operating room, it is the only part of your person that is revealed for public inspection.

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## About the author

Wendy Ann Morgan, R.N., B.Sc.N., is currently a staff nurse, operating room, Riverside Hospital, Ottawa, Ontario. Ms. Morgan received her R.N. from the Royal Alexandra Hospital in Edmonton and her B.Sc.N. from the University of Alberta, Edmonton.



1 2 3  
Most psychologists identify six principal expressions of emotion: disgust, anger, fear, sadness, happiness and surprise. Although not considered here, other psychologists include shame and fear. What is shown on the two pages are the



4 5 6  
six principal expressions of emotion as evinced by the eyes alone. Each is numbered to enable you to identify which emotion is being expressed. See page 30 where the numbers are matched to the emotion expressed.

# National and Provincial associations of Canadian operating room nurses

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B.C. Children's Hospital  
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Vancouver, B.C. V6H 3V4

## PRIORITIES—Check off

- Renew subscription to O.R. Journal
- Finish final draft of article to Journal

## Vancouver's new Convention Centre will be site of the 1988 National Conference

The 10th national operating room nurses conference will take place in Vancouver at the Canada Place Convention Centre. Hosting the conference, scheduled May 30 to June 3, 1988, will be the British Columbia Operating Room Nurses Group.

Gloria Stephens (St. Paul's Hospital, Vancouver) is the 1988 Conference Committee Coordinator. Publicity chairman is Mary Raikes-Tindle, and the chairman of the Exhibitors' Committee is Jean Kerr. Their mailing addresses are listed below.

The Canada Place Convention Centre in Vancouver is a brand new complex and will afford more space than was available for any previous National OR Conference. All exhibits will be on the same level as the convention level.

The Pan Pacific Hotel will be the main hotel complex for the Conference. More details on the Conference, including accommodation, agenda highlights, social events, etc. will be provided in up-

coming issues. In the meantime, the hosting committee organizers ask that exhibitors and delegates alike provide early indication of their intent to participate. All exhibit booth assignments will be first-come, first-served.

It is expected that the Vancouver O.R. Conference of '88 will be the largest ever, with the committees preparing for over 1000 delegates. Below is listed the contacts for the 10th National O.R. Nurses Conference.

### For delegates:

**Mary Raikes-Tindle**  
Publicity Chairman  
5199 Turquoise Dr.  
Richmond, B.C.  
V7C 4Z6

### For exhibitors:

**Jean Kerr**  
Chairman-Exhibits  
Committee  
1105 - 2050 Nelson St.  
Vancouver, B.C.  
V6G 1N6

## Greater Toronto OR Conference will have delegates "exploring new horizons"

The 15th Regional Conference for Operating Room Nurses sponsored by the Operating Room Nurses Association of Greater Toronto will be held April 26 to 29 at the Constellation Hotel on Airport Road in Toronto. Theme for this year's gathering is "Exploring New Horizons".

As this is an extremely popular conference, delegates are asked to arrange their registration as soon as possible. The registration package price is \$100, which includes 3 days registration and the Dinner-Dance ticket (accommodation not included). On a per diem basis, it is \$25.00 plus \$35.00 for the Dinner-Dance ticket. After April 10, the package price is \$110.

Complete details of the entire conference will be published in

the April issue. Further conference and registration inquiries may be directed to:

**Miss Audry MacDonald**  
Publicity Committee  
2301 Mountaingrove Ave.  
Burlington, Ont. L7P 2H8

### Hamilton area O.R. nurses plan for 3rd Regional meet

The Operating Room Nurses Association of Hamilton and District will hold its third Regional Conference at Prudhommes Inn, Queen Elizabeth Way and Vineland Station, Ontario. For more details contact:

**Chris Belgrave**  
Hamilton general Hospital  
(416) 527-0271



## OR news

### Manitoba gearing up for 'high tech' OR conference

Manitoba's 2nd Biennial Operating Room Nurses Conference has been scheduled for June 14 to 16. Delegates attending will be provided with an in-depth up-date on the ever-changing and dynamic needs of perioperative nursing.

The theme of the Conference is "Caring with High Tech." A wide variety of educational sessions will be offered in concurrent sessions in order to address a number of the issues involved.

Some of the "high tech" concerns to be dealt with include the application of computer technology in the operating room; surgical laser programs and how to institute a program in your department; implementing the perioperative nursing care plan required during stereotactic surgery; and perioperative needs and ethical issues regarding organ transplants.

Rounding out the "high tech" content of the concurrent educational sessions, will be an all-day seminar on "Staying Human in a High Tech World." This timely session will be given by Joan Keyes, assistant professor of psychiatry at the University of Pittsburgh.

The three-day conference is sponsored by the Manitoba Operating Room Nurses' Association. More details obtained from:

### Delegates

**Eva Marie Lessing**  
50 Cathedral Ave.  
Wpg., Man. R2W 0W5

### Exhibitors

**Audrey McFaden**  
38 Mansfield Cres.  
Wpg., Man. R2N 1R6

### EYES...

- |            |              |
|------------|--------------|
| 1. Anger   | 4. Happiness |
| 2. Fear    | 5. Disgust   |
| 3. Sadness | 6. Surprise  |



## ROYAL INLAND HOSPITAL KAMLOOPS, B.C. REGISTERED NURSES

Applications are invited for R.N. vacancies in the O.R. Previous recent O.R. experience is required and a Post Grad/Basic Course in O.R. is preferred.

