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Discovering nursing research

By Joyce Flemming, R.N., with Margaret I. Fitch, R.N., Ph.D

I discovered first hand that nursing research can be helpful to nurses in the operating room. Because of my recent experience I am convinced operating room nurses need to know about the research process and how it can help answer some of the questions they have about their practice.

This article describes my experience with research activity. I wanted it submitted for publication so that other OR nurses could share in my experience and understand the role nursing research can play in their work and practice. I would also hope that by reading this article, nurses will come to appreciate that research activity is not insurmountable. By proceeding step by step and taking advantage of the resources in your environment, successful research can be done.

The beginning

I was the clinical teacher in the cardiovascular operating service at The Toronto Hospital. The manager of Nursing Practice had been struggling with the question of how to prevent certain skin lesions in our patients. We had observed that some of our patients were developing "burn-like" lesions following their surgery. The lesions appeared within 24 hours post-operatively. Within the next 24 hours, the area blistered, the blister broke and a weeping ulcer remained. Patients reported considerable discomfort associated with the lesions and, in some cases, actually required surgical intervention to promote healing.

Our hospital recently hired a Director of Nursing

Research and Professional Development who was available to help with research activity. We approached her with our question and, before long, we were launched upon our project.

The first step

The first step in our project involved reviewing the literature to see whether others had observed this problem and what they had done about it. We also contacted operating rooms in other hospitals and spoke with physician and nurse colleagues at conferences. We soon found that the problem of skin lesions was common enough. Yet no one had undertaken a systematic investigation about them. Hence, before we could think about strategies for preventing the lesions, we had to find out which patients actually developed the lesions and how often the lesions appeared. We wanted to know what type of intervention was apt to be helpful in preventing the lesions, or if any intervention we might try would really make a difference.

The second step

Our second step included designing the project. With our stated objective of determining the prevalence of the lesions and identifying factors influencing their development, we decided to conduct a prospective study. This meant that, rather than trying to look over medical records from former patients,

we would assess patients as they came into the cardiovascular service. The advantage in this approach was that we could obtain consistent and complete information for every patient.

Having decided that we would assess patients coming into the service, the next challenge was identifying what information we could collect about each patient, how this data would be collected, and how often and in what manner it would be recorded.

The process was most interesting! Everyone we talked to had a different idea about what might be causing the lesions. Different suggestions were made about the kind of data we needed to collect. We talked with nurses, surgeons, anaesthetists and dermatologists to gather our suggestions. We anticipated that we could collect data regarding the factors people thought caused the lesions and then relate

that data later to the patients who actually developed the skin lesions.

The factors which were identified fell into the pre-operative, intra-operative and post-operative stages (See Table 1). This gave us our basic time plan for data collection and allowed us to proceed with the designing of the data collection tool. We knew that a number of different nurses would be collecting the data, so we had to design a data collection tool that was easy to use and would give us consistent data collection. There were many drafts and many trials before we were satisfied that we could get reliable information with our tool. We certainly learned about the value of seeking other peoples' input and conducting a pilot test of the data collection tool!

One of the strategies we used to help collect reliable data (see Figure 1.) involved using a picture of the human body on the data sheet so that nurses could mark the specific anatomical site of a patient's lesion. Later, the site was assigned a code number so we could enter the data in the computer. Also, we printed a ruler on the same data sheet so the lesion size could be measured accurately and easily.

The feedback received from the nursing staff was that these strategies helped them record the data quickly and effortlessly.

The third step

The third step in our project was the data collection. We had a team of nurses who assessed patients during the course of the study. At the outset, we held a teaching class on how to use the tool for the data collection and organized some "practice sessions." This is a very important step when you have more than one person collecting data for your project.

The data collection stage lasted six months. I thoroughly enjoyed the interactions with both patients and staff nurses during that time. I think patients appreciated the concern about their comfort while nurses were intrigued with the study itself. Because the study design

