ANOTHER TWIST ON THE DOUBLE HELIX: RESEARCH AND PRACTICE

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> It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to heaven, we were all going direct the other way.

The first line of this very familiar paragraph by Dickens (Baldwin, 1919, p.49) from his book, *A Tale of Two Cities*, has been repeating itself in my brain now for about six months. After considerable thought, I decided to make the analysis of why this passage seems so relevant, the focus of my presentation. During these six months I have, on the one hand, experienced tremendous optimism, excitement and a sense of endless possibilities; on the other, a sense of despair, hopelessness and helplessness about nursing. My excitement is generated by the current opportunities for nursing research that have never been available to us before. My despair is found in the practice environment and the profound unhappiness expressed by many of our current practitioners of nursing who work in hospitals in Toronto. This disequilibrium, I believe, has serious implications for the continued development of nursing research, because of the inextricable relationship between nursing research and nursing practice. Fawcett (1978) introduced the idea of the double helix in her paper on the relationship between research and theory. I think a similar double helix exists between research and practice and hence the title of my presentation.

I plan to do the following.

1. Reiterate the fundamental relationship between research and practice for those individuals who have yet to be convinced.
2. Review the position of nursing research in this country and contrast it with the situation of the practice environment.
3. Explore the implications in this environment for the conduct of research through some examples.

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4. Discuss the implications for academics and researchers, relative to this double helix in today's environment.

Research and Practice

Fawcett (1978) used the double helix analogy to demonstrate the interdependence of theory and research.

> The relationship between theory and research may be thought of as a double helix. Theory is one helix, spiralling from the conception of an idea through modifications and extensions to eventual confirmation or refutation. Research is the second helix, spiralling from identification of research questions through data collection and analysis of findings and recommendations for further study. (P. 50)

She went on to say that when research and theory are isolated from each other, they become excursions into trivia. Jacobs and Huether (1978), in turn, focused on the theory-practice linkage and noted that nursing theory that was divorced from nursing practice had no reality about which to theorize or upon which to impose order. "Theory constructed without a serious consideration of practice will bear a tenuous relationship to practice. Conversely, practice without theory will be carried out intuitively." Research can be defined as the systematic process of examining the environment to generate theories about how it operates. Therefore, I have difficulty with Fawcett's separation of research from theory, it seems more reasonable to define research as a theory generating process; in nursing the focus of this theory generation is practice. I should like to redefine the double helix using Fawcett's sense of it as follows. Practice is one helix, spiralling from the individuals' demands for care or need for health education, through nurses' responses to those demands or needs, to the nurses' evaluation of the effectiveness of the responses. Research is the second helix, spiralling from questions that arise about the nature of the demands or needs, through tests of a series of responses for effectiveness, to determination of the most effective response and generalizing it.

This double helix is our *raison d'etre*. If our research is not grounded in practice, we are wasting our time and wasting the money of funding agencies. Even if we are doing fundamental research in Doris Bloch's (1981) sense of it (that is, research that is not owned by any one discipline because the basic knowledge is not available), we must be able to describe the link to practice or we are left with a sense of "so what". It may be reasonable for researchers from non-applied disciplines to do research for the sake of knowing, but I am not convinced that nursing can afford this. However, I do not deny for a minute the difficulty nurse researchers have in maintaining their practice skills because of the pressures they experience from education and

academic administration. Consequently, if they are not able to practise, they must develop close working relationships with practitioners to be able to identify practice questions. Working only from the literature and remembered past experiences is not good enough.

Back in 1980, Kathryn Barnard (1980) defined the challenges of the decade we are just completing. These included increasing the generation of new knowledge through research, and translating these findings into practice. In order to meet these challenges, we have to insure the relevance of the clinical research we are doing and solve the difficulties of diffusion of the results into practice. Foster (1984) in a review article on cardiovascular nursing research, questioned whether or not the existing research literature reflected the true priorities and complexities of care in the real world of clinical practice. In answering her own question, she cited the fact that the most frequently studied topic in the cardiovascular nursing research on myocardial infarction was the relationship between stress and myocardial infarction. She questioned whether most cardiovascular nurses would identify stress as the most important priority with which they dealt. I do not think that this comment invalidates the research on stress that has been done, and continues to be done, but it does force those of us who are researchers to reflect on the relevance of what we do for practising nurses, as opposed to our own research agenda. Dennis and Strickland (1987) pointed out that, although there has been a significant increase in research on client problems and concerns, practising nurses still complain that much of this research is not relevant to them. These authors' explanation for this is the following:

