Exploring the Relationship between Governance Models in Healthcare and Health Workforce Transformation

A Systematic Review

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Executive Summary

Over the last decade, Canadian health systems have undergone numerous changes, yet significant transformational change in the health system continues to elude us. Health system governance drives the direction, type, accountability, and performance of service delivery and hence, is key to improving health system performance. While the literature on formal health system governance is growing, little attention is paid to concurrent changes in the health workforce required to support health system transformation. The health workforce is directly linked to the distribution of resources, health service delivery models, health system performance, and professional accountability.

Successful health system change is premised on the availability of an educated and skilled workforce, an appropriate skill mix, and the efficient and effective use of existing resources. In light of the current focus on delivering high quality, efficient, and cost-effective care, there is a need for *workforce transformation*. The objective of this systematic review funded by the Canadian Institutes of Health Research was to examine the relationship between health system governance and workforce transformation. Particular attention was paid to how specific governance elements facilitate transformational change in the workforce to ensure the effective use of all health providers.

In accordance with standard systematic review procedures, the research team screened more than 5900 peer-reviewed and grey abstracts found in database searches, website searches, and bibliographies. Searches were limited to Canada and other countries with health systems similar to Canada's (i.e., Sweden, the United Kingdom, the Netherlands, New Zealand, Australia, and the United States). One hundred and forty-nine articles were retained and extracted for this review. A Rapid Engagement Group composed of prominent health system experts was formed to guide the research team and included topics were prioritized based on their recommendations.

Six governance types were identified in the empirical literature: shared governance, Magnet accreditation, professional development initiatives, quality improvement initiatives, organization of health care delivery, and funding models.

Key messages from our results are as follows:

- Governance initiatives aimed at improving provider engagement (i.e., shared governance, Magnet accreditation, and professional development) were successful in changing at least some of the targeted workforce outcomes, such as job satisfaction, retention, and collaborative practice.
- Clinical governance and other quality improvement initiatives were generally effective in improving provider behaviour such as using evidence to inform decisions and were usually well-received by providers. The research reviewed

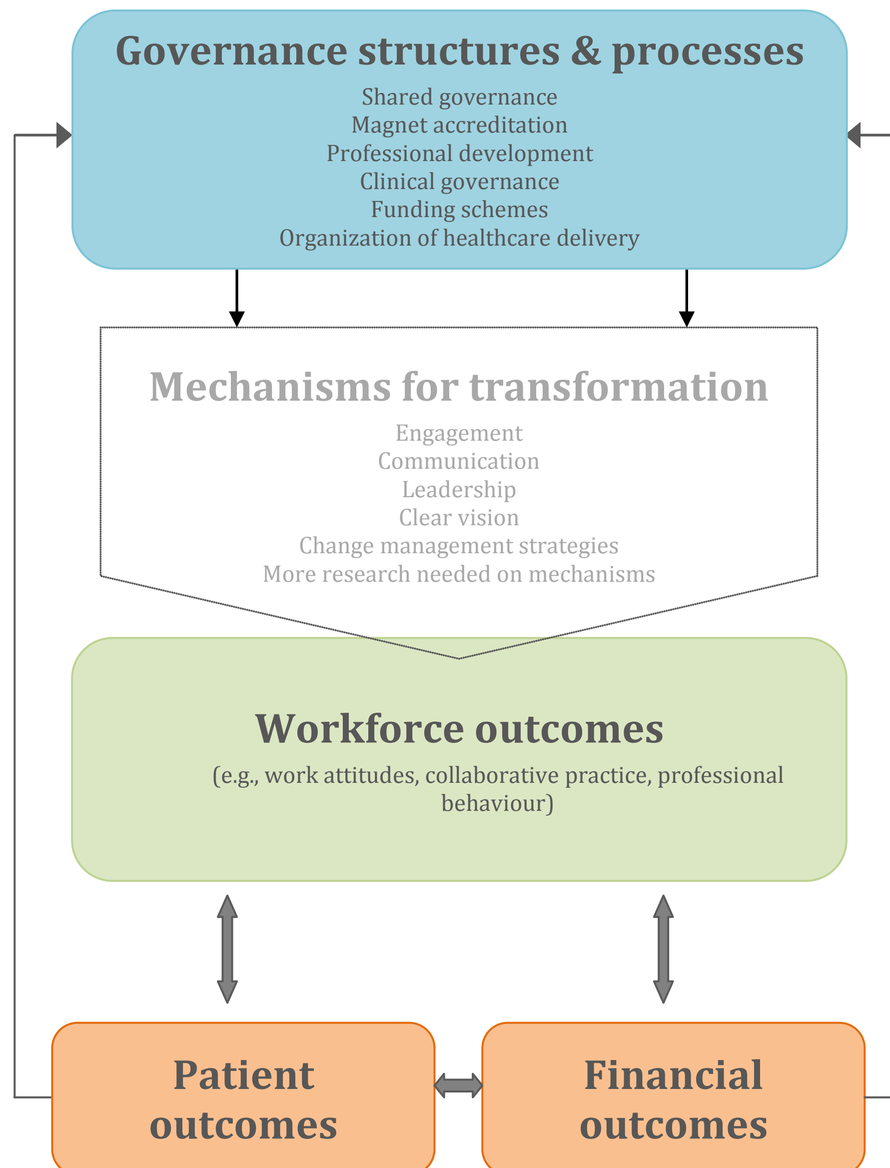
highlighted the importance of training providers to find, evaluate, and use research evidence.

- The evidence is mixed on the impact of the other governance types on workforce outcomes. Pay for performance and changes to the organization of health care delivery were effective for workforce transformation in certain contexts but there is limited research evidence on factors that limit their effectiveness and on unintended consequences.
- We identified a large number of studies reporting workforce-related topics. Few of them have an explicit focus on the relationship between governance structures or processes and workforce transformation. Workforce transformation is often reported without clear identification of the mechanisms for change. Overall, theoretical development is weak.
- The primary workforce transformation variables studied in relation to governance structures and processes were work attitudes (e.g., job satisfaction, engagement) and professional behaviour (e.g., performance). While these are important to study, researchers need to consider outcomes such as collaborative practice, recruitment, and retention given the increasing strains on the health system forecasted for the coming years.
- Organizational sponsorship, communication, and effective leadership appear to be important for successful implementation of any governance structure or process. Organizations that have a clearly stated mission and values, that provide appropriate leadership and management support, and that invest both time and human resources report better workforce engagement and positive outcomes after implementation of a new governance structure.
- There is a lack of research connecting patient outcomes with health workforce transformation as it relates to governance. Future research should consider whether and how workforce transformation initiatives improve the quality of patient care.
- The quality of the research in this domain is disappointing. Methodological weaknesses such as poor controls or lack of reporting of confounding variables were common.

Based on our results, we make the following recommendations:

- Workforce should be considered as a mediating factor between governance initiatives and health system outcomes. The literature we reviewed rarely considered both workforce and patient outcomes together. Governance initiatives that are focused on patient, financial or other system outcomes should include explicit consideration, during the planning, implementation, and evaluation phases, of how the workforce will be affected in order to ensure that the workforce can and will carry out their work in the ways intended. See Figure 4 for a graphical illustration.

- Decision-makers and researchers should work together to develop the evidence base to gain a more complete understanding of the consequences of various types of governance and the mechanisms through which they affect the workforce. Decision-makers and researchers should both advocate for the collection of workforce-related outcomes of governance structures and processes to move research forward in this area.



This knowledge synthesis contributes to the current state of evidence on health system transformation with particular focus on governance models and their relationship to the health workforce. The results of this study provide guidance for policy-makers and decisions-makers on the role of governance in health system change and, in particular, its impact on the health workforce.

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1. Introduction

1.1 Health System Change

Over the last decade, Canadian health systems have undergone numerous changes, yet significant transformational change in the health system continues to elude us (Lazar, 2009). The main drivers for change are issues of sustainability (Health Council of Canada, 2005a) along with perceived health human resource (HHR) shortages (Canadian Nurses Association [CNA], 2009; World Health Organization, 2009) and the desire to improve health outcomes (CNA, 2009; Levac, Colquhoun, & O'Brien, 2010).

In general, health system transformation is change that is pervasive and involves changes in structure and processes as well as culture and values (VanDeusen et al., 2007). Edwards, Rowan, Marck, and Grinspun (2011) described health system transformation as change across the system that creates new organizational forms at collective levels, reconfigures power relationships, and develops a new culture, ideology, and organizational meaning. Health system transformation is intended to create better alignment between the care being offered and population health needs (Denis, Davies, Ferlie, & Fitzgerald, 2011) and requires a change in philosophy or mindset in tandem with structural and procedural changes.

Successful health system change is premised on the availability of an educated and skilled workforce (Health Council of Canada, 2005a), an appropriate skill mix, and the efficient and effective use of existing resources (Baranek, 2005). In light of potential HHR shortages, healthcare provider misdistribution, and the current focus on obtaining high quality, efficient, and cost-effective care, there is a need for *workforce transformation*, that is, more effective utilization of the workforce and a change in the way healthcare providers work together to deliver care. Strategies to transform the workforce focus on developing provider competencies for collaborative practice and redesigning work to ensure the effective use of knowledge and skills of all health providers (e.g., Besner, Drummond, Oelke, McKim, & Carter, 2011; Besner, 2009; Health Canada, 2011; Health Workforce Australia, 2011). Workforce transformation, in turn, is thought to improve a number of provider outcomes such as increased productivity, job satisfaction, recruitment, and retention (Alberta Health Services [AHS], 2011a), ultimately leading to a sustainable health workforce (Australian Capital Territory, 2006) and more effective and accessible service delivery (Health Workforce Australia, 2011).

Too often, intervention research fails to achieve sustainable health workforce transformation. Typically, research targets local level change within a large system and achieving transformation is challenging since the existing governance structures reinforce the status quo (Ramanujam & Rousseau, 2006). The call for widespread system level change to ensure workforce transformation is evident and has prompted the need to better understand the relationship between governance and the health workforce and how governance structures and processes facilitate or impede health workforce transformation with an ultimate impact on system transformation.

This knowledge synthesis contributes to the current state of evidence on health system transformation with particular focus on governance models (including structures and processes) and their relationship to the health workforce. Health workforce is directly linked to the distribution of resources, health service delivery models, health system performance, and professional accountability (de Savigny & Adam, 2009; Edwards et al., 2011). The results of this study provide guidance for policy-makers and decision-makers on the role of governance in health system change and, in particular, its impact on the health workforce.

1.2 Background

There are many definitions of health system governance. Some authors take a large scale approach and refer to health system governance as the actions and means adopted by society to organize itself in the promotion and protection of the health of its population (Siddiqi et al., 2009). Others define health system governance as encompassing the strategic policy frameworks, mechanisms, effective oversight, coalition building, accountability, legislation, information, regulations, and incentives related to health system design (de Savigny & Adam, 2009; Lewis & Pettersson, 2009).

Definition of *governance* used in this knowledge synthesis: Health system governance encompasses the strategic policy frameworks, mechanisms, effective oversight, coalition building, accountability, legislation, information, regulations, and incentives related to health system design (de Savigny & Adam, 2009; Lewis & Pettersson, 2009).

Governance can also be conceptualized on different levels. Ramsay, Magnusson, and Fulop (2010) outlined several key levels and characteristics of health system governance. They differentiate between external levels of governance (e.g., the mandates and strategic planning of regulatory bodies, unions, regional health authorities, accreditation, and provincial Ministries of Health) and local levels of governance which include the strategic plans, committees, quality assurance systems, and other management structures and processes at the level of the organization (e.g., hospitals, clinics). These two formal levels of governance are contrasted to informal governance factors such as the relationships between professional cultures, the presence of local champions, and leadership**.** In addition, the authors highlight the importance of context for different governance structures and processes to emerge.

Health system governance drives the direction, type, accountability, and performance of service delivery and hence, is key to improving health system performance (Dieleman, Shaw, & Zwankikken, 2011; Health Quality Council of Alberta, 2013; Lewis & Pettersson, 2009; Philippon & Braithwaite, 2008). In their recent review on health systems transformation, Denis et al. (2011) note that transformational change is difficult to achieve as "healthcare transformation is highly constrained by the fundamental architecture of a

system in terms of past investments and positioning of various providers" (p. 10). They further argue that "From a policy perspective, significant changes within the system will only occur if there are changes in the governing coalition and policy framework used to approach problems and solutions" (p. 1).

In the past ten years, there has been significant restructuring in health systems in Canada and other countries with publicly funded health systems. The focus has typically been on changing formal external and organizational governance structures. One example of large-scale shifts in governance is regionalization, which resurged in interest in the 1990s as a means of integrating services, including the voices of citizens and the workforce in decision-making, being more responsive to local needs, and encouraging the appropriate use of services (Philippon, 2009). However, by and large, changes in formal governance models have yet to achieve transformational change with significant improvements in health system performance (Denis et al., 2011).

While the literature on formal health system governance is growing, little attention is paid to concurrent changes in the health workforce required to support health system transformation. Some authors have highlighted the need to change professional cultures, professional relations, provider engagement, and leadership to achieve a sustainable and skilled health workforce (Denis et al., 2011). In turn, health workforce transformation is seen as an important lever for overall health system change (Baranek, 2005; Health Council of Canada, 2005a). However, there is a gap in knowledge about how health workforce transformation supports health system change and the role of governance within this relationship. What is needed is an understanding of how and what governance structures and processes enable health workforce transformation. Mapping out the relationships between formal and informal governance structures and processes and health workforce transformation as a lever of health system change will provide policy makers with a good basis for understanding the strategies required to enable successful health system transformation.

Definition of *workforce transformation* used in this knowledge synthesis: more effective utilization of the workforce and a change in the way healthcare providers work together to deliver care.

1.3 Research Objectives and Questions

The objective of this systematic review is to increase our understanding of the evidence relating health system governance to health workforce transformation. The research questions guiding the systematic review are:

1. How is workforce transformation accounted for in emerging governance structures and processes in Canada and internationally?

2. What is the impact of governance structures and processes on health workforce transformation to support health system change?
3. What are the elements of governance structures and processes that are critical to workforce transformation?
4. How do emerging health system governance structures and processes facilitate workforce transformation and contribute to health system change?

1.4 Engagement of Knowledge Users

In an effort to ensure that this knowledge synthesis is relevant and useful for knowledge users, we consulted with a Rapid Engagement Group (REG) composed of experts in the fields of healthcare policy, governance, healthcare performance, and health workforce (listed in Appendix 1). The role of the REG was to lend their expertise and insight to the project at key decision points. The REG helped shape the research questions, refine the literature search, validate the findings, and identify knowledge dissemination opportunities. Teleconference meetings were held multiple times throughout the course of the research, and drafts of the report were distributed to the REG for review and discussion. We also conducted interviews with REG members near the end of the project in order to solicit their feedback on the structure of the report, its results, and the utility of the findings.

The REG also helped guide our knowledge translation strategies. For detailed information on the strategies we used see Appendix 2.

2. Methods

2.1 Search Strategy

We developed the search strategy in collaboration with a university-affiliated research librarian with extensive knowledge of the healthcare databases. In the interest of obtaining as many relevant articles as possible, search terms were kept fairly general. Any type of publication was included, provided it met the following basic criteria:

- Based on work in Canada, Sweden, the United Kingdom, the Netherlands, New Zealand, Australia, or the United States of America
- Published between 2001 and 2012
- English or French language
- Identification of regulated or unregulated healthcare providers
- Inclusion of one or more forms of governance (see search strategy in Appendix 3 for terms used for healthcare providers and governance)

The research librarian executed the search strategy. The following databases were searched for peer-reviewed literature:

- Medline (OVID)
- Cochrane CENTRAL Register of Controlled Trials (OVID)
- Health Technology Assessment HTA (OVID)
- Cochrane Database of Systematic Reviews (OVID)
- EMBASE (OVID)
- PsycINFO (OVID)
- CINAHL (EBSCO)
- ABI Inform (ProQuest)
- Business Source Premiere (EBSCO)
- ERIC (EBSCO)

The following databases were searched for grey literature:

- ProQuest Digital Dissertations
- Canadian Research Index (ProQuest)
- Web of Science Conference Citations
- Canadian Health Research Collection (Ebrary)

In addition, we conducted manual searches of various government and research agency websites. Forty-two websites were identified as possible sources of relevant literature and each was searched both manually and using a Google site-specific search for relevant keywords (see Appendix 3 for a list of the websites searched). Full text articles identified as potentially relevant were downloaded and classified as described below.

2.2 Abstract Screening

Peer-reviewed literature. Four raters screened the abstracts for inclusion according to the criteria in Appendix 4. We assigned a Yes* (Y*; 3 points) to abstracts that definitely informed the research questions, Yes (Y; 2 points) to abstracts that informed the research questions, Possible (P; 1 point) to abstracts that might possibly inform the research questions, or No (N; 0 points) to abstracts that did not inform the review questions. Inter-rater consistency was established by pre-testing 200 abstracts and discrepancies were discussed among the four raters until agreement was reached. Following this, we independently screened the entire set of abstracts. Percent agreement among the four raters for the peer-reviewed abstracts was 77%. Full text articles for abstracts scoring at least five points were retrieved for further review. Abstracts scoring four points were discussed among the raters to reach consensus.

Grey literature. Four raters screened the indexed grey literature abstracts according to the same criteria used for the peer-reviewed abstracts. Percent agreement among the raters for the grey literature was 93%. Full text articles for abstracts scoring at least 5 points were retrieved for further review and abstracts scoring four points were discussed among the raters to reach consensus.

2.3 Article Screening and Classification

Peer-reviewed and grey literature meeting the abstract screening criteria and full text grey literature downloaded from the manual searches of government and research agency websites were read by two researchers to determine eligibility using the same inclusion criteria used during the abstract screening. A number of articles were excluded at this stage because they did not meet the criteria upon review of the full text. In cases where the two raters disagreed on inclusion, articles were discussed among the four abstract raters until agreement was reached.

Key requirement for article inclusion: Discussion of governance AND workforce issues and the linkages between the two. Articles that did not discuss the interactions between these topics were excluded.

Articles retained at the screening stage were categorized to simplify later extraction. We used a classification sheet (see Appendix 5) to enter information about the country of interest, the governance type examined, and the workforce issues discussed.

2.4 Quality Rating

Articles were read independently by two researchers and rated for quality using the quality rating sheets shown in Appendix 6. The quality-rating sheet for empirical articles

included items pertaining to the methodological soundness of the study. Non-empirical articles and grey literature were rated on quality of argument, recency, and originality of the ideas discussed. Quality scores were averaged across raters. For empirical articles, a minimum average score of 10 (of a possible 17) was required for retention. We considered scores between 15 and 17 points to be high quality, scores between 12.5 and 14.9 points to be medium quality, and articles scoring in the 10-12.4 point range to be a low quality of evidence. For non-empirical and grey articles, a minimum score of 5 (of a possible 10) was required. In cases where the two ratings differed by more than three points, a third rater also completed the quality rating and all three scores were averaged. Non-empirical or grey papers scoring 8 points or higher were considered to have high quality evidence, papers scoring 7 to 7.9 were medium quality, and scores between 5 and 6.9 were considered low quality evidence.

2.5 Additional Articles

We screened the bibliographies of retained articles and downloaded potentially relevant empirical articles for screening and quality rating. An additional 47 articles were identified in this manner, and another 13 were identified through examining publications lists for prominent governance researchers. Systematic reviews and literature reviews identified in the database searches were rated for relevance and full texts were downloaded. Rather than extracting information from the reviews, bibliographies of relevant reviews were screened and relevant empirical articles were downloaded and screened for inclusion. An additional 11 articles were identified.

2.6 Extraction

Relevant information from empirical articles was extracted into tables created for this review. The tables contained fields for author information, country of interest, level and type of governance, workforce details, workforce outcomes, outcome category, method, and results, and a field for additional information of interest. One researcher completed the extractions and a second researcher validated the information.

Short summaries of the non-empirical articles and the grey literature were written by one researcher and validated by a second researcher. Summaries were typically one to three pages in length and included relevant contextual details as well as information pertinent to any of the four research questions.

2.7 Funding Literature

Initial searches identified only a handful of empirical papers discussing funding governance and workforce. After discussion with the REG, another round of database searches was conducted to specifically capture funding models in relation to workforce transformation. The search strategy is included in Appendix 3. We searched for empirical, non-empirical, and grey literature evaluating the workforce impact of a range of funding

models. Abstracts and full text articles were screened, classified, and quality-rated in the same manner as were the original peer-reviewed abstracts and articles.

A large number of the papers identified in the database searches focused on pay-for-performance (P4P) incentives and we have therefore collated P4P evidence separately from non-P4P evidence. We also noted a large number of systematic reviews on P4P. We performed a rapid review of a sample of these with relevant human resources content to focus our extraction and analysis.

2.8 High-Performing Health Systems

In a meeting to discuss the usability of this report, the REG suggested that we examine high-performing health systems in the countries under review in order to determine how workforce issues are taken into account in their governance structures and processes.

A focused literature search of several high-performing systems, as identified by the project experts, was undertaken to ascertain how, or if, governance was explicitly linked to workforce. The systems investigated were:

- Counties Manukau District Health Board (New Zealand)
- Geisinger Health Care (Pennsylvania USA)
- Group Health Cooperative (Seattle USA)
- Intermountain Health (Utah USA)
- Jonkoping County (Sweden)
- Kaiser Permanente (California, Colorado, Georgia, Hawaii, Ohio, Oregon, Washington USA)
- South Central Foundation (Alaska USA)
- Thedacare (Wisconsin USA)
- Veterans Health Administration (USA)
- Virginia Mason Hospital System (Seattle USA)

Several of these organizations have been evaluated by external organizations (G Ross Baker et al., Commonwealth Fund Commission, and Institute of Medicine) and identified as high performing. The rest of the high-performing systems reviewed were identified through discussion with the REG.

Each of the organizations' websites was searched to identify documentation regarding governance strategies and processes in relation to the workforce. Google Scholar and Google Advanced site-specific searches using relevant phrases were also conducted for each of the high-performing organizations.

3. Results

3.1 Search Results

From the peer-reviewed databases, 3271 abstracts were found and reviewed by the research team. Of these, 3022 abstracts were excluded at the screening stage. Two hundred and forty-nine full text articles were retrieved. Of these, 82 did not meet relevancy criteria; 167 were retained for quality ratings. Seven of these were systematic reviews and thus were excluded from the next stages. Seventy-two articles were excluded at this stage for quality reasons, and upon closer inspection a further 26 were excluded for failing to meet the relevance criteria. Sixty-two peer-reviewed articles were retained for extraction. Figure 1 shows the number of abstracts/articles included or excluded at each stage.

From the grey literature database, 976 abstracts were found and reviewed by the research team. Nine hundred and forty-six of these were excluded at the screening stage and 30 full text articles were retrieved for classification. Of these, 15 did not meet relevancy criteria; 15 were retained for quality ratings, of which two were low quality and excluded. The remaining 13 articles were retained for extraction (see Figure 2).

The grey literature website search identified 82 potentially relevant articles. Upon further review, 51 were deemed not relevant and 31were retained for quality ratings. Six were excluded due to low quality, and 25 were retained for extraction (see Figure 3).

Review of the bibliographies of included articles and systematic/literature reviews identified 58 potentially relevant titles. All abstracts were screened according to the original criteria and 27 full text articles were subsequently retrieved. Of these, 18 were deemed relevant, of which 13 met quality criteria for extraction.

