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Review

Nurse practitioner caseload in primary health care: Scoping review

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ABSTRACT

Objectives: To identify recommendations for determining patient panel/caseload size for nurse practitioners in community-based primary health care settings.
Design: Scoping review of the international published and grey literature.
Data sources: The search included electronic databases, international professional and governmental websites, contact with experts, and hand searches of reference lists. Eligible papers had to (a) address caseload or patient panels for nurse practitioners in community-based primary health care settings serving an all-ages population; and (b) be published in English or French between January 2000 and July 2014. Level one testing included title and abstract screening by two team members. Relevant papers were retained for full text review in level two testing, and reviewed by two team members. A third reviewer acted as a tiebreaker. Data were extracted using a structured extraction form by one team member and verified by a second member. Descriptive statistics were estimated. Content analysis was used for qualitative data.
Results: We identified 111 peer-reviewed articles and grey literature documents. Most of the papers were published in Canada and the United States after 2010. Current methods to determine panel/caseload size use large administrative databases, provider work hours and the average number of patient visits. Most of the papers addressing the topic of patient panel/caseload size in community-based primary health care were descriptive. The average number of patients seen by nurse practitioners per day varied considerably within and between countries; an average of 9–15 patients per day was common. Patient characteristics (e.g., age, gender) and health conditions (e.g., multiple chronic conditions) appear to influence patient panel/caseload size. Very few studies used validated tools to classify patient acuity levels or disease burden scores.
Discussion: The measurement of productivity and the determination of panel/caseload size is complex. Current metrics may not capture activities relevant to community-based primary health care nurse practitioners. Tools to measure all the components of these role are needed when determining panel/caseload size. Outcomes research is absent in the determination of panel/caseload size.
Conclusion: There are few systems in place to track and measure community-based primary health care nurse practitioner activities. The development of such mechanisms is an important next step to assess community-based primary health care nurse practitioner productivity and determine patient panel/caseload size. Decisions about panel/caseload size must take into account the effects of nurse practitioner activities on outcomes of care.

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What is known about this topic

- Identification of the appropriate workload for primary health care nurse practitioners has important implications for the quality and safety of patient care. In primary health care, common metrics are patient panel size and the number of patients seen per day.
- Panel size refers to the number of patients regularly under the care of a full-time equivalent primary care provider. Productivity represents the measure of the work completed during a specific period of time. Information about panel size and productivity can inform resource allocation and health human resource planning.
- Current methods to assess panel size have used large administrative databases, provider work hours, and average number of patient visits based on past utilization of health care resources rather than actual health care needs.

What the paper adds

- The average number of patients seen by nurse practitioners per day in community-based primary health care varies considerably within and between countries; a range of 9–15 patients per day is reported. Reported nurse practitioner panel sizes range from less than 500 to over a thousand patients.
- There is limited research that estimates the appropriate patient panel size for nurse practitioners in primary health care. To make such determinations, practice settings require systems, such as rosters or registries to identify and describe the number and characteristics of the patient population.
- Specific patient characteristics (e.g., age, gender, socioeconomic status) and health conditions (e.g., multiple chronic conditions), provider (e.g., years of experience) and organizational characteristics (e.g., rural location, number of exam rooms, support staff) appear to influence the workload and patient panel size of nurse practitioners.

1. Introduction

In many countries around the world nurse practitioners provide primary health care for patients in community-based primary health care settings (Schober, 2013). While global experience with deployment of nurse practitioners varies, many countries now have at least a decade of experience with implementation of the role (Duffield et al., 2009). As the role gains some stability in health care systems, attention is shifting to focus on questions about the productivity and optimization of nurse practitioner practice to address the health service needs of populations. This is the experience in Canada where health reforms of the past decade emphasizing improvements in accessibility and interprofessional team-based care have led to increases in the numbers of nurse practitioners from 1626 in 2008 to 3157 in 2012 (Canadian Institute for Health Information, 2012). Legislation and regulation support the role in every jurisdiction and barriers to nurse practitioner practice, for example, prescribing of controlled drugs and substances, and admitting and discharging patients from hospital, are gradually being removed (Bryant-Lukosius et al., 2014). While the process of nurse practitioner integration into health systems is not complete, progress toward achieving this goal is occurring. Increasingly, the question is no longer if nurse practitioners should be introduced in primary health care, but rather, how should these roles be optimally implemented to meet patient and population health needs in a particular context and what quality indicators should be used to evaluate their practice. In fact, the impetus for this scoping review originated from the country's chief nursing officers and their policy questions related to nurse practitioner productivity and panel size.

While workload and productivity are familiar concepts to most nurses, patient panel size may not be. Workload refers to the amount of time that it takes to do activities (Muldoon et al., 2012). Identification of an appropriate workload for nurse practitioners who work in primary health care is a complex issue requiring a balance between attending to the needs of individual patients and the needs of a rostered or geographically defined patient population. Similarly, different goals for improving health care can create competing demands on nurse practitioner workload. For example, goals to increase access to care generally require quick and short patient appointment times, while goals to improve chronic disease outcomes may require longer times to address complex health and social needs, promote self-management and facilitate systems navigation.

Productivity is a related concept that refers to how often the activities within a workload occur (Muldoon et al., 2012). Productivity depends on a variety of factors, including the intensity of work, how work is organized, technological contributions, and involvement by other professionals (Birch et al., 2009). Analyses of health human resources productivity require health human resource inputs to be linked to health outcomes (Evans et al., 2010). Administrators currently use metrics such as the number of new patients, scheduled patient visits, wait times, and procedure volumes to determine adequate staffing in ambulatory care settings (Dickson et al., 2010). In primary health care, measures of productivity include patient panel size, length of patient appointment times, and number of daily patient visits. Panel size, sometimes also called caseload, refers to the number of patients receiving care on a regular basis from a full-time equivalent primary health care provider (Murray et al., 2007).

Benchmarking panel/caseload size, workload and productivity must take into account the type of care provided, for example, urgent care for minor illnesses, wellness care, and chronic disease prevention and management. Off-site care, for example, home visits and care provided to nursing home residents or homeless shelters should also be considered. Information about workload, productivity and patient panel size is needed to inform decisions about resource allocation and health human resource planning (Dickson et al., 2010).

The aim of this scoping review was to identify factors that influence the workload, productivity and patient panel size of nurse practitioners in community-based primary health care settings and recommend considerations for patient panel size determination. The research questions were: (1) How are patient panels/caseloads for nurse practitioners in a community based primary health care all-ages practice being determined in Canada and internationally? (2) What individual, organizational and systemic factors should be considered in determining patient panel/caseload for nurse practitioners in a community-based primary health care practice all-ages practice? (3) What principles should guide the determination of the patient panel/caseload for nurse practitioners in a community-based primary healthcare practice all-ages practice? (4) What are the recommended patient panels/caseloads in Canada and internationally? and (5) What are the strengths and limitations of the approaches and metrics that are being used to determine