> The development of clinical nursing research and the integration of findings into nursing practice often bypasses the clinical nurse, who may be more in touch with the problems that need investigation. Because nurses in academic settings are more interested in advancing knowledge for the sake of knowledge, they are more likley (sic) to address client problems that are of greater interest to academia than to the clinical nurse. Since practice in any field tends to lag behind knowledge, the findings from this clinical research may be applicable only after certain other practice changes are made. (P. 26)

I think both Foster and these latter authors are talking about timing; what is relevant for the researcher at a given point in time may not be so for the clinician. This, however, is a significant problem in maintaining the credibility of the researcher with the practitioner.

The second challenge, diffusion, is even more difficult to address. As Caplan (1980) states, "Simply because information is timely, relevant, objective, and given to the right people in usable form," is no guarantee that it will be used. If we reject the comments of critics of the relevance of our research,

and assume that the results our research generates are timely, objective and given to the right people, it is still difficult to know how well we are doing because translation of research findings into practice rarely makes its way into the literature. An exception to this is Karin Kirchhoff's (1982) study of the diffusion of research relevant to coronary precautions into critical care nursing environments. Her results are not encouraging, but her study is almost a decade old now and perhaps things have improved. She found that despite good published evidence of the inappropriateness of continuing to restrict very hot or cold beverages, and avoiding rectal temperatures and vigorous backrubs, the majority of critical care units, in a random sample of all such units in accredited hospitals in the USA, still adhered to these practices. To rely on passive diffusion of research results is simply not adequate because it is too slow, too haphazard and potentially too unreliable (Kirchhoff, 1982). However, promoting active diffusion is an underdeveloped science. An approach with some potential for improving diffusion is Havelock's linkage model (Crane, 1985) which links the user or practice system with the resource or knowledge generating system. This model envisions the source of the research questions as being in the user system and the solutions in the resource system; the two systems are involved in a reciprocal relationship with mechanisms between them that foster information exchange. If there is validity in this conception of improving diffusion, it is imperative that practice environments and academic researchers be creative in developing these reciprocal relationships.

Let me try to summarize the points I have been trying to make so far. First, there is a fundamental relationship between nursing research and clinical nursing practice that bears some of the same characteristics as the double helix of research and theory. However, there are at least two forces that create tension within this helix. One of them is generated by practising nurses: they question the relevance for their clinical work of much of the nursing research that is conducted. The second is raised by the researchers: they are discouraged about the diffusion of the results of their research into the practices of nurses. These two tensions, if not attended, to have the potential to create two solitudes and if that happens the fundamental reason for doing nursing research would be lost; if you will, the double helix would unravel.

The Position of Nursing Research

I want now to examine the first clause in Dickens's passage: "it was the best of times". When I think of the environment in Canada for nursing research now, relative to ten or even five years ago, it is hard not to conclude that it is the best of times. That is not to convey that it could not get a whole lot better, and should, but we have opportunities now that we have never had before.

One of the indicators of this is the number of PhD-prepared researchers. The Canadian Nurses' Association reported last year that, as of 1986, there were 196 nurses with PhD's in this country. That is not a large number given the demand for nurses with this level of preparation but it represents a 58% increase over the 124 who had this degree in 1982, which in turn was a 53% increase over the 81 who had it just two years earlier. The fact that McGill University and the University of Alberta admit students to study for PhD's in Nursing, and UBC is planning to start a program in 1991, which is our target as well, means that we are in a position to accelerate this growth substantially.

