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PROJECT REPORT

A framework for nursing practice in rural and remote Canada

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ABSTRACT:

Introduction: Despite the increased understanding of Canadian rural and remote nursing practice in the past two decades, a synthesis of nursing frameworks to guide practice has been missing from the literature. In this article, the process undertaken to develop a nursing practice framework is described. The purpose of the project was to integrate existing rural and remote nursing evidence into a framework to guide rural nursing practice; inform the actions of rural communities, other health professionals,

educators, policymakers and regulators; and support the health of Canadian residents who live in rural and remote areas.
Methods: Two consultants (DE, JK) worked with the Canadian Association for Rural & Remote Nursing (CARRN) Executive to plan and implement a process to develop a rural and remote nursing framework. An external advisory group, representing regulated nurses, and six expert rural nursing researchers were invited to critique project outcomes. A focused international review of the literature was conducted to determine which rural nursing frameworks existed. Electronic database platforms (ProQuest and the Cumulative Index of Allied Health Literature and Medline) were searched, with literature limited to English-only articles. Each article was analyzed to determine relevant key components and elements.
Results: The literature review generated 22 full-text articles that were analyzed and synthesized into five main categories: larger society/determinants of health, role of place/the rural or remote context, rural and remote peoples/communities, rural and remote nursing, and health outcomes. A draft document describing the creation of the framework and two different graphic designs of the framework were developed, then sent to the advisory group for critique. All critiques were reviewed and the document was revised as appropriate. The framework design, which used concentric circles to depict relationships between the five identified categories, was selected by a majority of the advisory group reviewers as being representative of their practice and experience.
Conclusion: It is envisioned that, by using the framework, practicing nurses can identify the tightly woven interconnections within the rural context affecting the health of their clients. Nursing assessments and practice can then be strengthened from consideration of the framework. Nursing programs with dedicated rural nursing content potentially could incorporate the rural and remote nursing practice framework document into classroom and clinical discussions. Due to resource and time restrictions, Indigenous and Francophone nurses were not part of the framework discussions, nor were community members living in rural or remote Canada. Ongoing critique from relevant rural groups will be beneficial for future input and revisions. CARRN is developing a knowledge mobilization strategy to begin this process.

Keywords:

Canada, community, framework, health determinants, nursing, rural health care.

FULL ARTICLE:

Introduction

Over the past 20 years, research delineating the nature of nursing practice in rural and remote Canada has emerged and grown[1-9]. Commensurate with this growing body of knowledge is the translation of research findings into policy and educational programs, as the important relationship between the role of nurses and the health of rural communities is becoming increasingly apparent[10-13]. Despite the increased understanding of Canadian rural and remote nursing in the past two decades, no nursing frameworks to guide rural and remote practice had been previously synthesized.

This article outlines the initiative of the Canadian Association for Rural and Remote Nursing (CARRN) in 2020 and 2021 to develop a document that will be used to inform the professional practice of all categories of regulated nurses (registered nurses (RNs), licensed practical nurses (LPNs) or registered practical nurses in Ontario (RPNs), registered psychiatric nurses (RPNs) and nurse practitioners (NPs)) working in rural and remote Canada. Founded in 2004, CARRN aims to 'promote and advance the unique specialty of rural and remote nursing practice through recognition, research and education, and influence rural and remote health policy'[14]. The CARRN Executive also identified the necessity to revise their previous 2008 discussion document on rural and remote nursing parameters. Both projects began simultaneously in the northern summer of 2020 with funding from the Canadian Federation of Nurses Unions. Overall coordination of the project was led by the CARRN President (MP), with revision of the updated discussion paper and development of the framework undertaken collaboratively by two consultants (DE, JK). Ongoing discussions and findings from the updated discussion paper[15] critically informed work on the practice framework document.

Canadian nurses working in rural and remote areas

Rural areas defined by Statistics Canada have a population density less than 400 persons per square kilometer and fewer than 1000 people[16]. Based on this definition, the rural population in Canada increased slightly (+0.4%) in 2021 to 6.6 million and accounted for nearly 18% of the Canadian population[16]. The expanse of the country, as well as its varied rural geography and demographics, pose challenges to healthcare delivery[17].

