

A university clinic: an innovative model for improving clinical practice

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KEY WORDS

Nursing, interprofessional learning, interdisciplinary collaboration, undergraduate student, research, community screening, clinical skills

ABSTRACT

Objective

This paper discusses interprofessional learning through interdisciplinary collaboration between undergraduate nursing and podiatry students at a university based cardiovascular screening clinic.

Setting

A cardiovascular risk assessment clinic at a university campus in rural New South Wales, Australia.

Subjects

Students from nursing and podiatry enrolled in a baccalaureate degree at Charles Sturt University (CSU) Albury Wodonga Campus.

Main Outcome Measures

Undergraduate health care students develop their clinical skills primarily through clinical rotation within accredited health care facilities. The value of these clinical placements to students is dependent upon availability, the quality of the facilitation and the perceived burden to the organisation of providing places for students. There is increasing competition for these clinical places with health care service managers and their staff frequently highly stressed due to increased demand for clinical services, workforce shortages and increasing fiscal constraints. As a consequence of these challenges, an innovative, interdisciplinary program, designed to both improve and extend the repertoire of clinical skills of undergraduate health care students was piloted at a regional university campus. The pilot program used an established community screening clinic conducted by CSU. Students were invited to attend the clinic and undertake assessment tasks relevant to their profession and curriculum requirements as well as learn and practice clinical skills outside their usual professional practice. Students were able to practise these skills in a supportive environment, without the inherent time constraints and pressures experienced in health care facilities. The effectiveness of this model was evaluated through interviews as well as a pre and post test evaluation of one clinical skill. Students reported enthusiasm towards the program and were particularly interested in the opportunity of working in an interprofessional community focussed context and having the opportunity to expand their scope of practice.

INTRODUCTION

Universities are charged with producing health care graduates that are competent and able to adapt to dynamic (changing) clinical environments. Traditionally, clinical skills are acquired within university laboratories and ward simulations, with consolidation and expansion of these skills obtained through clinical rotation in health care facilities. Whilst this current system has merit, there has been some criticisms of the feasibility of this model (Maben et al 2006) accessing appropriate high quality clinical placements. These problems are exacerbated in rural Australia with less placement opportunities available and the tyranny of distance conspiring against efforts to avail students of diverse and clinically challenging placement opportunities. .

In recognition of these challenges, a university campus in regional Australia has piloted an innovative program, using a campus based cardiovascular risk screening program to provide an environment where undergraduate health care students are able to work in a familiar environment supported by academics and laboratory staff that foster interdisciplinary collaboration and interprofessional learning (Priest et al 2007; Selle et al 2008).

A description of a community screening program

The World Health Organization (WHO) describes primary health care as; essential health care accessible to communities and individuals at a cost that the community can sustain, and underpinning this philosophy is health promotion and disease prevention (Gillam 2008; Anderson 2005; Talbot and Verrinder 2005). This philosophy underpins the community cardiovascular screening program established at Charles Sturt University (Albury Wodonga campus) in 2002. Over this period, the program has invited community members to respond to newspaper advertisements and enrol in the program. There is no cost to participants and consent for data collection and ethical approval for the use of these data sets for research purposes has been obtained from the university human ethics committee. The participants, adults ranging in age from mid forties to mid eighties (divided into two

groups) (non diabetes: $n = 481$ 60.45 ± 12.77 years, diabetes: $n = 143$ 62.36 ± 11.27 years) receive a range of cardiovascular tests in order to provide them with a cardiovascular risk profile (Jelinek et al 2006). This cardiovascular profiling helps to identify individuals at risk of cardiovascular disease (disease prevention) as well as providing those participants previously diagnosed with cardiovascular disease updated information on the progress of their illness.

Community participation in the project has been sustained over a period of four years with many participants attending the clinic for a second and third time. The ability to compare data from participants who attend on more than one occasion provides an opportunity to investigate changes in cardiovascular disease profiles as well as look at changes in participant behaviour, including health consumption patterns and modification of risk factors. Participants are overwhelmingly appreciative of the opportunity to participate in the program. This community engagement with the project further strengthens the argument for the ongoing funding and expansion of the program to other campuses within CSU and presents a template for other institutions to develop a similar university based screening program.