This increase in researchers has been complemented by an increase in the number of research scholar or career awards that nurses hold. In Ontario, this year the Ministry of Health provided a lump sum of $300,000 to each health sciences centre, to fund a career award for either a nurse or a researcher from one of the rehabilitation therapies. In addition, for the first time, the regular research personnel award program of the Ministry funded a nurse in three of the schools. Last year, as most of you know, the Medical Research Council (MRC) and the National Health Research and Development Program (NHRDP) jointly mounted a competition for research scholar awards. A total of 19 nursing programs submitted letters of intent, and six programs were invited to submit fully developed proposals. We do not yet have the final results from this competition but if we are even modestly successful in it, and we add in Dr. Joan Anderson who is funded from the NHRDP regular competition and the Ontario Ministry of Health initiatives, we have the potential to see the funding of upward of 15 nursing researchers whose time can be protected so that they can devote the majority of it to research. I believe that four research scholars was the highest number funded at any one time before now, so we may have more than triple that number this year, largely through these special initiatives. One of the most exciting aspects of these research scholarships is the fact that they will have all been awarded within the last year; we can look forward, just from this cadre, to from 50 to 65 years of protected research time in the cases of these research scholars. Furthermore, the number of scholars will increase each year because this is an ongoing competition. Within five years it is reasonable to expect that another 20-30 scholars will be funded. Ontario also seems to be on the verge of expanding its program scholar for nursing and rehabilitation therapy.

I see these special initiatives as having two positive effects. First, they require us to become programmatic in our research efforts. Not only is the individual researcher required to develop a program of research, but, perhaps more importantly, each school of nursing is forced to declare what its research focus is. This helps us to accomplish what Barnard challenged us to in the eighties, focus our research. We will see the end of researchers spread out in a number of places each doing a little research on a topic; rather, we

will find concentrations of research in specific areas in particular locations. Secondly, these initiatives signal a recognition, by government funding agencies, of the emergence of nursing research as a valid area of endeavour that needs to be supported. I hope and expect that additional opportunities will develop in the future: such things as summer stipends for undergraduate students interested in working with a researcher, and seed money for research. These types of programs, while they may seem like manna from heaven, would simply put us in the same category as the other health sciences in this country. I am so looking forward to the time when we will not require special initiatives; we will be mainline researchers with access to exactly the same resources as all the other mainline health science faculties.

There are other indications of the emergence of nursing research as a viable and valid endeavour. Through the efforts of Dr. Mary Ellen Jeans of McGill, *The Canadian Journal of Nursing Research* is, for the first time in its twenty year history, on a solid financial footing as a result of new and ongoing funding from MRC. Nurses are embedded in the review committees of all the significant funding agencies in the country. This is not a new phenomenon, except in the case of MRC. In fact, I hesitated to comment on it because it seems so commonplace, yet it is in its very commonplaceness, if you will, that the realization of nursing's coming of age in the research world is found.

The Position of Nursing Practice

"It was the worst of times" and "it was the winter of despair" are phrases that seem to capture the last nine months of institutional nursing in Toronto, and to a lesser extent, Ontario. If your only window on the situation was the media, you could conclude that a total of three nurses were left to staff the Toronto General Hospital, and that each of them was dissatisfied, angry and ready to leave the profession. I realize that across the country we are seeing a high level of union activity and that strikes are threatened in at least two provinces. It is not that activity that I am referring to. It is the profound sense of unhappiness and despair that nurses are expressing about the conditions under which they are trying to nurse and the shortage of nurses we are experiencing in teaching hospitals in Toronto. This latter situation has spawned four reports over the past winter, sponsored by the Minister of Health, the nursing union, the Registered Nurses Association of Ontario and the Association of Teaching Hospitals of Metro Toronto. The conclusions are similar. Nursing service is in a crisis. There is a significant degree of dissatisfaction with nursing among staff nurses, the majority state that, given the choice, they would not choose nursing again as a career and they would not recommend to others that they go into nursing. Salaries are too low and the salary range does not adequately recognize experience; lack of control over work schedules is intolerable; nursing administration is viewed as unsupportive; and nurses feel insignificant in the decision-making processes in the hospi-