Canadian nurses working in rural and remote regions practice in conditions unique from that of their urban counterparts. Isolation from healthcare specialists and tertiary facilities frequently necessitates the transfer of patients, often in the midst of unpredictable or inclement weather[15]. Working with an extended scope of practice is not uncommon for nurses in rural and remote Canada[18]. In contrast to the recent increase in rural population, the number of nurses in rural and remote areas of Canada is shrinking. In 2020, the number of RN, LPN, RPN and NP personnel identified as 'working rural' totalled 41 071 nurses, and constituted only 10% of all Canadian nurses employed within the profession[19]. It is currently unknown whether the mental and emotional strain precipitated by the COVID-19 pandemic will exacerbate current nursing shortages[20]. There is evidence that rural communities exhibited adaptation and coping during the pandemic[21,22], yet it remains unclear whether this observed adaptation will influence rural nurse retention.

Existing Canadian rural health frameworks

Provincial and federal governments have produced rural health frameworks over the past ten years. In 2015, British Columbia published a framework document that incorporated a rural policy lens[10], and the Ontario government developed a rural and northern healthcare framework/plan in 2017[23]. Some of the guiding principles used to develop these frameworks included community engagement, population health need, shared responsibility, flexibility and innovation, team-based approaches, cultural safety, integration and being evidence-based[10-23]. Understandably, government frameworks focus on service delivery or quality improvement. While a federal population-level rural framework was developed in 2006, it does not capture the interface between healthcare professionals and rural or remote communities[24].

In order to improve efforts to recruit and retain family physicians and other health professionals in rural areas, the College of Family Physicians of Canada and the Society for Rural Physicians of Canada co-sponsored a committee to formulate a framework for improved access to rural health care in 2017[25]. The resulting social accountability framework and detailed road map identified five partners necessary to address rural communities' healthcare needs in Canada: policymakers, health professionals, community, health and education administrators, and universities. The social accountability framework addressed rural health workforce issues but, similar to the federal population-level framework, it did not encapsulate the interconnected realities of practice in rural and remote Canada.

The CARRN project aimed to synthesize existing rural and remote nursing evidence into a framework that would guide practice by nurses and inform the actions of rural communities, other health professionals, educators, policymakers and regulators. It was envisioned that use of the resulting framework could enhance the health of Canadian residents who live in rural and remote areas.

Methods

The process of framework development occurred between July and December 2020 and involved several steps. An external advisory group consisting of 16 members of various provincial regulatory bodies, union and professional associations was established by the CARRN Executive. Further to this, six known rural nursing researchers were invited to participate with the external advisory group and the CARRN Executive to critique the project outcomes at various junctures.

Guiding principles relevant to nursing practice were established by the consultants. These included holistic care, community empowerment, philosophy of primary health care, cooperation and collaboration, determinants of health and the professional practice of all regulated nurses in Canada. Particular attention was given to the determinants of health in the formulation of the document, given the known health disparities that exist in rural and remote areas of the country[24,26,27]. Health determinants from the First Nations Holistic and Planning Model[28], as well as those determinants identified by the Government of Canada[29], were incorporated into the final model.

To identify existing international rural nursing models or frameworks, a focused review of international literature was conducted. Electronic database platforms, including ProQuest, the Cumulative Index of Allied Health Literature (CINAHL) and Medline were searched, with literature limited to English-only articles. Dissertations, grey literature and midwifery references were excluded. The following key search words and BOOLEAN operators were used: (Nurs* OR Nursing) AND (practice OR care OR clinical OR social determinants) AND (rural OR remote OR outpost OR frontier OR outback) AND (framework OR model OR theory OR approach). Articles were considered if they provided either a framework for rural or remote nursing or contained models of rural or remote health. Review of article titles and abstracts for relevancy was completed by both consultants, and the qualifying publications were then read in full to ascertain whether they would be retained for framework development.

Following the identification of relevant articles, key elements and components from each article were tallied into a grid for analysis. These attributes were then categorized, and formed the basis for the construction of model diagrams and narrative description. The initial draft of the document was sent to the reviewers for feedback, and revisions followed.

