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A Systematic Scoping Literature Review of Incorporating a Total Quality Culture Within Radiotherapy Staffing Models: A Management Strategy to Improve Patient Safety and Quality of Care in Radiation Therapy Departments

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ABSTRACT

Background: Radiation therapy (RT) staffing models have traditionally been based on the number of linear accelerators available at cancer centers (i.e., task-focused). RT treatments are becoming increasingly complex and a novel staffing model should be established that incorporates a total quality culture (TQC) to promote process-focused performance by using a patient-centered approach throughout the entire organization.

Objectives: The objective of this article was to conduct a systematic scoping literature review of publications that study TQC within hospitals. The second objective was to specifically identify the publications that report on the relationship between TQC and their current RT staffing model.

Methods and Results: A systematic scoping literature review was conducted in July 2010 using the Web of Science, Pub Med, and Google Scholar databases. Nine studies were identified that discussed TQC in hospitals. Five of the nine studies found that a TQC is positively correlated with patient satisfaction in hospitals. The remaining four studies discussed RT staffing based on the number of linear accelerators and did not mention a TQC.

Conclusions: There are few studies that focus on the incorporation of a TQC in hospitals and RT staffing models. RT staffing models should be updated with an emphasis on ''process-oriented'' results. A novel RT model that includes a TQC strategy should allow radiation therapists within RT departments to be more autonomous in patient care and allowed to make more decisions in the treatment of patients.

RÉSUMÉ

Contexte: Les modèles de dotation en radiothérapie ont toujours reposé sur le nombre d'accélérateurs linéaires disponibles dans les centres de traitement du cancer, avec par conséquent une concentration sur les tâches. Les traitements de radiothérapie deviennent de plus en plus complexes et il faut établir un nouveau modèle de dotation incluant une culture de la qualité pour favoriser le rendement axé sur les procédés en utilisant une approché centrée sur le patient dans tout le milieu.

Objectifs: Le premier objectif consistait à examiner la culture de la qualité dans une structure hospitalière. Le deuxième objectif consistait à produire des rapports sur les articles qui examinaient la culture de la qualité en relation avec les modèles de dotation en radiothérapie.

Méthodes: Une analyse documentaire systématique a été menée en juillet 2010 au moyen du Web scientifique Pubmed, et de bases de données Google.

Résultats: On a relevé neuf études qui abordaient la culture de la qualité dans les hôpitaux. Cinq des neuf études concluaient que la culture de la qualité est corrélée favorablement à la satisfaction des patients dans les hôpitaux. Les quatre autres études abordaient la question de la dotation en radiothérapie d'après le nombre d'accélérateurs linéaires et ne mentionnaient pas la culture de la qualité.

Conclusions: Peu d'études se penchent sur l'intégration de la culture de la qualité dans les hôpitaux et sur les modèles de dotation en radiothérapie. Les modèles de dotation en radiothérapie devraient être mis à jour avec un accent sur les résultats axés sur les procédés. Un nouveau modèle devrait prévoir des radiothérapeutes dans les services de radiothérapie qui auraient plus d'autonomie pour le soin des patients et qui pourraient prendre plus de décisions sur le traitement des patients.

Keywords: Patient safety; radiation therapy; staffing models; quality culture; total quality management

Introduction

Traditionally, staffing models are considered to be a tool to establish appropriate staffing size, and they formally divide groups and coordinate job-related tasks [1, 2]. Radiation therapy (RT) staffing models have centered on the number

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of linear accelerator machines used to treat cancer patients, and recommendations on international standards have not been reviewed in approximately a decade [3–5]. Given the increasing complexity of RT practice, continuous improvement strategies involving therapists in all aspects of treatment delivery and care are necessary to ensure patient safety and quality of care for both patients and staff. This may be achieved by revising the current RT staffing model to strategically support a total quality culture (TQC) [4, 6–9].

