Effects of Enforced Behavior Change on Attitudes

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The purpose of evaluation research is to measure the effects of a program against the objectives it sets out to achieve. Data generated by evaluation research may be used as a means of contributing to subsequent decision-making about the program and for improving future programming.[1] Such research is particularly important when an educational effort is involved. Though changes in knowledge and skill can be measured, subsequent changes in attitude and behavior are more difficult to evaluate. The relationship between attitudes, values, and behavior is even more difficult to determine but of prime importance to the educator. Also, because of the high cost of educational programs, and because of increased scrutiny of hospital costs, evaluation has become increasingly important.[2]

Brooks describes some ideal functions of evaluation research[3]:

1. an accounting function to provide information on benefits relative to costs;
2. a feedback function;
3. a dissemination function to provide a basis of knowledge upon which to draw in future planning; and
4. a theory building function.

For six months of 1982 we conducted evaluative research to determine the effectiveness of a program to prepare nursing staff on two experimental units to assume full responsibility for venipuncture and IV maintenance. As one outcome measure for this study, the attitudes of nurses regarding venipuncture as a nursing function were evaluated on the experimental units and on three comparable control units before and after implementation of the intervention. Specific objectives of this portion of the study were:

1. to determine the extent to which and ways in which professional nurses value performing venipuncture as a nursing function;
2. to identify those individuals whose expectations regarding venipuncture were valued by professional nurses;
3. to correlate nurses' intentions to perform venipuncture with the perceived consequences of performing that behavior and the perceived expectations of others and self regarding venipuncture; and
4. to evaluate the influence of an imposed change in the practice of IV therapy maintenance by nurses on their attitudes and intentions toward performing venipuncture.

Background

In 1978 a task force was formed at the *study institution to assess the practice of* nurses performing venipuncture for the purpose of initiating intravenous therapy. Up to this time, medical house staff were the only individuals performing venipuncture on most clinical units. As a result of their findings, the task force recommended that registered nurses perform this procedure to prevent fragmented care and provide continuity in treatments. Venipuncture became a shared responsibility of medical and nursing personnel and interdisciplinary guidelines for IV maintenance were written. In that same year, the Nursing Staff Development Department began an educational program in intravenous therapy and venipuncture for all registered nurses. This educational program became integrated as a mandatory part of orientation for all new nurse employees in 1981.

Despite the education program and evidence that nurses could perform adequately, the proportion of venipunctures peformed by nurses remained persistently low (about 25%) throughout the years, with no apparent increases. It became increasingly clear that maintenance of a standard of practice would be difficult when nurses were not practicing venipuncture technique, and that education dollars were being spent on a skill that was not being put into practice. The standards of practice were difficult to maintain with a transient house staff. The decision was made, therefore, that the nursing staff would assume full responsibility for venipuncture and IV maintenance, calling in medical staff only in exceptional circumstances. Therefore, we planned a study to examine the behavioral intentions of registered nurses toward performing this behavior to gain insight into the beliefs and attitudes they held about venipuncture and to identify persons considered by nurses to be of importance in influencing their behavior. The results would be used to assess and make changes in the IV maintenance educational program, and to maximize the probability that nurses would perform venipuncture. We also wanted to determine whether an imposed behavior change would result in changed attitudes and values.

Methods

Selected nurses on two experimental units were prepared as "IV expert nurses" through an extensive program of education and supervised experience. Their role was to assure that defined standards were maintained on their unit, and to support other nurses on the unit in venipuncture technique and IV maintenance. For the first time, nurses were to assume full responsibility for venipuncture and IV *maintenance on the unit. On three control* units, IV therapy continued to be a shared responsibility between nurses and physicians. These units were chosen because of their comparability with the experimental units in terms of numbers of IVs and types of patients.

We developed a tool to measure nurses' attitudes, values, and behavioral intentions toward performing venipuncture. Initially, interviews with clinical and administrative nursing staff were conducted to elicit attitudes concerning the consequences of registered nurses performing venipuncture. From this information, a three-part questionnaire was devised.* The first 17 items listed possible consequences of professional nurses performing venipuncture. For each consequence, the nurse was asked to rate, on a seven-point scale, 1) the importance of this consequence to them (very important to unimportant), and 2) how likely they thought it would be for this consequence to occur (likely to unlikely).

The second section listed nine individuals (nursing, supervisor, professional colleagues, clinical nurse specialists, medical *staff, nurse coordinator, members of staff* development, nursing administration, patients, members of pharmacy) who might have expectations about whether or not the individual nurse should perform venipuncture. Again on a seven-point scale the respondents were asked to rate 1) how they perceived that each individual nurse felt about whether venipuncture should be a nursing function (thinks I should perform venipuncture to thinks I should not), and 2) how important the opinion of that individual was to the respondent (very important to unimportant). Lastly, the respondents were asked to rate 1) their own belief about whether they should perform venipuncture (very strongly believe to do not believe) and 2) their willingness to act upon that belief (very willing to not at all willing).