tals whether they relate to patient care or institutional governance. Additional factors in the equation are the aging of the nursing workforce and a recognition by older nurses (i.e., those over 40), that the physical demands of nursing care, coupled with the physical demands of rotating across three shifts, are too strenuous to survive as a full-time nurse; 45% of nurses in Ontario now work part-time. In response to this, Toronto has witnessed a blossoming of agencies that employ nurses part-time, pay them somewhat over the union scale and charge the hospitals in the order of 50% over union scale. Many of the negative forces that are operating in these hospitals are encouraging nurses to give up full-time employment and to work for these agencies, where they can specify the number of shifts and the hours they will work each week. The higher pay scales mean that a nurse working four shifts a week of her choice for an agency can make close to the same wage as a nurse working full-time, with no control over her working hours in a hospital. Meltz (1988), who carried out the RNAO study, also documented a tremendous increase in demand for registered nurses over the past ten years, as a result of new hospital construction, increased acuity of patients in acute care hospitals leading to a move to all RN staffing, and an expansion of home care services. This increase in demand has not been accompanied by an increase in supply. Meltz (1980) reported that, in 1975, in Ontario, 6200 nurses graduated, but, the enrollment in community college programs was cut almost in half that year in an over response to what was perceived as a nursing surplus. By 1978, only 3100 nurses graduated and ten years later, in 1988, this number had only crept up to 3900. The same scenario is found in Canada-wide figures and the situation is projected to get worse through 1995. The annual graduating class is absorbed and most nurses are employed. We no longer have a pool of unemployed nurses staying home, raising their children or otherwise creating meaning in their lives (Prescott, 1987). This inadequate supply, combined with the move to part-time employment by significant numbers of nurses, has led to real shortages in specific areas of nursing - particularly critical care, psychiatry and longterm care - and to shortages in select geographic areas including downtown teaching hospitals in Toronto. This overall shortage, which, in Toronto, is in the order of 8%, means that many hospitals have 60-100 beds closed and nurses are shifted to units where they have no particular expertise or attachment. Consequently, bed closures may relieve the stress of overwork but may add stress by dislocating colleagues from support and through lack of familiarity with the clinical area.

As well, the effect of this shortage means that on some units, on any given shift, half of the staff are relief. In some longterm care settings, the only regular nurse on a shift is the charge nurse and all the others are relief. Full-time nurses are regularly working overtime; that is, double shifts, or eight or nine eight hour shifts, or five or six 12-hour shifts in a row. A group of the teaching hospitals in Toronto developed a cartel of sorts; they embargoed the

use of relief staff from agencies unless they were willing to accept hospital salary scale. This has been effective in the longterm but, in the meanwhile, it put tremendous pressure on the existing staff. Overtime and working "short" became daily occurrences. Our fourth year students got caught in it (they were viewed as another pair of hands who could help fill the void) and hence, they were asked to take on more than was educationally sound or reasonable, given their experience. Little guidance was available to them from staff; they were too busy surviving demands placed on them, and too angry to assist students. This was a perfect opportunity to document the effect on patient care; of course, we did not do this because we did not recognize the research potential. Nevertheless, as Prescott (1987) states, it is not difficult to envision that patient care suffers because patients are not as closely monitored, that nursing care planning rarely occurs and that continuity of care goes out the window. All of these circumstances lead to a deteriorating practice situation, that is unstable, and ready to erupt at any time.

Implications for Research

What has all this to do with research? The answer is of course "everything". If we are to be relevant and if we have any hope of diffusing results of research into the clinical field, it is imperative that we have a stable practice environment with which to relate and with which to develop reciprocal relationships. In practice environments where the staff are unhappy and dissatisfied, they are unlikely to want to indulge in identifying practice problems that require investigation. These same staff are unlikely to want to put the effort into learning and adopting new practices developed through research. Furthermore, under such circumstances, staff nurses have neither the time nor energy to participate in clinical research activities. I have given many talks on how to involve staff nurses in clinical nursing research and I have read many articles on the same topic (Fawcett, 1980). We all say the same things: provide release time for nurses to participate in studies, put nurses on research review committees, start journal clubs, fund nurses to attend conferences. These suggestions are ridiculous when nurses are working double shifts and there is no one to replace them on the units to allow them to attend committee meetings or go to conferences. I heard a number of senior nurse administrators discussing the revisions to the Public Hospitals Act that have just been passed in Ontario. This provides for staff nurses to sit on the senior hospital policy committees, including the Medical Advisory Committee. Their comments were to the effect that, while they agreed with the intent of the legislation, they wondered who would replace these nurses on the units while they were attending all these meetings - not that they were not willing to replace them, there were simply no nurses with which to replace them.

