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## **Experiential learning in a rural university-based cardiovascular screening clinic**

### **Abstract**

This study investigated the benefits of a university-based cardiovascular health research program. It included hypertension (HT) assessment and the impact on nursing students in terms of improving their knowledge-base with regards to cardiovascular health. Twenty-four nursing students were instructed on how to measure blood pressure, HT assessment and medication use. Complete data for blood pressure and self-reported use of antihypertensive medication was available for 681 individuals. Of these, 430 (63.1%) presented with HT, including 168 (24.7%) who knew of their HT and were on medication. Seventy-three (10.7%) were diagnosed with HT but not taking medication, and 43 (6.3%) were on antihypertensives but did not know the reason. An additional 146 (21.4%) had elevated blood pressure. Students reported enthusiasm for the program in that it provided a nexus between theory taught, clinical placement and research. They obtained additional expertise and a broader understanding of health issues and models to improve health care provision in cardiac health by attending the weekly clinic and participating in case review sessions with the clinic organiser. Our university-based initiative provides an opportunity for additional community assessment of blood pressure, further training for students and data for research.

### **Introduction**

Both the National Heart Foundation of Australia (NHFA) and the Cardiac Society of

Australia and New Zealand (CSANZ) have identified that hypertension (HT) is a major risk factor for coronary heart disease, stroke, heart failure, renal failure and peripheral vascular disease (Briganti et al. 2003; NHFA/CSANZ, 2004). It is the main contributor to loss of health in Australia, accounting for nearly 18% of the total disease burden (Mathers et al. 2000). The Australian Diabetes, Obesity and Lifestyle Study 2000 (AusDiab) found that in 1999–2000 the prevalence of HT in the Australian population  $\geq 25$  years of age was 28.6%, with 13.4% treated and 15.2% untreated (Briganti et al., 2003). Data from the 2004–05 National Health Survey showed that prevalence rates for hypertensive disease increased with age; for example, 14% of those aged 45–54 years reported the disease compared to 41% for those aged 75 years and over (ABS 2006). Every year 3% of the adult population develop hypertensive disease, with the risk increasing from 1% for those aged between 25 and 34 years to 8% for those aged between 65 and 74 years (Briganti et al. 2003).

Community blood pressure reviews vary between regions and across community health providers, allied health professionals and general practitioners (Cranney, Barton & Walley 1998). Although nurse-led programs in hospital care or community health have shown that improvements are possible with respect to blood pressure assessment, patient compliance, decrease in non-attendance rates and education (Rubin et al. 1984), errors in blood pressure measurement were very frequent among the professionals observed in a study by Lamas, Berno and Takeiti in 2003. These errors are, probably, due to instruction received during nursing education programs or lack of training and supervision (Kemp, Foster & McKinlay 1994; Lamas, Berno & Takeiti 2003). Currently, knowledge and

performance of blood pressure (BP) measurement has been reported as poor, with nursing students lacking an understanding of the implications of HT as well as failing to perform the procedure correctly (Bauer & Huynh 2001). Therefore, in order to improve both assessment techniques and knowledge about the multidimensional nature of BP and the prevention and treatment of high BP, attention to the method used to obtain the BP reading needs to be incorporated into nursing education at the university undergraduate level. Appropriate knowledge and training provided to nursing students during their education prepares them with a sound knowledgebase for future health care requirements such as nurse-led HT and cardiovascular clinics. The increase in the number of people with HT and the concomitant increase in morbidity and mortality in clinical populations such as diabetes and renal disease require nurses within these disciplines to increasingly expand their role and be proficient in diverse clinical assessment tasks (Jones 2000).

In order to facilitate the learning of BP measurement and interpretation, students were included in a diabetes screening research initiative at Charles Sturt University (CSU) in 2006. The screening initiative at CSU combines community health assessment with research and training of both undergraduate and postgraduate students in multidisciplinary and multifaceted health care. Our research activities include cardiovascular and HT prevalence in rural communities, improving screening outcomes and investigating current intervention strategies. This research focus provides a platform for students to be incorporated in the screening clinic where they receive training in cardiovascular and HT health assessment as well as becoming familiar with research methods.