Key principles underpinning the community screening program are: research, clinical facilitation, and community engagement. Academics and laboratory staff from across the disciplines of nursing and podiatry are involved in data collection, interpretation and research. This professional interdisciplinary collaboration has increased the research output of the schools as well as provided the opportunity for both novice and experienced researchers to expand their research interests and profiles.

As interest in the program grew it became apparent that a natural progression for the screening program would be to involve our undergraduate students. Consequently in 2005 following appropriate approval from the university, students from nursing and podiatry were given an orientation to the clinic, including presentations from academics about the philosophy underpinning the program,

including ethical considerations and confidentiality requirements, as well as practical information about the actual tests performed and data gathered.

CSU, provides undergraduate education for nursing and allied health students. Of the allied health cohort, physiotherapy and podiatry students are required to undertake clinical placement similar to those of the nursing students. Due to the current curriculum requirements for physiotherapy, time spent at the clinic could not be considered as either clinical practice time or tutorial work and consequently their inclusion in the program was deemed to be problematic. Nurses attending the clinic did so as part of their tutorial time in one of their medical/surgical subjects, whilst podiatry students used the opportunity as part of their fourth and final year to develop their clinical practice skills prior to graduation.

Although there is the need to acquire discipline specific knowledge for these students, there is a recognition of the increasing importance on interprofessional practice and collaboration within clinical teams (McNair et al 2001) with (Fewster-Thuente and Velsor-Friedrich 2008) suggesting that up to 70% of adverse outcomes may be due to a lack of interdisciplinary communication and collaboration.

History taking, physical assessment and health counselling underpin much of the work undertaken by health care professionals and it is this common ground that allows professional groups to come together within a shared learning context, giving reality to interdisciplinary collaboration and interdisciplinary practice (IDP) (Pistole 2008 p475; Rossen 2008 p246; Selle 2008 p480; Hegarty 2009 p257).

At the undergraduate level, research is usually taught as a standalone subject, fulfilling the requirements of registering authorities, but the evidence is clear, that in order to inculcate students into a research culture, research needs to be embedded in the curriculum across all subjects and that the more relevant the research is perceived to be by the students, the more

engaged they become with the process (Veeramah 2004, Courtney 2005). Introducing students to the clinic was ideal in demonstrating both the reason for clinical research as well as how easily research may be undertaken and the potential of research to modify clinical practice (Hanberg and Brown 2006) and support evidence based practice. The importance of encouraging a research culture at an undergraduate level cannot be overstated with (Minichiello et al 2004 p4) observing that ...'the opportunities for evidence- based practice is at an all time high ...but the lack of academically prepared researchers continues to impede progress'.

METHOD

Groups of four – five students from the two disciplines, nursing and podiatry were assigned to a clinic day and allocated to a station. A station was a designated area appropriately screened and provided with the resources to obtain the required information as shown in table 1. The skills stations were overseen by either an academic from nursing or podiatry and or laboratory staff. There were no additional costs to the university other than that of consumables and some research assistance and data entry.

Table 1: Clinical Skills Station

An initial interview where students interviewed participants and collected a detailed medical history including known morbidities and medication being taken. Supervised by an academic from either discipline
12 lead ECGs; 10 second and 5 minutes, conducted initially by nursing students with podiatry students observing and then performing the tests.
Ankle Brachial Index (ABI) conducted initially by podiatry students with nurses observing then performing the tests.
Retinal Photography; initially demonstrated by an academic then students invited to perform the test.
Venous blood sampling for a battery of tests including BGL; conducted by a qualified phlebotomist with students observing.
Lying and standing blood pressure; all students
Valsalva manoeuvres; all students
20 minute single lead ECG; all students
A final interview with a copy of the test results provided to the participant and advice provided regarding any follow up required; all students

An orientation program to the clinic was provided for all students prior to their active participation, issues of consent, confidentiality and ethics approval were discussed and each testing station was explained including the rationale for the test as well as a review of the theoretical knowledge underpinning the tests. The students were provided with in-depth reasoning behind the choice of tests, and gave examples that demonstrated the reason for what in the first instance may look repetitious showing how a 10 second 12 lead electrocardiogram (ECG) in one participant showed no abnormalities whilst a 5 minute 12 lead ECG on the same person identified multifocal premature ventricular contractions (PVCs), a potentially serious finding.