The targeted funding search found 1679 abstracts. One hundred and twenty-seven full text articles were retrieved; 74 of these were excluded due to relevance and a further 17 were excluded because they did not meet quality criteria. Thirty-six articles were retained for extraction, and a further eight systematic reviews were identified.

In summary, 149 articles met relevancy and quality criteria and were included in this review. Seventy-seven were empirical, 34 were non-empirical, and 38 were grey literature. An additional eight systematic reviews on funding models were also included.

Figure 1. Peer-reviewed database search results

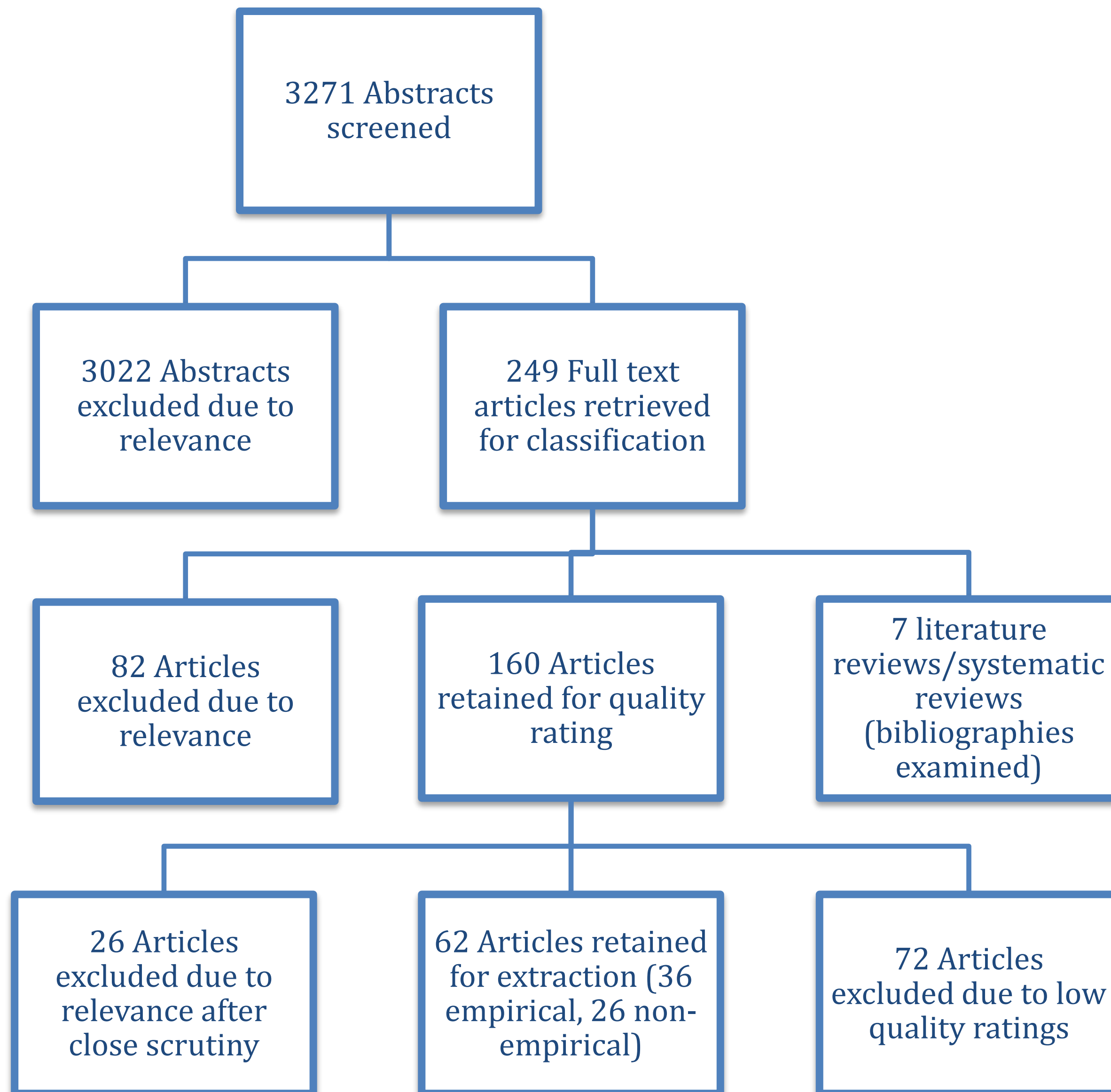


Figure 2. Indexed grey literature search results

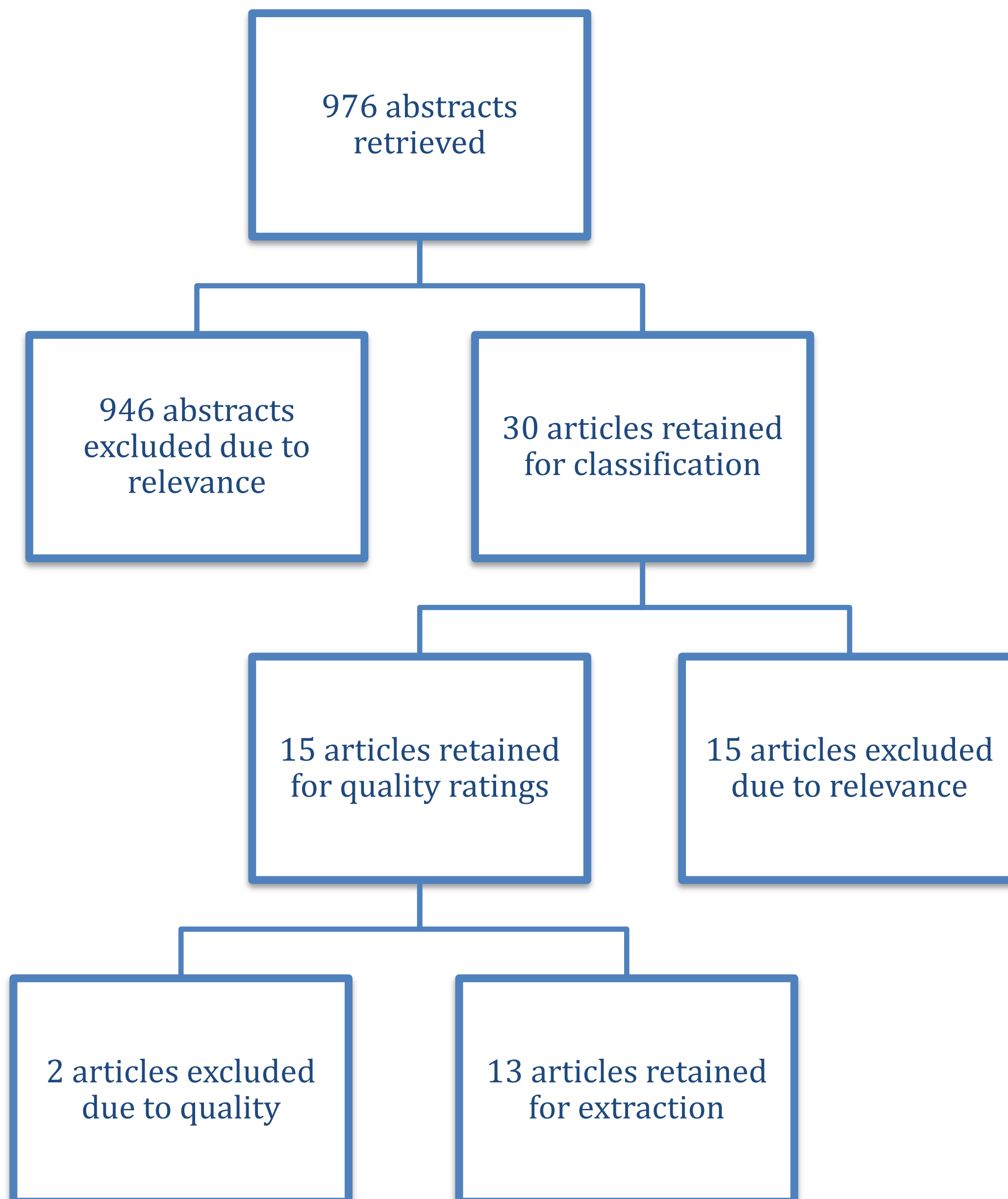
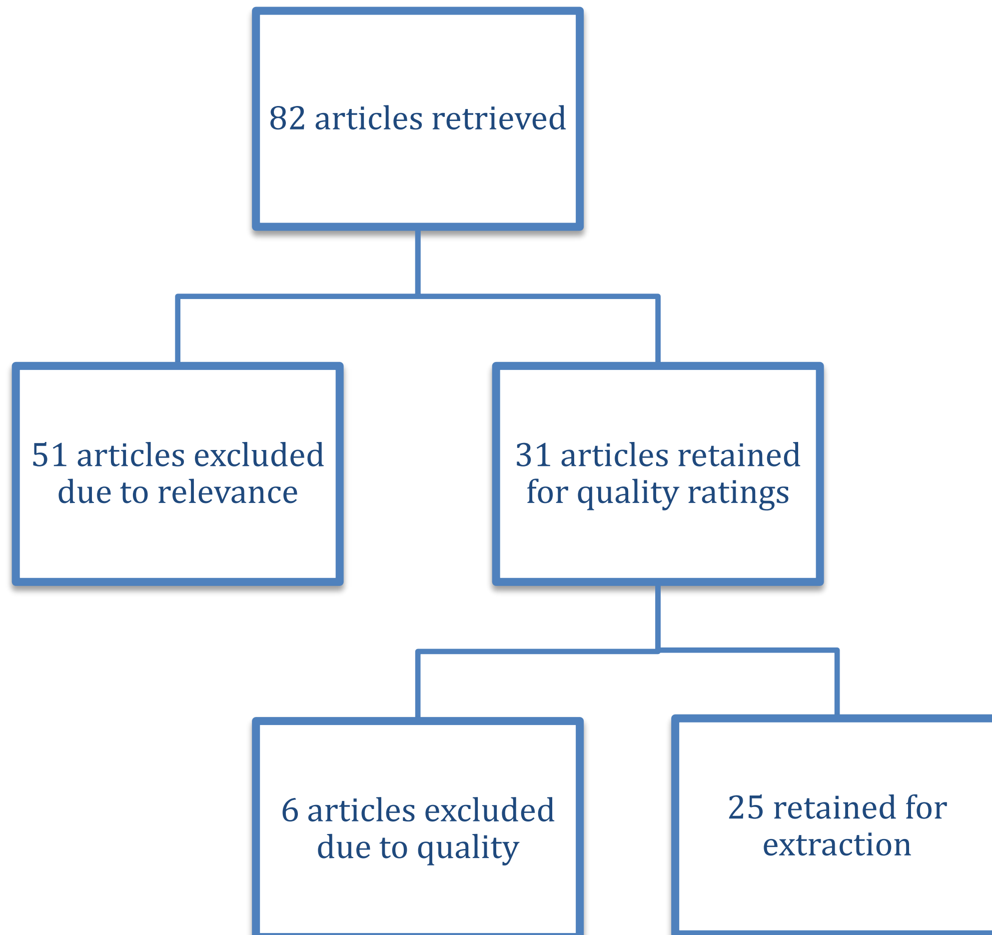


Figure 3. Grey literature website search results



3.2 Governance Structures and Processes Identified

The articles selected for inclusion in the review were organized by broad governance types. The empirical literature revealed six distinct governance structures and processes, which can be further classified into three themes. The first theme consists of governance types that are focused on *Provider Engagement*, namely shared governance, Magnet accreditation, and professional development. The second theme, *Quality Focus*, speaks to clinical governance and similar improvement initiatives. The final theme, *Organizing Structures,* consists of governance in the form of organization of healthcare delivery and funding schemes.

Definition of *governance* used in this knowledge synthesis: Health system governance encompasses the strategic policy frameworks, mechanisms, effective oversight, coalition building, accountability, legislation, information, regulations, and incentives related to health system design (de Savigny & Adam, 2009; Lewis & Pettersson, 2009).

For the most part, the non-empirical and grey literature echoed the empirical literature. Three additional governance types were identified here, however: reform and strategic planning, physician leadership, and communication. As noted in the introduction, the latter two types are considered informal governance processes.

3.3 Provider Engagement

3.3.1 Shared Governance

Shared governance was first discussed by Porter-O'Grady (1987) as a way to give staff, typically nurses, control over their practice. Although the details of shared governance programs vary somewhat, the general structure is similar across settings. Three principles are often described in the literature (e.g., Gavin, Ash, Wakefield, & Wroe, 1999): responsibility for the delivery of nursing care must reside with clinical staff, authority for nurses to act must be recognized by the organization, and accountability for quality patient care must be accepted by clinical staff. Porter-O'Grady (1987) emphasized the importance of nurse ownership at the unit level where decisions occur.

Most of the literature describes shared governance as a method for increasing numerous positive outcomes while simultaneously reducing negative outcomes for nurses. Some of the variables most frequently posited to relate to shared governance are empowerment (Anderson, 2011; Barden, Quinn Griffin, Donahue, & Fitzpatrick, 2011; Erickson, Hamilton, Jones, & Ditomassi, 2003; Frith & Montgomery, 2006; Kramer et al., 2008; Latham, Ringl, & Hogan, 2011; Rondeau, 2007), job satisfaction (Anderson, 2011; Attree, 2005; Barden et al., 2011; Ellenbecker, Samia, Chusman, & Porell, 2007; Kramer et al., 2008; Scott & Caress, 2005; Weston, 2009), recruitment and retention (Attree, 2005; Barden et al., 2011; Ellenbecker et al., 2007; Frith & Montgomery, 2006; Latham et al.,

2011; Weston, 2009), and autonomy (Anderson, 2011; Barden et al., 2011; Ellenbecker et al., 2007; Frith & Montgomery, 2006; Kramer et al., 2008; Latham et al., 2011), among others (see Table 1). Scott and Caress (2005), however, noted that research testing these assumptions is sparse.

Despite the multitude of outcomes *thought* to result from shared governance, the empirical literature examined only a few. Eight empirical articles measured outcomes of shared governance (see Table 1). Three reported shared governance was positively related to empowerment (Barden et al., 2011; Erickson et al., 2003; Frith & Montgomery, 2006). Attree (2005) noted that nurses in a facility with few opportunities for professional autonomy (i.e., no shared governance) felt disempowered by their lack of influence over practice. Similar results were found for job satisfaction; Ellenbecker et al. (2007) found that shared governance was the only retention strategy employed by a sample of home care agencies that increased job satisfaction. Attree (2005) found dissatisfaction arising from the lack of a true shared governance structure. In addition, Frith and Montgomery (2006) found improvements in nurses' relationships with coworkers, physicians, and managers as a result of a shared governance program. Results for retention were less clear; although Frith and Montgomery (2006) found improvements in retention one year post-implementation, Ellenbecker et al. (2007) found that shared governance had no effect.

Two empirical studies discussed factors that support the successful implementation of shared governance. Both Frith and Montgomery (2006) and Latham et al. (2011) noted the importance of support for shared governance from management, along with clear communication between staff and administration. This point was repeated in the non-empirical literature (Anderson, 2003; Batson, 2004; Scott & Caress, 2005; Winslow et al., 2011; Weston, 2009).

Batson (2004) identified the following four principles essential to a move from traditional hierarchical organization of nursing to shared governance: equity, ownership, partnership, and accountability. Scott and Caress (2005) noted the dangers of paying "lip service" to a strategy such as shared governance while not truly embracing its principles. Anderson (2011) developed a measure of shared governance that could be used to determine whether shared governance was actually in place. The Index of Professional Nursing Governance (Anderson, 2011) was administered in one hospital over time, and results suggested that staff nurses and management were in agreement that the hospital did in fact have a shared governance structure, but that it was not developing at the pace they had anticipated. These results, along with the warning from Scott and Caress (2005), suggest that hospitals wishing to examine the effects of their current structure on nurses should be careful to determine to what degree a shared governance system exists before drawing firm conclusions about its success or failure in improving nursing outcomes.

Clinical laddering is related to shared governance. Winslow et al. (2011) described a five-level laddering program developed by nurses in a shared governance program to recognize and reward accomplishments of bedside nurses and motivate them to continue skill development. Although the methodology was not described, Winslow et al. (2011)

found higher levels of satisfaction among nurses on the advanced levels of the ladder than among nurses on the first two levels. Turnover was substantially lower among nurses on higher levels (less than 1% for levels 3 to 5 vs. 19% at levels 1 and 2). Turnover was also reported to be lower among all nurses involved in the laddering program than among those not in the program. Winslow et al. (2011) noted that nurses were satisfied with the laddering process itself and appreciated the opportunity to challenge the level at which they were placed based on their practice. Smith Randolph (2005), however, tested whether clinical laddering impacted career satisfaction and desire to stay on the job among several allied health professions and found no effect of laddering on either of these two work attitudes.

The quality of papers in the shared governance literature was mid-grade. One empirical paper scored in the high-quality range, three were of low quality, and four were in the middle range. The non-empirical literature, on the other hand, was primarily low quality: four papers scored in the low range, and just one was medium quality.

Table 1. Shared governance empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Attree, 2005 UK				
Clinical governance in three hospitals in the UK – intended to devolve control from managers to healthcare professionals (similar to shared governance [SG])	Registered nurses (RN)	Nurses' perceptions of their governance, specifically lack of control over factors that affect everyday practice standards; frustration, dissatisfaction, low morale, demotivation Also mentioned: turnover, burnout, stress, decreased performance, increased professional negligence	Grounded theory Semi-structured interviews Thematic coding 142 RNs from three National Health Services (NHS) hospitals	Outcome category: Work attitudes Nurses report being individually accountable and responsible for practice standards but without individual control over standards of nursing practice This perceived lack of autonomy "prevailed across the whole sample and was perceived at all levels of governance above ward level" (p 391) Nurses described feeling frustration, dissatisfaction, low morale, and demotivation arising from inability to influence factors that affect everyday practice standards Nurses felt disempowered, lacked "say" in decisions NHS organizational governance structure characterized by close, central bureaucratic control and positional power, which reduces the opportunity for professional decision making autonomy No patient outcomes reported
Barden, 2011 USA				
Shared governance (SG) in a New York hospital (details of program not provided)	Nursing	Empowerment Mentioned importance of empowerment for retention of nursing staff Discussed downsizing of professional workforce, changes in staff mixes, recruitment, increased workload and responsibilities as result of nursing shortage, job satisfaction, interdisciplinary relationships, autonomy, control over practice	158 nurses in 13 units from one hospital that had a SG model in place for at least six months to one year Completed Index of Professional Nursing Governance and the Conditions of Work Effectiveness II Questionnaire (CWEQ-II)	Outcome category: Work attitudes $r = .34$ ($p < .0001$) between perceptions of SG and empowerment Study hospital pursuing Magnet accreditation No patient outcomes reported
Ellenbecker, 2007 USA				
Retention strategies	Nursing (home	Job satisfaction, intent to stay	Survey sent to agency leaders to indicate	Outcome category: Work attitudes, retention

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
used in home care agencies in USA – includes SG/shared decision making (details of individual programs not provided)	care)	Also mentioned: positive work environments supporting nurse autonomy; positive relationships with patients, supervisors, physicians, and peers; workload, job tension, morale, recruitment issues	retention strategies used (n = 123 agencies) and to nurse employees to indicate job satisfaction (Home Healthcare Nurse Job Satisfaction Scale) and intent to stay (n = 2459)	Shared decision making/SG was the only retention strategy that contributed significantly to job satisfaction scores; no effect of retention strategies on intent to stay 82% of agencies report using shared decision making/SG strategies No patient outcomes reported
Erickson, 2003 USA				
Collaborative governance (decision making process that places the authority, responsibility, and accountability for patient care with the practicing clinician) in large urban teaching hospital in the USA	Nursing	Empowerment Further discussed: opportunity to develop leadership skills, staff interaction with the larger system, communication across disciplines, dissemination of new knowledge, promotion of new initiatives, decision making across healthcare providers, personal accountability for care, insight into the organization and the roles each professional group played in care delivery, self-growth, respect for unique perspectives, unity	Comparison of empowerment scores over time (baseline, 1-year, 2-year) and across collaborative governance/non-collaborative governance groups Baseline n = 136 Year 1 n = 292 (134 collaborative governance members, 158 non-collaborative governance) Year 2 n = 226 (88 collaborative governance, 138 non-collaborative governance) Instruments used - Conditions of Work Effectiveness Scale (empowerment) along with two extra questions; Job Activity Scale (JAS) and Organizational Relationships scales (ORS) used to measure formal and informal power	Outcome category: Work attitudes Time analyses: Empowerment constructs of access to opportunity, information, and resources scores increased each year; access to support was slightly lower at Year 1 but highest at Year 2 (access to resources results not significant [NS]); 2-item empowerment score NS over time JAS and ORS mean scores increased over time Groups analyses: Mean empowerment scores higher at Year 1 and Year 2 for collaborative governance than for non-collaborative governance members No patient outcomes reported
Frith, 2006 USA				
Shared governance (SG) in large medical centre in SE United States (details of structure not provided)	All clinical staff Registered nurses, licensed practical nurses, care technicians, medical receptionists	Empowerment, autonomy, job authority, accountability, responsibility, retention, turnover, work attitudes Also mentioned: skepticism of new job authority due to SG; increased knowledge, skill, expertise; increased respect of clinical staff and improved reaction to change by clinical staff; worker	Shared Governance Survey sent to clinical staff members (n=687), pre and 1-year post implementation of SG, to assess perception, knowledge and commitment to SG Some open-ended questions with clinical and managerial staff in four focus groups	Outcome category: Work attitudes Clear roles, supportive management and effective infrastructure seemed to be most important for the success of SG; Councils needed managers to schedule clinical staff time off for council meeting days and to provide mentorship to the chair More education and effective communication methods were needed before SG was implemented

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
		cohesiveness, cooperation, and collegiality due in part to increased trust; improved team building, team performance, and teamwork; peer support and commitment; some difficulty motivating staff nurses to participate in SG, difficulty disseminating information to nurses not on councils; mention of increased stress and higher turnover as result of increased time commitment due to SG (though others have found opposite)		SG is time-consuming but effective in meeting identified goals Improvements found in communication, nursing goals, decision making, educational opportunities, manager/staff partnership, participation in SG, nursing involvement in process improvement, empowerment, co-worker relationships, MD relationships, retention, excitement about SG, turnover No patient outcomes reported
Kramer, 2008 USA				
Shared governance (SG) in hospitals across the USA (details of individual programs not provided)	Nursing	Control over nursing practice Empowerment Also mentioned: cynicism, unwillingness to participate, and reluctance to assume accountability for outcomes when SG is mostly structural and nurses are not given decision making authority; clinical autonomy, collegial nurse-physician relations, job satisfaction, retention; self-determination and self-regulation of profession	Selected 8 highest or second-highest scoring hospitals in country on Essentials of Magnetism instrument to study excellent units in excellent hospitals; selected units based on at least 50% sample and at least five Registered nurses; unit Control over Nursing Practice scores had to be above hospital mean Conducted interviews, observed participants at meetings, administered CWEQ-II to all staff nurses on participating units Interviews conducted with 244 staff nurses, 105 nurse managers, 97 physicians from the 101 high-scoring units	Outcome category: Work attitudes SG was most frequently cited answer to, "What enables you to have control over your practice?" Comments indicated that interviewees perceived SG structures as sources of formal power Three hospitals with integrated SG structures (SG structure housed in larger hospital) had higher empowerment scores than the five with silo structures (SG within each unit) Magnet accredited hospitals Only brief mention of patient outcomes in background; No patient outcomes reported in findings
Latham, 2011 USA				
Shared governance (SG) (Workforce Environment Governance Board) as part of university-hospital mentoring	Nursing (Registered nurses [RN])	Enhanced professionalism, culturally sensitive communication, positive perceptions of workforce environment, support from colleagues, occupational stress levels, unfilled RN vacancies, nurse turnover, shared decision making	89 mentors and 109 mentees across two hospitals Baseline and 3-year measurement of occupational stress, cultural competence, perceptions of nursing services and	Outcome category: Work attitudes, professional behaviour, recruitment, retention Most analyses pertain to mentoring program, not SG For SG: "Mentors and mentees valued having time to meet in

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
program in two non-profit acute care facilities in USA		Also mentioned: empowerment, autonomy, control over practice (positive work environment involves SG and leads to these outcomes), collaboration, others in relation to mentoring but not SG	practice environment, existing and desired levels of unit-level decision making by administrators and staff nurses, annual data on RN vacancy and retention rates Qualitative data obtained through mentor journals and transcriptions of mentor support meetings and governance board discussions	workforce environment governance boards and support meetings to collaborate, and this facilitated the sharing of unit procedures and ideas to solve problems. RN staff believed that ongoing interdepartmental sharing by midlevel administrators would help their unit to increase unit-based staff collaboration and support staff activities" (p351). Governance board also said to improve mentor-administration feedback, thus giving mentors confidence to communicate with and feel supported by the administration. Reliability of cultural competence measure too low for use; removed from analysis No patient outcomes reported
Smith Randolph, 2005 USA				
Clinical laddering and continuing education (CE) as extrinsic job satisfaction factors offered by the employer	Occupational therapists (OTs), physical therapists (PTs), speech language pathologists (SLPs)	Career satisfaction, desire to stay on the job Also mentioned: recruitment, retention	1500 surveys mailed to practicing OTs, PTs, SLPs , 328 usable questionnaires returned Surveys measured career satisfaction, desire to stay on the job, and availability and importance of various job factors (e.g. flexible schedule, competitive pay, adequate guidance, clinical laddering, continuing education)	Outcome category: Work attitudes No significant effect of clinical laddering or CE. Results revealed that intrinsic factors (those inherent to the job or controlled by the professional) were more important for satisfaction and desire to stay than were extrinsic factors (those controlled by the organization) No patient outcomes reported

3.3.2 Magnet Accreditation

The Magnet Recognition Program is offered by the American Nurses Credentialing Center (ANCC) to "recognize health care organizations for quality patient care, nursing excellence and innovations in professional nursing practice" (ANCC, 2012). The process of Magnet accreditation involves self-assessments by the organization and further appraisal by the ANCC. Five Magnet components that are identified by the ANCC (2012) include: transformational leadership; structural empowerment; exemplary professional practice; new knowledge, innovations, and improvements; and empirical quality outcomes. According to the ANCC, these characteristics lead to better recruitment and retention of high-quality staff and better patient outcomes.