Results

Literature review results

A total of 1437 articles were initially identified from the literature search; after screening titles and abstracts, 52 articles, in addition to nine records found from citations, were assessed for relevancy (n=61). A total of 39 full-text articles were excluded, leaving 22 to be included in the framework development (Fig1). The retained literature, published between 1989 and 2020, originated from five jurisdictions: USA (n=9), Australia (n=6), Canada (n=5), New Zealand (n=1) and South Africa (n=1).

The foci of the publications varied, and included the determinants of health in rural populations[30-33], the role of environment and place[34-36], concepts related to the development of rural nursing theory[37-39], and frameworks for rural nursing leadership[40,41]. Additional frameworks were multidisciplinary rural professional development[42], rural acute care ethical decision-making[43], rural health program planning[44], primary healthcare logic model[45], rural community case management[46], and rural and remote health[47]. Four discussion papers were also among the 22 publications analyzed[48-51].

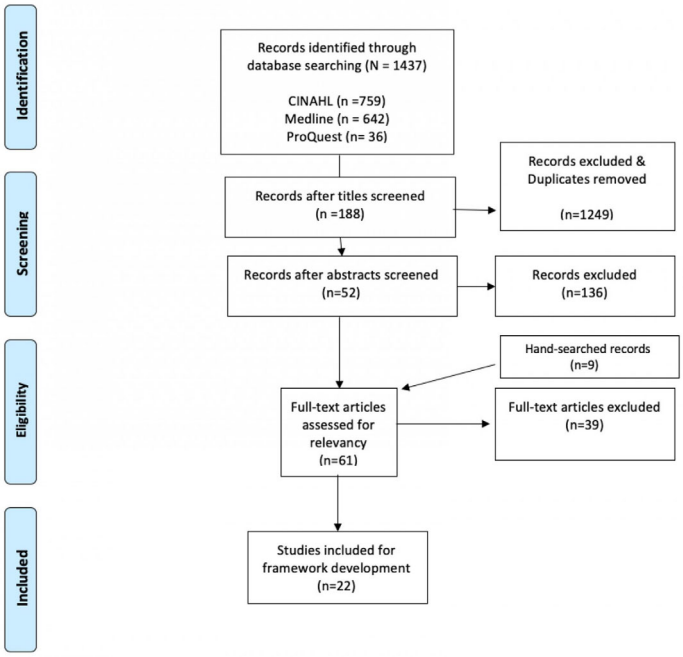

Figure 1: PRISMA diagram of literature search, framework development.

Process of framework development

Ten components pertaining either to rural health or to rural and remote nursing arose from analysis: community, and importance of participatory engagement (*n*=11); knowing the rural context (*n*=8); geography and environment (*n*=8); determinants of health (*n*=8); care (*n*=5); integrated health systems (*n*=5); 'being visible' (eg lack of anonymity, *n*=4); collaborative communication and teamwork (*n*=3); social justice and diversity (*n*=2); and leadership (*n*=2). Recent Canadian nursing research reports affirmed the importance of understanding the rural context[40-43], being part of the community[8], being visible[52], and coping with geography, weather and travel[53].

Numerous characteristics that constitute the 'complex, generalist practice'[8] of the rural or remote nurse's role in Canada have been identified[15]. These characteristics include being versatile[52], having multiple skills[8], expanded practice[50], maintaining confidentiality[43], being prepared[52], providing culturally safe care[54] and blurring of professional boundaries[43].

The components and attributes were then synthesized into five main categories: larger society/determinants of health, role of place/the rural or remote context, rural and remote peoples/communities, rural and remote nursing, and health outcomes. Two diagrams, one linear and another circular, were constructed to convey the interconnectedness of the components. The 16-page written document provided background information, definitions of rural and remote, and the process of the framework development, including a descriptive explanation of the framework diagram. To illustrate how the framework could be applied in practice, three clinical exemplars were included in the implications section. Limitations were identified and the document ended with dissemination plans and future actions.

