Abstract: The Chronic Care Model developed by Wagner is recognised to provide a systematic approach to managing chronic care. It has been adapted by the World Health Organization to become the Innovative Care for Chronic Conditions Framework. Together these have been demonstrated to provide an effective framework for chronic care management in a variety of settings. In order to prepare Australian nursing graduates for a changing health system it is important to recognise global issues and to prepare them to work within well recognised models. This paper examines the publicly available documentation of pre-registration nursing degrees in Australia for their alignment with the Chronic Care Model and the Innovative Care for Chronic Conditions Framework. Those aspects of each which are well addressed are identified along with those which could be improved.

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Chronic Care undergraduate nursing education in Australia

Key Words:
chronic care model; undergraduate nursing; curricula; framework

Highlights
• Tertiary education providers should consider evidenced based models as key components of a curriculum
• Using international models of health care support a flexible and mobile nursing workforce to address current trends
• In Australia, the majority of tertiary education providers give limited weight to the importance of chronic care models

Abstract
The Chronic Care Model developed by Wagner is recognised to provide a systematic approach to managing chronic care. It has been adapted by the World Health Organization to become the Innovative Care for Chronic Conditions Framework. Together these have been demonstrated to provide an effective framework for chronic care management in a variety of settings. In order to prepare Australian nursing graduates for a changing health system it is important to recognise global issues and to prepare them to work within well recognised models. This paper examines the publically available documentation of pre-registration nursing degrees in Australia for their alignment with the Chronic Care Model and the Innovative Care for Chronic Conditions Framework. Those aspects of each which are well addressed are identified along with those which could be improved.

Introduction
The burden of chronic conditions is estimated to account for approximately 80% of disability-adjusted life years and continues to increase rapidly according to the Australian National Chronic Disease Strategy (National Health Priority Action Council, 2006). There is wide acknowledgement of the increase in chronic conditions which is impacting on the health workforce worldwide (Basu, 2013; Higuchi, 2010; World Health Organization, 2005, p. 17). This is significant in both Australia and globally when addressing future health needs in relation to chronic care. The Chronic Care Model is well recognised to provide a systematic approach to chronic care management. It incorporates six components: health system (organisation of health care); self-management support; decision support; delivery system design; clinical information systems and community resources and policies (Stellefson, Dipnarine, & Stopka, 2013). It aims to provide a multi-dimensional solution to the complex problem of the provision of chronic care (Bodenheimer, Wagner, & Grumbach, 2002).

Several studies have looked at how the Chronic Care Model can be applied to the training of medical practitioners with some success (Agency for Healthcare Research and Quality, 2008; Block, Tran, & McIntosh, 2011; Kirsh & Aron, 2008; Moskowitz, Glasco, Johnson, & Wang, 2006). However, Saxe et al. (2007) indicate that due to the unique role of nurses, they will need to lead the re-design of the health care system in order to improve health outcomes through the implementation of the Chronic
Care Model. Smith et al. (2006) point out that further education of nurse educators is required regarding the Chronic Care Model, especially if this is to make a difference to health outcomes in rural and remote areas.

The World Health Organization recommends the use of the Innovative Care for Chronic Conditions Framework (World Health Organization, 2002) which is described as ‘an expanded, internationalized adaptation of the earlier Chronic Care Model developed by Wagner and colleagues’ (World Health Organization, 2005). The Innovative Care for Chronic Conditions Framework extends the Chronic Care Model by adding micro, meso and macro levels and incorporates six guiding principles: evidence-based decision making; population focus; prevention focus; quality focus; integration; flexibility and adaptability (World Health Organization, 2002). These levels extend the involvement of community and describe policies and financing as the drivers at the macro level (Bengoa, Epping-Jordan, Pruitt, & Wagner, 2004). Nuño et al. (2012) suggest the need for further studies which explicitly assess the implementation of the Innovative Care for Chronic Conditions Framework at health system level, but argued that many components of it had been assessed in the literature that related to the Chronic Care Model previously.