The research literature on Magnet accreditation included a number of outcomes in addition to recruitment and retention. In the papers included in our review, job satisfaction (e.g., Balogh & Cook, 2006; Hess, DesRoches, Donelan, Norman, & Buerhaus, 2011; Jayawardhana, Welton, & Lindrooth, 2011; Brady-Schwartz, 2005; Upenieks, 2003) and recruitment and retention (e.g., Balogh & Cook, 2006; Jayawardhana et al., 2011; Brady-Schwartz, 2005; Upenieks, 2003) were the most frequently proposed outcomes of Magnet status. Other benefits thought to be associated with Magnet accreditation were similar to those for shared governance (which is an important component of Magnet accreditation). These include lower burnout (Balogh & Cook, 2006; Upenieks, 2003), higher autonomy (Jayawardhana et al., 2011; Brady-Schwartz, 2005), and higher empowerment (Brady-Schwartz, 2005; Upenieks, 2003).

Five empirical articles examined Magnet accreditation (see Table 2). Four of the articles compared nursing outcomes in Magnet hospitals to those in facilities without such accreditation. Magnet hospitals higher percentages of RNs and better Safe Practice survey scores than do non-Magnet hospitals (Jayawardhana et al., 2011). Although the results were not uniformly supportive of the Magnet model's superiority for improving nurse outcomes, the slight majority suggest that Magnet status has certain advantages. Two (Upenieks, 2003; Brady-Schwartz, 2005) of the three articles examining job satisfaction found higher levels among nurses in Magnet hospitals than among nurses in non-Magnet hospitals (the exception was Hess et al. [2011], who found similar satisfaction ratings across Magnet and non-Magnet hospitals). In interviews with senior executives in a hospital applying for Magnet accreditation, Balogh and Cook (2006) found evidence of improved staff morale and internal networks. These authors did note, however, that because the interviews were conducted during the accreditation application process, there may be some bias in the results.

Only one article from the grey literature touched on Magnet accreditation. The New Zealand Ministry of Health (2006) described an initiative to develop Magnet characteristics in the country's hospitals in order to reduce staff turnover and burnout and improve recruitment, nurse job satisfaction, and nurse injury rates. Information about the success of the initiative was not available.

The empirical papers that discussed Magnet accreditation were of mixed quality. One paper scored in the high range, two were mid-range, and two were low quality. The grey article included in this section was in the low range for quality.

Alberta Health Services

Table 2. Magnet accreditation empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Balogh, 2006 UK				
Magnet accreditation in a National Health Services (NHS) hospital	Nursing, some allied health and medical involvement	Staff morale, internal networks, sharing of good practice, willingness to report poor practice Also mentioned: improved patient care, excellence in support for professional nursing practice, lower burnout rates, higher job satisfaction in Magnet facilities; address shortages of nursing staff, recruitment and retention	Case study 26 interviews with 10 senior respondents (board members, senior staff) involved in implementing Magnet	Outcome category: Work attitudes, collaborative practice, professional behaviour Self-report improved morale, new pride in work, improvements in internal networks and sharing of good practice, improved willingness to report poor practice Authors acknowledge interviews were conducted during accreditation process so may be somewhat biased No patient outcomes reported
Brady-Schwartz, 2005 USA				
Magnet accreditation: Comparison of Magnet and non-Magnet hospitals in the USA (details not provided)	Nursing	Job satisfaction, intent to leave Also mentioned: recruitment, retention, autonomy, professional development, interdisciplinary relationships, burnout, perception of practice environment, trust in management, empowerment, positive nurse-physician relationships, support for education	173 Registered nurses (RNs) across three Magnet hospitals, 297 RNs across 3 non-Magnet McCloskey Mueller Satisfaction Scale – eight facets of job satisfaction Anticipated Turnover Scale	Outcome category: Work attitudes, retention Nurses in Magnet hospitals had significantly higher overall job satisfaction than nurses in non-Magnet hospitals Nurses in Magnet hospitals had significantly higher mean scores on satisfaction with professional opportunities in the work environment, control and responsibility, and extrinsic rewards; no significant differences on praise and recognition, scheduling, balance of family and work life, co-workers, or interaction opportunities No analysis of Magnet status → turnover intention, but results showed relation between job satisfaction and turnover No patient outcomes reported
Hess, 2011 USA				
Magnet accreditation: Comparison of Magnet vs. non-Magnet vs. in process of pursuing	Nursing	Satisfaction with being a nurse, would advise others to become a nurse, injuries sustained on the job, episodes of violence in the workplace, verbal abuse, discrimination, sexual harassment/hostile work environment, decision influence	Survey mailed to random sample of 1500 RNs; responses from 175 in Magnet hospitals, 84 in in-process hospitals, 348 in non-Magnet	Outcome category: Work attitudes Similar ratings of satisfaction with being a nurse across all three More nurses from in-process or Magnet facilities would advise others to become a nurse

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Magnet in the USA		about workplace/patient care, paid education, shared governance (SG) opportunities, quality of professional relationships Also mentioned: control over nursing practice, opportunities for teaching, role development, professional development, interdisciplinary care and collaboration, workplace safety, mandatory overtime/on-call time, physical demands, influence on decision making		Only slight differences (non-significant [NS]) in reports of violence/abuse/harassment/etc. among each type of hospital Nurses in Magnet hospitals reported more injuries than nurses in non-Magnet hospitals Nurses in Magnet or in-process hospitals rated their decision influence on workplace issues higher than non- Magnet, similar (NS) pattern for patient care decisions More Magnet and in-process hospitals had SG and employer-paid education than non-Magnet No difference in relationship quality for RNs and new nurses or RNs and physicians across hospital types, but better relationships between nurses and advanced practice nurses in Magnet and in-process hospitals than in non-Magnet hospitals (Magnet slightly better); relationships between nurses and nursing faculty in in-process hospitals were better than Magnet, and both of these were better than non-Magnet Remaining comparisons are about hospital characteristics (e.g. size) No patient outcomes reported
Jayawardhana, 2011 USA				
Magnet accreditation: Comparison of Magnet and non-Magnet hospitals across the USA	Nursing	Skill mix (% of RNs), safe practice scores, nurse intensity (nursing hours per patient day) Also mentioned: autonomy, retention, recruitment, use of evidence-based care, better nursing work environments, lower burnout, higher job satisfaction	Used archival data from Leapfrog Group's Hospital Annual Survey (2004 – 2006; Safe Practice scores), combined with American Hospital Association Annual Survey and Healthcare Cost Reports Information System N = 140 (for Safe Practice) or 218 (all other scores) Magnet hospitals and 1320 or 2380 non-Magnet hospitals	Outcome category: Skill mix, care protocols, workload Magnet hospitals have higher level of nursing intensity (nursing hours per patient day) and higher percentage of RNs than do non-Magnet hospitals Safe Practice scores are higher in Magnet than in non-Magnet hospitals Remaining comparisons are about hospital characteristics (e.g. size) No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Upenieks, 2003 USA				
Magnet accreditation: Comparison of Magnet and non-Magnet hospitals in the USA	Nursing	Empowerment, power, job satisfaction (six facets) Also mentioned: recruitment and retention, control over practice environment, morale	Quantitative: 305 medical/surgical nurses from two Magnet (n = 144) and two non-Magnet (n = 161) hospitals were surveyed; Measured job satisfaction with Nursing Work Index-Revised (autonomy, nurse control over practice, and relations between nurses and physicians subscales in original, three more created for study: administration, self-governance, education opportunities); Empowerment, power (access to information, support, and resources), opportunity (use skill and knowledge, gaining new skills, challenging work opportunities) measured with Conditions of Work Effectiveness II Questionnaire (CWEQ-II) Qualitative: 16 nurse leaders from same four hospitals (seven from Magnet, nine from non-Magnet) interviewed	Outcome category: Work attitudes Magnet hospital nurse scores were higher on all subscales than were non-Magnet scores (but similar rankings); Significant differences for all but Opportunity subscale of CWEQ-II Items "... magnet hospital nurses reported as lacking in their practice environments were adequate support services ..., enough time to provide quality patient care, and involvement in the internal governance of the hospital issues." (p89-90) Qualitative: organizational culture supportive of nursing influences nurse leader effectiveness; autonomous climate (nurses have control over environment, accountability, authority in decision making) denoted by self-governance systems, decentralization, participatory management, and teamwork (a collaborative approach to patient care through the shared expertise of physicians, nurses, and ancillary personnel) important for supporting nursing practice; access to opportunity (continuing education, clinical ladders, advancement opportunities), adequate staffing, access to resources and information all important for creating positive climate and enhancing nurse leader effectiveness; effective leadership is vital to establishment of cohesive group of nurses and success of hospital Combined qualitative and quantitative results: Magnet hospitals had greater support from administration than non-Magnet hospitals; Chief Nursing Officers more visible in Magnet hospitals; information more openly provided in Magnet Differences between Magnet and non-Magnet leaders: Magnet leaders rated as more accessible than non-Magnet leaders; strong commitment to nursing and recognition of nursing practice at Magnet; non-Magnet leaders spoke more of importance of nursing, focused on adequate staffing as crucial element of satisfaction, whereas Magnet leaders stressed educational opportunities No patient outcomes reported

3.3.3 Professional Development and Education

The use of professional development or training programs to improve staff performance is widespread. However, staff performance is not the only variable that might be affected by a focus on improving staff skills. The literature included in this review proposes that training can also change attitudes (MacDonald, Stodel, & Chambers, 2008), confidence (Garrard et al., 2006), knowledge (Garrard et al., 2006; MacDonald et al., 2008), and team dynamics (George et al., 2002). Changes in these variables should also lead to an increased sense of empowerment (George et al., 2002) and motivation (George et al., 2002; McCabe & Garavan, 2008).

Seven empirical articles discussed professional development and education programs (see Table 3). In general, the training programs resulted in positive outcomes, except in a study by Smith Randolph (2005), who found no effect of continuing education on career satisfaction or desire to stay on the job. MacDonald et al. (2008) studied a training course designed to enhance collaborative practice. Most learners felt the course increased their confidence in collaborative practice, helped them apply new skills and knowledge in the workplace, and improved collaborative practice. However, there was no change in team members' attitudes toward teamwork. Garrard et al. (2006), while studying a nationwide Hepatitis C training program, found increases in knowledge and confidence about screening, diagnosis, treatment, and patient follow-up. Garrard et al. also surveyed participants at one, three, and six months post-training and found that all 28 sites reported at least one major change after one month (e.g., increased communication and collaboration with mental health staff) and that by six months, more than half of the sites reported continued improvements in treatment protocols. George et al. (2002) examined a training program intended to improve shared leadership in nurses. Positive results were found in pre- and post-program self- and peer-assessments of leadership behaviours in a sample of nurses across five hospitals. Interviews in the months following the training revealed that nurses felt more capable of meeting patient needs and promoting faster recovery, as well as an increased sense of personal growth. They also saw themselves as resources for other staff after the training and noted that better coworker relationships had developed as a result of workflow changes after the training.

The effectiveness of continuing education mandates was the subject of two empirical studies. Results were somewhat conflicting; Prater and Neatherlin (2001) surveyed nurses with mandatory continuing education requirements and found that they attributed a significant portion of their improvements in various skills to participation in mandatory training. They also had a generally positive view of mandatory continuing education. Smith (2004), on the other hand, compared nurses with and without continuing education mandates and found very few meaningful differences in self-rated ability, growth in professional abilities, or hours spent in relevant continuing education courses. Nurses with and without continuing education mandates in this study also made very similar attributions about the sources of their professional growth.

McCabe and Garavan (2008) examined the effects of organizational support for staff training and found that nurses' commitment and motivation were improved by a positive administrative stance on training. The non-empirical and grey literature reinforced this point. Narayanasamy and Narayanasamy (2007) discussed staff development programs in the UK's National Health Service (NHS), noting that the organization needs to be supportive, fair, and transparent about staff development and that development plans should be based on accurate appraisals of employee needs. They also argued that development policies should be harmonized with NHS strategies for staff development in order to create a truly supportive organizational culture. Accordingly, the NHS Scotland Staff Governance Standard (NHS Scotland, 2012) requires, in part, that all staff have a Personal Development Plan which is discussed and reviewed regularly. The workforce learning and development strategy includes mandatory training and identifies actions for implementation, monitoring, and evaluation of progress. The Standard also notes that resources should be allocated appropriately to meet local development needs in accordance with NHS priorities. In turn, staff is expected to participate in development activities and actively seek opportunities for further growth. The Standard states that employees should "have the confidence and be empowered to make … changes" (p. 4) to service delivery to ensure they can provide the highest quality of care and enjoy their work.

Only one empirical paper discussing professional development scored in the medium range; the remainder was in the low range of acceptability for inclusion in this review. All the non-empirical and grey literature papers were in the low range.

Table 3. Professional development empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Garrard, 2006 USA				
Nationwide training program by Minneapolis Hepatitis Care Resource Centre – to develop and promote best practices in Hepatitis C (HCV) throughout Veterans Affairs and other healthcare systems Focus is to increase knowledge and skills of individual participants, to change the interaction or relations within teams, and to provide feedback reviews to help facilitate change within the organization	Mostly nurses and physicians, from both medicine and mental health	Knowledge, confidence, collaboration, treatment protocols Mention of multispecialty teamwork	54 participants from 28 sites in training program Pre/post knowledge and confidence assessments on day 1; follow-up calls at 1, 3, and 6 months with one participant from each site Eight month training program with needs assessment, 2-day training, 6-month follow-up period	Outcome category: Professional behaviour, work attitudes, collaborative practice Course was effective in increasing knowledge and confidence about screening, diagnosis, treatment, and follow-up One month after preceptorship - All 28 sites reported at least one major change related to HCV (e.g. increased communication with mental health staff, increased staff awareness of need for HCV treatment) End of third month – 19 sites described continued positive improvements, three reported no significant change, three had diminished due to staff being absent or withdrawn At six month follow-up - 17 sites reported improved treatment protocols Training program effective in initiating or encouraging collaboration between HCV and mental health staff End of month 1 – 17 of 23 sites increased contact between provider groups Month 3 - 16 sites had ongoing or increased collaboration Month 6 – all sites from months 1 and 3 continued with ongoing meetings, increased communication Overall learning – if no positive change by end of month 3, it is unlikely there will be changes by month 6 Greatest impediment to change – lack of administrative buy-in and clinician turnover Some mention of process impact for patients, minor point, not about patient outcomes
George, 2002 USA				
Shared leadership training program – four 8-hour modules	Nursing	Staff leadership behaviours, autonomy, staff relations, empowerment, assertiveness, skills, collaboration	Study 1: difference in pre- and post-program self-perceptions of leadership in participants and non-participants; 30	Outcome category: Learning, work attitudes, collaboration, care protocols

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
over two months intended to increase professional nursing autonomous behaviour; Implemented in hospitals in Wisconsin		Also mentioned: Empowerment, decisiveness, shared vision, motivation, self-efficacy	participants, 15 non-participants; completed Smola Assessment of Leadership Inventory pre- and post-program (6 months for post) Study 2: pre- and post- changes in leadership behaviour and professional nursing practice autonomy; 140 nurses from five hospitals; self and peer assessments of Leadership Practices Inventory and self-assessments on Nursing Activity Scale (autonomy) (pre- and 6 months post) Study 3: perceptions of processes and outcomes associated with development and continued use of leadership behaviours after program; 24 nurses interviewed at 3, 6, 12 months post-completion	Study 1: Small increase in leadership perceptions for experimental group (p <.10); no change for non-participants between pre- and post-test; no difference between control and experimental groups at post-test, but authors attribute this to small sample size Study 2: Statistically significant increases in all five self-reported leadership behaviours and nursing professional practice autonomy between pre- and post-test; peer assessments of leadership behaviours also increased Study 3: Nurses reported increased ability to meet a variety of patient needs, enhance patient and family trust and rapport with the nurse, improve patient and family satisfaction with care, and promote faster recovery; reported increased personal self-growth (e.g. confident, effective, organized, empowered assertive), less stressed; participated in committees; more effective resources for other staff; better negotiating skills, better relations with others, more accountability for health system; systems improvements decreased workflow issues, and improved team relationships with co-workers, and relationships between nurses and physicians No patient outcomes reported
MacDonald, 2008 Canada				
Learning/training: ELearning resource designed to enhance collaborative practice (four sections: prepare for collaborative practice, share information, process information, measure collaborative practice [CP])	Pharmacists, physicians, nurses, nurse practitioners	Reaction to learning experience, acquisition of knowledge and skills about CP, changes in attitudes toward value and use of team approaches to care, learning transfer, increase in interprofessional collaboration, role understanding Discussed importance of CP for patient care; difficult to implement due to increased workload, differences among staff (e.g. knowledge, skills); need training	51 learners from three- or four-member teams in long-term care facilities Three online surveys – Survey 1 (demographics, current knowledge, skills, behaviour, and attitudes toward CP) at first login, Survey 2 (feedback on resource, assessment of whether learning objectives were met, attitudes toward CP) and Survey 3 (CP and impact of learning resource in terms of organizational change and resident well-being) after completion of all learning activities Also conducted interviews with eight teams at the end of the project (identify	Outcome category: Work attitudes, learning, collaborative practice, role clarity Overall, learners felt resource was beneficial Interviews and surveys indicated learning objectives had been met, increase in confidence about most CP skills No change in composite attitudes to teamwork score; one item (team approach permits health professionals to meet the needs of family caregivers as well as residents) changed 82% of learners applied new skills in the workplace as a result of the course; 75% applied new knowledge; 69% initiated new ideas or projects Team functioning improved, increased understanding of each

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
			strengths and outcomes of the learning resource, provide recommendations for improvement) and interviews with one administrator from each of the eight long-term care homes	others' roles, improved communication, improved CP Health system change – 49% requested changes be made in their organization to improve care delivery No patient outcomes reported
McCabe, 2008 UK				
Training and development (no specific initiative, examine organizational support for training and development); Shared governance (not specifically named) – as drivers of commitment in one acute organization and one community organization in the UK	Nursing	Commitment, motivation Also mentioned: empowerment, training needs, turnover, participation in decision making Commitment is linked to satisfaction among nursing staff; organizational service orientation is important for performance and service excellence (correlation between commitment and service orientation)	40 nurses from various wards in two organizations Semi-structured interviews, grounded theory approach	Outcome category: Work attitudes Organizational support for staff training – positive message to nursing staff, addressed main drivers and motivational needs of staff, increased commitment Leadership – motivated and increased commitment of staff, supported staff's implementation and coping with organizational change, staff expectation that strong senior leadership positively affects line management attitudes which then positively affects staff attitudes Scope – greater emphasis on specialization, less opportunity for promotion Shared governance – current system held them accountable without giving them any sense of control (lack of autonomy) or opportunity for involvement in decision making No patient outcomes reported
Prater, 2001 USA				
Continuing education (CE) mandate by nursing board in Texas	Nursing	Attitudes toward mandatory CE, CE completed, perceived improvement as result of mandatory CE Also mentioned: increased competency, increased productivity in professional roles, development of new skills and knowledge	Surveyed 123 nurses in Texas Questionnaire measured attitudes toward mandatory CE, CE completed, demographics, perceived improvements as result of CE	Outcome category: Work attitudes, professional behaviour, learning Overall attitude toward mandatory CE was positive, but no perceived improvement of psychomotor nursing skills as a result of participation in mandatory CE; positive perceptions related to improvement of cognitive nursing skills, improvement of affective nursing skills, and healthcare of the public; nurses saw increased general knowledge base as most beneficial outcomes of mandatory CE, followed by awareness of professional issues; cost is biggest perceived problem with mandatory CE

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				Significant positive relationships were found between nurses' attitude toward CE and their perceived improvement in: Healthcare of the public ($r = .52, p < .001$) Affective nursing skills ($r = .57, p < .001$) Psychomotor nursing skills ($r = .65, p < .001$) Cognitive nursing skills ($r = .52, p < .001$) General knowledge ($r = .38, p < .001$) No patient outcomes reported
Smith, 2004 USA				
Nursing board mandates for continuing education (CE) in the USA (vs. nursing boards without mandates)	Nursing	Development of professional competence, self-rated ability, hours of CE completed	Questionnaire developed for project included questions about 10 professional abilities and questions about issues potentially influencing growth of professional abilities 1025 completed questionnaires (478 from Licensed practical nurses [LPN]/Vocational nurses [VN] and 547 from Registered nurses [RN]) from 35 nursing boards Comparison of nurses with and without mandated CE	Outcome category: Learning, professional behaviour Compared self-ratings of ability (retrospective rating of when first began as a nurse and a current rating) for nurses with and without mandated CE; only significant finding for 10 abilities was LPN/VN respondents' current ability for assessing client or service outcomes (mandated were higher) Subtracted beginning ability from current ability to measure growth of professional abilities; no statistically significant or practically relevant differences in the amount of growth experienced by either RNs or LPN/VNs with and without CE mandates Nurses were asked to rate factors contributing to current abilities; no differences found between mandated and non-mandated (most points for work experience, followed by basic professional education) Slightly more CE hours for mandated vs. non-mandated, but not statistically significant; mandated nurses did complete significantly more hours of CE unrelated to their current work Employment conditions and other issues influencing growth in abilities: access to CE through their employers was especially problematic for LPNs/VNs in long-term care (48%); 43% RNs and 45% LPN/VN sometimes or frequently NOT allowed time off for CE No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Smith Randolph, 2005 USA				
Clinical laddering and continuing education (CE) as extrinsic job satisfaction factors offered by the employer	Occupational therapists (OTs), physical therapists (PTs), speech language pathologists (SLPs)	Career satisfaction, desire to stay on the job Also mentioned: recruitment, retention	1500 surveys mailed to practicing OTs, PTs, SLPs , 328 usable questionnaires returned Surveys measured career satisfaction, desire to stay on the job, and availability and importance of various job factors (e.g. flexible schedule, competitive pay, adequate guidance, clinical laddering, continuing education)	Outcome category: Work attitudes No significant effect of clinical laddering or CE. Results revealed that intrinsic factors (those inherent to the job or controlled by the professional) were more important for satisfaction and desire to stay than were extrinsic factors (those controlled by the organization) No patient outcomes reported

3.4 Quality Focus

This category includes governance strategies that focus on the improvement of quality of care. Clinical governance, quality improvement projects, and evidence-based practice are in this category. Clinical governance is a framework developed by the NHS to encourage quality, accountability, and continued improvement (Murray, Fell-Rayner, Fine, Karia, & Sweetingham, 2004). This framework involves clinical audit, risk management, service user experience, professional development, research and effectiveness, clinical information, and staffing components. Quality improvement is a generic term for programs designed to improve quality of care. Evidence-based practice involves making decisions about care based on the best available evidence, a clinician's expertise, and patients' values (Sackett, Rosenberg, Muir Gray, Haynes, & Richardson, 1996).