## **Methods**

Twenty-four second-year nursing students participated as part of one of their clinical subjects in the cardiovascular health screening at CSU, which includes a cardiovascular health assessment and medication history review. As part of the screening, blood pressure is assessed and feedback provided with respect to good BP control. Ethics approval was obtained through the CSU Human Ethics Committee for this research, and all participants at the screening signed a consent form indicating an understanding of the aim of the screening and the student participation. Participants of the screening clinic are recruited through local advertisements in the newspaper and television.

For BP assessment, a dual earpiece stethoscope and sphygmomanometer were used. In addition to the stethoscope being used to determine systolic BP, the radial pulse palpation technique was also introduced. All students received one introductory workshop over three days that included both an overview of a multidisciplinary and multifaceted health care clinic as well as instruction on best practice for measuring BP. Two half-day training sessions followed. These sessions differed in that the first explained the procedures and allowed students to practice these on themselves, whereas the second training session included participants attending the screening. Each student subsequently participated for the remainder of the 13-week university teaching term in parallel to normal instruction periods.

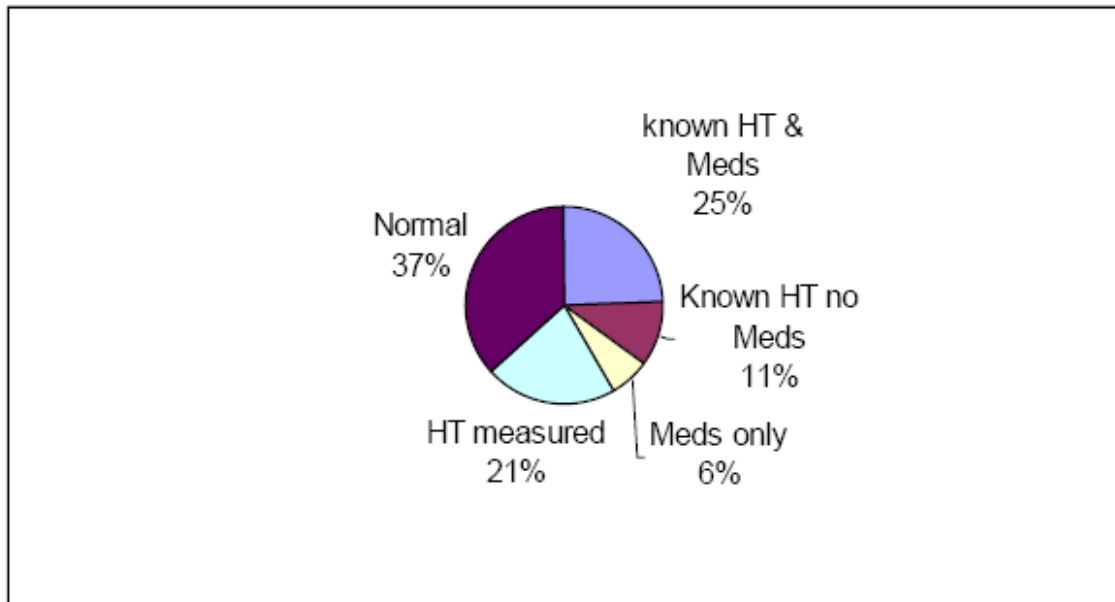
At completion of the term all students were assessed for competency and were asked to fill out a questionnaire, which included questions on BP assessment, interpretation and education as well as on the appropriateness of medication prescribed. In addition, students were asked if they perceived a benefit from participating in the screening and whether they thought the additional skills learnt were relevant to clinical practice. Competency was evaluated by a nurse academic/clinician by observing students during routine BP measurement and by discussing issues associated with the findings.