Outcome of framework review and critique

The initial document, the two graphic visualizations drafted by the consultants and a Likert five-point scoring sheet were distributed to all reviewers (*n*=30) for feedback and critique. The reviewers were from eight provinces and one territory, represented all regulated nurses in Canada, and over half of the reviewers lived in rural or remote regions at the time. The average length of time working in rural or remote practice over their careers was nearly 16 years. Editorial suggestions and detailed comments were incorporated into revisions of the document text. The suggested edits included recommendations for re-organization of content, additional sources and identification of content omissions.

Reviewers were also asked to choose the diagram that best captured the essence of rural and remote nursing practice; a slight majority of reviewers (57%) chose the diagram of overlapping circles, which illustrated an ecologic approach with macro-, meso- and micro-levels of interaction between the framework components. The selected diagram, as well as the reviewers' comments about the visualizations, were shared with the graphic artist hired for the project. An iterative process of the framework diagram construction occurred between the graphic artist, the consultants and the CARRN Executive and resulted in Figure 2, 'Knowing Rural & Remote Communities'. In May 2021, the final document was widely disseminated via email to Canadian nursing associations, unions and regulatory bodies.

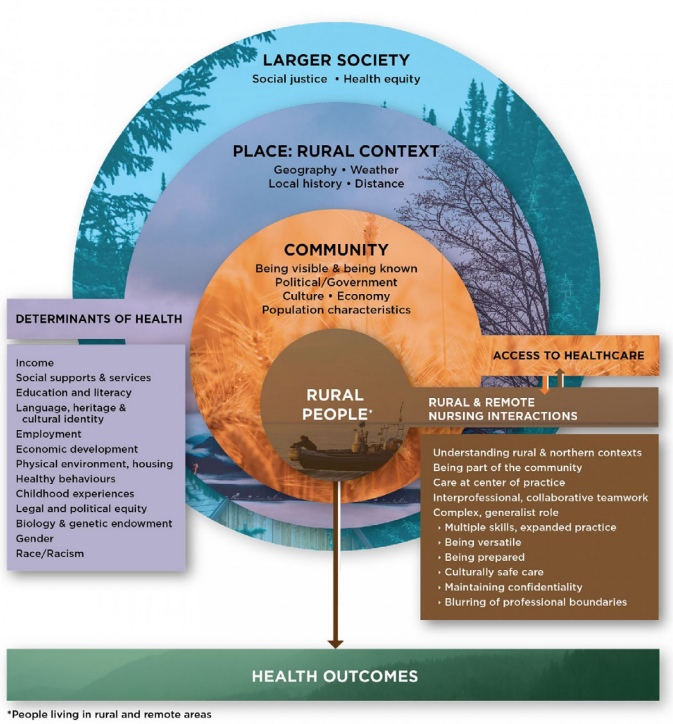

Figure 2: 'Knowing Rural & Remote Communities': a framework for nursing practice in rural and remote Canada.

Final framework diagram

The model consists of four concentric circles, each representing three of the five categories synthesized from the literature. The largest circle encompasses the macro-level values of society at large, including social justice and health equity values. Embedded within the larger circle is the meso-level circle, which represents 'place' and the rural context. Geography, weather, distance and local history affect rural and remote places and are intertwined with the determinants of health, shown in the left box. A rural community and its people are the next two layered micro-level circles. Access to health care (a determinant of health) occurs directly at the community level and is found to the right of the community circle. The phrase 'rural people' refers to those living in rural and remote areas of Canada. The inner circle encompassing the phrase 'rural people' is at the center of the model, surrounded by the influences of local community factors, the rural or remote context and the resulting determinants of health, as well as the larger society. To the right of the inner, foreground circle is the fourth category, that of rural and remote nursing interactions, shaded in the same color as 'rural people'. Nursing interactions that occur with local rural or remote-living residents all transpire with the same community circle. These interactions are carried out best by knowing and being part of the community[50,52]. Pertinent attributes of Canadian rural and remote nursing practice are found in the right-hand box below the nursing interactions heading. One identified attribute, collaborative intra- and interprofessional teamwork, is critical for safe functioning of services and the wellbeing of patients[8,36,42,55]. Health outcomes, the final category of the framework, emerge directly from the combined effects of the larger society, the rural context, determinants of health, the community and interactions with nursing.

