Nursing Informatics 2016
W. Sermeus et al. (Eds.)

doi:10.3233/978-1-61499-658-3-412

Advancing the Digital Health Discourse for Nurse Leaders

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Abstract. Limited informatics competency uptake is a recognized nursing leadership challenge impacting digital practice settings. The health system's inability to reap the promised benefits of EHRs is a manifestation of inadequate development of informatics competencies by chief nurse executives (CNEs) and other clinicians. Through the application of Transformational Leadership Theory (TL), this discussion paper explains how informatics competencies enable CNEs to become transformational nursing leaders in digital health allowing them to meet their accountabilities to lead integrated, high-quality care delivery through evidence based practices (EBPs). It is proposed that successful CNE eHealth sponsors will be those armed with informatics competencies who can drive health organizations' investment in technology and innovation. Finally, some considerations are suggested in how nurse informaticists globally play a critical role in preparing our existing and future CNEs to fulfill their transformational leader roles in the digital age.

Keywords. digital health, informatics competencies, transformational nursing leadership

1. Introduction

According to Simpson, information technology (IT) implementations are political processes that occur in cost-controlled, high-tech health care environments [1]. Chief Nurse Executives (CNEs) who are politically naïve and lack contemporary informatics competency[2] (skills/knowledge) may acquiesce to others for IT decisions such as, electronic patient record (EPR[3]) selection that fails to meet nursing practice needs [1,3]. Further, these CNEs who are informatics illiterate may be less influential and disadvantaged in executing new eHealth project sponsor roles successfully for EPR implementations [4-5]. Informatics competency adoption is a recognized ongoing leadership challenge; it may also be a manifestation of the health system's inability to reap the promised benefits of EPRs [6-8]. Given the importance of EPRs in facilitating

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[2] Broadly envisioned, a nurse leader who has proficiency in informatics literacy, computer literacy and informatics competency skills to lead clinical transformation in technology enabled healthcare settings [2].

[3] Electronic Medical Records (EMRs) terminology used in the United States is synonymous with the term, electronic Patient Records (EPRs) in the Canadian context. Electronic Health Records (EHRs) represent integration of relevant patient information from EMRs/EPRs accessible to authorized providers across the continuum of care.

sustainable, publicly funded health systems; successful IT implementations are highly dependent on CNEs in hospital settings [9]. Therefore, CNEs who already are charged with leading and directing strategies to improve patient and organizational outcomes and advance clinical practice must now be informatics literate to execute their roles as effective eHealth sponsors [10-12]. This author argues that successful CNE eHealth sponsors of the digital era will be those *armed* with informatics competencies and represent the next generation of transformational nurse leaders who will drive health organizations' investment in technology and innovation [13-15]. This discussion paper will apply Transformational Leadership Theory (TL) to explain how informatics competencies enable CNEs to be recognized as leaders in the digital age in meeting their accountabilities to lead integrated, high-quality care delivery through evidence based practices (EBPs) [16-17].

2. Methods

This paper is prepared based upon a literature review spanning more than three years of peer reviewed and grey, English language literature published from 1995. The time frame was chosen to investigate this topic because of the anticipated limited research findings, opportunity to monitor industry trends, and identify new themes/issues occurring across evolving digital health landscapes. Only publications and research related to CNE transformational nurse leaders, accountabilities in digital health settings, informatics competency and EPR implementations are included. Eminent TL theorists, Burns, Bass and Avolio's work is applied to support the in-depth analysis that yields the link between TL, informatics competencies and CNEs [16-17].

3. Results

3.1 Transformational Leadership Theory (TL) and Informatics Competencies

Transformational Leadership Theory (TL) has *four dimensions:* idealized influence, inspirational motivation, intellectual stimulation and idealized consideration [16-17]. *Idealized influence* or charisma are consistent leader behaviours based upon values, principles and ethics that resonate with followers. *Inspirational motivation* occurs when the leader gains commitment and inspires followers with a shared vision. *Intellectual stimulation* reflects leader behaviours that challenge the status quo, facilitate innovative thinking and risk-taking in implementing solutions. *Individualized consideration* relates to leader behaviours that attend to individual needs through listening, coaching and mentorship [16,18-19]. As an adjunct to TL dimensions and behaviours, the *concept of e-leadership* was introduced to support how *advanced information technology,* rich environments (the context) interact with organizational leadership systems (i.e., people, processes); as information is a fundamental building block of how organizations function [20]. E-leadership updates transformational leadership theory by demonstrating how roles (i.e., CNE eHealth sponsors) that adopt one or more of the four TL dimensions, result in leadership behaviours that transform digital environments (i.e., hospitals). Therefore, digital hospitals that are successfully transformed by CNE transformational leaders offer clinicians practice environments where effective, safe, quality care is enabled through evolving health IT systems.