For each item, part 1 and 2 were multiplied, resulting in three scores: one for attitudes toward performing venipuncture, one for expectations of others, and one for personal intention to perform veni-

**Available from author on request.*

TABLE
MEAN SCORES ON ATTITUDE QUESTIONNAIRE FOR INTENTIONS OF NURSES TO PERFORM VENIPUNCTURE

Test		Mean Score/Item (maximum = 49)	P Value
Baseline *v* study phase, all units	Baseline	39.3	.29
	Study Phase	37.1	
Baseline *v* study phase, control units	Baseline	38.4	.68
	Study Phase	37.0	
Baseline *v* study phase, experimental units	Baseline	40.6	.18
	Study Phase	37.1	
Control *v* experimental units, study phase	Control	37.0	.96
	Experimental	37.1	

puncture. Thus, the higher the total of these three scores, the more positively a nurse respondent valued performing venipuncture as a nursing function. The questionnaire was pilot tested for clarity and completeness by other staff nurses and revised accordingly. To reduce observer bias and assure the respondents' anonymity, a self-administered questionnaire was chosen as the data collection method.[4] It was then distributed to all nurses on the two experimental and three control units one month prior to training of the IV nurse experts (baseline phase) and one month after implementation of the experiment (study phase).

T-tests were used to compare mean differences in scores and multiple regression was used to evaluate the extent to which the perceived consequences of nurses performing venipuncture and the expectations of others predicted the nurses' intentions to perform venipuncture.

Results

During the baseline phase, the overall response rate was 73.0% (81/111): 65.2% on control units, and 85.7% on experimental units. During the study phase, overall response rate was similar: 70.1% (63/89). Sixty-six percent were for control units, and 77.8% for experimental units. Fewer questionnaires were distributed during the study phase, as nurses who had begun working on study units after the baseline phase were omitted.

Both during the baseline and study phases, the most important and likely consequences of nurses performing venipuncture named by respondents were that professional nurses would maintain and improve their skills in venipuncture technique, that it would be possible to develop, maintain and enforce consistent standards of practice, and that it would allow more opportunity for nurses to calm and reassure patients during venipuncture. These items ranked in value above the likelihood of improving the quality of coordination of patient care, and infection control. Items rated of least importance and likelihood were that performing venipuncture would result in promotions, detract time from other professional nursing functions, or result in medical staff being unable to distinguish between nurses maintaining IV therapy and nurses drawing blood for routine laboratory work. The nurses did not generally express the belief that venipuncture responsibilities would be too time consuming.

Individuals whose opinions were most highly valued and whom respondents perceived as desiring that nurses perform venipuncture were respondents' professional colleagues and the nurse coordinator (head nurse). Those whose opinions were of least value for nurses were members of pharmacy.

As might be expected, a nurse's intention to perform venipuncture was significantly predicted by both the perceived consequences ($F = 22.2$; $p = <.001$) and the perceived level of expectations of others ($F = 25.5$; $p = <.001$). However, there were no significant differences in scores between control and experimental units before or after the study for perceived consequences of nurses performing venipuncture or for expectations of others. There were also no differences in groups regarding their intentions to perform venipuncture (Table). The mean scores of IV nurse experts for all variables evaluated during the study phase were not significantly different from other nurses.

Discussion

Though data are available to indicate that one's behavior is influenced by one's intentions and values,[5-7] there are few studies that assess the influence of an enforced behavior change on changing attitudes or intentions. In this study we found that such an enforced change, requiring that nurses perform venipuncture on the experimental units, had no detectable effects on attitudes, even among the nurses who were extensively trained in the theory and technique of IV therapy.

There could be several reasons for this. First, since the study population consisted of professional nurses, their attitudes regarding venipuncture as a nursing function were generally quite positive, even among control units and prior to the enforced intervention. As a matter of fact, scores were highest on one of the control units where nurses already performed percutaneous punctures of arteriovenous fistulas frequently for the purpose of hemodialysis. (However, there were still no significant differences in scores even when nurses from this unit were omitted from the analysis.) Thus, any changes in attitude might be too small to detect. Second, the duration studied, six months, was quite short; attitudinal changes are much slower to develop. Behavioral changes can be administratively mandated, but people's values are modified in small increments and only after much experience accumulates. Finally, behavior could be related to some factors other than those considered in this study. For example, despite positive attitudes, are nurses more likely to perform venipuncture when they have the designated responsibility for the task than when they share the responsibility with another discipline?

Larson used a design and questionnaire similar to the study described here to determine factors which influence nurses' participation in continuing learning activities. Interestingly, she found that the perceived expectations of others were not important in influencing nurses' intentions to participate in continuing education (J.S. Larson, unpublished Master's thesis, 1982). On the other hand, we found that nurses' behavioral intentions toward performing venipuncture were strongly influenced by their perceived opinions of others, especially those of their professional colleagues and their immediate supervisors. Perhaps changes in practice can be more strongly influenced by the imposed opinions of important others than can education, which involves an individual's internal value system.