In sum, nurses' attention to the rural context, determinants of health and societal issues assists in better addressing the upstream or root causes[56] that affect the downstream health issues observed in daily practice.

Discussion

There is an ever-increasing complexity of delivering health care to rural and remote populations amidst personnel shortages, restricted resources and the COVID-19 pandemic[57-59]. Such immediate challenges often obscure the larger societal and socioeconomic forces affecting the day-to-day nursing efforts to improve patient health outcomes. As healthcare services only contribute an estimated 25% to the overall health of a population[60], health professionals need to collaborate with local rural and remote communities to reduce disparities. Nurses working in these areas must engage with others to advocate for safe and accessible housing, economic stability, clean water, nutritious food, education and social supports. Ideally, practicing nurses will find the framework useful to guide their assessments and strengthen their practice.

Resource and time restrictions of the project prevented consultation with several groups, which is a limitation. Indigenous and Francophone nurses were not part of the framework discussions, nor were community members living in rural or remote Canada. Incorporation of local knowledge[40,41], respect for local wisdom and cultural understanding[61] by healthcare providers are crucial for shared decision-making with community members. The acceptability of this document among our Indigenous and

Francophone nursing colleagues and rural communities remains to be determined through knowledge mobilization efforts by CARRN.

Educational programs or courses that focus on rural and remote nursing practice are limited in Canada. However, content on the determinants of health and the importance of intra- and interprofessional collaboration exists in all Canadian undergraduate nursing curricula. Recent research documented how both collaboration and social determinants of health factored into rural healthcare students' responses to clinical placements in Alberta, disrupted by the outbreak of COVID-19[62]. The rural and remote nursing practice framework document has the potential to be incorporated into educational programs with dedicated rural nursing content.

Methods to foster and monitor the uptake of the document are under discussion by the CARRN Executive. Collaborations with researchers to design studies to evaluate and test the use of the framework in practice, education and policy decisions are crucial to advance the scientific knowledge in rural and remote nursing[51]. Explorations could include testing the proposed linkages in the framework model, examining the effects of the framework content on student learning, as well as determining outcomes of policy decisions.

Conclusion

The resulting framework from this project acknowledges the impact of societal factors on the local community and how nursing and other healthcare professionals' interactions can improve the health of those living in rural and remote Canada. An opportunity exists to use the framework document to guide rural and remote practice, to impart a structure for nursing students in understanding the rural context, and to inform researchers and policymakers. Scrutiny of the framework by practitioners, educators, researchers and decision-makers is required to determine the overall utility of the framework.

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REFERENCES:

1 Stewart NJ, D'Arcy C, Pitblado JR, Morgan DG, Forbes D, Remus G, et al. A profile of registered nurses in rural and remote Canada. *Canadian Journal of Nursing Research* 2005; **37(1):** 122-145. Available: web link (Accessed 23 July 2020).

2 Andrews M-E, Stewart NJ, Pitblado JR, Morgan DG, D'Arcy C, Forbes D. Registered nurses working alone in rural and remote Canada. *Canadian Journal of Nursing Research* 2005; **37(1):** 14-33. Available: web link (Accessed 23 July 2020).

3 Kulig J, Stewart NJ. Fact sheet: Aboriginal nurses in rural and remote Canada. *The Nature of Rural & Remote Nursing* 2006; **4.** Available: web link (Accessed 28 February 2022).

4 Penz K, D'Arcy C, Stewart N, Kosteniuk J, Morgan D, Smith B. Barriers to participation in continuing education activities among rural and remote nurses. *Journal of Continuing Education in Nursing* 2007; **38(2):** 58-66. DOI link, PMid:17402377

5 Medves J, Paterson M, Chapman C, Young J, Tat E, Bowes D, et al. A new inter-professional course preparing learners for life in rural communities. *Rural and Remote Health* 2008; **8(1):** 836. DOI link (Accessed 28 February 2022).