A study conducted in the United States of America, recently identified that chronic disease education, specifically support and self management were not well integrated into their undergraduate nursing curricula (Kuebler, Lampley, Shake, White-Hurst, & Taggart, 2014). An Australian study, although looking at primary health care indicated that in 2007-2009, student preparation for practice in primary health and community settings was patchy (Keleher, Parker, & Francis, 2010). An important aspect of the implementation of the Chronic Care Model and Innovative Care for Chronic Conditions Framework is how well it is integrated into undergraduate nursing education so that an informed and well prepared nursing workforce is established in Australia and worldwide.

Aim
The study described here examines publically available Australian university subject lists, abstracts and curriculum documentation to review how and to what extent chronic care is incorporated into the written curricula for nursing education at a pre-registration level leading to a baccalaureate qualification.

Method
A content analysis of all publically available undergraduate nursing courses in Australia was conducted with a particular focus on the content related to chronic care. This involved each of the authors independently assessing the available course material and then comparing those results and reaching consensus regarding the content related to chronic care. All of these courses are approved by the Australian Nursing and Midwifery Accreditation Council (ANMAC) and listed on the Nursing and Midwifery Board of Australia website as leading to a baccalaureate qualification. ANMAC ensure that all of these education providers meet the same standards which meet baccalaureate requirements. Key themes for the content analysis were drawn from the chronic care model developed by Wagner (Bodenheimer et al., 2002; Stellefson et al., 2013) and the Innovative Care for Chronic Conditions Framework (World Health Organization, 2002, 2005). Publically available internet sites were reviewed which provided information on course and subject content of undergraduate nursing courses. Although not all universities publish every detail of their course online, what is
evident on the public domain has implications regarding the value placed on this aspect of their nursing curricula. In this way it is possible to gauge to a limited extent what values are placed on specific aspects of chronic care and how this impacts on the perception of chronic care nursing within undergraduate curricula.

This initial review found that 35 Australian tertiary education providers have approved undergraduate nursing baccalaureate courses available. Each tertiary education provider’s website was then examined to determine if the course content included a chronic care subject. Four tertiary education providers were eliminated from the review due to a lack of information provided about course content available on the public website. Of the remaining 31 tertiary education providers, course outlines were examined and abstracts of each identified chronic care subject was then further scrutinised to determine if the subject addressed the chronic care model guidelines and framework as outlined by the World Health Organization (2005). The levels (micro, meso and macro) identified in the Innovative Care for Chronic Conditions Framework were considered to be too generic to be included in this analysis, unless specifically connected to the Framework, but this did not occur. Undergraduate pre-registration nursing courses that were excluded from this review were those which provided an alternate entry pathway to becoming a Registered Nurse including Enrolled Nurse or Aboriginal Health Worker to Registered Nurse programs, and graduate entry programs and masters programs. International overseas nurse program pre-registration courses were also excluded from the review.

Subject lists, abstracts and curriculum documentation were further interrogated to gain an overview of the inclusion of chronic care subjects incorporated within undergraduate pre-registration nursing courses. In Australia each subject is allocated credit points as part of a course total (Logan & Angel, 2014). There is a wide range of credit point allocation throughout Australian universities with no consistent system applied universally. In order to determine the proportion of the chronic care subjects as part of the entire course content, this study used allocated credit points divided by the total course credit points to determine chronic care content as a proportion of the course. For example if the chronic care subject was allocated 6 credit points within a degree totalling 72 points then the proportion of chronic care was calculated to be 8%. This is further illustrated in Figures 1 and 2 in the findings section of this article.

**Findings**

The inclusion of a specific chronic care subject in undergraduate nursing courses varied throughout tertiary institutions. One course devoted several subjects specifically to this topic, four providers had more than one subject that identified chronic care content and twelve incorporated chronic care into a medley of nonspecific nursing subjects. It was noted that there was a tendency amongst most providers to blend chronic care subjects with other areas of health care such as: palliative care, aged care, acute care, tropical diseases, disability, mental health, perioperative care and Indigenous health.