These data suggest that 1) even with enforced behavior changes, attitudes and values are slow to change; 2) attitudinal changes should be evaluated only after changes in practice have been in effect for long periods of time; 3) evaluation of attitudes and behavioral intentions can be used to *predict* and influence the effectiveness of educational or practice programs before such programs are instituted; and 4) evaluation of attitudes and behavioral intentions can also serve as one method to assess the outcomes of such programs; ie, if the program is successful and likely to effect long-term change, attitudes should eventually be influenced.

Few educators are so bold as to assert that education alone, even with tested outcomes, will result in a change of values, attitudes, and behavior. Most will identify the necessity for collaboration between educators, those in authority, and those who are the targets of any proposed change. This study would indicate that the issues involved in a change in value and attitudes, leading to a change in behavior, are much more complex. However, educators could use information obtained from this study in several ways. Individuals whose opinions and expectations are most highly valued and who are most likely to influence behavioral intentions of the target group could be identified. These individuals would be targets for initial planning and educational efforts and would be considered essential in the implementation of the change effort.

It is of note that educators are not those most likely to influence the behavioral intentions of the staff. However, the educator could also capitalize on perceived consequences in developing educational and change strategies. For example, in this study infection control was not perceived as an important consequence of nurses starting IV, and therefore would not be considered a major selling point in implementing the program. On the other hand, it might be an identified target for educational effort.

We plan to use the information from this study to expand our IV educational program. Before we provide training to nurses on other units, we will provide extensive opportunities for the entire nursing staff and the nurse coordinators to be involved in the planning and implementation of the program. In this manner, nurses' behavioral intentions will be positively influenced by their colleagues. We will emphasize those components that are *already valued by nurses—for example,* the fact that our program will allow nurses to improve their skills in venipuncture and make it possible to maintain consistent standards of practice. We have also identified issues related to venipuncture that can be targets of future educational efforts.

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Evaluation of a Workshop on Patient Education

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This article describes an evaluation of a workshop on principles of effective patient education. The workshop was designed in response to the shift in the type of health care most often provided today. The proportion of health care services devoted to chronic conditions and diseases, compared *with acute illnesses, has risen dramatically* over the past 20 years.[1,2] The treatment of conditions such as high-risk pregnancy, diabetes, obesity, and hypertension, to name only a few, often entails substantial lifestyle changes, including new medical regimens, dietary adjustments, new exercise routines, and home monitoring of progress. Patients must be taught new attitudes, techniques, and technical skills to bring about the desired lifestyle changes. Thus, the role of the health care provider, in addition to relieving acute illness, has become one of educator and consultant.[3] Competent performance of this role is said to be essential for helping patients return to and/or maintain an acceptable level of functioning, prevent long-term complications of a disease, or even prevent the disease entirely.[4]

Unfortunately, training of health care professionals has not included instruction and practice in educating patients for behavioral change.[5,6] Few hospitals in the East, at least, have patient education programs,[6,7] and even the ones which do must hire persons without a teaching background. Where hospital-based patient educators have been given postgraduate teacher education, the turnover in personnel has exceeded 50%.[7] Perhaps as a result *of these deficiencies, patient compliance* with therapeutic regimens is very poor, especially when behavior change strategies are not part of the education program.[8,9] Even something as straightforward as patients' immediate recall of providers' care recommendations has only been about 50%.[10-13] It would seem that many otherwise well-trained care providers do not know very much about teaching.[14]

Nurses and dietitians recognize their lack of teaching skills. These skills were among the top five priorities in both a local needs assessment[15] and another needs assessment covering a broader area (Professional Education Committee, Greater Tennessee Affiliate of the American Diabetes Association). Similar results were obtained when members of the American Association of Diabetes Educators were polled (M. Smith, National AADE Program Chairperson, personal communication). A different form of evidence suggests the same need. The Diabetes Research and Training Center at Vanderbilt University has offered a three- to four-hour workshop/seminar entitled "Principles of Effective Patient Education." Since being offered three years ago it has been presented over 25 times to over 2,000 regional care *providers. Each succeeding presentation* was the result of the recommendation of a participant who suggested its value to new groups of practicing nurses and dietitians. Presumably, there would not have been so many requests for the program if it did not seem to address some recognized need.

The remainder of this article briefly describes the Principles of Effective Patient Education seminar and reports the results of an evaluation to which it has been subjected. The first three workshop presentations were immediately followed by consumer satisfaction evaluations. These evaluations turned out to be very positive, so a different evaluation methodology was employed in three subsequent presentations. Participants were asked to identify new teaching behaviors that they intended