Although improving providers' ability to care for patients is a clear goal of these initiatives (Murray et al., 2004; Freeman & Walshe, 2004; Vina, Rhew, Weingarten, Weingarten, & Chang, 2009; Luxford, Safran, & Delbanco, 2011; Melnyk, Fineout-Overholt, Giggleman, & Cruz, 2010; Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter, 2011; Sheaff et al., 2004; Wallen et al., 2010; Fitzgerald, Ferlie, & Hawkins, 2003; Gerrish, Ashworth, Lacey, & Bailey, 2008), other outcomes have been hypothesized to result from a focus on quality. Empowerment (Sweeney & Ellis, 2003; Melnyk et al., 2010), collaboration (Freeman & Walshe, 2004), productivity (Paxton, Hamilton, Boyd, & Hall, 2006), and job satisfaction (Luxford et al., 2011; Melnyk et al., 2010) are just a few of the variables that could be affected by an administrative focus on increasing providers' ability to provide quality care.

Fifteen empirical articles on clinical governance, evidence-based practice, or quality improvement initiatives were included (all referred to hereafter as clinical governance for simplicity; see Table 4 for extractions). Many of these examined providers' attitudes toward the initiatives. In general, providers were supportive of clinical governance (Murray et al., 2004; Sweeney & Ellis, 2003; Dean, Farooqi, & McKinley, 2004; Melnyk et al., 2010; Sheaff et al., 2004; Rosengren, Hoglund, & Hedberg, 2012), although there was often some apprehension about its implementation (Dean et al., 2004; Murray et al., 2004; Gerrish et al., 2008). There was also some evidence that clinical governance increased workloads (Rosengren et al., 2012; Sheaff et al., 2004). Only one study (McCormick & Langford, 2006) found a large percentage of providers – namely dentists - with negative attitudes about clinical governance. Dentists in the UK felt they were lacking guidance, that costs and time demands were too high, and that the costs of clinical governance would encourage dentists to leave the NHS to practice privately. Only 30% of the dentists surveyed agreed that care quality would *not* be improved by clinical governance.

Several of the included studies examined the effects of training on attitudes towards or understanding of clinical governance. The majority found that clinical governance training increased acceptance and understanding of clinical governance (Sweeney and Ellis, 2003; Levin et al., 2011; Wallen et al., 2010; and Som, 2007). Sweeney and Ellis (2003) also found enhanced leadership skills and better team relationships after training. Levin et al.

(2011) and Wallen et al. (2010) report that clinical governance training programs increased providers' use of evidence-based practice. However, it must also be noted that these training programs were associated with increased workload (Sweeney & Ellis, 2003; Dean et al., 2004), stress (Sweeney & Ellis, 2003), and time pressure (Sweeney & Ellis, 2003).

Factors found to facilitate implementation of clinical governance programs are the availability of credible evidence (Fitzgerald et al., 2003; Gerrish et al., 2008), the ease of use of the new practice (Fitzgerald et al., 2003), and, most commonly, leadership support (Wallen et al., 2010; Gerrish et al., 2008; Luxford et al., 2011; Rosengren et al., 2012).

Facilitators of clinical governance were also found in the non-empirical and grey literature. Leadership and organizational support for clinical governance was noted by Mohide and Coker (2005); Newhouse (2007); Regan (2011); Lugon (2005); Reinertsen, Gosfield, Rupp, and Whittington (2007); Spark and Rowe (2004); and Wood (2004) as being critical to its successful introduction and ongoing use. Other suggestions to engage staff in quality improvement initiatives noted in several papers were to give them some ownership in the program and hold them accountable for its success (Mohide & Coker, 2005; Newhouse, 2007; Forster, Turnbull, McGuire, Ho, & Worthington, 2011; Spark & Rowe, 2004), ensure that adequate information and resources are provided (Shaw, 2006; Newhouse, 2007; Lugon, 2005), and, as also suggested by the empirical results, provide staff with adequate training (Shaw, 2006; Shortt, Corbett, & Green, 2006; Webb et al., 2010). Offering incentives to providers to meet quality standards was suggested by Shortt et al. (2006) and Shaw (2006) as a means to change provider behaviour. The importance of including a performance review process in any clinical governance or quality improvement initiative was emphasized by Shaw (2006), Jorm and Kam (2004), Forster et al. (2011), and Webb et al. (2010).

Jorm and Kam (2004) and Reinertsen et al. (2007) noted that engaging physicians in quality improvement initiatives can be difficult. Jorm and Kam (2004) argued that some aspects of medical culture are "antagonistic" to quality improvement, such as physicians' traditional separation from other care providers. Physicians, according to Jorm and Kam (2004), fear a loss of autonomy, power, and status if they are pushed into interdisciplinary care teams as part of quality improvement projects. Jorm and Kam (2004) also argue that physicians are reluctant to follow clinical guidelines as this might inhibit clinical freedom and devalue clinical judgment. Shortt et al. (2006) noted that while Canadian physicians are distrustful of healthcare reform attempts by the government, they generally support quality improvement. The challenge, then, is to reconcile these two viewpoints. Reinertsen et al. (2007) created a framework to engage physicians in quality projects: hospitals must link their quality agendas to the physicians' own quality agenda, recognizing that both parties do want the best quality of care. Physicians must be held responsible for quality, and thus specific roles must be played by physicians and they should be involved from the beginning in planning and implementation. Reinertsen et al. also recommended that hospitals should "standardize what is standardizable, no more" (2007; p. 20), and not create complex care protocols with multiple branches for every possible aspect of care.

This was echoed by Mohide and Coker (2005), who suggested that evidence-based changes to nursing practice need to be readily understandable, practical, and easy to apply.

Common to the non-empirical literature is a sense that clinical governance and similar initiatives have an impact on providers' ability to feel empowered to make decisions (Jewell & Wilkinson, 2008; Regan, 2011; Lugon, 2005; Rondeau, 2007). Clinical governance is also touted as a means to increase retention (Jewell & Wilkinson, 2008) and providers' potential for growth (Regan, 2011) by matching staff's knowledge and capabilities with their work, thus encouraging better engagement of clinicians and more effective ways of working (Jewell & Wilkinson, 2008).

Quality of evidence in the empirical papers focusing on care quality initiatives was somewhat low. Eight of the papers were in the low range, four were mid-grade, and three were of high quality. All but two of the non-empirical and grey papers were considered to be low quality, with the others reaching only mid-range quality.

Table 4. Quality focus empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Dean, 2004 UK				
Quality improvement (QI) as part of National Health Services (NHS) clinical governance (CG) initiative (details on programs in individual practices not provided)	General practitioners (GPs), nurses, allied health, administration or reception	Attitudes toward QI Lack of time, knowledge, skills, benefit from CG all noted as barriers to implementation; deficiencies in teamwork	192 members of primary healthcare teams from 17 general practices (11 city, 6 rural or market town; 6 teaching or training practices, 6 solo or dual partner practices; 3 were in underprivileged areas) Sent questionnaires with open-ended items about confidence in QI, beliefs about whether it would be beneficial, any personal anxieties about QI	Outcome category: Work attitudes Most were confident about practice's ability to take part in and benefit from quality initiatives Believed that good team processes (communication, cooperation, enthusiasm, conflict resolution) and selecting appropriate or relevant initiatives to motivate the team were necessary for successful QI; poor team functioning reduced confidence Team members wanted to be involved in initiatives but had anxieties about whether this would happen (want to be consulted) because of issues with the systems, funding and time Concerns about QI increasing workload Article includes frequency and percentages by occupational group of positive, negative, conditional and unknown statements; as well as emergent categories' statements No patient outcomes reported
Fitzgerald, 2003 UK				
Evidence-based decision making in four health authority areas in the UK (no specific initiative)	GPs, nursing, physiotherapists, non-medical managers, clinical academic, medical manager, Chief Executive Officer (CEO), GP / commissioner, director of public health	Collaborative practice, clinical practice	Comparative, longitudinal case studies (total of 113 interviews with multiple types of staff across four health authority areas – see list in "workforce examined") Macro and micro-stage to data collection; macro-phase interviews across four health authorities (chief executive, public health director and primary care lead, GPs); micro-phase interviews (GPs, nursing, physiotherapist, non-medical manager)	Outcome category: Collaborative practice, professional behaviour Doctors wished to establish the credibility of evidence from the source; nurses demonstrated less willingness to engage directly and tended to receive information from doctors Professionals weighted factors for spread: robust scientific evidence to support innovation, innovation is applicable, neutral cost implications, new intervention or treatment is not so complicated, intervention raises patient satisfaction Partnership-based organizations operate in a consensual, non-hierarchical way at the top, while within the practice there are distinct hierarchies between professions; networks need collaborative effort based on consensus; issues relating to the

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				organization of services, control and CG need to be handled differently in primary care No patient outcomes reported
Freeman, 2004 UK				
Clinical governance (CG) initiative by NHS (specific details for each trust not provided)	Board and managers of acute, ambulance and mental health/learning disabilities Trusts	Collaboration and leadership, improving staff performance	Survey of CG in NHS trusts 1916 participants selected across 100 Trusts (1177 returned surveys) National cross sectional study questionnaire – assesses organizational performance on achievement on organizational competencies related to CG and perceived importance of the competencies	Outcome category: Work attitudes, professional behaviour Leadership and collaboration were perceived as important (fourth on the list) (mean 8.0, 95% CI 7.9-8.1); improving performance was third (mean 8.1) Lower perceived achievement in leadership and collaboration (mean 5.6, 95% CI 5.5-5.8) Biggest differences between perceived importance and perceived achievement were for leadership and collaboration (mean 2.4, 95% CI 2.3-2.5) and improving quality (mean 2.3, 95% CI 2.1-2.4), followed by performance improvement (mean 1.9) More progress in areas concerned with quality assurance than quality improvement No patient outcomes reported
Gerrish, 2008 UK				
Evidence-based practice (EBP) – various initiatives relating to reduction of pressure damage in two hospitals in England	Nursing (senior nurses, junior nurses)	Research utilization (i.e. use of EBP), knowledge and skills in implementing EBP	Data collected using Developed Evidence-based Practice Questionnaire which is comprised of: Section 1 – knowledge used by nurses in their practice (adapted from Estabrooks scale, 1998) Sections 2-4 – barriers to achieving EBP Section 5 – self-rating on skills of finding and reviewing evidence and using evidence to effect change All registered nurses (RNs) in two hospitals (excluding those already participating in a study regarding EBP, two clinical directorates in one hospital)	Outcome category: Care protocols, work attitudes Utilization: Nurses tend to draw from experiential knowledge acquired through interactions with patients and colleagues to a much greater extent than formal knowledge from textbooks and journals; knowledge was also gained from doctors, in-service training, and policy and procedure manuals Barriers: Greatest barriers to research utilization were related to time and availability of information; skill in judging quality of information and identifying implications for practice also of concern; nurses were generally confident about where to locate information Barriers to changing practice: time and resources; confidence in ability to effect change, lack of authority, non-receptive culture also barriers; also perceived lack of support from managers, colleagues,

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
			Questionnaires returned: Hospital 1 n = 330 Hospital 2 n = 274 Combined useable sample N = 598	medical staff for change to practice Skills: Nurses were more confident in finding organizational information and reviewing organizational information than finding and reviewing research evidence; using organizational information or research information to change practice were the areas of least confidence Differences between senior and junior nurses: Senior nurses consult formal sources of knowledge (research journals, audit reports, internet) and organizational information, and were confident they could implement change based on EBP; junior nurses use their education as source of EBP knowledge, and were challenged finding organizational information, implementing change based on EBP No patient outcomes reported
Levin, 2011 USA				
Evidence-based practice (Advancing Research and Clinical practice through close Collaboration [ARCC] model; involves system wide implementation and EBP mentor to assist others)	Nursing (health home care)	Beliefs about EBP, implementation of EBP, group cohesion, job satisfaction, productivity, turnover, learning	Two group randomized controlled trial with repeated measures (22 nurses in experimental group, 24 in control); nurses in experimental group were given EBP training, toolkits, environmental prompts, EBP mentor Data collected at 4 time points (Time 1=baseline, Time 2=4 weeks, Time 3=16 weeks, Time 4=9 months after completion) Turnover rates compared to year before for each group Learning questionnaire given to both groups to assess knowledge	Outcome category: Care protocols, work attitudes, retention Statistically significant improvement in ARCC nurses' EBP beliefs at Times 3 and 4, compared with control group (EBP group increased from Time 1 to 3, slight decrease at Time 4) Nurses in EBP group demonstrated greater implementation of EBP at Times 3 and 4 than did controls, and EBP increased in EBP group from Time 1 to Time 3 No group effects on group cohesion, but EBP group was more cohesive at Time 3 than Time 1 No effects of group or time on job satisfaction No effects of group or time on productivity EBP group turnover (vs. previous year) was reduced by almost 50%; no change for control group No significant difference between EBP and control nurses on EBP learning questionnaire, but EBP nurses answered more questions correctly in physical assessment portion of exam (both were given

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				this training) see also Melynk 2010 and Wallen 2010 re ARCC model No patient outcomes reported
Luxford, 2011 USA				
Strategies to support change to patient-centred care (includes quality improvement; no specific initiative or details provided) in healthcare organizations across the USA	Interviews conducted with senior leaders (e.g. CEO, Chief Medical Officer, quality director), but discuss general staff issues	Employee satisfaction, building staff capacity, accountability Supportive work environment for all employees, importance of clear communication of strategic vision	Eight healthcare organizations (three acute inpatient hospitals, three medical groups or ambulatory care, two health management organizations) selected for study due to either having widely recognized reputation for improving patient care experience or were high performers in patient care experience data Five key informants from each site were interviewed (semi-structured)	Outcome category: Work attitudes, learning Interviewees from 7/8 sites reported that strong committed senior leadership (CEO, governance support), communication of strategic vision (5/8 sites), a focus on improving satisfaction of employees is a facilitator for building patient-centred care; 7/8 identified building capacity of staff to support patient focus (e.g. training on values, communication, customer service) 6/8 incorporate patient feedback into performance reviews to enhance accountability (and pay incentives) 7/8 felt they need to change mindset of employees from provider focus to patient focus Other learnings – change takes longer than anticipated (5/8), leaders are influential in successful change of culture and employee support, insufficient resources is a barrier Suggestions – CEOs in study had longer than average tenure which may have supported a strategic long-term approach to QI Loose discussion of transition to patient centred care (including outcomes) but no reporting of measured patient outcomes
McCormick, 2006 UK				
Clinical Governance (CG) "a framework through which NHS organizations are accountable for continuously improving the quality of their	Dentists	Attitudes towards CG Professional performance, recognition and promotion of good practice, identifying and remedying poor practice, understanding of CG, frustration and cynicism about CG, retention and intent to leave	Questionnaire to assess attitudes and opinions towards CG Questionnaire sent to 208 dental practices	Outcome category: Work attitudes, retention 73% agreed/strongly agreed there was not enough guidance on implementing CG 72% agreed/strongly agreed it takes too much time to implement CG 31% agreed/strongly agreed that quality in practice will not be improved with CG

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish" (p214)				52% agreed/strongly agreed that cost is a major negative factor in implementing CG 60% agreed/strongly agreed the costs of CG will make more dentists leave NHS practice No patient outcomes reported
Melnyk, 2010 USA				
Evidence-based practice (EBP; ARCC model)	Nursing, allied health	Attitudes toward EBP (value of EBP, ability to implement it) Implementation of EBP Group cohesion Job satisfaction Also mentioned: professional autonomy, collaboration, turnover, morale, empowerment	58 nurses and other health professionals who had been selected to participate in EBP mentorship program as part of implementing ARCC model; measures administered at start of project Instruments used - Organizational Culture and Readiness for System wide Integration of Evidence-based Practice, Evidence-based Practice Beliefs, Evidence-based Practice Implementation, Group Cohesion, Price and Mueller Job Satisfaction Questionnaires were given BEFORE implementation	Outcome category: Work attitudes, care protocols Fairly strong beliefs about EBP and ability to implement it, although level of implementation was relatively low Participants with stronger beliefs about EBP implemented it to a greater extent, reported higher group cohesion and job satisfaction, and perceived organizational culture as more positive and ready for EBP see also Levin 2011 and Wallen 2010 re ARCC model No patient outcomes reported
Murray, 2004 UK				
Clinical governance (CG) – NHS initiative to place quality at the heart of the organization and emphasize need for accountability (specifics of each program not provided)	Nursing, healthcare assistants, support workers, speech language pathologists, physiotherapists, occupational therapists, pediatricians, clinical psychologists,	Knowledge, attitudes and implementation of CG Also mentioned: professional development (as a pillar of CG), need for CG to be accepted by staff for success, lack of time and support, and cultural resistance to change (as barriers to CG)	Staff CG survey to determine staff perceptions about CG and its implementation 539 participants across three NHS trusts Cross-sectional design, survey research	Outcome category: Work attitudes Majority viewed CG as useful, clear, welcome, but also complex and tiresome Good knowledge about CG Many staff were not aware of who their line manager was and guidelines for confidentiality; this prompted some to find this information Questionnaire can be used as an audit tool within Trusts and as a research tool to highlight ways in which CG can be promoted

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
	psychiatrists, social workers, music and art therapists, managers and heads of departments, administrative staff			Mean self-rating of implementation was 3.62(/5) but no details provided on what was included in this scale Knowledge self-rating mean was 3.43, attitude self-rating was 4.02 No patient outcomes reported
Paxton, 2006 USA				
Audit and feedback process designed to increase productivity by providing clear clinical performance information in an academic hospital's department of surgery	Physicians	Productivity (measured in relative value units [RVUs]) Also mentioned: autonomy, responsibility, workload	69 physicians with sufficient RVU data were included in the sample. Comparison of approx. 18 months pre- and post-implementation of feedback sheets Physicians were sent survey at the end of experimental time period to measure their usage and perceptions of the monthly performance data (n = 40)	Outcome category: Professional behaviour Increase in RVUs of 6% after implementation of feedback sheets (after removal of outliers, n=68) 89% of physicians believed the feedback sheets were useful, 92% viewed and used the reports No patient outcomes reported
Rosengren, 2012 Sweden				
Quality registry (Senior Alert [SA]) developed due to need for systematic approach within malnutrition, pressure ulcers, falls) in two hospitals in Sweden	Nursing	Change of mindset, teamwork, work pressure Also mentioned: importance of managing change by minimizing anxiety for staff	Eight interviews with nurses (one assistant nurse, seven RNs) from two hospitals (one ward per hospital) Questions based on experiences with implementation process and QI work with the registry	Outcome category: Work attitudes, collaborative practice, workload Change of mindset from traditional care to QI work through a preventive approach was described Committed leadership support for change process important (e.g. daily reinforcement of SA, promoted cross boundary collaboration) Teamwork with different professionals was described as significant and positive in creating synergy Nurses reported that registry could reduce work pressure as a result of more effective and preventive methods Challenges to QI – patient needs (e.g. different care providers required for optimal care)

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				Brief reference to patient outcomes in introduction and discussion; no formal measurement of outcomes
Sheaff, 2004 UK				
Soft governance of primary care groups/trusts over GPs (i.e. use of impersonal management tools and indicators to manage and measure performance, reward accordingly); clinical governance (CG)	Physicians	Attitudes to CG, workload, changes to clinical practice Also mentioned: threats to professional autonomy	Chose two "excellent" sites, two having difficulty providing mental health services, two that prioritized mental health (MH) but were neither excellent nor deficient, and six "middle of the road" sites 49 semi-structured interviews with key informants (e.g. chief executive, CG lead, MH lead) Document analysis 437 questionnaires from GPs about awareness of CG activity, attitudes toward it, methods used, and resulting practice changes	Outcome category: Work attitudes, professional behaviour 58% had positive attitude toward CG, 13% negative, 29% neutral 88% said workload had increased, 12% said unchanged, 0.2% said decreased 93% of GPs said their practice had changed because of CG; 48% said it made no difference to their quality of care No patient outcomes reported
Som, 2007 UK				
Clinical governance (CG) (human resource [HR] management [HRM] issues associated with implementation of CG) in a NHS hospital trust in the UK	All staff in NHS trust	Training, recruitment, retention, performance appraisal, absenteeism, multidisciplinary teamwork Also mentioned: commitment, motivation, and enthusiasm (as drivers of CG in NHS), team-oriented learning activities	Interviews with 33 key informants (doctors, nurses, HR managers, general managers) and document analysis at one NHS hospital	Outcome category: Learning, recruitment, retention, absenteeism, collaborative practice Participants appreciated the crucial role of HRM in the implementation of CG by putting right people in right positions, providing opportunities for skill upgrades, preparing staff for advanced roles, and ensuring adequate staffing levels in each department Staff members need to be trained in how to practice evidence-based medicine (EBM), how to monitor own activities and prove they are evidence-based Need skills in critical research appraisal Issues with performance appraisal process and implementation – needed for EBM, but hard to implement such a sensitive issue Issues with recruitment and retention due to funding issues –