6 Martin-Misener R, MacLeod, MLP, Vogt C, Morton M, Banks C, Bentham D. 'There's rural and then there's rural': advice from nurses providing primary healthcare in northern remote communities. *Canadian Journal of Nursing Leadership* 2008; **21(3):** 54-63. DOI link, PMid:18815471

7 MacLeod MLP, Stewart JN, Kulig JC, Anguish P, Andrews ME, Banner D, et al. Nurses who work in rural and remote communities in Canada: a national survey. *Human Resources for Health* 2017; **15(34).** Available: web link (Accessed 27 July 2020).

8 MacLeod M, Kulig J, Stewart N. Lessons from 20 years of research on nursing practice in rural and remote Canada. *Canadian Nurse* 2019; **115(3).** Available: web link

9 MacLeod MLP, Penz KL, Banner D, Jahner S, Koren I, Thomlinson A, et al. Mental health nursing practice in rural and remote Canada: insights from a national survey. *International Journal of Mental Health Nursing* 2022; **31(1):** 128-141. DOI link, PMid:34668279

10 British Columbia Ministry of Health. Rural health services in BC: a policy framework to provide a system of quality care. *Cross sector policy discussion paper* Available: web link (Accessed 9 August 2020).

11 Registered Nurses Association of Ontario. *Coming together, moving forward: building the next chapter of Ontario's rural, remote & northern nursing. Workforce report.* 2015. Available: web link (Accessed 28 February 2022).

12 Federal/Provincial/Territorial (FTP) Committee on Health Workforce. *A vision for the future of nursing in Canada.* 2020. Available: web link (Accessed 9 August 2020).

13 World Health Organization. *State of the world's nursing. Investing in education, jobs and leadership.* 2020. Available: web link (Accessed 9 August 2020).

14 Canadian Association for Rural & Remote Nursing. *Welcome: a national organization for rural and remote nursing.* 2022. Available: web link (Accessed 28 February 2022).

15 Canadian Association for Rural & Remote Nursing. *Rural and remote nursing practice in Canada: an updated discussion paper.* 2020. Available: web link (Accessed 28 February 2022).

16 Statistics Canada. *Population growth in Canada's rural areas,*

2016 to 2021. 2022. Available: web link (Accessed 28 February 2022).

17 Young TK, Chatwood S, Ng C, Young RW, Marchildon GP. The north is not all the same: comparing health system performance in 18 northern regions of Canada. *International Journal of Circumpolar Health* 2019; **78:** 1697474. DOI link, PMid:31782352

18 MacLeod ML, Stewart NJ, Kosteniuk JG, Penz KL, Olynick J, Karunanayake CP, et al. Rural and remote registered nurses' perception of working beyond their legislated scope of practice. *Nursing Leadership* 2019; **32(1):** 20-29. DOI link, PMid:31228342

19 Canadian Institute for Health Information. *Nursing in Canada, 2020 – Data tables. Table 5*. 2021. Available: web link (Accessed 1 March 2022).

20 Lopez V, Anderson J, West S, Cleary M. Does the COVID-19 pandemic further impact nursing shortages? *Issues in Mental Health Nursing* 2022; **43(3):** 293-295. DOI link, PMid:34586955

21 Wang D, Chonody JM, Krase K, Luzuriaga L. Coping with and adapting to COVID-19 in rural United States and Canada. *Families in Society: The Journal of Contemporary Social Services* 2021; **102(1):** 78-90. DOI link

22 Petrie S, Carson D, Peters P, Hurtig A-K, LeBlanc M, Simpson H, et al. What a pandemic has taught us about the potential for innovation in rural health: commencing an ethnography in Canada, the United States, Sweden, and Australia. *Frontiers in Public Health* 2021; **9:** 768624. DOI link, PMid:34950628

23 Ministry of Health and Long-term Care. *Rural and northern health care framework/plan. Stage 1 report.* 2017. Available: web link (Accessed 25 February 2022).

24 Canadian Population Health Initiative. *How healthy are rural Canadians? An assessment of their health status and health determinants.* (Figure 1). 2006. Available: web link (Accessed 9 August 2020).