Let me give you some examples of the way this current practice environment has an impact on research we are trying to conduct. I am co-investigator on a study with Anita Saltmarche, who is a clinical nurse specialist at Sunnybrook Hospital and cross-appointed to our faculty. The study concerns habit retraining to control urinary incontinence in older, institutionalized populations. The study is being conducted at Sunnybrook in their longterm care unit, K-wing, which has nine units. We began designing this study over three years ago and, after a couple of rejections from the Ontario Ministry of Health and, finally, a "B" rating from NHRDP, we satisfactorily answered the questions and were funded, beginning in May. The study design called for selecting three units with high prevalence rates of incontinence, entering patients and randomly allocating them to either the control or experimental group, and then collecting data on the control group prior to moving to the experimental intervention. This design was selected because the experimental manoeuvre called for training all the nursing staff on the three units in habit retraining because the intervention, although not complex, had to be introduced 24 hours a day. A somewhat similar study conducted in Pennsylvania had used research nurses to deliver all the nursing care to patients, but the costs were exorbitant and questions of external validity were raised. By collecting control group data first, we could control for potential contamination across the two groups. The budget included the costs of having a one-day workshop for all the nursing staff, by providing replacement costs for them. This approach seemed sound when we began submitting this proposal and, although we redesigned many aspects of it and rebudgeted with every resubmission, we never went back to this basic plan to train all the nursing staff.

Now that we have the money and we are examining the units to identify which ones to include in terms of prevalence of incontinence, we have encountered an unanticipated problem. K-wing is experiencing a 30% vacancy rate, which means that a third to a half of all nurses on a given unit are relief. This puts us into a dilemma: how do we train all the staff to implement the manoeuvre with such a high relief to full-time staff ratio. We are entering patients without having solved this problem, and we are hoping that the nine months that we have until we introduce the experimental group will produce a more stable situation. Otherwise, we will have to manipulate the patient assignment across all shifts, for all patients, for the six-week intervention period and one week later, follow-up. This is a significant design shift and one that may turn out not to be feasible.

Another example. Dr. Ruth Gallup, who is an Ontario Ministry of Health Career Scientist on our Faculty, has developed a program of research on working with difficult psychiatric patients. I will remind you that psychiatry like longterm care is one of the areas with a very high vacancy rate. Ruth is in the process of designing an intervention to deal with patient behaviours

that nurses perceive as difficult. Her plan is to have clinical nurse specialists teach key members of the nursing staff how to interpret and intervene when these behaviours are encountered; these key staff members would, in turn, provide peer supervision for the staff nurses. This model, which has a six-month baseline data collection phase, a six-month intervention phase and a further six-month post-intervention phase, is dependent on a stable staffing complement for testing. Not only must the key staff members be experienced and be viewed as credible by their peers, but the staff nurses themselves must be a stable force and have sufficient time and motivation to learn the intervention and to practise it repeatedly over the intervention and post-intervention periods.

A final example involves Drs. Jacqueline Chapman and Ellen Hodnett, whose research program focuses on normal and high-risk perinatal nursing care. Jacquie is facing the same situation as Ruth and as those of us on the urinary incontinence study: she needs to train all the staff in the neonatal intensive care unit about caring for extremely premature infants, using a new theoretical approach. This is very difficult in a stressful environment in which the nurses feel overloaded, where they frequently work "short" and where the vacancy rate is high. Dracup (1987) concluded, from her review of research on critical care nursing, that the stress experienced by nurses, including those in neonatal units, was due to heavy workload as a result of inadequate staffing, rather than due to the nature of such patient care demands as dying patients and worried families.