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				shortage of staff is the biggest problem in most units studied Sickness absence further aggravates staffing problems; Trust has comprehensive policy, but it needs improvement; this staff shortage makes others tired, influencing long-term retention Need more team-oriented learning opportunities to enhance multidisciplinary teamwork Mention that few articles pay attention to HR implications of CG No patient outcomes reported
Sweeney, 2003 UK				
Clinical Governance Development Programme (CGDP) “aims to inspire and enable frontline teams to demonstrate understanding and application of CG through a patient-centred programme of facilitated change” (p262)	Multiple (e.g. nurses, physicians, allied health)	Attitudes toward CG, workload, empowerment, motivation Desired HR outcomes of CGDP: enhanced leadership skills, effective team working, embrace CG to improve patient experience	Telephone interview with 500 delegates who had participated in the CGDP; assess impact the program had on participants, their working practices and work relationships	Outcome category: Work attitudes 76% agreed their leadership skills have been enhanced 62% believed they now have better relationships with colleagues 79% agreed their understanding of QI issues increased Negative impacts reported: increased workload, pressure of time, levels of stress Main benefit of meeting and sharing with other health professionals, acquiring new skills Increased feeling of empowerment, heightened motivation in the change process No patient outcomes reported
Wallen, 2010 USA				
Structured mentorship program to implement EBP (ARCC model) in Maryland hospital	Nursing	EBP beliefs (value and ability to implement), EBP implementation, group cohesion, job satisfaction, intention to leave, intention to stay in nursing Also mentioned: improvements in care quality and practitioner skills	159 participants at baseline (94 in EBP implementation group, 65 in non-workshop group) and 99 participants at post-intervention (58 in EBP, 41 in non) Also ran focus groups (four clinical nurse specialists, nine nurse managers, five members of Shared Governance Clinical Practice Committee) For EBP group: 2-day intensive workshop	Outcome category: Work attitudes, care protocols, retention Focus group participants believed nurses might be resistant to EBP unless it was applicable to their practice; need leadership support and dedication of resources Survey results: Those who attended EBP workshops had larger increase in EBP Belief scores than those who did not attend, more change in implementation (+), job satisfaction (+), group cohesion (+), and intent to leave (-); no difference for intent to stay in nursing

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
			to improve EBP knowledge and skills, ongoing mentoring and skill-building activities, online tutorials Instruments used – see Melynk 2010 + Intent to Leave scale, Nurses' Retention Index	see also Levin 2011 and Melynk 2010 re ARCC model Reference to importance of patient outcomes in background, but no reporting of outcomes in findings or discussion

3.5 Organizing Structures

3.5.1 Organization of Healthcare Delivery

The methods by which healthcare providers are deployed and organized have come under scrutiny in recent years, with many changes being made to traditional models. Researchers examining these topics postulate that organizational characteristics and care models could affect provider outcomes such as empowerment (Donoghue & Castle, 2009), job satisfaction (Donoghue & Castle, 2009; Lavoie-Tremblay et al., 2011; Castle & Engberg, 2006), quality of life (O'Dowd, McNamara, Kelly, & O'Kelly, 2006), team dynamics (Belling et al., 2011), role clarity (Belling et al., 2011), psychological distress (Lavoie-Tremblay et al., 2011), decision latitude (Lavoie-Tremblay et al., 2011), use of evidence-based practice or care protocols (Aarons, Sommergeld, & Walrath-Green, 2009; Lavoie-Tremblay et al., 2011), and turnover (Castle & Engberg, 2006; Donoghue & Castle, 2009; Silvestro & Silvestro, 2008), among others (see Table 5 for extractions).

Ten empirical articles examined various aspects of the structure of healthcare delivery. Three of these studies discussed the change from care delivered by individual providers to team-based care delivery, and the results suggest that providers have difficulties adjusting to the change. Belling et al. (2011) found that professionals involved in interdisciplinary mental health teams in the UK experienced anxiety about role changes and role overlap resulting from a collaborative care model. Lavoie-Tremblay et al. (2011) examined interdisciplinary teams in two psychiatric hospitals in Quebec and found that, although providers believed the interdisciplinary teamwork was rewarding and allowed them more flexibility in their practice, there was also an increase in psychological distress associated with the move to team-based care. Expected improvements in outcomes such as social support from superiors, use of evidence, balance between effort expended and rewards received, and workload did not appear, although providers in one of the hospitals did note an improvement in social support from colleagues. Sicotte, D'Amour, and Moreault (2002) examined the factors that contribute to intensity of interdisciplinary collaboration in Quebec's Community Health Care Centres and found that almost none of the structural or managerial characteristics of the program had any effect. Instead, the most important determinants of collaboration were intragroup process variables such as conflict, belief in benefits of collaboration, and social integration within groups.

In a similar vein, O'Dowd et al. (2006) examined physicians' work attitudes as a result of a move to co-operative services to cover work outside of normal hours. Most physicians reported improvements to their quality of life, stress levels, and ability to cope with the demands of work. They were also quite satisfied with the other co-op staff, the shift allocation method, independence, and their own confidence for out-of-hours work. However, half of physicians felt overburdened by co-op responsibilities. Almost two-thirds of respondents would prefer a physician-health board partnership be responsible for organization of care, compared to 23% who would prefer the general practitioner take primary responsibility.

Silvestro and Silvestro (2008) examined nurse scheduling practices and their effects on nurses. They identified increased staff stress, work-family conflict, low morale, and poor staff-management relations as potential outcomes of poorly designed schedules. They also found that absenteeism, turnover, and difficulties with recruitment could result from improperly designed scheduling processes.

Braithwaite and Westbrook (2004) surveyed staff attitudes toward clinical directorates in an Australian hospital. Clinical directorates are organizational arrangements through which specific parts of larger hospitals are managed (e.g., medical, surgical, cardiac services). Braithwaite and Westbrook found large variation and uncertainty in staff attitudes, and concluded that staff were unsure about governance in the hospital and were not clear about the purpose, contribution, or effects of clinical directorates.

The remainder of the articles examined differences across organization types. Donoghue and Castle (2009) and Castle and Engberg (2006) measured the effects of nursing home features on nurse retention and found opposing results. Donoghue and Castle (2009) found that for-profit status lowered turnover for Licensed Practical Nurses (LPNs) but not Registered Nurses (RNs) or Nursing Aides (NAs), while membership in a nursing home chain was associated with higher turnover for RNs and LPNs but not for NAs. However, Castle and Engberg (2006) found no relation between chain membership and turnover in any group of nurses, but not-for-profit status was associated with *lower* staff turnover for all nurse types. Castle and Engberg also examined the effect of top management turnover on nursing turnover, and found that NAs and RNs (but not LPNs) were more likely to leave when top management turnover was high. Aarons et al. (2009) examined mental health providers' use of and beliefs in evidence-based practice (EBP) in private versus public agencies. Workers in private agencies were more supportive of EBP than were workers in public agencies, but this did not predict actual use of EBP. Organizational support for EBP, however, did increase its use. This was true across agency types, although private agencies tended to be more supportive of EBP.

The non-empirical and grey literature contained six articles relevant to organization of healthcare delivery. Three of these examined physician organizations in the USA. Smith (2011) discussed how Accountable Care Organizations impact the quality and type of care physicians provide. Accountable Care Organizations are systems whereby physicians, specialists, and hospitals provide care to Medicare patients and receive a portion of savings for meeting government-set cost containment and quality standards. Care and costs are determined by the providers in this model. Physicians, according to Smith (2011), are often caught in the middle between cutting costs and avoiding liability because the standard of care set by the government does not take into account the realities of cost cutting. A similar issue is at play in Managed Care Organizations, systems in which costs are controlled by the organization rather than the provider. A major difference between Accountable Care Organizations and Managed Care Organizations for physicians, according to Smith (2011), is that physicians in Managed Care Organizations face termination for not meeting cost

cutting goals, whereas physicians in Accountable Care Organizations will simply fail to receive a bonus for missing their targets. In either case, tension results from the clash between liability concerns and cost requirements. Korda and Eldridge (2011) discussed the implications of Accountable Care Organizations for nurses, noting that the ability to participate in interprofessional care and teamwork will be of crucial success. Howard (2003) described a physician organization's difficulties with building a large physician network to sustain a multi-state healthcare system. The organization acquired smaller physician practices to serve as the "core" medical group for the system, and these physicians required extra attention from management to smooth the transition. This resulted in resentment from physicians already in the system, who also felt forced into competition with the new staff. At the same time, the extra benefits offered to the new physicians had a significant and negative impact on the financial wellbeing of the system and resulting cost-cutting efforts strained relations between management and the new physicians. Over time, administration realized that a change was needed; they began by trying to understand the issues facing physicians (e.g., increased workload needed to maintain results, inflation of practice overhead) and began to place new emphasis on items valued by physicians to build trusting, honest relationships.

The Joint Commission on Accreditation of Healthcare Organizations created a standard to address disruptive and inappropriate behaviour by providers (Holloway & Kusy, 2011). Research has shown that incivility and other counterproductive behaviours in the workplace have a significant and negative impact on employees, and so Holloway and Kusy developed a Toxic Organization Change System to reduce and monitor this type of behaviour. The system includes policies, standards, review, and education to address toxicity at the organization, team, and individual levels. Specific strategies are suggested for each of these levels, and it is argued that if change cannot be implemented simultaneously at all levels, interventions should begin with the organization and team levels to effect the most change. Importantly, the authors note that incivility will not stop based on simple education programs or termination of offenders; systematic, multi-level, coordinated strategies are required.

Scott and Lagendyk (2012) examined interprofessional relationships in primary care networks in Alberta. Primary care networks are alliances between primary care clinics intended to improve coordination of patient care and provide round-the-clock services, along with fostering team approaches to care. Scott and Lagendyk studied five such networks and found that geographical co-location alone was not sufficient to create strong interprofessional relationships. Factors that were important to good relationships were strong leadership, effective communication strategies, and trust. These relationships, in turn, were crucial for success in quality improvement initiatives and other practice changes.

Hinings et al. (2003) discussed the uncertainty involved in system transformations such as the move to regional health systems in Alberta in 1995. Hinings et al. argued that regionalization had substantial impacts on professional identity for healthcare providers, noting that moves to "teamlike" work and changes to professional boundaries involved

changes to what providers did, how they were rewarded, and, consequently, how providers saw themselves.

The quality of evidence on the topic of organization of healthcare delivery was relatively low. The majority of empirical papers scored in the low range, two scored in the mid-range, and two were considered high quality. Of the non-empirical and grey literature, two papers were considered mid-range quality and the remainder was in the low quality range.

Table 5. Organization of healthcare delivery empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Aarons, 2009 USA				
Private vs. public status of mental health service provider agencies in the USA	Mental health service providers (e.g. social work, psychology, counselling, marriage and family therapy)	Attitudes toward evidence-based practice (EBP) Use of EBP Suggested private vs. public organizations may have different norms/expectations around and supports for use of EBP, and that this may have effects on individual beliefs; in turn, beliefs should affect behaviour Discussed perceived organizational support (fairness, supervisor support, organizational rewards and job conditions) – relates to work outcomes like job satisfaction, improved performance, and greater job involvement	Self-reported measures of EBP attitudes (global attitude toward adoption of EBP) and use of EBP (checklist of 31 EBPs) 170 respondents (41 public, 129 private)	Outcome category: Work attitudes, professional behaviour Working in private agency was associated with more positive attitudes to EBP; no significant relation between attitudes and use of EBP; agency type predicted attitudes to EBP and organizational support for EBP, but the only mediator of Agency type → EBP use was organizational support for EBP (i.e. Agency type predicts organizational support for EBP, which in turn predicts EBP use) Private organizations were more supportive of EBP than were public organizations No patient outcomes reported
Belling, 2011 UK				
Community Mental Health Teams in National Health Service (NHS) mental health trusts in greater London – goal is to provide continuity of care by using mix of professionals working collaboratively from one set of notes	Psychiatrists, psychologists, social workers, nurses, occupational therapists (OT), general practitioners (GP), volunteers	Role and identity Mentioned carer distress and confusion arising from service discontinuities For continuity of care, need consistent information given to users and carers, effective coordination of services, development of flexible care plans linked to effective monitoring, deployment of professional staff to remove disjointed episodes of service delivery, designation and accountability of one or more professional staff to foster therapeutic relationships and exert positive impact on care outcomes, and development of systems and processes to provide care adequate to meet needs over time	Semi-structured interviews (n=113) (majority of respondents in each trust were social workers or nurses)	Outcome category: Role clarity Some members expressed anxiety at perceived erosion of professional roles and identities due to generic and cross-boundary working No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
		Mentioned that in early stages of policy implementation, there were concerns over communication, coordination and decision making difficulties, concerns over loss of professional identity, limited resources, lack of time, bureaucracy, and leadership		
Braithwaite, 2004 Australia				
Clinical Directorates (CDs)– intermediate organizational arrangements through which defined parts of larger hospitals or health services are managed (i.e. grouped services either derived from pre-existing organization of medicine [e.g. medicine, surgery] or how services are delivered to patients [e.g. cardiac services, cancer services]) in large publicly funded hospital three years after conversion to CD	Physicians, nurses, allied health, administrators (all in managerial positions for CDs or units)	Attitudes toward clinical directorates: clinician issues, working relationships, coordination and management issues, decentralization, organizational performance and benefits Also mentioned: improved efficiency, combining managerial and clinical expertise in useful ways, organizational relationships, group behaviour, collaboration, trust	107 hospital staff completed survey developed by authors (based on literature and focus groups with 64 clinical unit managerial staff, pilot tested with 40 clinician managers, validated by expert panel of three academics in health sciences) Survey covers: clinician issues, working relationships in the hospital, coordination and management issues, decentralization, organizational performance and benefits Management roles: 49 managerial role, five non-CD hospital executives, nine senior CD managers, one business manager, 34 ward unit or department managers Clinician roles: 46 doctors, 24 nurses, 27 allied health, 10 administrators Analyzed using uncertainty index (% of staff with no clear attitude), intensity index (% of staff with strong view – either strongly agree or strongly disagree), polarity index (spread of group attitudes – high polarity is ~equal % of respondents agreeing and disagreeing with an item), overall positivism to CDs (answers to 20 items focusing on CDs in general)	Outcome category: Work attitudes Staff attitudes toward: Clinician issues (e.g. decision making, autonomy): slightly polarized, 26% of respondents were uncertain, 25% held intense attitudes Working relationships: most polarized section – wide disagreement here, but low intensity of responses (12%); uncertainty was high (37%) Coordination and management issues: attitudes were in mid-range of polarity, uncertainty, and intensity Decentralization: all scores in mid-range Organizational performance and benefits: medium polarity, low intensity, and high uncertainty Comparison of managers and non-managers: managers were less uncertain, less polarized, and more intense in their responses Results suggest staff were uncertain about governing arrangements of the hospital, its purpose, contribution, and effects No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Castle, 2006 USA				
Structure of nursing homes (for profit status and membership in nursing home chain)	Nursing (registered nurses [RN], licensed practical nurses [LPN], certified nurse aides [CNA])	Turnover Authors' conceptual model has 1) chain membership → autonomy → job satisfaction → turnover 2) profit status → pay and benefits → job satisfaction → turnover 3) top management turnover (proxy for leadership) → institutional loyalty → job satisfaction → turnover Turnover is the only outcome measured Also discussed workload, professional interactions, institutional loyalty, relationships, job pride, but not in relation to governance factors	Data from Online Survey, Certification, and Reporting (OSCAR), Area Resource File, survey of nursing home administrators N= 854 facilities	Outcome category: Retention No relation between chain membership and turnover No relationship between management turnover (proxy for leadership) and LPN or all staff turnover; relationship between management turnover and CNA and RN turnover Not-for-profit nursing homes were associated with lower nursing staff turnover (for CNA, LPN, RN, and all combined) No patient outcomes reported Similar study to Donoghue 2009 but datasets appear to be from different years
Donoghue, 2009 USA				
Structure of nursing homes (for profit status and membership in nursing home chain)	Nursing (RN, LPN, Nursing Aide [NA])	Turnover Model uses job satisfaction as partial mediator between organizational/leadership factors and turnover, also proposes direct effects: low job satisfaction → turnover Also suggested that staff needs to be empowered to make decisions about patient care, which would also lead to higher job satisfaction	Data from National Nursing Home Turnover Study (nationally representative survey) and OSCAR database (data from state and federal nursing home inspections) N = 2900 nursing homes	Outcome category: Retention For profit status associated with lower turnover in LPNs, not predictive for RNs or NAs Chain status associated with higher turnover in RNs and LPNs, no effect on NAs Other human resource factors examined, but only as predictors of turnover No patient outcomes reported Similar study to Castle 2006 but datasets appear to be from different years
Lavoie-Tremblay, 2011 Canada				
Quebec Ministry of Health's Mental Health Action plan and resulting organizational	Psychiatrists, nurses, psychologists, OT, social work	Psychological distress, job strain, recognition (effort/reward imbalance), use of evidence Also mentioned: patient-centred care gives	Case 1: Department of psychiatry at academic hospital; 24 respondents completed questionnaire Time 0 and Time 2 Case 2: Mental health outpatient services	Outcome category: Work attitudes, care protocols Case 1: Quantitative: No significant changes in effort/reward ratio, social support from colleagues, social support from superiors,

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
models in two hospitals; models based on patient-centred care; favours public access to care, quality of life, effectiveness and efficiency of healthcare system, and hierarchization of care, informed by evidence		providers the necessary latitude to plan and perform their work to provide the best response to the patient's needs and improve the processes resulting in increased job satisfaction; however, some research suggests it also results in greater anxiety and more questions from providers regarding care and job security Also discussed psychological demands (amount and complexity of work, job constraints) and decision latitude, social support – suggests social support from colleagues and superiors should moderate effects of job strain; Effort-Reward Imbalance model suggests that work situation with high degree of effort expended combined with little reward received can have pathological effects on health of employees	at psychiatric hospital; 38 respondents completed both times Self-report questionnaires administered at one-year intervals (time 0, 1, 2) and focus groups with semi-structured interview	psychological demand, or use of evidence; decrease in decision latitude and increase in psychological distress Case 2: Quantitative: No significant changes in effort/reward ratio, decision latitude, psychological demand, or use of evidence; increase in social support from colleagues and psychological distress, decrease in social support for superiors Qualitative: Patient-focused care allows interdisciplinary teamwork, this is rewarding; more flexibility in terms of practice, room for creativity; workload remains heavy because few links with frontline to transfer patients; changes to training and work organization are psychologically demanding No patient outcomes reported
McCloskey, 2005 New Zealand				
Reengineering by New Zealand (NZ) government – included creation of healthcare market (expected increased competition among providers once government was no longer sole provider and purchaser; never fully developed), replacement of traditional leadership with business managers,	Nursing (RNs and enrolled nurses [ENs; similar to LPNs])	Skill mix (percentage of total nursing full time equivalents [FTEs] who were RNs) Change to FTEs, change to hours worked	Retrospective analysis of longitudinal administrative data using time series design, from 1993 to 2000, to examine effects of reengineering policies on adverse patient outcomes and the nursing workforce Two databases run by NZ Health Information Service: National Minimum Dataset (NMDS) and Nursing Workforce Dataset (NWD) NMDS: Patient level discharge abstracts NWD: Completion is mandatory; study is based on sample of 65,221 nurses	Outcome category: Skill mix, workload Skill mix increased 18% from 1993 to 2000 36% decrease in RN and EN FTEs, 36% decrease in hours worked per 1000 discharges; FTEs and hours worked by 1000 patient days deceased by 9% each (increased workload result of 70% decrease in number of ENs) Skill mix result was probably because of phasing out EN role in hospitals, rather than higher mix of RNs actively being sought Patient outcomes: Preventable adverse outcomes, based on 11 nurse sensitive clinical outcomes (NSCO) Increases in 7 NSCOs No change in remaining 4 NSCOs Average length of stay decreased Mortality for medical discharges decreased, remained stable for

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
managerialism				surgical discharges Patient outcomes and nursing workforce: Statistically significant relationships between several adverse outcome rates and each of the following: decreases in number of nurses in hospital workforce, decreases in number of nursing hours worked, and increases in skill mix
O'Dowd, 2006 UK (Ireland)				
Two out-of-hours cooperatives for general practice (GP) physician services in rural and mixed urban/rural areas Differences between cooperatives: – one call centre used nurses to triage patients the other used GPs – one with paid hourly rate, the other with pay on consultation basis (no monetary reimbursement for phone consults, general medical services consults or down-time, i.e. no patients waiting to be seen)	Physicians	Quality of life, satisfaction with various aspects of the cooperative (cooperative responsibilities, shifts, complaint process, other staff, confidence for out-of-hours work, supplies, independence, pay, decision making) Discusses implications for: Continuing education needs (mental health, palliative), potential role of other providers (nurses) and availability of support services (dental, mental health, social services)	Questionnaire sent to all GP members of two cooperatives (82% responded, n = 182)	Outcome category: Work attitudes Improvements in their own quality of life (97%), quality of family/social life (91%), ability to cope with demands of work (75%), stress levels (77%) as a result of joining cooperative Half of providers reported feeling overburdened by cooperative responsibilities (slightly greater proportion of those aged 40 yrs or more) Dissatisfaction with number of shifts after midnight (20%), advance notice of shifts (16%), frequency of shifts worked (12%), procedures to deal with own complaints (almost 1/4) Satisfaction with medical and support staff (94%), method by which shifts are allocated (92%), own confidence for out-of-hours work (95%), provision of medicines and equipment (90%), independence in deciding how to treat patient (96%) Differences between cooperatives: Satisfaction with amount paid similar (46% in consultation, 41% in hourly), but satisfaction with method of payment higher in hourly (84%) than in consultation (58%) 63% prefer health board-GP partnership be responsible for organization of out-of-hours care vs. 23% who prefer GP responsibility alone [speaks to governance of the cooperative] No patient outcomes reported
Sicotte, 2002 Canada				
Quebec Centres	Program	Interdisciplinary collaboration	343 questionnaires from program	Outcome category: Collaborative practice

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
Locaux de services communautaires (CLSCs)/ Community Health Care Centres (CHCC)	coordinators	Also mentioned: professional autonomy and jurisdiction (vs. collaborative behaviour), open communication, conflict resolution, managing social status group differences Model: contextual factors → intragroup factors → intensity of interdisciplinary collaboration Collaboration is mediated by nature of the task	coordinators (elderly home care, youth and family care, ambulatory walk-in clinics, specialized adult care) from 157 CHCCs Measured intensity of interdisciplinary collaboration (care sharing activities and interdisciplinary coordination); determinants of interdisciplinary collaboration (contextual variables: characteristics of program managers, structural characteristics of the program, e.g. formalization of care activity procedures and assessment of quality of care; intragroup processes: beliefs in benefits of collaboration, social integration within groups, level of conflicts, agreement with disciplinary logic, agreement with interdisciplinary logic); work group design characteristics	Intensity of interdisciplinary collaboration is moderately positive (over 3.5/5 for all programs); authors note this is disappointingly low given stated goal of CHCCs is collaboration Regression results show that contextual variables are not associated with the intensity of interdisciplinary collaboration Neither the organizational characteristics of the programs nor the characteristics of the program coordinators are statistically significant predictors of interdisciplinary collaboration; contextual variable associated with intensity of collaboration is "formalization of the assessment of quality of care" (a structural characteristic of the programs that is statistically associated with both measures of collaboration intensity) Intragroup process variables (beliefs in benefits of collaboration, social integration within groups, level of conflicts) explain most of the variance in intensity of interdisciplinary collaboration Main factors associated with interdisciplinary collaboration are closely linked to work group internal dynamics No patient outcomes reported
Silvestro, 2008 UK				
Rostering (i.e. nurse scheduling) practices in hospitals in the UK	Nursing	Recruitment, morale, absenteeism, retention, skill mix	Telephone survey of nurse managers to identify parameters of rostering systems and document factors taken into account in designing unit rosters Examination of over 50 sample rosters Longitudinal case studies of five wards in two hospitals	Outcome category: Work attitudes, recruitment, retention, skill mix, absenteeism Objectives common to all roster-planning activities: manning requirements (maintain appropriate patient care, while not over-working staff or under-utilizing their time); cost control (minimizing use of casual staff); staff requirements (shift allocations, meeting expectations for flexible working, ensuring equitable treatment – staff may be absent if assigned bad shifts), tacit objectives (e.g. need to maximize staff pay by working undesirable hours) Need to account for hospital recruitment and retention strategies, legal requirements (e.g. European working time directive), national retention strategies, required skill mix

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined	Method	Results
				Possible outcomes from poor design (relevant only): under-manning the ward, compromising patient care and increasing staff stress levels; inability of staff to integrate their home/professional lives; low morale and poor relations between management and staff; absenteeism, particularly if the ward was understaffed and therefore a stressful place to work; high staff turnover; poor employer reputation, making it difficult to attract new staff; failure to realize wider national and hospital strategies to improve retention such as the Improving Working Lives Initiative and the European Working Time Directive No patient outcomes reported

3.5.2 Funding

3.5.2.1 Pay for Performance (P4P)

3.5.2.1.1 Reviews of P4P

There are a substantial number of systematic reviews discussing the link between funding incentives and performance in a range of clinical contexts. Most focused on care quality targets and clinical outcomes as part of quality improvement initiatives. Few asked questions about the impact of P4P on health workforce transformation. Nevertheless, there are some reviews that reported evidence around team working and roles, professional behaviour, job satisfaction and morale, and recruitment and retention as part of their wider discussion of P4P impact. To identify key themes, a sample of recent systematic reviews of P4P (published since 2007) where workforce impacts were discussed was undertaken. After screening, seven systematic literature reviews were selected for extraction. One review (Gillam, Siriwardena, & Steel, 2012) focused on the UK Quality and Outcomes Framework (QOF), and the rest (Flodgren et al., 2011; Frolich, Talavera, Broadhead, & Dudley, 2007; So & Wright, 2012; Scott et al., 2011; Van Herck et al., 2010; Houle et al., 2012) reviewed evidence on a range of performance-related financial incentives (see Table 6).

