

Amélioration de la recherche sur les soins de santé : une approche collaborative et interdisciplinaire

**Susan M. Fox-Wasylyshyn, Peggy Oldfield,
John Muscedere et Maher M. El-Masri**

De nombreux programmes de recherche s'attaquent à des questions trop complexes pour qu'un(e) chercheur(euse) seul(e) ou une équipe de recherche formée de membres de la même profession puisse en faire entièrement le tour. Les équipes interdisciplinaires peuvent, collectivement, produire une masse de connaissances communes, élargir l'étendue de la recherche et obtenir des résultats plus pertinents sur le plan clinique qui sont sensibles aux réalités de la pratique. Les auteurs décrivent l'expérience d'une équipe de recherche du point de vue de ses membres. Le document de recherche vise à mettre en lumière les avantages d'une approche collaborative et interdisciplinaire en recherche ainsi qu'à décrire les caractéristiques d'une équipe gagnante. Certains des avantages décrits comprennent notamment la productivité et la qualité de la recherche, le perfectionnement professionnel et l'encadrement, le soutien et l'encouragement, des réseaux de ressources élargis, et le rapprochement du monde universitaire et de la pratique. Les auteurs abordent également les questions des caractéristiques d'une équipe de recherche gagnante et des défis qui y sont associés, et ils font des recommandations pour l'amélioration des projets de recherche par la collaboration.

Mots clés : équipes de recherche, recherche en collaboration; recherche interdisciplinaire; programme de recherche

Enhancing Health-Care Research: An Interdisciplinary Collaborative Approach

Susan M. Fox-Wasylyshyn, Peggy Oldfield,
John Muscedere, and Maher M. El-Masri

Many research programs tackle complex problems that cannot be comprehensively investigated by a sole researcher or a research team from a single profession. Interdisciplinary teams can develop a collective mass of common knowledge, broaden the scope of research, and produce more clinically relevant outcomes that are sensitive to the realities of practice. The authors describe the experience of a research team from the perspective of its members. The purposes of the paper are to highlight the benefits of an interdisciplinary collaborative approach to research and to describe the characteristics of a successful team. Some of the benefits discussed include increased research productivity and quality, professional development and mentorship, support and encouragement, expanded resource networks, and bridging of the gap between academia and practice. The authors also discuss the characteristics of a successful research team, associated challenges, and recommendations for enhancing research endeavours through collaboration.

Keywords: research teams, collaborative research, interdisciplinary research, research program

The primary purpose of health-care research is to enhance evidence-based practice through theory generation and testing. Clinical problems are often of interdisciplinary concern and therefore require that clinicians collaborate to resolve them. It can be argued that if there is a need for clinical collaboration, there is also a need for collaborative research. In fact, the complexity of the research process and the growing trend among funding institutions to mandate interdisciplinary research necessitate collaboration among researchers.

The purposes of this paper are to highlight the benefits of a collaborative approach to research and to describe the characteristics of a successful research team.

Collaborative research can be conducted in the context of either an interdisciplinary or an intradisciplinary approach. An *interdisciplinary* team includes investigators from two or more disciplines, while an *intradisciplinary* team is composed of investigators from a single discipline. The literature suggests that the interchangeable terminology used

to describe the two different levels of collaboration leads to confusion (Ryan & Hassell, 2001; Zungolo, 1999). In this paper the term collaborative research is used to encompass both intra- and interdisciplinary collaboration; when the discussion is unique to a particular type of collaboration, the more specific terms intra- and interdisciplinary collaboration are used.