25 Wilson CR, Rourke J, Oandasan IF, Bosco C, and the Rural Road Map Implementation Committee. Progress made on access to rural health care in Canada. *Canadian Family Physician* 2020; **66(1):** 31-36. Available: web link (Accessed 2 March 2022).

26 Beckstead D, Brown WM, Guo Y, Newbold KB. *Cities and growth: earning levels across urban and rural areas: the role of human capital.* 2010. Available: web link (Accessed 17 August 2020).

27 Statistics Canada. *2016 Census Aboriginal community portraits.* 2020. Available: web link (Accessed 17 August 2020).

28 Canadian Council on Social Determinants of Health. *A review of frameworks on the determinants of health.* 2015. Available: web link (Accessed 10 August 2020).

29 Government of Canada. *Social determinants of health and health inequalities.* 2019. Available: web link (Accessed 10 August 2020).

30 Reid S. The rural determinants of health using critical realism as a theoretical framework. *Rural and Remote Health* 2019; **19:** 5184. DOI link

31 Ayers-Kawakami J, Paquiao DF. Addressing health disparities in rural populations: the case of Hawaii county. *Journal of Nursing Practice Applications & Reviews of Research* 2017; **7(2):** 40-48. DOI link

32 Henly SJ, Tyree EA, Lindsey DL, Lambeth SO, Burd CM. Innovative perspectives on health services for vulnerable rural populations. *Family & Community Health* 1998; **21(1):** 22-31. DOI link

33 Leight SB. The application of a vulnerable populations conceptual model to rural health. *Public Health Nursing* 2003; **20(6):** 440-448. DOI link, PMid:14629675

34 Knight K, Kenny A, Endacott R. From expert generalists to ambiguity masters: using ambiguity tolerance theory to redefine the practice of rural nurses. *Journal of Clinical Nursing* 2016; **25(11-12):** 1757-1765. DOI link, PMid:27139173

35 Shreffler JM. An ecological view of the rural environment: levels of influence on access to health care. *Advances in Nursing Science* 1996; **18(4):** 48-59. DOI link, PMid:8790689

36 Smith T, McNeil K, Mitchell R, Boyle B, Ries N. A study of macro-, meso- and micro-barriers and enablers affecting extended scopes of practice: the case of rural nurse practitioners in Australia. *BMC Nursing* 2019; **18(1):** 14. DOI link, PMid:30976197

37 Long KA, Weinert C. Rural nursing: developing the theory base...including commentary by Nichols E with author response... originally printed in Scholarly Inquiry for Nursing Practice, Vol. 3, No. 2, Summer, 1989, pp. 113-127. *Scholarly Inquiry for Nursing Practice* 1999; **13(3):** 257-279.

38 Lee HJ, McDonagh MK. Updating the rural nursing theory base. In: CA Winters, HJ Lee (Eds). *Concepts, theory, and practice.* 3rd Edn. New York. Springer, 2010; 19-39.

39 Keyzer, DM. Reflections on practice: defining rural nursing care. *Australian Journal of Rural Health* 1998; **6(2):** 100-104. DOI link, PMid:9708090

40 Bourque H, Gunn K, MacLeod M. A pathway for implementing the nurse practitioner workforce in a rural and remote health region. *Canadian Journal of Nursing Leadership* 2020; **33(2):** 44-53. DOI link, PMid:32573404

41 Hauenstein EJ, Glick DF, Kane C, Kulbok P, Barbero E, Cox K. A model to develop nurse leaders for rural practice. *Journal of Professional Nursing* 2014; **30(6):** 463-473. DOI link, PMid:25455327

42 Bidwell S, Copeland A. A model of multidisciplinary professional development for health professionals in rural Canterbury, New Zealand. *Journal of Primary Health Care* 2017; **9(4):** 292. DOI link, PMid:29530141

43 Alzghoul MM, Jones-Bonofiglio K. Nurses' tension-based ethical decision making in rural acute care settings. *Nursing Ethics* 2020; **27(4):** 1032-1043. DOI link, PMid:32223495