Figure 1: Tool for recording lesion information

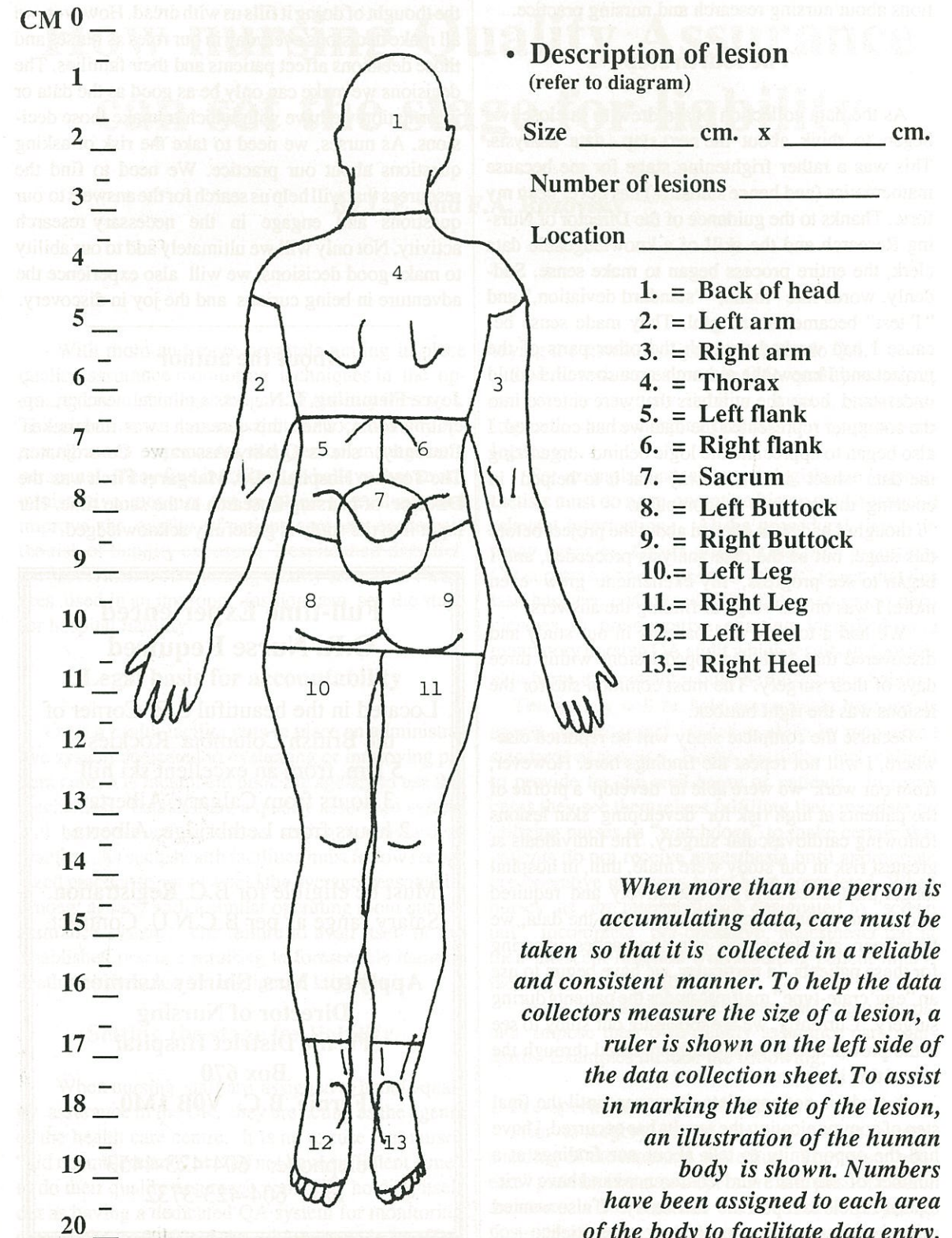


Table 1 - Factors thought to be associated with the development of lesions following cardiovascular surgery at the onset of the study

Pre-operative factors...			
Demographic:	Age	Gender	Race
Previous health information:			
	Diabetes	Stroke	
	Aorta iliac disease		
	Lower back surgery		
	Allergies		
	Nutritional status		
Current health data:			
	Height	Weight	
	Appearance (body stature)		
	Time from admission to surgery		
	Skin condition prior to surgery		
Intra-operative factors...			
	Procedure performed		
	OR Personnel		
	Cautery plate position		
	Cautery machine used		
	Cross clamp time		
	Pump time		
	Vasopressors used		
	Vasodilators used		
	Level of vasoconstriction		
	Level of vasodilation		
	Skin condition at end of surgery		
Post-operative factors			
	Temperature on arrival in unit		
	Time until temperature stable		
	Time to first turning		

required patients to be assessed for up to six days post-operatively, I had the opportunity to interact with many critical care nurses with whom I could not normally interact. We had some very good conversations about nursing research and nursing practice.

The fourth step

As the data collection phase drew to a close, we began to think about the next step - data analysis. This was a rather frightening stage for me because mathematics (and hence statistics) has never been my forte. Thanks to the guidance of the Director of Nursing Research and the skill of a knowledgeable data clerk, the entire process began to make sense. Suddenly, words like "mean," "standard deviation," and "T-test" became meaningful. They made sense because I had worked through the other parts of the project and I knew the research area so well. I could understand how the numbers that were entered into the computer represented the data we had collected. I also began to appreciate the logic behind organizing the data sheet in such a way that it helped in entering the data into the computer.