Rationale for Interdisciplinary Collaborative Research

The goal of nursing is to preserve and promote the health of individuals, families, and communities. However, this goal is not unique to nursing. A truly holistic approach to helping individuals and groups achieve optimal health frequently requires the coordination of several health professions. Similarly, more thorough and rigorous research is possible when several investigators work together to address a researchable health issue. Many research programs tackle complex problems that cannot be comprehensively investigated by a sole researcher or by a research team from a single profession (Zungolo, 1999). In addition, research conducted in isolation by individual investigators or intradisciplinary teams can result in a culture of defensive debate among disciplines (Donaldson, 1999). Interdisciplinary teamwork, in contrast, can potentially lead to the development of a collective mass of common knowledge, broaden the scope of research, and produce more clinically relevant outcomes that are sensitive to the realities of practice (Donaldson; Merwin, 1995; Ryan & Hassell, 2001). An added advantage of interdisciplinary research pertains to the dissemination of findings — when nurses engage in interdisciplinary research their work has the potential to reach a broader audience and thus have a greater impact. These advantages of interdisciplinary research explain the growing trend towards its endorsement as a priority in many Canadian research centres (Stewart, 1997). Therefore, nurse researchers are encouraged to seek and develop interdisciplinary opportunities. Our collaborative research experience, which is described below, demonstrates the many advantages of conducting research within the context of an interdisciplinary team.

The Research Program

Our team's research interest is clinical issues pertaining to acute care. The team has embarked on two research projects concerning nosocomial infections among the critically ill. The first project, which is nearing completion, examines the contribution of trauma-induced immune depression on the risk of developing nosocomial infection. The second, which has been recently funded, is a clinical trial examining the impact of an oral-care protocol on the prevention of nosocomial pneumonia

among mechanically ventilated patients. The team is also in the process of writing reports on several research projects and preparing a third proposal. As an advantage of collaborative thinking, the team has identified several other topics for future investigation.

Team Building

The Starting Point

Our research team began to develop approximately 1 month after one of its members joined the nursing faculty at a medium-sized university in southern Ontario, Canada. The university is not associated with a teaching hospital but is located in a city with two community hospitals.

In the process of orientating oneself to a new faculty, one socializes with colleagues, discussing, among other things, one's research interests. During one such process, a new faculty member with experience in collaborative research learned that another faculty member had similar practical experience as well as similar research interests and aspirations. The two colleagues recognized the difficulties and challenges inherent in initiating and sustaining a research program while attending to teaching and other responsibilities in the university community. They tentatively discussed the possibility of collaborating on research projects as a means of furthering their careers. As they got to know each other, they sensed that they had compatible personalities and work ethics, and, perhaps just as important, that they could trust each other's scholarship and motivation. They believed they would make good collaborators and therefore committed to working together on research projects. Approximately 3 months after establishing this collaboration they decided to expand the team to include clinicians, in order to strengthen the intended clinical research program. Initially the two founding team members were concerned that the lack of a teaching hospital would be an obstacle. However, they reached out to clinicians from the local community hospital, which presented an opportunity for inter-institutional and interdisciplinary collaboration.

The Intradisciplinary Phase

The choice of a third team member was an obvious one: a clinically based resource-utilization nurse and research ethics coordinator at one of the local community hospitals with whom both team members had had recent contact. A graduate student in nursing, she had over 15 years' experience in critical-care nursing and continued to have close ties with the intensive care unit. On the basis of her rich professional background and her obvious interest in research, she was invited to join the team. She eagerly accepted the offer. The inclusion of a graduate student with a

rich clinical background would help the team to reach its objectives and create a unique opportunity for student mentorship. Despite her student status and her need for research mentorship, it was understood that she was joining the team as a full partner who would enrich the clinical perspective of the team's collaborative effort.

The Interdisciplinary Phase

Although some nurses conduct research with the goal of furthering nursing theory and differentiating nursing from other health disciplines, the reality is that many clinical research problems are of interdisciplinary interest. The clinical and acute-care nature of our research program and its interdisciplinary relevance called for the expertise of an intensive-care physician. It was decided that such expertise would enrich the clinical validity of our work and broaden its audience. One month after the team had been expanded to three members, a meeting was arranged with the chief physician of the intensive care unit, a person with a research background. Following a discussion of the team's research program and some of its upcoming projects, the physician expressed interest in joining and has since been functioning as a full member. The inclusion of a physician on the team was important in facilitating the diagnosis of our research outcomes (nosocomial infections) and providing clinical guidance in our research. In addition to participating in the team's research activities, the physician has increased its opportunities for funding from medical foundations that would otherwise be inaccessible to nurse researchers.