44 White D. Development of a rural health framework: implications for program service planning and delivery. *Healthcare Policy/Politiques de Santé* 2013; **8(3):** 27-42. DOI link

45 Wakerman J, Humphreys J. Sustainable primary health care services in rural and remote areas: innovation and evidence. *The Australian Journal of Rural Health* 2011; **19(3):** 118-124. DOI link, PMid:21605224

46 Stanton MP, Packa D. Nursing case management: a rural practice model. *Lippincott's Case Management* 2001; **6(3):** 96-103. DOI link, PMid:16397994

47 Bourke L, Humphreys JS, Wakerman J, Taylor J. Understanding drivers of rural and remote health outcomes: a conceptual framework in action. *Australian Journal of Rural Health* 2012; **20:** 318-323. DOI link, PMid:23181816

48 Ryan-Nicholls K, Racher F. Investigating the health of rural communities: toward framework development. *Rural and Remote Health* 2004; **4(1):** 244. DOI link (Accessed 28 July 2020).

49 Muirhead S, Birks M. Roles of rural and remote registered nurses in Australia: an integrative review. *Australian Journal of Advanced Nursing* 2020; **37(1).** (Accessed 12 February). DOI link

50 Tarlier DS, Johnson JL, Whyte NB. Voices from the wilderness: an interpretive study describing the role and practice of outpost nurses. *Canadian Journal of Public Health* 2003; **94(3):** 180-184. DOI link, PMid:12790490

51 Williams M, Andrews J, Zanni K, Fahs P. Rural nursing: searching for the state of the science. *Online Journal of Rural Nursing and Health Care* 2012; **12(2):** 102-112. DOI link

52 Zibrik KJ, MacLeod MLP, Zimmer LV. Professionalism in rural acute-care nursing. *Canadian Journal of Nursing Research* 2010; **42(1):** 20-36. Available: web link (Accessed 20 August 2020).

53 Yonge O, Jackman D, Luhanga F, Myrick F, Oosterbroek T, Foley V. 'We have to drive everywhere': rural nurses and their precepted students. *Rural and Remote Health* 2019; **19(3):** 5347. DOI link, PMid:31362512

54 Blanchet Garneau A, Farrar H, Fan H, Kulig J. Applying cultural safety beyond Indigenous contexts: insights from health research with Amish and Low German Mennonites. *Nursing Inquiry* 2017; **25(1):** 1-9. DOI link, PMid:28569416

55 Cant R, Birks M, Porter J, Jacob E, Cooper S. Developing advanced rural nursing practice: a whole new scope of responsibility. *Collegian* 2011; **18(4):** 177-182. DOI link, PMid:22256558

56 National Collaborating Centre for Determinants of Health. *Let's talk: moving upstream.* 2014. Available: web link (Accessed 10 August 2020).

57 Ariste R. Availability of health workforce in urban and rural areas in relation to Canadian seniors. *The International Journal of Health Planning and Management* 2019; **34(2):** 510-20. DOI link

58 Butts J, McIntosh T, Zambory T, Gallant B. Rural Canada and healthcare delivery. *The Recovery Project Podcast* 2020. Available: web link (Accessed 2 March 2022).

59 Rauch K, deJager M. Impacts of Covid-19 on rural health care workers in Manitoba. *Research Connection* 2021; **3(2):** 1-2. Available: web link (Accessed 4 March 2022).

60 The Standing Committee on Social Affairs, Science and Technology; the Honorable Wilbert Joseph Keon, Chair, and the Honorable Lucie Pepin, Deputy Chair. *A health productive Canada: a determinant of health approach. Final report of the Senate Subcommittee on Population Health.* 2009. Available: web link (Accessed 10 August 2020).

61 Coyle, M, Al-Motlaq MA, Mills J, Francis K, Birks M. An integrative review of the role of registered nurses in remote and isolated practice. *Australian Health Review* 2010; **34(2):** 239. DOI link, PMid:20497740

62 Jackman D, Konkin J, Yonge O, Myrick F, Cockell J. Crisis and continuity: rural health care students respond to the COVID-19 outbreak. *Nurse Education in Practice* 2020; **48:** 102982. DOI link, PMid:32980557