The evidence on the impact of P4P incentives on provider behaviour is mixed. P4P schemes are being widely adopted to facilitate health system reform but the evidence base to support the design and implementation of this type of funding is poor (Gillam et al., 2012; Scott et al., 2011). The reviews highlighted a range of contextual factors and program design issues that are not fully understood but which may have an important influence on the behaviour of affected providers. These included the size of incentive payments, who receives the payments, timeliness of payments, the setting of appropriate baselines to assess improvements, and engagement of stakeholders at all stages (e.g., in design and implementation of P4P schemes, building and maintaining trust, ensuring the appropriateness of targets and measures; Scott et al., 2011; So & Wright, 2012; Van Herck et al., 2010). A lack of theory of change around the use of financial incentives was apparent in most P4P schemes (Frolich et al., 2007), as were limited organizational resources to support reform (e.g. more human resources, education, or other support interventions; Van Herck et al., 2010). When those resources are in place, the evidence suggests that there are more positive perceptions of P4P incentives and a more positive impact of P4P on workforce transformation.

Table 6. Systematic reviews of P4P

Types of original article included + excluded	Types of pay for performance reviewed	Workforce	HR discussed	Key Findings
Flodgren, 2011				
Cochrane and non-Cochrane reviews of random control trials (RCTs), controlled clinical trials, interrupted time series and controlled before and after studies that evaluated the effects of financial incentives on professional practice and patient outcomes that reported numerical results of the original studies.	Systematic reviews of any type of financial incentive: time periods, payment for service, episode or visit, payment for a patient or specific population. Payments for reaching targets, payments for providing a change in activity or quality of care, other mixed payments.	Physicians, nurses, dentists and allied health professionals	Professional behaviour	Four reviews reporting 32 studies were identified. Discusses financial incentives as extrinsic motivators and states that the review aims to bring together several reviews to see which type of incentive is best at changing professionals' behaviours and what happens to patients. Payment for providing a pre-specified level or providing a change in activity or quality of care was generally effective, improving 17/20 reported outcomes from 10 studies reported in two reviews.
Frolich, 2007				
Excluded review papers and papers that did not report on quality of care. Focus is on understanding the theory underlying the design and implementation of incentive programs. They reviewed papers on incentive programs from prior research in various contexts and to develop a conceptual model for healthcare incentives. They then appraised how well existing health research could answer key questions about incentive design.	P4P *(interesting discussion of theoretical models underpinning financial incentive models.)* performance reporting (PR): *(discussion of reputational incentives and provider behaviour)*	Various healthcare providers	Professional behaviour (p183) An adaptation of Andersen's model of patient behaviour is used to explain provider behaviour (stimulus/mediators/response). A conceptual model of the determinants of providers' responses to incentives is provided in a figure on p185	21 articles, describing 18 trials, reported results of studies designed to evaluate PR or P4P impact on clinical quality. 9 of these were observational studies of limited quality and these are not discussed. 9 trials were RCTs. Found no clear conceptual model for how P4P or PR should work and what factors would facilitate or reduce their impact. Few studies document the impact of incentives on quality, few report the actual value of key variables such as the size of the incentive, or the cost of compliance with the changes required to achieve it. Organizational factors (e.g. culture) and the impact of other incentives being used are not considered.
Gillam, 2012				
All empirical research on implementation of Quality and Outcomes Framework (QOF) in the UK (qualitative and quantitative)	QOF	Mixed primary healthcare staff	Changes in practice Professional behaviour Team working	94 articles retained, grouped into 5 areas: effectiveness, efficiency, equity, patient experience, professionals and team-working. Findings Evidence on improvement in measures of quality is mixed. Areas of positive impact are in consolidating evidence-based methods, some early improvement in quality measures in year 1 but then leveling off, modest reductions in mortality and hospital admissions in some areas, narrowing

Types of original article included + excluded	Types of pay for performance reviewed	Workforce	HR discussed	Key Findings
				of differences in performance between deprived areas and more affluent areas. Team working was strengthened. No significant changes in patient reports on quality of care between 2003 and 2007. Some ethnographic studies suggest that care is now being delivered in a more biomedical way. Some health professionals suggest that protocol driven care may have distracted them from patient–led care and listening to patient concerns. Supplemental Table 5: summarizes 6 papers on impact of QOF on professionals. Interviews with doctors and nurses suggest that QOF has had a positive impact on practice organization especially team working, the diversification of nursing roles. There is some concern that nurses managing long-term conditions may deskill physicians in chronic care. A decline in the continuity of patient care has been flagged. A change in practice hierarchies and greater stratification of medical roles has been noted. Concerns have been expressed about the distribution of financial bonuses across teams. The surveillance culture behind QOF performance monitoring is a concern to some. A narrowing of the focus of primary care to incentivized conditions may lead to less opportunity for innovation and quality improvement (QI). QOF has been described as scientific bureaucratic medicine, where indicators and guidelines are perceived to threaten professional autonomy in various ways.
Houle, 2012				
Original research papers (RCT, interrupted time series, uncontrolled and controlled before-after studies, cohort comparisons. Had to have comparison between P4P and at least 1 other payment type. Had to focus on individual practitioners and achievement of quality indicators in patients under their direct care Used Cochrane methods	P4P remuneration, salary, Fee for service	Individual healthcare providers	No discussion	30 studies met inclusion criteria (from 523 records) Focuses on screening and preventative care, quality of care for chronic conditions. Higher quality studies with contemporaneous control groups or analyses that considered secular trends did not find improved adherence to quality of care indicators. Interrupted time-series studies of the UK P4P scheme that began in 2004 showed that improvements in quality scores for incentivized conditions were already improving before P4P began and the trend did not alter in the 3 years after P4P. Paucity of evidence is noted. Commentaries and editorials are far more prolific than empirical papers.

Types of original article included + excluded	Types of pay for performance reviewed	Workforce	HR discussed	Key Findings
				Notes that future research needs to *explore organizational factors in facilitating or impeding the implementation and effectiveness of P4P, as well as best motivators to change professional behaviour.* (Hamblin, 2008)
Ivers, 2012				
Focus on audit and feedback and impact on physician behaviour	Only 2 of the included papers were looking at financial bonuses	Physicians	Limited	Rates of immunization improved in a bonus group after 8 months, in a second study adding incentives did not improve the implementation of pediatric preventative care guidelines
Scott, 2011				
RCTs, controlled before and after studies, interrupted time series analyses analyzing the impact of different financial incentives on the quality of care delivered by primary care physicians. Quality of care was defined as patient reported outcome measures, clinical behaviours and intermediate clinical and physiological measures.	Single threshold target payments, fixed fee per patient achieving a specified outcome, payments based on relative ranking of medical groups' performance (tournament pay), mix of tournament based pay and threshold pay, change from blended payments to salary.	Primary care physicians	Limited discussion	Seven studies were included. The evidence for P4P in primary care is inconclusive. More rigorous research designs are needed to unpick impacts and separate P4P effects from other behaviour change interventions. Background: discusses the use of monetary incentives to change behaviour. Notes the importance of understanding motivators in healthcare and the complexity of designing incentive schemes. Variables include: 1. The size of the payment, when it is made, to whom. 2. Sources of intrinsic and extrinsic motivation (e.g. professional autonomy). 3. Financial opportunity costs of participating and changing behaviour – there is heterogeneity across physicians, across teams and care contexts that impact change management. Poorly designed incentives may have unintended consequences or distorting effects (e.g. general practitioners may invest more time in one patient group and less in another such that the overall net impact on quality of care and costs is hard to determine).
So, 2012				
Focuses on high and medium quality RCTs and prospective comparative studies or systematic reviews. All editorials or commentaries or review articles were also excluded	One of the key objectives was to examine whether P4P can improve the quality of care.	Various	Professional behaviour	73 papers met inclusion criteria: 20 on P4P, 48 on practice guidelines and 5 on surgical checklists. All but one were in the USA. Re: can P4P improve the quality of care, this review suggests a qualified yes. 5 systematic reviews concluded that P4P can improve quality but observed effects were small and nuanced and were influenced by factors such as program design, characteristics of the incentives, patients and clinicians. Stakeholder involvement in design and evaluation of measures of improvement and strong dissemination improved size of changes. P4P has greatest impact on low rather than high performers. Paying individual clinicians rather than hospitals is more effective. National programs (e.g. that of the UK) fare better than fragmented ones (i.e. USA). Incentivizing one condition may have unexpected consequences for other conditions.

Types of original article included + excluded	Types of pay for performance reviewed	Workforce	HR discussed	Key Findings
				Discussion: context is important – the type, amount, timeliness of an incentive all affect the magnitude of behaviour changes. Another challenge is understanding the impact of individual strategies when in many contexts a mixture of strategies are being deployed (e.g. P4P + clinical guidelines) P4P needs to consider all aspects of quality of care
Van Herck, 2010				
Empirical papers evaluating impact of P4P in primary care or acute hospital care	Range of P4P incentives	Primary care physicians and acute hospital physicians	Stakeholder engagement in P4P development Provider characteristics	128 were included. (includes 6 from outside our review countries) Communication and participant awareness of the program are important factors that affect P4P results. Several studies that reported no P4P effects related their findings to insufficient awareness of the P4P program. More positive P4P effects are found in studies that fostered extensive and direct communication with involved providers. Involving all stakeholders in P4P program development had positive effects. However, studies examining high stakeholder involvement remain mixed. Context is important but evidence on impact varies. Some evidence that organizations with a history of engagement in QI have more positive P4P effects, although another found no link between prior readiness to meet quality standards and P4P performance. One study found a positive relationship between P4P and having adequate HR support for QI projects. Key recommendations: Involve stakeholders and communicate the program thoroughly throughout development, implementation and evaluation. Also make some theory based recommendations due to lack of evidence or conflicting evidence: QI support is needed to run alongside incentive schemes – staff, infrastructure, and QI tools are necessary to support engagement in change.

3.5.2.1.2 Original P4P Literature

Empirical P4P articles identified in the funding specific searches echoed the findings reported in the systematic reviews. Evidence on the impact and value of P4P incentives on workforce transformation is mixed (see Table 7). While some papers reported improvements in quality targets after the introduction of performance related financial incentives (Damberg, Raube, Teleki, & dela Cruz, 2009; Foels & Hewner, 2009), others found that there was little change in clinical quality (Young et al., 2010), or that change in performance reflected a pre-existing trend (Young et al., 2007b). While there was evidence to suggest that physicians and nurses were generally comfortable with the idea of P4P rewarding quality and incentivizing practice change (Young et al., 2010; Jones, Hsu, Pearson, Wilford, & Labby, 2011; Kurtzman et al., 2011; Young et al., 2007a, 2007b) there are elements of incentive design and implementation that need to be addressed. These include the size of payments (Young et al., 2007b), identifying appropriate benchmarks or indicators (Foels & Hewner, 2009; Jones et al., 2011; Young et al., 2010; Kurtzman et al., 2011), the timescales for assessments of change (Whalley, Gravelle, & Sibbald, 2008), and the focus of the targets. For example, Rodriguez, von Glahn, Elliott, Rogers, and Safran (2009) pointed to evidence that P4P formulae focusing on clinical quality and patient experience were associated with greater improvements in care coordination and office staff communication, while a focus on productivity and efficiency had a negative impact on communication and, consequently, patient care. Several papers discussed the importance of engagement of stakeholders in devising and implementing P4P schemes. Kurtzman et al. (2011) highlighted the lack of nurse involvement in most incentive schemes at any level, which leads to nurses being marginalized in quality improvement efforts. Jones et al. (2011) highlighted the value of creating a 'culture of improvement' that engages health professionals in designing P4P while Foels and Hewner (2009) argued that creative physician education support enhances behaviour changes and the uptake of new guidelines in incentivized programs.

One of the largest P4P initiatives in the UK is the quality and outcomes framework (QOF), a scheme which provides financial incentives for achieving evidence-based process and outcome targets. Six articles reported evidence from evaluations of QOF. Overall, the evidence reviewed suggests that QOF was well received by doctors and nurses and has had a positive impact on the primary healthcare workforce (McGregor, Jabareen, O'Donnell, Mercer, & Watt, 2008; Whalley et al., 2008; McDonald, Harrison, & Checkland, 2008). For example, there was a perception of enhanced role and autonomy for nurses despite an intensification of their work in relation to chronic illness (McGregor et al., 2008; Campbell, McDonald, & Lester, 2008; McDonald et al., 2008; Maisey et al., 2008; Gemmell, Campbell, Hann, & Sibbald, 2008), improved practice hierarchies and better skill mix (Maisey et al., 2008), and improvements in perceived work-life balance, morale, and remuneration for general practitioners (Whalley et al., 2008; Campbell et al., 2008). However, local context is an important consideration, with McDonald et al. (2008) reporting that nurses in a practice with top-down management style and a 'mechanistic' approach to QOF implementation felt discomfort about QOF 'surveillance' compared to nurses working in a practice with a more collaborative style. Most general practitioners did not express concerns about their

professional autonomy under the new QOF measurements. There was some disquiet about continuity in patient care and the scope to undertake preventative care within an incentivized framework like QOF (Maisey et al., 2008; McGregor et al., 2008; Campbell et al., 2008). Some general practitioners suggested that QOF-related improvements in practice are more about better recording of activity than a change in practice (McDonald et al., 2008), but in another study general practitioners felt there was a genuine change underway as more staff were recruited and practices developed better systems (Gemmell et al., 2011; Maisey et al., 2008). Appropriate distribution of QOF incentives across healthcare teams is important to avoid tensions that undermine working relationships (McGregor et al., 2008; McDonald et al., 2008).

Seven non-empirical articles and two grey literature documents discussed P4P. Stakeholder engagement in P4P incentive systems for nurses and GPs was a key theme (Simpson, 2011; Doran & Roland, 2010; Strumpf et al., 2012; Smith & Sibthorpe, 2007; Scott & Connelly, 2011; Aiken, 2008). Engagement of a wide range of stakeholders is an important enabler of change. This is particularly the case where there are limited quality measures to support P4P assessments (e.g., for nursing), concerns about the appropriateness of incentives or targets, poor understanding of a program, a need to build trust, or a need to build relationships between competing interest groups that need to work together to create a change culture (Simpson 2011; Doran & Roland, 2010; Strumpf et al., 2012; Scott & Connelly, 2011; Duckett, 2012). Programs which allow for a spectrum of change, rather than a top-down imposition of conditions, were more likely to be accepted and programs which encourage incremental change, provide education and HR support and feedback loops between provider and payers appear to be more acceptable to healthcare professionals (Strumpf et al., 2012; Smith & Sibthorpe, 2007; Mazowita & Cavers, 2011).

Table 7. Rapid review of P4P empirical papers

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
Campbell, 2008 UK				
Quality and Outcomes Framework (QOF)	General practitioners (GPs) and nurses	Scope of practice, pride in work, deskilling, morale, work-life balance, resentment, autonomy, behaviour change, motivation, Also mentioned: levels of physician understanding of the scheme and involvement in its development	Interviews with 21 physicians and 20 nurses in nationally representative sample of practices.	Effects of implementing P4P scheme: promoted sense of pride in achievement. Nurses had become primary carer for patients with chronic conditions – some doctors believed they had become deskilled in those areas as a result. Financial reward for extra work was seen as helpful for raising physician morale and improving physician work-life balance. Some resentment from nurses for lack of pay recognition for their own work and increased autonomy, hard work and chronic disease mgmt role (taking over physicians work); increased autonomy. Consultation process & agendas: No change in "essence of the face-to-face doctor-patient" consultation, concern about physicians and patients having different agendas under new scheme (QOF targets vs. patient issue), some increase to workload because of it. Performance monitoring and competition: sense of underlying uncertainty about future of family medicine in UK – no "grand plan" within the NHS. Also a perception that new targets were part of performance monitoring and surveillance culture by government. Physicians did feel motivated to achieve highest rate possible for practice and income – felt incentives were enough to change behaviour.
Damberg, 2009 USA				
Pay For Performance (P4P)	Physician Organizations	Engagement, commitment, accountability for quality	Semi-structured telephone interviews with a stratified sample of 35 physician organizations (CEO), seven health plans and 2 leading purchaser representatives.	Organizational behaviour - Accountability was said to increase after P4P (believed by 25/31 organizations) Behaviour change of individual physicians such as implementation of patient management systems, collaboration with admin and staff to strengthen quality improvement (QI) efforts 21 physician orgs felt 10% or more of doctors' income needs to be tied to QI to affect behaviour Difficulty engaging/changing behaviours of front line physicians
Foels, 2009 USA				
P4P: incentives to comply with care protocols.	Physicians	Engagement with care protocols and care quality improvement	Survey to collect data from physician review of 12 months of medical charts for a sample of diabetes patients on their roster.	79% participation rate for physicians in the program. Improved on Healthcare Effectiveness Data and Information Set metrics for diabetes since the program started (from 50th centile to the 90th – implying an accelerated performance

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
				trajectory) and improved costs. Authors argue that educational interventions conducted by the health plan were key to success. Physician self-appraisal, advisory panels, and creative educational opportunities are highlighted.
Gemmell, 2009 UK				
QOF	GPs and nursing staff	Workload, scope/value added care	Practice profile questionnaires + workload diaries (structured).	Number of practice staff increased, mostly nursing staff. Hours of work did not change, but nursing staff did more visits and took on cases with increased complexity. GPs did more chronic illness care and preventative work but fewer visits and no change in complex care. Nurses may be taking up more clinical care and experiencing intensification of their role under the new QOF incentive system.
Jones, 2011 USA				
An alternative incentive program to P4P	Mixed	Work attitudes, learning and training	Multiple data sources used to evaluate a new care support and innovation program: site visits, web-surveys, telephone interviews, document reviews at all organizations in receipt of Care Support and System Innovation funding. Also telephone interviews with a sample of 8 non-program participants.	Focuses on the advantages of creating a 'culture of improvement' that allowed for networks to identify appropriate quality measures, improvement from a baseline, training and ongoing support for development. This increased the capacity of the organizations involved to undertake improvement initiatives Importance of developing a relationship between the payer and the provider is highlighted.
Kurtzman, 2011 USA				
P4P	Nursing	Recruitment, retention, absenteeism, work attitudes, professional behaviour	Interviews with hospital leaders and unit nurses in 25 hospitals to explore perceptions of performance based incentives. Included questions on improving patient outcomes, safety, nursing salaries, improving teamwork, reducing nursing turnover etc	Nurses highlighted the importance of non-blame work environments to achieve better quality care (i.e., better teamwork and inter-professional education) and suggested there needed to be stronger nursing leadership so enable contribution to policy development such as incentive schemes. Respondents were generally positive about P4P but less so about other linked policies, suggesting implementation will be a challenge. There needs to be better engagement of nursing in P4P policy development.
McDonald, 2008 UK				
QOF	Nurses, physicians, healthcare staff	Work attitudes (satisfaction)	Qualitative case-study of two general practices. Aims to explore individual and group attitudes and patterns of behaviour in the context of the recently implemented NHS GP contract. Combined observation with individual	GPs expressed largely positive views about the contract and did not perceive any threat to autonomy in increased surveillance. Possible reasons for this are that GPs have left managerial tasks to others, that assigning data capture to nurses means they can claim rewards but don't have additional administrative burden themselves, and that perceptions that QOF is simply better recording of what was already

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
			interviews and documentary analysis.	being done are more likely to be interpreted as acknowledgment of good practice rather than a lack of trust in performance and an attempt to increase surveillance. Nurses are supportive of the contract, in principle, but less content with top-down surveillance that has accompanied implementation. This is especially true in the case-study practice which has a more hierarchical structure and has implemented the contract in a more 'mechanistic' way. The other practice allows nurses more freedom and responsibility and these staff were more positive about adopting quality targets and appeared engaged. Healthcare assistants were most concerned about parity in the reward system. They compared their rewards to others not on the basis of the hierarchy, but energy expended on their role and were frequently unhappy with bonuses they felt did not reflect their work. Perceived unfairness can be a powerful disincentive.
Maisey, 2008 UK				
QOF	Nurses and physicians	Collaborative practice, staff mix, satisfaction	Qualitative semi-structured interviews with 1 GP and 1 practice nurse at 12 general practices in England with varying socio-demographic and organizational characteristics.	Three key themes are reported: perceived gains and losses in quality of care, altered roles, and the limitations of incentives. Quality of care: generally there was a perception of increased activity, not just better recording of care, and that this was a benefit. However, there was concern from GPs and nurses that holistic care was under threat with the move to incentivized targets. Non-incentivized care had remained static despite increases in staffing and changes in skill mix. Changes in staffing and work patterns had contributed to a loss in continuity of care. Roles: Most nurses were happier with new staffing and changes in hierarchy despite increases to workload stress. They reported increased autonomy and more care for chronic diseases and some duties being passed to healthcare assistants. Physicians were less satisfied overall, due to changes in patient care continuity and increased managerial roles. Only 1 physician liked the more systematic nature of working practices. Incentives: Nurses felt that some initiative fatigue in relation to the QOF and other system changes. Most reported ethical and honest QOF data entry. There were some who admitted data manipulation to increase income. Some felt suspicious of the validity of some new QOF indicators. Few mentioned patient experience surveys (a QOF indicator) as being a good measure of practice performance. Some argued that this was just

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
				'political correctness' and that they already knew and managed their patient expectations. Factors that need to be managed to improve and sustain development are perceptions of reduced individual patient care in incentivized target schemes, dissatisfaction with 'tick-box' care (i.e., prompts on computer during appointments), pressure to data clean to maximize income, resistance to new evidence-based incentives if there is no educational support for practitioners, and a lack of concern/knowledge about the impact on patient care at practice level.
McGregor, 2008 UK				
QOF	Nursing	Skill mix, role changes, workload, autonomy, perceived fairness of financial reward	Qualitative interviews: 18 general practice nurses interviewed from practices with high/low socioeconomic profile of the practice population and QOF achievement (high/low) or practice size (large/small)	Roles and incentives: most nurses felt they had expanded their role and taken on new skills since new contract. Fewer opportunities to work and train in non-contract areas. General opinion that contract had enhanced status within practice (more autonomy, independence in organizing care, greater centrality of role in practice). However, increase was sometimes as response to QOF targets for chronic disease, not nurses' clinical interests. Mixed responses whether focus on achieving targets promoted team work or resulted in more sole work. Perceived unfairness in financial reward, because payment is to doctors Workload: Increase in workload for all nurses. Felt increased time pressure. Noted more standardized care in response to increased workload (though some found this frustrating)
Rodriguez, 2009 USA				
P4P	Physicians	Professional behaviour	Review of Consumer Assessment of Healthcare Providers and Systems survey data from commercially insured adult patients about visits to primary care physicians. Also includes telephone interviews with medical directors who were in groups that participated in the Integrated Health Association's performance based financial incentive program and assess patient experience at an individual level. Asked about the detail of the formula used to calculate incentives and any patient experience improvement	Physicians who took part in the incentive scheme had improved patient communication scores. Those with the lowest baseline scores improved most over time. Different incentives appeared to have different impacts. Greater emphasis on clinical quality and patient experience criteria in individual physician formulae and less emphasis on productivity and efficiency was associated with better performance over time on the physician communication and office staff interaction measures. Conclude that productivity incentives may not effectively cultivate working relationships and that this may negatively impact patient care.