This study used an experiential model of learning (Higginson 2004), to help develop students clinical and research skills, as well as promote an understanding of group concepts and professional roles (Pistole et al 2008). Undergraduate nursing and podiatry students were given the opportunity to further advance their clinical assessment skills, research and therapeutic dialogue with clients (Levett-Jones et al 2009). Student learning was facilitated by academics with whom they were familiar. In this model, there was less emphasis on time constants, which is a frequently identified barrier to learning on clinical placement (Atencio et al 2003). This model also encouraged students to engage in research through the process of data collection; the clinical findings obtained at each station as well as the interpretation of this data through discussion with academics.

Of particular interest was the exchange of discipline specific knowledge between the students. The podiatry students taught the nursing students the theory and practice of ankle brachial index measurement, abnormal results of which significantly increase the risk of developing CVD (Criqui et al 2008; Lacroix et al 2008; Mostaza et al 2008) whilst the nursing students reciprocated with the rationale for and the interpretation of ECGs where the presence and frequency of some cardiac arrhythmias including atrial fibrillation and voltage changes may also be suggestive of CVD (de Ruijter et al 2007).

At the end of each clinic day, students from both disciplines were provided a debriefing session and pertinent clinical findings were discussed.

RESULTS

Of the 20 students involved in the study, 12 returned a questionnaire. The questionnaire consisted of five questions and using a Likert scale the students were asked to rate their response to; interdisciplinary collaboration; the learning environment; practicing discipline specific clinical skills in a unique environment; learning new skills and the value of the experience and how they felt about interacting with participants.

All students felt the experience was worthwhile and gave them the opportunity to practice complex clinical skills in a supportive, interprofessional, low stress environment. Students were particularly positive about the opportunity to learn from each other and expand their scope knowledge and to apply this knowledge to their practice and felt much more likely to collaborate with other professions once graduated. Part of this study looked at the value of this unique clinical experience to skill acquisition. Nursing students were given a test to assess their knowledge of blood pressure, including the definition of hypertension, normal values and procedural accuracy. Students were given the same test upon completion of four half days attendance at the clinic over four weeks and all students (n10) demonstrated improved procedural performance and accuracy of measurement. In particular, no student prior to the study, performed brachial auscultation to estimate systolic pressure prior to the procedure. Eight students were able to differentiate between systolic and diastolic hypertension, an improvement of 50% from pre-test values. The advantages of this university based program allowed students to progress at their own rate with support and guidance from academics with whom they were familiar.

Barriers and facilitators to program implementation

Whilst the authors recognise that the numbers in this study were small we felt that the study offered a unique perspective on interdisciplinary learning and collaboration.

CONCLUSION

Health care graduates in the future will be exposed to an extraordinary set of challenges (Hegarty 2009), including an ageing population, increased acuity and budgetary constraints. Graduates that are able to expand their scope of practice (Priest et al 2007) through multidisciplinary collaboration and learning, will be better able to respond to these challenges.

Interdisciplinary collaboration has been shown to improve job satisfaction, improve the quality of patient care, assist with treatment goal settings and importantly provide a more effective resolution mechanism when conflict over treatment occurs (Koch et al 2005) (Chang et al 2009). A university based community screening programs provides an ideal environment for undergraduate health care students to engage in interdisciplinary collaboration, allowing them to interact across professional boundaries, whilst expanding their scope of practice and building sustainable collegial relationships between professions.