## **Results**

Sixteen students, who were all enrolled in a three-year nursing degree, returned the questionnaire. They all reported enthusiasm for the program in that it provided a nexus between theory taught, clinical placement and research. Previous health care experience was reported by 44% of students, with enrolled nurses being the most common. For 63% of respondents, the clinic rotation clarified the role of health professionals both in diabetes health care as well as diabetes as a chronic illness. The remainder reported that they had not enough time to gain more experience in other health assessment tasks apart from BP. The main concern for students was the time patients were required to wait between assessment tasks, although no reasons were provided by the students for this concern. Students reported that the clinic emphasised material dealt with in lectures and provided an additional clinical setting that required communication, diagnostic skills and technical expertise to be practiced. The most significant results were that students showed improved competency in measuring BP using a variety of techniques and were able to state why BP readings may have been abnormal.

As part of the university-based initiative, BP was recorded at weekly clinics by nursing students as part of their course requirements. Complete data for BP and self-reported use of antihypertensive medication was available for 681 individuals at the end of 2006. Of these, 430 (63.1%) individuals were identified with HT, including 168 (24.7%) who knew of their HT and were on medication. Seventy-three (10.7%) were diagnosed with HT by their general practitioner (GP) but were not taking medication, and 43 (6.3%) were on antihypertensives but not aware that they had elevated BP that led their GP to prescribe them. An additional 146 (21.4%) had elevated BP when attending the screening in the range of HT (see figure 1).

Figure 1: Prevalence of hypertension presenting at the university-based screening





## **Discussion**

With the development of HT and other chronic diseases clinics, nurses can help plan study protocols, coordinate patient recruitment, provide patient care, and maintain protocol compliance. In order to accomplish their role in data collection and reporting, nurses need to undergo comprehensive training and certification (Schron et al. 1989) A university-based HT community screening program that includes education/training for nursing students has proven to be very effective in terms of improving students' clinical skills. In addition, students became familiar with the role of research in nursing and how it can be applied to a screening program. Importantly, the community benefited through identification of HT in otherwise undiagnosed participants, enabling referral to GPs and, hopefully, a reduction in the burden of chronic disease in those individuals identified. Better training and familiarisation with assessment methods such as BP assessment as part of the university education prepares students to meet the increased demand in association with chronic disease management.

The university screening provided students with an indication of the prevalence of HT in the community as well as with additional expertise and a broader understanding of health issues and models to improve health care provision in cardiac health. Specifically, the results for the HT assessment were relevant to students owing to the diversity of patient profiles providing a good source for case discussion. Examples included participants that were identified as hypertensive as well as those referred to the GP but were then non-compliant with medication. We were able to demonstrate the effect of this non-compliance to our students with deterioration in BP control over time, reinforcing the

need for ongoing evaluation and support for patients with HT. This led to an educational session being organised with the participant, which students took part in.

Our research recognises that both universities and health care providers need to examine how students learn and apply theory to practice (Warner & Jelinek 2005). This latter aim was addressed by providing students with an opportunity to join in the diabetes complications screening program at Charles Sturt University, School of Community Health (Jelinek, Wilding & Tinley 2006). This screening program is a teaching and research facility on the New South Wales-Victorian border that is multidisciplinary/multifaceted and provides screening, referral and feedback to participants drawn from a rural community. Being part of a university provides a strong research culture, and this program included several postgraduate students and visiting academics. As such, students are introduced to an extensive health care model that not only has high relevance to rural nursing but also introduces aspects of acute and chronic nursing care. Students gain communication, assessment and diagnostic skills, as well as technical expertise in cardiac, podiatric and ophthalmic nursing.

After initial evaluation and treatment, most hypertensive patients with well-controlled BP do not need to see a doctor for routine BP management. In line with government policy, there is an increasing role for trained practice nurses and nurse practitioners to be used in illness prevention and health promotion (Heath 2001). Compared with general practice, nurse-led care may benefit, for example, from more reliable BP assessment; being more user friendly, accessible and less hurried; and from improving understanding,

encouraging healthy living and forming an alliance with the patient (Austin, Oakeshott & King 2002; Beevers 2000). However, the most important difference with current practice when utilising nurse-led clinics is likely to be due to improved hypertensive diagnosis, antihypertensive prescribing, compliance with treatment and regular follow-up and rigorous application to national guidelines for the management of HT (Oakeshott et al. 2003).