Determining the Team's Size

The team was cognizant of the need to include sufficient manpower to achieve its goals while avoiding the problems associated with unnecessarily large groups. It was therefore decided that four was a sufficient number of members to provide the human resources needed for efficient communication and frequency of meetings. Our decision to limit membership to four should be interpreted in the context of the unique needs of our team. While some teams might need to be large in order to secure necessary expertise and knowledge, it is important that size does not overwhelm the team's work processes. Other than a relatively old recommendation by Santora (1982), that five to ten members is optimal for effective team processes, no literature was found concerning the relationship between team size and productivity in collaborative research. However, the literature revealed that different collaborative research programs ranged from two to eight members (Fitzgerald et al., 2003; Ryan & Hassell, 2001; Stoner, 1998). Larger groups are likely to be associated with inability to achieve equitable division of labour, formation of splinter groups, and protracted decision-making (Santora). Should

the need arise, additional expertise may be sought from consultants in order to preserve the team's size and avoid the negative consequences of unnecessary inflation.

Benefits of Conducting Research as a Team

Working within the context of a research team offers many advantages. Improving the research output in terms of quality and quantity was the main reason for the establishment of our group. Additional advantages of working within a group include increased research knowledge and skills, improved motivation and support among the members, and an expanded network of resources (Fitzgerald et al., 2003; Ryan & Hassell, 2001; Stoner, 1998). These additional advantages are valuable in and of themselves. They also have the benefit of enhancing the quality and productivity of our work. For instance, increased motivation among team members stimulates them to put greater effort into their work and thus improves the calibre of our output.

Productivity

Research is a labour-intensive and time-consuming activity in which investigators working alone may do so at the expense of other pursuits. Collaboration has allowed us to be more productive and to participate more fully in other professional endeavours. Division of the workload among four individuals has made the complex tasks of preparing proposals, writing manuscripts, and conducting research much more manageable. It has allowed us to complete projects in a timely manner and to have several projects in progress at any given time. In addition, distributing the workload among four team members frees up time for other pursuits and obligations such as teaching, committee work, clinical responsibilities, and professional development.

Quality

A collaborative approach to research has not only increased our output but, more importantly, strengthened its quality. The diversity and sharing of expertise is essential to the success and quality of our research program. Each team member brings a unique set of clinical and research skills that contribute to the quality of our work in different ways. The integration of members' specialized knowledge allows for research that is broader in scope, based on a more rigorous design, and more clinically relevant (Merwin, 1995).

A key component of any research team is the development of proposals and reports. The members of our team generally share writing tasks, reviewing and critiquing each other's drafts. This is a useful exercise

because individual writers tend to become mired in their work and may overlook weaknesses that another reader is able to identify. The process of critiquing each other's work requires that team members put aside their egos to provide, request, and accept constructive feedback. Team members view each research project from their own philosophical, professional, and experiential perspective. They therefore tend to read and write from different perspectives. The blending of these various perspectives strengthens the overall quality of our work and reduces the potential for weaknesses detected by external reviewers.

Professional Development and Mentorship

Participation in a truly collaborative research team creates a supportive and nurturing environment in which individual members can further develop their skills (Gelling & Chatfield, 2001). The opportunity to work within a group that provides mutual support and criticism in a non-threatening manner is highly conducive to learning in our team. Group discussions provide a forum for members to share their unique expertise. The learning that occurs is not restricted to research. Self-development may extend to such areas as ethics, clinical issues, negotiation and group-functioning issues, and even writing skills.