Further examination of the content of chronic care subjects illustrated an alignment with the framework and model including, population focus, evidenced based decision making, delivery system design, prevention focus, chronic care model and health system. Two providers had stand-alone clinical information systems subjects, however the majority of providers did not identify how this was addressed in their courses. Part of the Innovative Care for Chronic Conditions Framework
includes community resources and policies (World Health Organization, 2002, 2005). This was not evident from reading any chronic care subject abstracts, however it is recognised that this may have been incorporated within the subject content which was not seen within this review.

Figure 1 outlines the proportion of content devoted specifically to chronic care. Figure 2 illustrates the proportion of the undergraduate nursing course which aligns with the chronic care models and framework. (insert figures 1 and 2 here)

**Discussion**

The ability of new graduate nurses to deliver care in relation to patients with chronic conditions is essential for the delivery of health services in the future. In order to achieve this, tertiary education providers must incorporate and synthesise chronic care education into their curriculum. The very nature of tertiary education allows flexibility, yet core features such as the management of patients with chronic care conditions should be given an emphasis when considering the delivery of undergraduate nursing courses. In order to support this further education of nurse educators is required regarding the Innovative Care for Chronic Conditions Framework (Smith et al., 2006). Some universities did not indicate from the available abstracts and subject lists that chronic care was a significant component of their program. Many universities combined chronic care with other specialities such as aged care or palliative care, which could be seen to dilute the importance of chronic care. As chronic care is such an important health issue for the future population both nationally and worldwide, a lack of emphasis in some programs on chronic care in undergraduate curricula is a concern when considering the future needs of a skilled nursing workforce.

From the identified subject lists and abstracts, parts of the Chronic Care Model and the Innovative Care for Chronic Conditions Framework were addressed more effectively than others. Components of the Framework that were easily identified in undergraduate programs included: evidence-based decision making; population focus; prevention focus and similarly components of the Model that were readily identifiable were health system (organisation of health care) and clinical information systems (two universities devoted an entire subject to this component). Elements of the Model and Framework that were superficially or not addressed were identified as the following: quality focus; integration; flexibility and adaptability, and self-management support.

This study is limited to the Australian undergraduate nursing curricula which was available publicly on the Internet. Not all universities provide large amounts of information about their curricula in this format and four of the total 35 universities were eliminated due to a lack of information. Future research is recommended to determine how chronic care is taught within these curricula and what understandings students develop from their education in this area.

As the Australian population continues to develop more chronic conditions, the significance of the Chronic Care Model and Innovative Care for Chronic Conditions Framework will become greater. It is evident from this review of publicly available information that the Model and Framework have not been fully embedded or adopted by Australian universities to date. This is not dissimilar to the global experience (Kuebler et al., 2014). Nurses are in a unique position to lead the re-design of the health care system (Saxe et al., 2007) if better prepared for an increased patient population with chronic conditions. Incorporating the Model and Framework is required in order effectively implement this change. As the framework is an international approach developed by the World Health Organisation
its adoption both within Australia and worldwide would enhance the ability of a nursing workforce to move across borders.

**Conclusions**

In order to address predicted increases in chronic conditions within the Australian population, tertiary education providers should consider the Chronic Care Model and the Innovative Care for Chronic Conditions Framework as key components of an evidenced based curriculum which is able to be translated across international borders. This will in turn support a flexible and mobile nursing workforce which is equipped to address international and national trends in healthcare across a variety of settings.

The Model and Framework were developed to address the complexity of chronic care to improve health outcomes. In Australia, the majority of tertiary education providers give limited weight within publicly available information related to curricula as to the importance of this component of health care delivery within current undergraduate nursing education curriculum. Increasing the emphasis of chronic care education as supported by WHO (2002, 2005) will better prepare nurses for the future.

Chronic care education needs to be given a substantial prominence in undergraduate nursing education. The Model and Framework address the complexity of chronic conditions and are supported by evidence based literature allowing students to see an overall perspective of significant issues in both national and international settings.

**References**