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
			initiatives underway	
Vina, 2009 USA				
Quality improvement (QI) (pay for performance program)	Directors or associate directors of QI (n=67), members of QI teams (n=14), quality resource managers (n=3)	Clinical pathways, physician leadership and recruiting physician champions, educational programs, multidisciplinary teams (collaboration)	Structured telephone survey (investigator-blinded cohort study) of 84 hospitals' QI leaders (n=84) in top (n=45) and bottom (n=39) performing hospitals based on quality score; score computation explanation p 834) Hospital Quality Incentive Demonstration Project -determine if financial incentives improve performance	More top performing hospitals than bottom performing hospitals used order sets for treatment, used clinical pathways for treatment, had a multidisciplinary team with the goal of improving care (statistical #'s page 835) Greater % top performing hospitals' Chief Medical Officers recruited physician champions (but not statistically significant) Top performing hospitals had greater nursing staff support for quality indicators and adequate human resources for projects to increase quality indicator adherence. Similar organizational support reported Physician champions associated with improved performance
Whalley, 2008 UK				
QOF	GPs	Work attitudes	Longitudinal questionnaire survey of satisfaction with 2015 GPs in 2004 and 1349 in 2005.	18 months after the introduction of the general medical services contract and QOF incentives there were improvements in satisfaction with working hours and remuneration and declines in job pressure. There were still concerns about professional autonomy and increases in administrative burden. Gains in quality in preventative care and the care of chronic illness were better than they expected. The issue of perceived workload stress (i.e., actual work hours physicians have, how they are used for different tasks vs. satisfaction with roles) requires further analysis.
Young, 2007a USA				
P4P/ P -4 -Quality	Physicians	Attitudes to Pay for Quality (P4Q) programs	Survey of 1,243 physicians understanding of P4Q and its potential impact on their clinical practice.	Physicians had positive attitudes to P4Q, agreeing that it could improve quality more than peer recognition alone and that rewarding higher care quality was important. However, physicians were negative about their understanding of the details of P4Q, the amount of the incentive, and the impact of the incentive on care quality. There was ambivalence regarding their capacity to reach targets in an already complex system.
Young, 2007b USA				
P4P	Physicians	Professional behaviour	Retrospective cohort study with 334 primary care physicians using pre/post analysis of adherence to 4 diabetes performance measurements. They were	There was a statistically significant increase in performance levels after the introduction of the program but this appeared to reflect an existing trend in performance (pre-incentive), and in the 1 area where there was statistically significant change not due only to trends (eye examinations)

Type of pay for performance	Workforce Examined	HR Factor(s) examined	Methods	Key Findings
			ranked annually according to adherence to each set of performance measures. Compared data to national trends in similar scores as “control”	this difference did not persist after year 2. Authors suggest that the time-scale for evaluation of impact may be too short, that the practice context of many physicians did not give them the infrastructure support to change practice, and finally the incentive ($1500 pa) was not large enough
Young, 2010 USA				
P4P	Physicians	Work attitudes/motivation, professional behaviour, quality of care	Survey of provider attitudes, interviews with key informants from senior leadership teams at two safety net providers (community health centres and primary care)	Setting A: 13 community health centres and 4 clinical quality targets. Setting B: teaching hospital who implemented P4P for primary care physicians and 3 quality targets around diabetes. Findings suggest there was no substantial improvement in clinical quality in the short-term but there is no evidence it compromises it either (includes unintended consequences and potential issues with non-incentivized measures). Physicians were comfortable with the idea of P4P rewarding high quality achievements, but less certain about it being used to motivate changes to improve quality. Public reporting of outcomes was felt to be of equal importance. The challenge of achieving quality targets in some settings where safety-net providers work was noted.

3.5.2.2 Other Funding Models

Other funding models were identified in the literature searches and include fee-for-service (FFS), capitation funding, salary payments, episode payments, and blended payments. As with the P4P literature, the evidence on the impact of funding on workforce issues such as changing professional behaviour, improving satisfaction or work attitudes is mixed. Twenty-one articles met inclusion criteria, and of these five discussed evaluations of the 2006 UK dental contract which moved funding away from fee for service to units of dental activity negotiated with local primary care trusts. The evidence suggests that changes in funding governance were not well received. Harris, Burnside, Ashcroft, and Grieveson (2009) and Harris, Dancer, and Montasem (2011) reported reduced satisfaction linked to a perceived attack on professional autonomy underpinning the contract, rather than changes in funding mechanisms or activity targets themselves. Similarly, Chestnutt, Thomas, Patel, and Treasure (2007) and Chestnutt, Davies, and Thomas (2009) reported low levels of satisfaction with the new contract, changes in commitment to working with the NHS rather than entering private practice, and low agreement with the suggestion that the new contract improved clinical care. Tickle et al. (2011) underscored this perception by reporting changes in treatments delivered to meet units of dental activity targets efficiently and where rewards are high relative to costs. They suggested that the new funding model, rather than clinical factors alone, influenced changes in practice. Extractions are shown in Table 8.

Three papers discussed evaluations of the NHS Agenda for Change pay reforms in the UK. The new scheme introduced a competency-based career framework for different staff groups (not including doctors, dentists, and some senior managers). While the old pay system was acknowledged to be out of date, the local implementation of the new scheme caused discontent. McClimens, Nancarrow, Moran, Enderby, and Mitchell (2010) looked at Agenda for Change in the context of intermediate care for older people and found that while the inter-disciplinary approach was valued, Agenda for Change limited career progression opportunities, failed to reward non-specialists, resulted in feelings of unfairness in pay banding, and negatively affected recruitment and retention. Buchan and Ball (2010) also reported tensions arising from local implementation with only 54% of nurses satisfied with their new pay banding. One in four nurses did not see the system as fair and had requested a review of their banding. Reasons for requests for review included lack of information about banding, length of time taken in individual evaluations, and inconsistencies in the evaluation process. Loan-Clarke, Arnold, Coombs, Bosley, and Martin (2009) found that 25.9% of speech and language therapists were considering leaving the NHS because of pay cuts after Agenda for Change implementation.

Several papers explored different modes of remuneration for physicians and how this impacts professional behaviour and work satisfaction. Pourat, Rice, Tai-Seale, Bolan, and Nihalani (2005) reported that physician payment type combined with different kinds of performance stipulations affected performance targets achieved for Chlamydia screening for different groups and that financial performance targets may well lower consistent screening. Comparisons of physicians paid under FFS versus other remuneration systems

(capitation, salary, or blended models) suggested that many regard FFS as a 'treatment treadmill' which increases workload stress, creates frustration with practice management burden, and is perceived to limit their capacity to deliver appropriate care (Geneau, Lehouz, Pineault, & Lamarche, 2008; Devlin & Sarma, 2008; Campolieti, Hyatt, & Kralj, 2007; Brcic, McGregor, Kaczorowski, Dharamsi, & Verma, 2012; Bitton et al., 2012; PriceWaterhouseCoopers, 2001). The evidence suggests that non-FFS physicians have higher overall work satisfaction (Green et al., 2009) with salaried physicians reporting lower workload, patient, and decision-making stress, and capitation physicians reporting lower personal stress and professional interaction stress (Campolieti et al., 2007). Physicians interviewed by Geneau et al. (2008) felt they could have a 'purer', clinically driven practice if they were not worrying about billing codes and that this improved professional satisfaction. In addition, Bitton et al. (2012) found that a new funding model with salary plus incentives was regarded less as a way of motivating individual behaviour changes and more as a way of creating space for system change. They argued an 'adaptive reserve' can lead to substantive and sustainable change but that this reserve is not available to practitioners working in FFS contexts where volume imperatives control workload.

Finally, de Lusignan, Shaw, Wells, and Rowlands (2005) highlighted the importance of leadership to create shared vision and goals. In evaluating the introduction of the Personal Medical Services pilot UK general practice, they found that different perceptions of the pilot in local teams affected how well teams worked and their morale. This underlined the importance of structures to support change, good communication, and sensitivity to factors that facilitate or inhibit local implementation of policy (Bitton et al., 2012; Minott, Helms, Luft, Guterman, & Weil, 2010).

The quality of original funding articles retained for extraction was mixed. Twelve papers scored in the low range and 13 scored in the medium quality range. Eight papers achieved a high quality score of 15 or over. The grey literature sources were in the low-mid quality range (three scored in the low range and five scored in the medium range). None were rated as high quality.

Table 8. Non-P4P empirical article extractions

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
Bitton, 2012 USA				
Primary care medical home (PCMH) Salary + incentive	Multiple primary care team	Collaborative practice, value added care, work attitudes, attitudes to funding models	A qualitative comparative case study using site visits interviews, observations and document reviews at 5 self-selecting primary care practices adopting new PCMH model. Three were linked to a regional payer, two were in a multi-specialty group. The evaluation took place 12-18 months in to transformation activities. At least 12 staff per site were interviewed (physicians, nurses, practice managers or administrators, support staff)	Outcome category: collaborative practice, professional behaviour, work attitudes Analysis was iterative and guided by grounded theory principles. The focus was on mechanisms in context for transformation. The case-studies showed variation in micro-implementation of a well-defined model for change with supporting external facilitation. They identified differences in practice strategies to achieve improvement targets (e.g., a focus on resource management and cost-containment vs. preventative outreach), differences in how practices engaged with change management consultants -the multi-specialty practices were more focused on internally driven culture change, the regional payer practices tended to embrace external consultants and models such as LEAN, differences in the conceptualization of 'team' that affected management at a local level and micro-implementation of policy. Funding reforms were felt to be less an individual motivator for change and more a way of creating space for change without fee-for-service (FFS) volume imperatives. New funding models can create an 'adaptive reserve' for transformation of practice. IT support is important to allow primary care to continue successful reengineering of the work-place and patient encounters. Finally, they authors argue that policy makers need to enhance their understanding of *how* policy is implemented to make reform achievable and sustainable. Work attitudes: change fatigue e.g. pace of change, nurses and admin staff report being overloaded (new and additional responsibilities), staff tiring of practice process transformation meetings that overrode continuing education sessions No patient outcomes reported
Brcic, 2012 Canada				
Modes of remuneration for	Family physicians	Preferences for remuneration	Anonymous online survey sent to 430 residency program graduates, n = 133,	Outcome category: Work attitudes

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
family physicians in British Columbia: fee for service (FFS), enhanced FFS (new incentives and initiatives), any alternatives to these two		Also mentioned: recruitment, retention, engagement in reform process, satisfaction	measured remuneration preferences	86% rated payment model as very or somewhat important in choice of future practice 71% preferred non-FFS remuneration (includes salary, capitation, or blended models). 32% preferred enhanced FFS (some overlap between two), 3% chose FFS Qualitative responses revealed three themes: frustration with FFS billing, importance of payment model that supported comprehensive, quality patient care, and plurality of practice preferences among providers (want choice among options) No patient outcomes reported
Buchan, 2010 UK				
New pay system (Agenda for Change [AfC]) in the National Health Service (NHS): job evaluation scheme, competency-based career framework, national pay "spines" covering different staff groups	Nursing	Attitudes about implementation process and pay levels, job descriptions Also mentioned: staff recruitment, retention, motivation	Data from surveys of the Royal College of Nursing (mostly from 2006 transition period, n = 2283, and 2009 post period, n = 4860, surveys, but some info from 2003-2001)	Outcome category: Work attitudes 2006: Most nurses felt they had accurate job descriptions (73%), compared to only 54% in 2001 77% had had job evaluation in 2006 as part of AfC Discontent was with way the system was applied locally, lack of information provided, length of time taken and inconsistencies in evaluation process. Outcomes (pay bands) were not seen as fair as they did not reflect roles/responsibilities Just over half (54%) were satisfied that their pay band was fair, 40% were not. Few respondents viewed AfC positively – only 1/5 thought pay system was fairer now than before AfC, 63% felt implementation was too slow, 43% felt well informed by the organization 2009: One in four had requested review of pay grade (proxy for dissatisfaction). In general, nurses in higher pay bands were less likely to request review (i.e., more satisfied). Three years after AFC implementation there are some small improvements in satisfaction with pay '…considering the work I do'. The problem is that rhetoric prior to and during

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
				implementation raised expectations that could not be met, and some categories of nurse were particularly dissatisfied. Consistent management and effective communication are essential during system overhaul. No patient outcomes reported
Campolieti, 2007 Canada				
Modes of remuneration for family and specialist physicians in Ontario (fee for service, capitation, salary) – operationalized as type of practice setting. Health service organization = capitation Academic centres = salary Private practice = fee for service	Physicians	Job stress (six factors: personal factors, workload, decision-making, administration and paperwork, professional interactions, interacting with patients) Also mentioned: productivity, migration, retirement decisions, workload	Data from 2001 Ontario Medical Association survey (n = 2302)	Outcome category: Work attitudes Salary and capitation physicians had lower workload stress than did FFS physicians Salary and capitation physicians had lower patient stress than did FFS physicians Salary physicians have less decision-making stress than do FFS physicians Not significant results for administration and paperwork stress Capitation physicians have less professional interactions stress than do FFS Capitation physicians have less personal stress than do FFS No patient outcomes reported
Chestnutt, 2007 UK – Wales				
New NHS dental contract – replacement of national fee-for-service contract (General Dental Service) with locally commissioned services	Dentists	Attitudes on new contract and working arrangements, reasons for continuing with or leaving NHS, future commitment to NHS	Questionnaire sent to all dental practitioners in Wales, 608 (of 1072) usable returned. Sent three months *prior to* implementation of new contract	Outcome category: Work attitudes Overall the views of dentists towards the new contract were negative. At the time of the survey they were negotiating terms with health boards and had just been made aware of the amount of their contract based on historical activity. Majority of respondents (44.6%) believed that fee-for-service was best method of payment and 40% disagreed. Views were mixed on work-life balance (36.5% agreed it was good, 34.5% disagreed). 69.9% disagreed they would be able to provide wider range of

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
				treatments under new contract, only 17.7% were attracted by the new method of payment, only 34.9% wanted to change from old to new contract. 68.8% intended to continue with the NHS (higher proportion of long-tenure dentists planned to leave than short-tenured). No patient outcomes reported
Chestnutt, 2009 UK – Wales				
New NHS dental contract – replacement of national fee-for-service contract (General Dental Service) with locally commissioned services. Local health bodies (primary care trusts) were required to contract directly with dental care providers	Dentists	Changes in commitment to the NHS since new contract, intentions to continue in new contract, perceptions of new contract, satisfaction with working environment	Questionnaires mailed to respondents from Chestnutt (2007) study, 417 returned from practitioners still with NHS.	Outcome category: Work attitudes One-third of respondents planned to continue to provide NHS services, 58.5% were undecided 71.7% welcomed the lack of out-of-hours commitment in the new contract, but only 14.8% liked contracting locally with the local health board Great majority (86.8%) felt the new payment system is a "treadmill", only 6.9% viewed the new contract as a better method of payment than the old fee for service plan Mixed responses for work-life balance: 26.4% agreed they had it, 44.4% disagreed No patient outcomes reported
de Lusignan, 2005 UK				
Personal Medical Services (PMS) contract pilot: allows development of alternative models for the provision of general practice in the UK NHS	Physicians, nurses, practice managers	Morale, teamwork, personal development	Interviews with physicians, nurses, and practice managers from 33 practices (n=81)	Outcome category: Work attitudes, collaborative practice, learning Many practices saw PMS as positive for morale; shared objectives relevant to the practice and its patients, with an emphasis on teamwork and measurable outcomes were important Teamworking and morale inextricably linked with perceptions of PMS success More opportunities for personal development, especially for practice nurses

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
				Progress could be inhibited by inadequate premises and/or inability to recruit or retain staff Importance of leadership to create shared vision, appropriate goals No patient outcomes reported
Devlin, 2008 Canada				
Modes of remuneration for Canadian family physicians (fee-for-service, alternative, mixed, non-fee-for-service, salary) Note: categories not mutually exclusive, Alternative includes all but FFS). Categories under Alternative, mixed, or Non FFS are capitation, sessional/hourly payments, service contracts, incentives, other	Physicians	Patients visit per week, time with patients	Data drawn from family physician component of the 2004 National Physician Survey, n = 7352	Outcome category: Professional behaviour Considers the impact of remuneration schemes on physician behaviour, while also taking into account the effect of self-selection into different modes of remuneration Average number of patient visits per week is much higher in FFS than in non-FFS and salary practices (134 vs. 78 and 72, respectively). FFS physicians are spending less time with patients than alternative physicians Salaried physicians always have fewer patient visits per week relative to all other schemes, and FFS always have the most. Argue that physicians who are ‘innately’ less productive tend to stay with FFS and those who have ‘desirable characteristics’ are more likely to select alternative schemes. The difference in number of patients seen is therefore an effect of the remuneration scheme, rather than the self-selection of physicians with particular characteristics into that scheme. Differences in patient mix between FFS and alternative schemes need to be addressed. Analysis suggests case-mix is unlikely to account for differences in number of patients seen. Incentive effects of remuneration policies need more careful assessment No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
Feng, 2010 USA				
Medicaid wage pass-through policy in nursing homes in the USA (earmarks additional funds for explicit purpose of increasing compensation for direct-care workers in long-term care) – requires certain portion of Medicaid reimbursement increase to be devoted to staffing. Two general approaches: set dollar amount per staff per hour or certain percentage of increase to be used for wages/benefits	Direct-care workers (Registered nurse [RN], licensed practical nurse [LPN], certified nurse aide [CNA])	Increase in direct-care worker staffing (i.e., recruitment) Also mentioned: retention, difficult working conditions, lack of career ladders, low job satisfaction, higher turnover	Online Survey Certification and Reporting (OSCAR) system information from 1996 to 2004. Includes staffing info, org. characteristics, resident conditions Total average direct-care staff hours per resident day (separated for RNs, LPNs, CNAs) used as measure of staffing Examined staff hours over time (pre- to post-implementation)	Outcome category: Recruitment In states with wage pass through policies: Noticeable jump in CNA staffing levels in the year of and 1 year after pass-through adoption but no significant changes afterwards Continuous increase in the post period for LPN staffing levels, but not statistically significant Little change in year of and first year after adoption for RNs, followed by dip in subsequent years No patient outcomes reported
Geneau, 2008 Canada				
Mode of remuneration of general practice physicians (GPs) in Quebec: fee-for-service (FFS) or salary	Physicians	Medical decision making, continuing education participation, feelings about remuneration, collaboration	Case studies in 8 primary care organizations (4 private, 4 Centres locals de services communautaires). Semi-structured interviews with 28 general practitioners	Outcome category: Work attitudes, professional behaviour, collaborative practice Interview data suggest GPs think FFS influences how services are delivered. Feeling that complex acts are under-remunerated under FFS, but GPs can maximize income by over-treating routine cases. Physicians paid a salary feel they have a "purer" practice because they do not need to be concerned about billing codes Consensus among interviewees that mode of remuneration

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
				influences the length of consultations: FFS took 10-15 minutes per appointment, felt "treadmill pressure" as a result. Salaried physicians took 20-45 minutes on average. FFS also spent more time on walk-in clinic hours in order to make the clinic profitable. FFS physicians felt they did not have time to explain usefulness of tests or medications to patients FFS physicians less inclined to participate in continuing education activities, primarily for financial reasons FFS respondents described their practice as "solo in a group" – fewer peer-to-peer interactions No patient outcomes reported
Green, 2009 Canada				
Modes of remuneration for family physicians in Ontario (fee for service, family health networks [blended], family health groups [FFS + bonuses], health services organizations [capitation], community health centres [salary])	Physicians	Work satisfaction	Survey of satisfaction sent to family physicians in Ontario, replies from 332. Satisfaction dimensions: practice model, personal rewards, burden, patient care, income Sample size of 220 for income change analysis Also examined income information through tax records and billings sent to Ontario Health Insurance Plan	Outcome category: Work attitudes Non-FFS physicians were more satisfied overall with their payment model and in almost all measured dimensions of work satisfaction than were FFS physicians When asked whether they would choose current primary practice model again, physicians under blended model were more likely than either FFS physician type to say yes Income results: misperceptions between actual and perceived changes to income; largest average increase was for blended payment physicians No patient outcomes reported
Harris, 2009 UK				
Funding change: move from fee-per-item (General Dental Service [GDS]) system and block contracts negotiated with local PCT (Personal Dental	Dentists	Job satisfaction (global and six facets: restriction in being able to provide quality care, respect from being a dentist, control of work, running a dental practice, developing clinical skills, helping people) Workload Also mentioned: retention, productivity	Questionnaires mailed to stratified sample of dentists before and after the change. 440/684 responded to surveys sent prior to new dental contract, 337/440 responded to surveys sent post introduction of new contract (note – post group were the 440 who responded to the pre survey)	Outcome category: Work attitudes, workload Dentists who were NHS practitioners at baseline, fully private at follow-up: no change (40%) in global job satisfaction, 25% increase, 5% decrease Former GDS: significant decrease in global satisfaction Former PDS: significant decrease in global satisfaction No change in workload for PDS or GDS; NHS/private 45%