Mentorship is a valuable dimension of professional development. It requires that one be available as a role model and a source of information, advice, and counsel. Traditionally it has been viewed as a unidirectional relationship from mentor to protégé (Whelley, Radtke, Burgstahler, & Christ, 2003). However, such a unidirectional relationship may not reflect the dynamics of mentorship as it takes place in a collaborative research environment. The nurse clinician member of our team is currently a master's student in nursing. As a student she is mentored with respect to research skills. As a clinician she brings a wealth of clinical experience that allows her to provide mentorship and insight with respect to our research endeavours. While it is clear how the nurse clinician on our team provides and receives mentorship, all team members participate in a mutual and reciprocal mentorship relationship as they shift roles according to their respective areas of expertise.

The participation of graduate students on collaborative teams provides them with a unique opportunity to take part in research in a challenging but non-threatening environment. The comfort of being able to develop skills gradually without having responsibility for the entire research project can be very conducive to learning. Active involvement in collaborative research, in fact, prepares graduate students to undertake their thesis or dissertation project and to establish a foundation for future research programs. Participation in direct research activities offers students a hands-on learning experience and unique exposure to the entire

research process. For instance, the graduate student on our team witnessed the struggles inherent in the research process without becoming discouraged. She learned that researchers must accept criticism from external reviewers and use it to strengthen the quality of their work. Further, she had an opportunity to present some of her ideas to the team and see them developed into a full-scale research proposal with significant clinical implications.

Support and Encouragement

The support and encouragement that takes place within our team is a significant positive outcome of collaboration. Mutual support and the sharing of individual and group successes and challenges have strengthened relationships and facilitated team functioning. For example, when a member's motivation wanes during difficult stages of proposal writing, perhaps in association with the accumulation of stresses from work or family obligations, the support and encouragement of other team members helps to re-motivate him or her. Occasionally the support is more tangible, as when one member offers to do part of another's assigned work in response to a personal issue that has arisen, or when meetings are rescheduled or deadlines altered in response to team members' professional and academic responsibilities. The support and encouragement in relation to expectations and appreciation of unforeseen circumstances was not spontaneous but developed over time as we came to value each other's dedication to the team and its goals.

Expanded Network of Accessible Resources

An additional advantage of a team approach to research is the network of resources accessible to the team. Although our collective expertise is greater than that of any individual team member, we are occasionally in need of additional expertise. Each partner is part of a different network of valuable resources. For example, one member has close ties with a biostatistician whose expertise and advice have been extremely helpful for writing research proposals. Another member works part time at a large teaching hospital and therefore has access to a patient population that can be accessed for studies. Our clinical partners are well acquainted with both administration and nursing at their hospital and have a good understanding of clinical issues. They are well placed to use their connections to enhance our research agenda and promote relationships between clinicians and academics. Also, the physician on our team is affiliated with a university-based hospital in another community that could provide an opportunity for multi-centre collaboration. These connections provide additional sources of research participants as well as a valuable network of professional expertise.

The Building of Relationships

Nursing has long struggled for recognition as a profession and as a legitimate academic discipline (Ryan & Hassell, 2001). This struggle has been made all the more difficult by negative stereotyping among disciplines, which often creates a culture of rivalry that acts as an impediment to inter-professional collaboration (Watkins, Gibbon, Leathley, Cooper, & Barer, 2001). Active involvement of nurses in research and collaboration between nurses and other health professionals help to break down such barriers and lead to greater inter-professional cohesiveness, collegiality, and respect (Gelling & Chatfield, 2001; Whelley et al., 2003). In addition to establishing relationships among health professionals and promoting interdisciplinary research, the composition of our team helps to bridge the gap between the worlds of practice and academia in nursing. Hunt (1996) suggests that the boundaries between university and service settings should become more fluid because the clinical setting is a source of ideas and is also where data collection takes place and where research findings are applied. Indeed, our sharing of ideas and findings with clinical staff has served to enhance their interest in research and to facilitate our work.

Characteristics of a Successful Research Team

Gelling and Chatfield (2001) discuss collaborative research in relation to the six Cs: commitment, contribution, credit, compatibility, consensus, and communication. Although these concepts may exist to varying degrees, the extent to which they are present in a research group influences the overall effectiveness of the team.