Royal Inland is an expanding 400 bed acute care regional hospital. There are active inservice programs with clinical instructors for staff development. Kamloops is a 3-1/2 hour drive from Vancouver.

Salary and benefits as per the B.C.N.U./H.L.R.A. Collective Agreement.

**Please apply to:** Personnel Services  
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There are approximately 2,000 procedures performed annually, including general surgery, orthopedics and endoscopy.

### QUALIFICATIONS:

- Current Registration with the College of Nurses of Ontario.
- Post-graduate course in O.R. technique and management.
- Minimum of 3 years Operating Room experience.
- BScN or Introduction to Nursing Management preferred.

Please send resume to:

**Director of Personnel,**  
Kirkland and District Hospital,  
145 Government Road East,  
Kirkland Lake, Ontario  
P2N 1R2.

## OPERATING ROOM

Toronto General Hospital, the premier teaching hospital in Canada, is currently seeking Operating Room Nurses for the following services:

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The successful candidates must have:

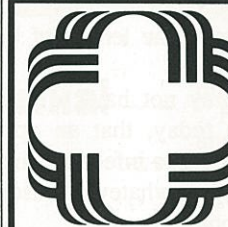
- Minimum one year operating room experience;
- Current registration or be eligible for registration in the Province of Ontario.

If you are interested in joining our health care team, please send résumé in confidence to:

TORONTO  
GENERAL  
HOSPITAL



Personnel Department,  
**TORONTO GENERAL  
HOSPITAL**  
657 University Avenue,  
Toronto, Ontario M5G 1L7



## NURSING MANAGER

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- Demonstrated leadership/management ability
- Baccalaureate degree in nursing, or relevant degree
- Current Ontario registration or eligibility

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a resume in confidence to:

**Personnel Officer**  
Grey Bruce Regional Health Centre  
P.O. Box 1400  
Owen Sound, Ontario N4K 6M9

## Studies show that skin stapler is best at reducing infection risks in surgical wounds

# Wound closure and infection control

By Editorial staff

The skin stapler is a relatively recent innovation in wound closure systems - at least that's what many of us have been led to believe. The fact is, in ancient India, primitive people noted that a certain species of termite formed its nest by squeezing leaves together with their pincer-like heads and binding the leaves together.

These indians, thousands of years ago, used the termites to join the wounded skin together by allowing the termites to bite them where they were wounded. They would then sever the insects' heads, leaving "staples" in place along the length of the wound area.<sup>1</sup>

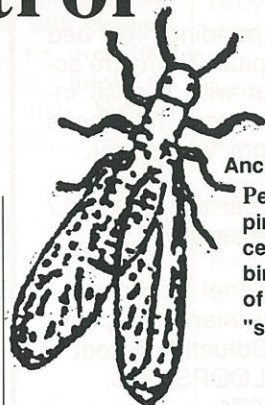
Our ancient forebearers may not have known, what is common knowledge today, that an open wound or incision is an invitation to infection; they did not know, however, that, for whatever reason, wounds should be closed as soon as possible.

### Reducing causes of infection

Long before asepsis was theorized about, physicians and surgeons in the Middle Ages, as well as ancient peoples, recognized the need to close wounds as quickly as possible.

The religious cleric, Theodoric, was a physician to the Vatican in the mid-13th Century. While he was 600 years before Joseph Lister and 300 years before Leeuwenhoek, Theodoric counselled the immediate closure of wounds. Even before the invention of the microscope, he sensed the existence of bacteria and was concerned about contamination from air.<sup>2</sup>

Prior to the 19th Century, surgery was considered a brutal undertaking. Even in Lister's time (1827-1912) surgery was still practiced in a rudimentary fashion. However, as the ability to control infection improved, together with improvements in anaesthetics and advances in surgical



Ancient indians of the Bharat Peninsula (India) used the pincer-like heads of a certain species of termite to bind wounds together, one of the first recorded uses of "skin stapling."

technologies, the medical profession became increasingly sophisticated and complex.

Today, there are organ transplants, limb reattachments and a host of other operations that were unheard of 20 years ago. There are also more devices - catheters, respirators, intravenous connections, etc. - technologies that merely provide another pathway for infection.

Making the infection situation even more alarming is the development of resistant strains of bacteria caused by the the flagrant overmedication or overkill use of certain antibiotics<sup>3</sup> (see page 6, "Resilient Bacteria...").

All these changes, discoveries and new modes of applying surgical technique have led health care agencies, hospitals, the medical community and the medical/surgical equipment manufacturing industry to find better ways to combat infection.