A TQC is a successful management strategy defined as the unique values, beliefs, and norms created by all members of an organization whereby continuous improvement within the entire organization is possible through TQC strategies such as congruency of values between employees and management, teamwork, empowerment, and reward [6]. A TQC reduces the hierarchical staffing structure to one level and promotes intra- and interdisciplinary teamwork and equality throughout the organization in order to facilitate continuous improvement strategy to ultimately improve patient safety and quality of care. RT departments in hospitals within cancer centers continue to face staffing shortages [10] and the role of TQC is becoming increasingly important because integration of organizational culture has shown to improve hospital and team performance as well as quality of patient care and safety [11]. However, buy-in from all members in an organization is required for TQC to be effectively integrated [12]. Moreover, incorporating a TQC strategy within RT staffing models would possibly allow for efficient diffusion of these values throughout the organization.

There are no systematic literature reviews that summarize the evidence of implementing a TQC within hospitals and the specific implications of incorporating this management strategy into RT staffing models. Such an analysis would provide value to decision-makers, clinicians, and academics in radiation oncology in developing future research in this field of study. The objective of this article was to conduct a systematic scoping literature review of publications that study TQC within hospitals. The second objective was to specifically identify the articles that report on the relationship between TQC and their current RT staffing models.

Methods

A systematic scoping literature review was conducted in July 2010 using the Web of Science, Pub Med, and Google Scholar databases to investigate the effects of TQC in hospitals. Many search terms were used including ''quality culture,'' ''total quality management,'' ''organizational culture,'' ''radiation therapy staffing models,'' ''radiation oncology staffing models,'' ''patient safety,'' and ''nurse staffing models.'' Appropriate articles and abstracts were reviewed and references from these sources were also manually reviewed for additional relevant publications. Any non-English publications were excluded from the review.

Results

There were nine studies involving 278 hospitals that discussed TQC in relation to their organizational structure within Canada, the United States, Europe, and Australia. A variety of methods were used to conduct the studies including questionnaires (n = 6), interviews (n = 1), workshops (n = 1), and descriptive study (n = 1).

Hospital and employee characteristics and TQC

A major finding was that a hierarchical structure, which is present in most public hospitals, does not support a TQC [6, 11–14]. Moreover, larger hospitals were shown to have a more bureaucratic organizational structure, which is not consistent with a TQC [6]. Of these publications, none were related to RT staffing models.

Jones et al. [14] conducted an open-ended in-depth interview discussing the positive and negative aspects of change involving employees (n = 61) in a major Australian tertiary hospital. The interviewees included both professional and nonprofessional employees that had supervisory, nonsupervisory, or executive roles. Their findings showed that executives were more positive about organizational change, and differences existed in all three hierarchical levels. The study conducted by Seren and Baykal [13] evaluated physicians and nurses (n = 3,067) in eight hospitals. A proportional sampling method was used to select eligible participants and an information form and culture/attitude scales were used for data collection. Findings showed that the collaborative culture was most dominant in private hospitals (36.9%), whereas the power culture was most dominant in public hospitals (52.7%).

Meterko et al. [13] distributed survey questionnaires regarding culture and patient satisfaction to employees (n = 16,405) in 125 Veterans Administration hospitals. A teamwork culture was positively associated with both inpatient and outpatient satisfaction. The study conducted by Ancarani et al. involved questionnaires administered to public hospitals (n = 7) in Italy about organizational climate and patient satisfaction. The organizational climate questionnaire was based on the competing value framework and the patient satisfaction survey used the instrument SERVQUAL. Findings revealed that the autonomy and development of members in an organization had a positive impact on patient satisfaction. Shortell et al. sent self-administered questionnaires to individuals (n = 7,000) in 61 hospitals involving continuous quality improvement and total quality management. They found that there was a significant relationship between group/developmental cultures involving teamwork, support, development of everyone's potential, and a willingness to take on a degree of risk. A previous study conducted in 2003 showed that Western cultures tend to focus on individual goals, whereas countries in Asia, Africa, and South America tend to focus on group goals [7]. A TQC has proven to improve patient safety because this type of culture supports