REFERENCES

- Anderson, L. 2005. Health Promotion. *Women's health: a handbook*, 19.
- Atencio, B.L., Cohen, J. and Gorenberg, B. 2003. Nurse retention: is it worth it? *Nursing Economics*, 21(6):262.
- Chang, W.-Y., Ma, J.-C., Chiu, H.-T., Lin, K.-C., and Lee, P.-H. 2009. Job satisfaction and perceptions of quality of patient care, collaboration and teamwork in acute care hospitals. *Journal of Advanced Nursing*, 65(9):1946-1955.
- Criqui, M.H., Ninomiya, J.K., Wingard, D.L., Ji, M. and Fronek, A. 2008. Progression of Peripheral Arterial Disease Predicts Cardiovascular Disease Morbidity and Mortality. *Journal of the American College of Cardiology*, 52(21):1736-1742.
- de Ruijter, W., Westendorp, R.G.J., Macfarlane, P.W., Jukema, J.W., Assendelft, W.J.J., and Gussekloo, J. 2007. The Routine Electrocardiogram for Cardiovascular Risk Stratification in Old Age: The Leiden 85-Plus Study. *Journal of the American Geriatrics Society*, 55(6):872-877.
- Fewster-Thuente, L. and Velsor-Friedrich, B. 2008. Interdisciplinary collaboration for healthcare professionals. *Nursing Administration Quarterly*, 32(1):40-48.
- Gillam, S. 2008. Is the declaration of Alma Ata still relevant to primary health care? *British Medical Journal*, 336(7643):536.
- Hanberg, A., and Brown, S.C. 2006. Bridging the theory-practice gap with evidence-based practice. *Journal of Continuing Education in Nursing*, 37(6):248-249.
- Hegarty, K. 2009. Sustaining collegiality through the imperative of interdisciplinary practice. *London Review of Education*, 7(1):83-90.
- Higginson, R. 2004. The theory-practice gap still exists in nursing education. *British Journal of Nursing*, 13(20):1168-1168.
- Jelinek, H., Warner, P., King, S., and De Jong, B. 2006. Opportunistic screening for cardiovascular problems in rural and remote health settings. *Journal of Cardiovascular Nursing*, 21(3):217-222.
- Koch, L., Egbert, N. and Coeling, H. 2005. Speaking of research. The working alliance as a model for interdisciplinary collaboration. *Work*, 25(4):369-373.
- Lacroix, P., Aboyans, V., Voronin, D., Le Guyader, A., Cautr  s, M. and Laskar, M. 2008. High prevalence of undiagnosed patients with peripheral arterial disease in patients hospitalised for non-vascular disorders. *International Journal of Clinical Practice*, 62(1):59-64.
- Levett-Jones, T., Lathlean, J., Higgins, I. and McMillan, M. 2009. Staff-student relationships and their impact on nursing students' belongingness and learning. *Journal of Advanced Nursing*, 65(2):316-24.
- Maben, J., Latter, S. and Clark, J. M. 2006. The theory practice gap: impact of professional bureaucratic work conflict on newly-qualified nurses. *Journal of Advanced Nursing*, 55(4):465-477.
- McNair, R., Brown, R., Stone, N., and Sims, J. 2001. Rural interprofessional education: Promoting teamwork in primary health care education and practice. *Australian Journal of Rural Health*, 9:19-26.
- Mostaza, A., Suarez, Carmen., Manzano, L., Cairois, M., L  pez-Fern  ndez, F., Aguilar, I., Diz Lois, F., Sampedro, J.L., S  nchez-Huelva, H. and Sanchez-Zamorano, M.A. 2008. Sub-clinical vascular disease in type 2 diabetic subjects: Relationship with chronic complications of diabetes and the presence of cardiovascular disease risk factors. *European Journal of Internal Medicine*, 19(4):255-260.
- Pistole, M.C., Kinyon, J. and Keith, C.B. 2008. Group Experiential Learning with Undergraduate Nursing Students: An Interdisciplinary Approach. *Journal for Specialists in Group Work*, 33(2):161-178.
- Priest, C., Kooker, W.C., Ealey, K.L., Holmes, S.R., and Hufeld, P. 2007. Improving baccalaureate nursing students' understanding of fundamental legal issues through interdisciplinary collaboration. *Journal of Nursing Law*, 11(1):35-42.
- Selle, K.M., Salamon, K., Boorman, R. and Sauer, J. 2008. Providing interprofessional learning through interdisciplinary collaboration: The role of "modelling". *Journal of Interprofessional Care*, 22(1):85-92.
- Talbot, L., and Verrinder, G. 2005. *Promoting health: the primary health care approach*: Churchill Livingstone.
- Veeramah, V. 2004. Utilization of research findings by graduate nurses and midwives. *Journal of Advanced Nursing*, 47(2):183-191.