Ellen could encounter problems trying to implement her proposed study, which involves trying to influence the behaviour of labour and delivery room nurses to have them incorporate selected research findings into their practices, by using a significant peer who is respected by them. It is essentially a study of how to diffuse results from earlier studies of hers but it, too, is dependent on a stable staff that can identify one of their peers as a model practitioner. Relief staff cannot do this and if they do, they do not stay around to be influenced. We could be in difficulty in trying to carry out all these studies.

I have been very worried about the crisis in nursing since it began to erupt into the media early last fall, but I have to admit that my major concerns were about its effect on our teaching programs and future recruitment of students. It was not until we were notified that we were funded and began to try to implement the urinary incontinence study, that I recognized its impact on research. That, in turn, caused me to review the research programs to which we are committed on the Faculty. I have been extremely proud of these programs because they are so clinically focussed and because they are designed by nurse researchers with sound and current clinical skills. However, we have a real dilemma: just as we have the manpower and the

funding to provide opportunities to undertake relevant clinical nursing research, we find the practice environments in crisis and unable to sustain research studies that involve the nurses. We are in a position to undertake descriptive studies of phenomena, but the studies that are being affected are those in which the descriptive phase has been done, the intervention has been identified and, for most, piloted, and now the test is, in the real world, to determine whether it makes a difference to patient outcomes or the nurses' senses of competence and satisfaction.

Implications for Academics and Researchers

This brings me to the most difficult part, what do we do? My most profound and yet, somehow, rather vague conclusion is that, as academics and researchers, we cannot ignore the crisis in the practice environment. Not only has it serious implications for the future of our discipline, but it has immediate implications for the development of nursing science. The crisis is more immediate in Toronto and Montreal than in most other locations, in terms of sheer shortages but I think we can anticipate similar shortages in most health science locations in the future, as enrollments in schools of nursing decrease. Prescott's analysis (1987) of the current shortage in the USA is that it is much like the previous one in 1980 in that it is a perceived shortage, limited to selected hospitals and resulting from market restraints and geographic maldistribution of nurses. However, there is one critical difference between 1980 and now: the declining nursing school enrollments, that will contribute to significant shortages in the future, as the demand for nurses increases. We are all too familiar with the Canadian propensity to mimic American trends ten years later so I am afraid that we can anticipate a similar supply and demand disequilibrium in this country. However, shortage is only one component of the problem; the other is dissatisfaction. I find it painful to hear and see nurses on television describe how they wish they had never entered nursing and they are looking for ways out. The fact that, as a discipline, we have a high retention rate (Meltz, 1988) does not comfort me if the practising workforce hates what they are doing. I realize that, in fact, it is rarely nursing that nurses complain about but rather, it is the conditions under which they are forced to practise nursing that frustrates and defeats them. I hear that, but I am not sure our students hear that, or the public hears that, or their patients hear that.

Let me suggest some areas of activity that I think are necessary. As academics, we must show solidarity with practising nurses. The worklife of staff nurses is a critical force in our lives as well as theirs. This means becoming politically active and publicly supporting union demands for increased wages and improved shift allocations. We have to point out that improving the research environment without improving the practice environment is unacceptable. There are creative solutions to some of the worst

aspects of nursing shifts. Our administrators have been anything but creative in acknowledging and implementing them. We have to take some responsibility for that, because we have done such a lousy job of educating nursing administrators and influencing the education that hospital administrators receive. I think it is critical for staff nurses to feel supported by nurse researchers. There is no reason for them to support us in our demands on them if we do not support them in their demands on the system. It is not as though we have to compromise our principles to support the demands that are being articulated. Their demands are reasonable and legitimate. I must congratulate the BC nurses' union for their strategy in refusing to do non-nursing tasks on their week-end job action. That is not a strike: it is a clear indication of the inappropriate use of a scarce nursing resource. I also congratulate the Quebec nurses for refusing to do overtime.

We should also increase our research activity on the worklife of nurses. Felton (1987) reviewed the literature on the effect of nurses' shift work on physiologic functions. The evidence is clear that shift work results in alteration in body temperature, quantity and quality of sleep, catecholamine excretion, and altered urinary excretion of a number of cations. Studies have linked these physiologic changes to altered job performance. I was struck by the fact that studies, with one exception, were all 10-17 years old. Furthermore, this is an example of research that has not diffused into practice. We are highly protective of airline pilots and other flight crew, in terms of limiting the total number of hours they may work at one stretch and within the course of a month, but we do none of those things with nurses. Would you rather have an overtired stewardess or nurse? I believe this is just an example of the lack of regard for the work that nurses do and which is our responsibility to correct. As researchers, we have the tools to get the data to demonstrate our value.