### **Conclusion**

A university-based cardiovascular screening program provides a good basis for students to learn and obtain additional expertise in health assessment, including identification of HT. Our study indicated that students found the experience useful and improved their skill basis. Our university-based initiative provides an opportunity for additional community assessment, further training for students and data for research that has the potential to have a significant impact on current health care provision by enabling undergraduate health students to engage in community-based health assessment initiatives.

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## References

- ABS (2006) *2004-05 National Health Survey: Summary of Results* (No. 4364.0). Australian Bureau of Statistics.
- Austin, A., Oakeshott, P. and King, S. (2002) Shared decision making in hypertension. *Fam Pract*, **19**, 310.
- Bauer, M. and Huynh, M. (2001) Teaching blood pressure measurement: CD-Rom versus conventional classroom instruction. *Journal of Nursing Education*, **40**(3), 138–141.
- Beevers, M. (2000) The role of nurses in the management of hypertension. *Mod Hypertens Manag*, **2**, 11–13.
- Briganti, E.M., Shaw, J.E., Chadban, S.J., Zimmet, P.Z., Welborn, T.A., McNeil, J.J. et al. (2003) Untreated hypertension among Australians adults: the 1999/2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab). *Medical Journal of Australia*, **179**(3), 135–139.
- Cranney, M., Barton, S. and Walley, T. (1998) The management of hypertension in the elderly by general practitioners in Merseyside: the rule of halves revisited. *Br J Gen Pract*, **48**(429), 1146–1150.
- Heath, P. (2001) *National review of nursing education*. Retrieved. From <http://www.dest.gov.au/archive/highered/nursing/pubs/discussion/default.htm#contents>.
- Jelinek, H.F., Wilding, C. and Tinley, P. (2006) An innovative multi-disciplinary diabetes complications screening programme in a rural community: A description and preliminary results of the screening. *Australian Journal of Primary Health*, **12**(1), 14–20.
- Jones, P. (2000) Diabetes and hypertension -- essential knowledge for DSNs? *Journal of Diabetes Nursing*, **4**(3), 91–94.

- Kemp, F., Foster, C. and McKinlay, S. (1994) How effective is training for blood pressure measurement? *Professional Nurse*, **9**(8), 521–522, 524.
- Lamas, J.L.T., Berno, C.B.F. and Takeiti, G.M. (2003) Errors committed by nursing staff in routine blood pressure measurement. *Revista Paulista De Enfermagem*, **22**(2), 141–148.
- Mathers, C.D., Vos, E.T., Stevenson, C.E. and Begg, S.J. (2000) The Australian Burden of Disease Study: measuring the loss of health from diseases, injuries and risk factors. *Medical Journal of Australia*, **172**(11), 592–596.
- NHFA/CSANZ. (2004) *Reducing risk in heart disease 2004*. Canberra: National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand.
- Oakeshott, P., Kerry, S., Austin, A. and Cappuccio, F. (2003) Is there a role for nurse-led blood pressure management in primary care? *Fam. Pract.*, **20**(4), 469–473.
- Rubin, P.C., Curzio, J.L., Kelman, A., Elliott, H.L. and Reid, J.L. (1984) Preliminary experience with a hospital blood pressure follow up clinic with nurse practitioner assessment and microprocessor based data retrieval. *Br Med J (Clin Res Ed)*, **289**(6444), 537–539.
- Schron, E.B., Davey, J.A., Jensen, J.M. and Probstfield, J.L. (1989) The systolic hypertension in the elderly program: implications for nursing practice and research. *Progress in Cardiovascular Nursing*, **4**(4), 138–145.
- Warner, P. and Jelinek, H.F. (2005) 'Clinical placement in rural health professional education: addressing the theory-practice gap in nursing'. Paper presented at the Teaching and learning Conference: Bright ideas and evolving evidence, Bathurst, Australia.

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