Commitment is concerned with members' belief in and attachment to the group's objectives (Whelley et al., 2003). The commitment of our members is demonstrated in the way in which they give of their time and resources (Whelley et al.). In addition to their responsibilities to the group, team members have multiple obligations and demands on their time: teaching and clinical duties, committee work, academic development, and family obligations. Yet each member has consistently demonstrated a high level of commitment and made a sizeable contribution. If commitment and contribution levels vary among members, a situation could arise in which some contribute little while taking credit for work done primarily by others. Our group has not experienced such a situation. In fact individual productivity has increased due to a sense of commitment to the group. Members are more likely to volunteer to undertake a task or complete an assignment when they are accountable to the team than when they are accountable only to themselves.

Credit pertains to the way in which team members are rewarded for their contribution (Whelley et al., 2003). Prior to the commencement of any activity, credit-related issues such as authorship should be discussed in an open and frank manner that serves the interests of mutual respect and responsibility. It is important that fairness and equitable distribution of credit be observed so that each member receives due recognition. However, individual needs for professional advancement may be considered when credit issues are discussed. For instance, a team member seeking a promotion may offer or request to take the lead in a given project so that she/he will qualify for the promotion.

Compatibility is concerned with how individuals work together towards a shared goal (Whelley et al., 2003). Compatibility of personalities was deemed so important to the success of our collaborative endeavours that it was a key factor in determining who would be invited to join the group. As each individual was being considered as a possible addition to the team, careful consideration was given to his or her “goodness of fit” with the other members. As the team members had little experience working closely with one another, there was a risk that early impressions would prove false. Fortunately this has not been the case. Group members have similar work ethics and have consistently been respectful of each other’s unique situations and obligations.

The matter of decision-making within a research group holds high potential for conflict. All of our team members are concerned more with matters of quality, efficiency, and respect for others than with power. Thus this issue has not arisen. From its inception, the group decided that decision-making would be a shared function. Decisions are generally made by means of discussion, negotiation, and eventual consensus. However, the expertise of each member carries a great deal of weight when individual decisions are made.

Because effective and open communication is an important part of successful collaboration, our team purposefully discussed the need to create an atmosphere in which members feel free to give voice to their opinions and ideas. Team members are expected to question, challenge, and discuss each other’s ideas in a respectful and non-confrontational manner. A number of factors have served to foster this approach within our group. One is the effort made to establish an atmosphere of mutual respect and caring. A second factor is the absence of power struggles. Although team meetings are not intended as social functions, they are often conducted in an informal way that facilitates ease of negotiating, debating, and critiquing. Frequency of meetings, which varies with the task at hand, has been central to maintaining momentum and keeping the team focused on its goals. Team members have been extremely

flexible with regard to meeting locations. In addition, the use of electronic communications tools to review drafts and provide feedback minimizes the need for lengthy face-to-face meetings.

Challenges

One of the issues that our team has had to contend with is the availability of time. All team members have multiple responsibilities, including full-time employment, committee work, educational pursuits, and family obligations. Thus the team's success depends on a delicate balance of responsibilities at both the individual and group levels. Although the group often sets ambitious goals, we have learned to be both flexible and realistic with regard to deadlines.

Although the team members have individual research achievements, our group has been functioning as a team for approximately 2 years. We have not yet established a collective track record and are just beginning to establish credibility as a research team. We anticipate that it will take some time to achieve a strong record of publication and funding.

Conclusions and Recommendations

Our experience with conducting research has taught us the benefits of working in the context of interdisciplinary collaboration. We have found that many of the difficulties inherent in conducting research become more manageable when several people are working together towards a shared goal. With an individual approach, research is often conducted at the expense of many other important duties. A collaborative team approach, in contrast, provides opportunities to increase research output without having to sacrifice other obligations. In addition, teamwork and an interdisciplinary approach generate credible research programs that can form a collective knowledge base and promote a culture of communication, collaboration, and support among health professionals.