It is important that we develop strong programs of research in nurse deployment. Our lack of educational programs in nursing administration is mirrored in our underdeveloped research in this area. We have too few researchers in this area and too few programs of research that are focused on staffing arrangements that reduce stress and increase productivity, self-scheduling and alternative shift arrangements, case management and other care planning approaches, and workload measurement to determine staffing ratios. We have made significant strides in clinical practice research but it is important that nursing administrative research catch up or our gains will be short lived. Lynaugh and Fagin (1988) speak to this in the following passage:

> It doesn't take a horticulturist to know that a beautiful tree has a very limited life span when the roots are unattended. It is crucial to include all nurses in our pursuit of autonomy, authority and development. Our leading thinkers must collaborate in solving the problems of the two

thirds of nurses who work in hospitals. We need new organizations of work to enhance the position of all nurses and patients in the special modern institutions created for care of one group through reliance on the other.

It is unrealistic to expect nurses who do not feel valued, who are overworked and underpaid, who feel their opinions do not count because they are rarely solicited, and who are increasingly recognizing that, to stay competitive, they must get further education (which will not increase their salary, will not improve their working conditions or will not lead to more influence in their workplaces), to work closely with researchers to identify significant clinical practice problems, to participate in the testing of interventions and to pay attention to results of studies so they can learn new strategies that they can apply in patient care. We have a symbiotic relationship with practising nurses. Improving their circumstances will improve ours. Not improving their circumstances will defeat both of us. We're getting healthier, they're not. The double helix, the basic life process of nursing, requires a healthy research helix and a healthy practice helix.

REFERENCES

Baldwin, E.C. (1919) *Dickens. A Tale of Two Cities.* New York: Scott, Foresman and Company.

Barnard, K.E. (1980) Knowledge for practice: Directions for the future. *Nursing Research, 29* (4), 208-212,.

Bloch, D.A (1981) Conceptualization of nursing research and nursing science. In McCloskey & Grace (Eds), *Current Issues in Nursing*. Blackwell Scientific Publications, pp. 81-93.

Caplan, N. (1980) What do we know about knowledge utilization? In L.A. Braskamp & R.D. Brown (Eds), *New Directions for Program Evaluation*. San Francisco: Jossey-Bass, p. 4.

Crane, J. (1985) Using research in practice. Research utilization: theoretical perspectives. *Western Journal of Nursing Research, 7* (2), 261-268.

Dennis, K.E. & Strickland, O.L. (1987). The clinical nurse researcher: Institutionalizing the role. *International Journal of Nursing Studies. 24* (1) 25-33.

Dracup, K. (1987) Critical care nursing. *Annual Review of Nursing Research, 5*, 107-133, 1987.

Fawcett, J. (1978) The relationship between theory and research: A double helix. *Advances in Nursing Science. 1*, 49-62.

Fawcett, J. (1980) A decla ration of nursing independence: The relation of theory and research to nursing practice. *Journal of Nursing Administration*, 36-39.

Felton, G. (1987) Human biologic rhythms. *Annual Review of Nursing Research, 5*, 45-77.

Foster, S.B. (1984) Cardiova scular nursing research: Past, present, and future. *Heart and Lung, 13* (2), 111-116.

Jacobs, M.K. & Huether, S.E. (1978) Nursing Science: The theory-practice linkage. *Advances in Nursing Science. 1*, 63-73.

Lynaugh, J.E. & Fagin, C.M. (1988) Nursing comes of age. *Image, 20* (4), 184-190.

Meltz, N.M. (1988) *The shortage of registered nurses: An analysis in a labour market context.* Toronto: Registered Nurses Association of Ontario.

Prescott, P.A. (1987) Another round of nurse shortage. *Image, 19* (4), 204-209.

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