An important step toward reducing infection in the surgical wound has been the introduction of alternatives to ligatures - surgical staples and skin closure tapes. Surgical wounds, according to the Centres for Disease Control in Atlanta, account for 24 percent of all nosocomial infections.<sup>4</sup>

### Surgical advancement

In a 1981 study, 96 guinea pigs had wounds closed using different means: monofilament nylon sutures, microporous skin closure tapes and surgical staples. According to the researchers, from the University of Virginia Medical Centre, "wounds

## Report claims every year up to 70,000 Canadians acquire infections during hospital stay.<sup>†</sup>



Wound infections are a significant problem in Canadian hospitals.

### Over 20,000 of these nosocomial infections could develop in surgical wounds.\*

An operating room nurses' publication, in an article, recently stated that nosocomial infections afflict 3%-7% of patients in Canadian hospitals.

According to a report on the subject by the Bureau of Infection Control "...of all hospital services in a 'general' hospital, surgery has the highest rate of infection." The report also stated that: "Not surprisingly, wound infections are the most common infection in the surgical service in all hospital categories where these data were gathered."<sup>††</sup>

### Improved wound care reduces surgical nosocomial infections

In part, the problem of surgically related nosocomial infections can be addressed through improved wound care.

Sancellia, a Canadian manufacturer of medical devices, has intro-

duced a sterile, one-piece island dressing called Mepore Plus.

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<sup>†</sup>The Operating Room Nursing Journal Vol. 3 #5 Oct./Nov. 1985  
<sup>††</sup>The Bureau of Infection Control's Interim Report on Canadian Nosocomial Infection Control Surveillance Program.

\*Figures calculated from Canadian Hospital Directory, Buyers' Guide and Statistical Compendium, 1985, CHA

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closed by tape exhibited the highest degree of resistance to infection, followed by stapled wounds and then wounds approximated by sutures." The researcher further added that, "wound closure with a stapler is accomplished with considerably less damage to the wound defences than is closure with the least reactive nonabsorbable suture."<sup>5</sup>

Another related study reported in the July, 1984 issue of *Archives of Surgery* describes the experimental use of 180 mice which had *Staphylococcus aureus* injected into the areas of skin incision. The researchers concluded: "Closure with the skin stapler was more resistant to abscess formation...Presumably, percutaneous sutures provide a nidus for bacterial growth...This problem is avoided by the use of skin tapes or staples. For those who are insecure about the strength of a closure with skin tapes, the skin stapler should provide an alternative in potentially contaminated cases where delayed primary closure is not elected."<sup>6</sup>

### Conclusion

We have seen where the skin stapler had its roots in antiquity. Primitive man, however, was not concerned with sources of infection. The modern medical community is, and studies sponsored by the CDC in Atlanta less than two years ago, strengthen the reasons for greater and more improved infection control measures.

In one of these studies, "Identifying Patients at High Risk of Surgical Wound Infection", the authors noted: "We recently demonstrated that establishing an infection surveillance and control program oriented around reporting surgical wound infection rates to practicing surgeons led to a reduction in hospitals' overall surgical wound infection rates of approximately 35 percent."<sup>7</sup>

Concluded the authors of the study: "The rationale for focusing attention on surgical wound infection rates in clean operations is that surgeons expect these rates to be very low; finding high rates among these (supposedly clean) operations will prompt them to examine their operating techniques (in order to) identify and change practices that may be increasing their patients' infection risks." From the above referenced research studies, it appears that use of the skin stapler, as an alternative or adjunct to wound closure systems, provides an excellent example of better infection control practice. 

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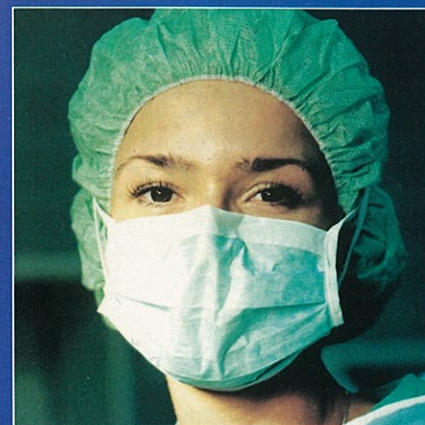
### Quotes/Misquotes

The following quotes and misquotes which were gleaned from various sources, could have been taken from patient records in any health care facility:

- "Patient was shot in head with .32 calibre rifle. Chief complaint: headache."
- "This 64-year-old patient complained of abdominal cramps in one hand and constipation on the other."
- "Patient has been married twice, but denies any other serious illness."
- "Patient is separated from his wife, and is also allergic to penicillin."
- "Patient has no children, and doesn't smoke or drink either."
- Dictated the doctor, "Patient had a pap smear today." However, when it was transcribed, it read: "Patient had a Pabst beer today."

And while we're on the subject of misquotations, how about these from the *New England Journal of Medicine*:

- A mince of surgeons
- An affluence of anaesthesiologists
- A blotch of dermatologists
- A squall of pediatricians
- A probe of urologists
- A strabismus of ophthalmologists
- A pile of proctologists...and
- A stand of proctology patients
- A craze of psychiatrists
- A pate of head nurses
- A rinse of scrub nurses
- A cluster of pathologists



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