I thought I had been excited about the project before this stage, but as the data analysis proceeded, and I began to see progress, my excitement grew even more. I was on the verge of finding the answers.

We had a total of 451 patients in our study and discovered that 18% developed lesions within three days of their surgery. The most common site for the lesions was the right buttock.

Because the complete study will be reported elsewhere, I will not repeat the findings here. However, from our work we were able to develop a profile of the patients at high risk for developing skin lesions following cardiovascular surgery. The individuals at greatest risk in our study were male, thin, in hospital longer than three days pre-operatively and required a long pump run during surgery. Using the data, we have been able to change our approaches in caring for these patients. In particular, we have begun to use an "egg crate-type" mattress under the patients during surgery. Currently, we are repeating our study to see if the prevalence of 18% can be reduced through the use of this intervention.

A study is not complete, however, until the final step of communicating the results has occurred. I have had the opportunity to talk about our findings at a number of seminars and conferences and have written an article to report the full study. I also wanted to share the experience itself; thus, this article.

Conclusion

I think many of us are fearful of nursing research. We have not had the opportunity to learn about it and the thought of doing it fills us with dread. However, we all make decisions everyday in our roles as nurses and those decisions affect patients and their families. The decisions we make can only be as good as the data or information we have with which to make those decisions. As nurses, we need to take the risk of asking questions about our practice. We need to find the resources that will help us search for the answers to our questions and engage in the necessary research activity. Not only will we ultimately add to our ability to make good decisions, we will also experience the adventure in being curious and the joy in discovery.

About the author

Joyce Flemming, R.N., was a clinical teacher, operating room, when this research was undertaken. Currently, she is Quality Assurance Co-ordinator, The Toronto Hospital. Dr. Margaret Fitch was the Director of Nursing Research at the same time. Her input into the study is gratefully acknowledged.

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Medico-legal Issues

How nursing Quality Assurance can set the stage for liability

By L.E. and F.A. Rozovsky

With more and more hospitals putting in place quality assurance monitoring techniques in the operating room, the legal dangers of liability increases. This phenomenon comes as quite a shock to many operating room supervisors and senior management personnel. They find it difficult to believe that an administrative measure put in place to evaluate and improve the quality of patient care can exacerbate the risk of liability exposure. Despite their disbelief, the fact remains that nursing quality assurance measures used in an improper fashion can set the stage for hospital liability.

Legal basis for accountability

Once a health facility puts in place an administrative system dedicated to evaluating or improving patient care, it is incumbent upon the agency to use this mechanism. Establishing a quality assurance system will be construed in law as setting a standard of practice. As such, health facilities must follow recognized practice to act as would the average, reasonable, prudent agency with a similar operating room quality assurance system. The failure to avail itself of the established practice resulting in foreseeable harm or death sets the stage for negligence litigation.

Setting the stage for liability

When nursing staff are assigned to handle quality assurance in the OR, they are acting as the agents of the health care centre. It is no excuse that nurses "did not understand" or "did not have sufficient time" to do their quality assurance work. By holding itself out as having a dedicated QA system for monitoring care in the operating room, the agency is in effect

saying the standard of practice is "to do QA."

Several techniques used in O.R. quality assurance can set the stage for liability. Indeed, some are imposed, not be hospital practice, but by provincial legislation.

For example, under Ontario legislation¹ anaesthetists must do a pre-operative history and document relevant information. At the procedural level in many agencies, the net effect is that prior to surgery, OR supervisors or nurses will "check" to see that this task has been completed. The failure to report deficiencies in pre-operative charting identified in a mandatory nursing QA audit which results in foreseeable harm to a patient would be the basis for liability.

The agency will be held accountable because its agents - nursing staff - failed to abide by recognized standards of practice. Health facilities feel obliged to provide for the well-being of patients. In many cases they see themselves fulfilling their mandate by utilizing nurses as "watchdogs" to make certain that patients do not receive anaesthesia until appropriate pre-operative measures have been completed. When nurses as the intermediaries designated to "screen out" incomplete pre-operative anaesthesia fail in their intercept function with resulting patient injury, the stage is set for liability.

Aside from legislated requirements, many hospitals impose their own quality assurance care standards. Examples include the following:

1. Pre-operative teaching sessions.

Prior to surgery nurses evaluate patient understanding of the intended procedure. They also "educate" patients about pre-operative and post-operative measures. This includes N.P.O. orders, prepping, post-operative support measures, discomfort levels,