The American Organization of Nurse Executives (AONE) [21] has developed and endorsed CNE competencies that include nursing informatics competencies. Based upon seminal informatics research, nursing informatics competencies and behaviours for nurse leaders fall under three main concepts: informatics literacy, computer literacy and informatics competency [2,22]. Informatics literacy (knowledge) behaviours are demonstrated when nurses can leverage (interpret) data/information and apply (knowledge) or use it appropriately (e.g., knowledge of data issues and information system concepts). Computer literacy behaviours are evident when nurse executives leverage software applications (e.g., email/business/EPR applications) proficiently in everyday practice. Informatics competency skills are demonstrated by proficiency in advocating for and leading IT system procurements (i.e., requirements, selection and implementation) and in executing relevant practice policies (e.g., privacy/security and confidentiality) as eHealth sponsors [2,5,21,23].

3.2 The Link: Transformational Leadership Theory (TL) and Informatics Competencies

Nurse leaders armed with nursing informatics competencies are positioned to lead, influence and make changes as transformational leaders in digital environments. CNEs who already are charged with leading and directing strategies to improve patient and organizational outcomes, advance clinical practice and who are informatics literate will also successfully execute their eHealth roles [2,5,10-12,15,24]. Amendola's nursing leadership study emphasizes the link between requisite informatics competencies and the leadership style for effective nurse leaders [23]. His description of leader behaviours and competencies match the four dimensions of TL behaviours and informatics competencies. Specifically, when a CNE is transformational in style, she/he will know that informatics competencies, skills and knowledge affect how he/she leads clinical transformation (e.g., EPR implementations) in digital practice settings.

4. Discussion

Malloch and Melnyk urge executive nurse leaders to adopt contemporary leadership approaches that align with the information era [25]. Further, leaders must discard traditional models of bureaucratic leadership (i.e., command/control) and adopt content (i.e., new informatics competencies) and behaviours (i.e., facilitation, collaboration, transdisciplinary teamwork, evidence, and point of care experience excellence) that are congruent with the digital context in which healthcare occurs [25]. CNE eHealth sponsors who are armed with informatics competencies are able to operationalize: idealized influence (role modeling that optimizes patient care), inspirational motivation (through a collective vision that inspires meaning to transdisciplinary teamwork in evolving IT enabled environments), intellectual stimulation (challenging the status quo, engaged in advancing the culture of healthcare with EBPs) and individual consideration (attending to the learning needs of a multi-generational workforce, and leading nurses in point of care, service excellence); the TL dimensions and behaviours of contemporary transformational nurse leaders [18-19].

Collaborative transformational leadership behaviours and skills (i.e., mentorship, support, informatics knowledge) that are applied in the current health system context (i.e., organizational structures, IT, nursing resources) offer hope for CNEs to address nursing practice and program impacts. Specifically, transformational CNEs can begin

to mitigate the unfulfilled promises of EPRs by improving clinical care delivery through the necessary work redesign efforts (e.g., clinical processes, IT design enhancements) that will position nurses to deliver evidence-based, high-quality, value-driven health services [8]. Transformational nursing leaders have a key role in creating infrastructures that influence organizational factors, processes and expectations, to enable sustainability of EBPs [26].

At the strategic level (i.e., corporate/policy tables), transformational CNEs armed with informatics will be seen initiating and leading eHealth discussions such as advocating for ICT solutions that meet patient quality initiatives, nursing practice and funding needs. Further, these successful CNE eHealth sponsors will be positioned to provide expert advice to professional regulatory bodies that will inform and align digital health practice standards. This describes transformational leadership in action when the CNE operationalizes: idealized influence (role modeling), inspirational motivation (clear vision of modernizing, professional practice standards/policies), intellectual stimulation (challenging the status quo, advancing healthcare through optimizing digital solutions) and individual consideration (attending to the fiscal environment and practice needs involved in sustainable clinical transformation).

Nurse informaticians (NIs) are the catalysts who need to play critical roles in building informatics capacity for all nurses. Upfront, two practical considerations that leverage NI's expertise must be targeted at supporting CNEs in digital health settings. NIs need to self-organize and create global NI network teams that develop EPR implementation best practice guidelines (EPR-BPGs) as recommended next steps. These EPR-BPGs will offer hospital CNEs guidance in developing EPR implementation strategies that balance organizational demands (e.g., resources), social demands (i.e., user requirements) and technical demands (i.e., IT needs) [27]. Concurrently, the NI network team members need to establish innovative NI/CNE dyad partnerships that facilitate informatics skills/knowledge transfer, enhancing the CNE's capacity as an effective eHealth sponsor in clinical transformation. These new dyads could be initiated either through formalized roles (i.e., Chief Nursing Informatics Officer) or informal NI mentorship roles that *enable/coach* CNEs in leading EPR implementations successfully.

5. Summary

CNEs who can fulfill this new transformational leadership vision by embracing informatics competencies will take the lead and assume pivotal clinical transformation roles in 21st century health care systems. CNEs who adopt informatics competencies and implement TL leadership behaviours will position nurses and the nursing profession to achieve its preferred future. A future where nurses are perceived by patients and professionals alike as knowledge workers, providing the leadership essential to quality care, and demonstrating nursing's unique contributions to fiscal health through clinically relevant, evidenced based practices [28].

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