While we argue that a collaborative approach offers unique opportunities for nurse researchers, we must point out that research teams should be formed with care to ensure maximal opportunities for success. Issues such as compatibility of personalities, a common work ethic, flexibility, mutual support, and a sense of commitment and dedication need to be carefully considered in the team-development process. Team size and diversity of expertise are other important considerations. We recommend that the team be large enough to provide human resources adequate to ensure research quality and productivity but small enough to ensure efficient communication and decision-making. While it is beneficial for

team members to have common research interests, we recommend that each team member bring a unique perspective to the research program.

Finally, we recommend that academic programs emphasize the value of intra- and interdisciplinary collaboration in health-care research. Such an approach will positively influence the attitude of future graduates towards teamwork and collaboration, and may provide unique opportunities for mentorship. The inclusion of a graduate student on our team has been a highly successful move. Students can benefit from being closely mentored by experienced team members while also bringing a unique perspective to the team. We recommend that students and clinicians be offered more opportunities to take part in collaborative research.

References

- Donaldson, S. (1999). The growth of collaborative and interdisciplinary research. In J. Sullivan (Ed.), *Creating nursing's future: Issues, opportunities and challenges*. St. Louis: Mosby.
- Fitzgerald, M., Milberger, P., Tomlinson, P. S., Peden-Mcalpine, C., Meiers, S. J., & Sherman, S. (2003). Clinical nurse specialist participation on a collaborative research project: Barriers and benefits. *Clinical Nurse Specialist*, *17*(1), 44–49.
- Gelling, L., & Chatfield, D. (2001). Research collaboration. *Nurse Researcher*, *9*(2), 4–16.
- Hunt, J. (1996). Barriers to research utilization. *Journal of Advanced Nursing*, *23*, 423–425.
- Merwin, E. (1995). Building interdisciplinary mental health services research teams: A case example. *Issues in Mental Health Nursing*, *16*, 547–554.
- Ryan, S., & Hassell, A. (2001). Interprofessional research in clinical practice. *Nurse Research*, *9*(2), 17–28.
- Santora, D. (1982). Problems in doing nursing research: Maximizing the group research process. *Western Journal of Nursing Research*, *4*(3), 320–323.
- Stewart, M. (1997). Centres for health promotion research in Canada. *Canadian Journal of Nursing Research*, *29*(1), 133–154.
- Stoner, M. H. (1998). Putting a research team together. *Journal of Emergency Nursing*, *24*(4), 362–364.
- Watkins, C., Gibbon, B., Leathley, M., Cooper, H., & Barer, D. (2001). Performing interprofessional research: The example of a team care project. *Nurse Researcher*, *9*(2), 29–48.
- Whelley, T., Radtke, R., Burgstahler, S., & Christ, T. (2003). Mentors, advisors, role models, and peer supporters: Career development relationships and individuals with disabilities. *American Rehabilitation*, *27*(1), 42–49.
- Zungolo, E. (1999). Interdisciplinary practice and education. In J. Sullivan (Ed.), *Creating nursing's future: Issues, opportunities and challenges*. St. Louis: Mosby.

Authors' Note

Comments or queries may be directed to Susan M. Fox-Wasylyshyn, Faculty of Nursing, University of Windsor, Health Education Centre, 401 Sunset Avenue, Room 322, Windsor, Ontario N9B 3P4 Canada. Telephone: 519-253-3000, ext. 2284. Fax: 519-973-7084. E-mail: sfox@uwindsor.ca

Susan M. Fox-Wasylyshyn, RN, MScN, is Assistant Professor and a doctoral candidate, Faculty of Nursing, University of Windsor, Ontario, Canada. Peggy Oldfield, RN, BScN, is Research Utilization Nurse, Hôtel-Dieu Grace Hospital, Windsor. John Muscedere, MD, FRCPC, FCCP, is Director, Intensive Care Unit, Hôtel-Dieu Grace Hospital. Maher M. El-Masri, RN, PhD, is Associate Professor, Faculty of Nursing, University of Windsor.