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
Service [PDS]) to Units of Dental Activity (UDA)based on activity during a reference period Former GDS – new contract UDA targets based on activity during reference period less 5% Former PDS – new contract introduced UDA targets with reduction of 15% activity		(both expected result of job satisfaction), occupational stress and mental ill health as a result of increasing workload, autonomy		decrease, 40% unchanged, 15% increase For job satisfaction facets: Newly private dentists were more satisfied with restriction in being able to provide quality care (e.g. time to devote to patient's needs) [negative factor reversed so high mean indicates more positive attitude] and control of work. No changes for previously GDS dentists, and those previously in PDS were less satisfied with restriction in being able to provide quality care and respect from being a dentist Contract types not very well explained; may need to look into this further Authors compare changes for dental practice in 2000 with changes to medical in 1990 and reflect that lowered job satisfaction was not on account of workload levels or funding models, particularly introduction of activity targets, per se but rather a perceived attack on "independent contract status and professional autonomy" (p6) No patient outcomes reported
Harris, 2011 UK				
Funding models: fee-per-item (GDS), block contract (PDS), and private practice PDS governance – dentists accountable to Primary Care Trust managers for performance targets, opening hours, patient access	Dentists	Business: the experience of dentists running a business within a healthcare system Control: independence in making decisions Extrinsic pressures: pressures which compel the dentist to work hard Intrinsic motivation: inner drivers Also mentioned: medical autonomy, accountability, lack of goal congruence between workers and organizations, inherent satisfaction with the job	Qualitative: semi-structured interviews conducted with 20 dentists in NHS. Analyzed with NVivo. 12 dentists had worked in more than 1 type of practice (8 of these went from NHS to private practice); 5 had worked under PDS system	Outcome category: Work attitudes Business: Many found business aspects of running practice to be least agreeable aspect of job (asking patients for money, discussion of fees) Control: need freedom from interference around running business and autonomous decisions related to patient treatment plans (which are associated with status as a professional). Thought independence had decreased since old GDS system; saw this as potential reason to move to private practice Extrinsic pressures: felt they worked under a "treadmill" system, due to funding setup – need to take on more and more patients to earn same pay. Intrinsic motivation: often feel pulled toward private sector in

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
				order to be able to do job well, achieve clinical excellence motivates them. Making patients wait and not being able to do their best work is demotivating No patient outcomes reported
Loan-Clarke, 2009 UK				
New pay system (Agenda for Change [AfC]) in the NHS: job evaluation scheme, competency-based career framework, national pay "spines" covering different staff groups	Speech and language therapists (SLTs)	Retention Also mentioned: recruitment	Survey with open-ended items sent to SLTs, classified as stayers (currently in NHS), leavers (no longer with NHS), and returners (left NHS, returned), n = 516 Survey items inquired about reasons for staying, leaving, or returning to NHS	Outcome category: Retention Only Stayers referred to AfC – item asked about specific events that had led them to consider leaving NHS. 25.9% mentioned pay cuts due to AfC, 10.5% referred to problems with AfC, 9.9% referred to increase in hours due to AfC, 8% felt AfC had a negative effect on specific staff groups No patient outcomes reported
McClimens, 2010 UK				
"Agenda for Change" (AfC) – new pay structure. Single pay system for NHS – uses nine pay bands with salary ranges, applies to all NHS staff except doctors, dentists, and some senior managers. Involved job evaluation examining 16 factors. Staff progression linked to demonstrable application of knowledge and skills Also implemented	Allied health, nurses, administration, support workers	Morale, interdisciplinary team working, rewarding generic roles, perceptions of fairness of new system, recruitment and retention, role boundaries and flexibility	Focus groups with 158 staff from 11 teams. Coded with NVivo	Outcome category: recruitment, retention, work attitudes, collaborative practice, role clarity IC characterized by interdisciplinary approach to care, role sharing, focus groups saw this as positive – felt it lets them be more responsive and flexible, recognized others' skills Very little career progression within IC/AfC, few opportunities for specialization, lack of acknowledgement for additional management responsibilities Lack of recognition of non-specialist roles and lower pay bands compared with specialists may cause tension amongst providers Some staff felt pay grades were not implemented fairly, suggested this was a barrier to recruitment and retention Recruitment and retention affected negatively by AfC/IC Roles are not delineated in IC, which puts strain on teams in

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
Intermediate Care services (IC) for older people to prevent avoidable admissions – results deal with interaction between IC (flat structure, generic roles) with AfC (rewards specialization, certain skills)				terms of workload Goals of AfC: break down traditional staff barriers, facilitate patient-centred care; reward equal work with equal pay, and ensure promotions based on competence, performance, responsibility; simplify and modernize conditions of service No patient outcomes reported
Pourat, 2005 USA				
Primary care physician reimbursement types: capitation (4 types: + quality of care stipulation, productivity stipulation, management of utilization stipulation, financial performance stipulation), salary (4 types: + quality of care stipulation, productivity stipulation, management of utilization stipulation, financial performance stipulation), or FFS in 25 Medicaid HMOs in California	Primary care physicians (PCPs)	Delivery of guideline-concordant sexually transmitted disease (STD) care	948 respondents participated in phone interview or completed paper survey Self-ratings of adherence to 5 STD guidelines on 5-point Likert scale (dichotomized into consistently follow guideline vs. does not consistently follow guideline) Self-reported reimbursement information	Outcome category: care protocols Salary + productivity associated with higher likelihood of consistent Chlamydia screening for pts. 15-19 years, salary + financial performance associated with lower likelihood of consistent Chlamydia screening for pts. 20-25 years. Likelihood of providing Chlamydia drugs for partner higher if reimbursed through capitation + management of utilization In discussing the findings, the authors note that PCPs contract with various groups. There may be competing incentives and/or having PCPs dealing with numerous schemes may dilute the impact of different incentives. This requires further study. No patient outcomes reported

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
Sarma, 2010 Canada				
Modes of remuneration for Canadian family physicians (FFS, alternative, mixed, non-FFS, salary) Note: categories not mutually exclusive, Alternative includes all but FFS). Categories under Alternative, mixed, or non-FFS are capitation, sessional/hourly payments, service contracts, incentives, other	Physicians	Weekly hours of work on direct patient care in office, direct patient care in other settings, indirect patient care	Data drawn from family physician component of the 2004 National Physician Survey, n = 10457)	Outcome category: professional behaviour No clear relationship between mode of remuneration and total hours worked, but it does affect the allocation of time to different activities. Compared to FFS, alternative, mixed, and non-FFS reduce hours worked on direct patient care in an office/clinic by 37-44% Alternative, mixed, and Non-FFS physicians work 61%, 54%, and 66% more hours on direct patient care in settings other than office/clinic, respectively, compared to FFS Physicians in alternative, mixed, and Non-FFS work 66%, 63%, and 96% more hours on indirect care compared to FFS. In summary, physicians working in alternatives to FFS do not work fewer hours than those in FFS but they tend to devote more time to direct and in-direct patient care in other settings than the clinic. No patient outcomes reported, although the authors note that payment systems that focus entirely on volume of patients seen in the office/clinic (e.g. FFS) may neglect ancillary services, whereas one that ignores the link between remuneration and volume of patients seen may result in excellent care being given to too few patients.
Tickle, 2011 UK				
New NHS dental contract – replacement of national fee-for-service contract (GDS) with locally commissioned services. Local health bodies (primary care	Dentists	Number of treatments performed	Data on number of specific treatments provided by NHS dentists obtained from Dental Practice Board and NHS information centre Comparison of "old contract" vs. "transition period" vs. "new contract" timelines	Outcome category: professional behaviour Various changes to treatments provided suggests that changes to incentive structures have had substantial impact on dentists' behaviour with respect to treatment patterns: significant numbers of dentists are trying to hit their UDA targets in the most efficient way possible (e.g., increases in extractions under new contract, drop in root filling followed by slow increase). This involves shifting to treatments where rewards are high relative to costs, rather than based on clinical factors alone

Governance Structure Examined	Workforce Examined	HR Factor(s) Examined or Discussed	Method	Results
trusts) were required to contract directly with dental care providers. Payment now based on 12 equal monthly payments rather than fee-for-service system. Each practice was given Units of Dental Activity (UDA) targets to hit – weighted courses of treatment that group patients into three bands				No patient outcomes reported

3.6 Healthcare Reform and Strategic Planning

Several non-empirical studies and grey literature documents suggest that many organizations nationally and internationally are developing human resources plans to ensure a sufficient supply of healthcare providers and physicians (Alberta Health Services [AHS], 2011b; AHS, 2012a and 2012b; BC Health Planning, 2002; Romanow, 2002; Hanson, Fahlman, & Lemonde, 2007; NHS Scotland, 2007; NHS Somerset, 2009; Ontario Hospital Association [OHA], 2008; OHA, 2009; Fyke, 2001; Armstrong & Armstrong, 2002; Department of Health & Community Services [Newfoundland & Labrador], 2003; Province of New Brunswick, 2008; Health Council of Canada, 2005b; Health Council of Canada, 2012; Lilley & Stewart, 2009; New Zealand Ministry of Health, 2006; Saskatchewan Ministry of Health, 2011a and 2011b; UK Department of Health, 2002; Closson, 2005). These documents highlighted that planning should consider not only fiscal constraints when addressing challenges to the workforce, but that emphasis needs to be placed on the importance of staff. Furthermore, consideration of personnel as a strategic asset with proper nurturing of relationships between organizations and individuals aids in the mission of creating a sustainable workforce (Armstrong & Armstrong, 2002).

Recommendations to accomplish reform and build a sustainable workforce include: education and training (Australian Government National Health and Hospitals Reform Commission, 2009; Baker et al., 2008; Romanow, 2002; Fyke, 2001; Lilley & Stewart, 2009; Health Council of Canada, 2012; NHS Somerset, 2009; New Zealand Ministry of Health, 2006; OHA, 2008; OHA, 2009; Department of Health & Community Services [Newfoundland & Labrador], 2003; Saskatchewan Ministry of Health, 2011; Kirby, 2002; Province of New Brunswick, 2008; UK Department of Health, 2002; Capacity Review Committee, 2006), mentorship opportunities (Health Council of Canada, 2012; Saskatchewan Ministry of Health, 2011), incentives and remuneration (BC Health Planning, 2002; Romanow, 2002; Health Council of Canada, 2005b; Health Council of Canada, 2012; Saskatchewan Ministry of Health, 2011; Kirby, 2002), appropriate staff mix (Romanow, 2002; NHS Scotland, 2007; Saskatchewan Ministry of Health, 2011), interprofessional care, new roles/scopes of practice, and patterns of practice (Baker et al., 2008; Romanow, 2002; Fyke, 2001; OHA, 2008; Department of Health & Community Services [Newfoundland & Labrador], 2003; Kirby, 2002; Saskatchewan Ministry of Health, 2011), involvement of health system partners (e.g., government, educators, and regulatory bodies), succession, recruitment, and retention planning (Franco, Bennett, & Kanfer, 2002; Saskatchewan Ministry of Health, 2011), communication and engagement planning, infrastructure development to facilitate workforce activities (New Zealand Ministry of Health, 2006; Dallaire & Normand, 2002), and workforce policies (Horrigan, 2008; Lilley & Stewart, 2009, Health Development Agency, 2001). These strategies were thought to impact staff satisfaction, recruitment, and retention (Baker et al., 2008; Health Council of Canada, 2005b; Health Council of Canada, 2012; NHS Somerset, 2009).

Although reform and restructuring may increase system efficiencies, many unintended consequences to healthcare providers may result from the process because of

inattention to human aspects of reform (Franco et al., 2002). In fact, restructuring may lead to deskilling of the workforce; creation of distrust, low morale, and increased stress and absenteeism; and decreased job satisfaction which negatively impact recruitment and retention (Duffield, Kearin, Johnston, & Leonard, 2007).

The majority of papers discussing strategic planning were rated as low-quality. Just four were rated as high quality, and the remainder fell in the middle range.

3.7 Informal Governance

3.7.1 Physician Leadership

Four non-empirical and grey literature articles touched on the importance of physician leadership in implementing changes to care processes (Gautam, 2005; Howard, 2003; Reinertsen et al., 2007; Kendel, 2012). In order to sustain structural changes, physician support of the changes is required (Howard, 2003). This means involving physicians early in all initiatives and including them as organizational partners, not customers to the organization's agenda (Reinertsen et al., 2007; Health Quality Council of Alberta, 2012). To garner physician support, respect and understanding of issues facing physicians is needed. Strategies identified for system-physician relationship building include: understanding physicians' values, developing mutual trust, fostering hands-on relationships, involving and integrating physicians in planning and management, exploring alternatives to partnerships (support, guidance, financial investment), and facilitating the system's commitment to physicians (Gautam, 2005; Kendel, 2012).

Quality of evidence for this topic was low; just one paper was considered to be mid-range quality.

3.7.2 Communication

Regardless of the structure or process implemented for change, communication is deemed an important element for successful change management. Clearly articulating and facilitating communication about organizational structures and processes will lead to desired outcomes (Franco et al., 2002). For example, understanding the vision, mission, and goals of the organization as well as how the structure supports (or does not support) work will guide perceptions of task accomplishment. Furthermore, structures and processes will direct providers on how they can focus their goals, gain a vision, and culminate a willingness to do what is required for the initiative to succeed. However, misinterpretations can occur when communicating with different providers and working cultures, emphasizing the need for transparency and to clarify communication (Franco et al., 2002; UK Department of Health, 2002). Formal and informal communication channels are needed to build trust and create mutual respect in order to share responsibility for reform with physicians and providers (Gautam, 2005). Daily commitment and regular communication is required if an organization is to model the value of its workforce.

3.8 High-Performing Health Systems

All of the health systems we reviewed employ some or all of the governance structures and processes identified by this systematic review; however, there was often a lack of clear linkage to the workforce and, even when that linkage was articulated, there was seldom evidence of the workforce outcomes. Of the governance structures or processes discussed in this review, quality improvement was most often the organizational focus but without direct connection to its human capital. There are exceptions such as Jonkoping County's Qulturum, an educational facility that connects QI, professional development, and the workforce, and the Virginia Mason Institute that provides leadership training focusing on staff engagement. Organizational delivery of care, such as medical homes implemented by Group Health Cooperative, resulted in higher physician satisfaction and averted turnover. Veterans Health Administration's National Centre for Organization Development is responsible for measuring staff outcomes but results are not available. New Zealand's Counties Manukau District Health Board states, within strategic planning documents, an intent to reduce reliance on overseas workers because of the global shortage of healthcare providers and the organization's preference to have a workforce that reflects the counties' population. Again, results of these strategies are not available.

The lack of public documentation does not necessarily mean these high performing health systems do not employ strategies and processes focused on provider outcomes, but that, based on the findings of this focused literature search, publicly accessible material is more likely to focus on patient outcomes and financial viability.

4.0 Discussion

4.1 Relating Findings to Research Questions

4.1.1 Research Question 1: How is workforce transformation accounted for in emerging governance structures and processes in Canada and internationally?

Our review identified six distinct forms of governance, which we were able to group into three themes: provider engagement, quality improvement initiatives, and organizing structures. In the provider engagement theme, shared governance was the most frequently studied topic, with Magnet accreditation and professional development initiatives studied less frequently. Under quality improvement, clinical governance and evidence-based practice were studied most often. The organizing structures theme included methods of delivery of health services (e.g., moves to team-based care, private vs. public organizations), which covered a wide range of topics. Organizing structures also included research on funding models, which was heavily weighted toward pay for performance systems.

Our results showed that workforce variables are taken into account to varying degrees in emerging governance structures and processes. Table 9 provides a breakdown of workforce outcomes related to each of the governance types in the empirical literature reviewed in this report. As shown in the table, a substantial portion of the literature is devoted to examining various work attitudes (e.g., job satisfaction, engagement) in relation to governance. Professional behaviour (e.g., care quality, job performance) was frequently studied, particularly in the funding literature. Recruitment and retention are also examined, but perhaps to a surprisingly small extent given the workforce shortages forecasted for the coming years (e.g., AHS, 2011). Collaborative practice issues are studied primarily in relation to funding and clinical governance, and absenteeism was examined in only a handful of studies. The same was true for role clarity, learning, workload, and skill or staff mix.

The non-empirical and grey literature had a similar focus on care quality and work attitudes. These patterns suggest that researchers are missing opportunities to study aspects of health workforce transformation (e.g., recruitment, collaborative practice) that could be important for the sustainability of healthcare systems and the quality of patient outcomes.

An important finding of our review is that workforce outcomes are often not explicitly considered in governance planning efforts. Many of the articles we examined were written by academic researchers studying an initiative after its planning phase, rather than by planners intentionally including the impact to the workforce as a factor in the design of governance structures or processes. The majority of initiatives seemed to be ultimately aimed at improving patient outcomes or reducing financial costs (both worthy

goals, of course), not explicitly at improving HHR outcomes. Changes for the workforce are implicit in the planning phase (e.g., implementation of a QI initiative will impact how providers work, but the true goal is to improve patient care) but do not seem to be considered in their own right.

The same was true in our search for workforce issues in high-performing systems. The literature we found rarely included discussions of HHR in descriptions of governance initiatives, and when the workforce was mentioned it was typically only in passing. The effects of governance on the workforce were not explicitly measured, suggesting that these are of lesser concern (at least in publicly accessible documents) than are patient and financial outcomes. We note, however, that these organizations may be using governance strategies and processes relating to the workforce but simply not publishing this information.

In summary, workforce transformation is included in consideration of governance structures and processes to a lesser extent than one might expect given its importance for creating sustainable health systems. When the workforce is included, it is usually not given explicit consideration in planning phases and the focus is largely on work attitudes and professional behaviour to the exclusion of other relevant outcomes.

Table 9. Outcomes considered in empirical articles

	Organizing Structures		Provider Engagement			Quality Focus
Outcome Examined	Organization of Healthcare Delivery	Funding Schemes	Shared Governance	Magnet Accreditation	Professional Development	Clinical Governance
Absenteeism	Silvestro (2008)	Kurtzman (2011)				Som (2007)
Adoption of care protocols	Lavoie-Tremblay (2011)	Foels (2009) Pourat (2005) Vina (2009)		Jayawardhana (2011)	Garrard (2006)	Gerrish (2008) Levin (2011) Melnyk (2010) Vina (2009) Wallen (2010)
Collaborative practice	Sicotte (2002)	Bitton (2012) De Lusignan (2005) Geneau (2008) Maisey (2008) McClimens (2010) Vina (2009)		Balogh (2006)	Garrard (2006) George (2002) MacDonald (2008)	Fitzgerald (2003) Rosengren (2012) Som (2007) Vina (2009)
Learning	Prater (2001) Smith (2004)	De Lusignan (2005) Jones (2011)			Garrard (2006) MacDonald (2008)	Luxford (2011) Som (2006)
Professional behaviour	Aarons (2009) Prater (2001) Smith (2004)	Bitton (2012) Campbell (2008) Damberg (2009) Devlin (2008) Foels (2009) Geneau (2008) Kurtzman (2011) Rodriguez (2009) Sarma (2010) Tickle (2011) Vina (2009) Young (2007b) Young (2010)	Latham (2011)	Balogh (2006)	George (2002)	Fitzgerald (2003) Freeman (2004) Paxton (2006) Rondeau (2007) Sheaff (2004) Vina (2009)
Recruitment	Silvestro (2008)	Feng (2010) Kurtzman (2011) McClimens (2010)	Latham (2011)			Som (2007)

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	Organizing Structures		Provider Engagement			Quality Focus
Outcome Examined	Organization of Healthcare Delivery	Funding Schemes	Shared Governance	Magnet Accreditation	Professional Development	Clinical Governance
Retention	Castle (2006) Donoghue (2009) Silvestro (2008)	Kurtzman (2011) Loan-Clarke (2009) McClimens (2010)	Ellenbecker (2007) Latham (2011)	Brady-Schwartz (2005)		Levin (2011) McCormick (2006) Som (2007) Wallen (2010)
Role clarity	Belling (2011)	McClimens (2010)			MacDonald (2008)	
Skill/staff mix	McCloskey (2005) Silvestro (2008)	Maisey (2008) McGregor (2008)		Jayawardhana (2011)		
Work attitudes	Aarons (2009) Braithwaite (2004) Lavoie-Tremblay (2011) O'Dowd (2006) Prater (2001) Silvestro (2008)	Bitton (2012) Brcic (2012) Buchan (2012) Campbell (2008) Campolieti (2007) Chestnutt (2007) Chestnutt (2009) Damberg (2009) De Lusignan (2005) Geneau (2008) Green (2009) Harris (2009) Harris (2011) Kurtzman (2011) Jones (2011) MacDonald (2008) Maisey (2008) McClimens (2010) McGregor (2008) Whalley (2008) Young (2007a) Young (2010)	Attree (2005) Barden (2011) Ellenbecker (2007) Erickson (2003) Frith (2006) Kramer (2008) Latham (2011) Smith Randolph (2005)	Balogh (2006) Brady-Schwartz (2005) Hess (2011) Upenieks (2003)	Garrard (2006) George (2002) MacDonald (2008) McCabe (2008) Smith Randolph (2005)	Dean (2004) Freeman (2004) Gerrish (2008) Levin (2011) Luxford (2011) McCormick (2006) Melnyk (2010) Murray (2004) Rondeau (2007) Rosengren (2012) Sheaff (2004) Sweeney (2003) Wallen (2010)
Workload	McCloskey (2005)	Gemmell (2009) Harris (2009) McGregor (2008)		Jayawardhana (2011)		Rosengren (2012)

4.1.2 Research Question 2: What is the impact of governance structures and processes on health workforce transformation to support health system change?

The majority of governance structures and processes examined in this report had at least some of the intended effects on workforce outcomes. In particular, shared governance, Magnet accreditation, and professional development initiatives were most consistently associated with increases to empowerment, confidence, and job satisfaction. Although retention was thought to improve with these initiatives, turnover was not well-studied; shared governance had mixed results and no studies measured the impact of Magnet accreditation or professional development on turnover. However, the significant link between job satisfaction and turnover in Brady-Schwartz's (2005) study of Magnet accreditation does suggest that undertaking the processes necessary to attain Magnet status probably impacts retention as well. Unfortunately, the literature we reviewed does not reveal how, or by what mechanisms, these initiatives impact the measured outcomes.

Quality improvement initiatives also tended to improve staff outcomes in the literature reviewed, although there were often some issues related to increased workload and apprehension about the implementation process. Interestingly, the only study to find strongly negative attitudes about clinical governance (McCormick & Langford, 2006) examined dentists in the UK. Given that training seemed to increase acceptance of quality initiatives in several of the other studies and that many of the dentists felt they were lacking guidance, it is plausible that these dentists might have benefited from additional education on the process and benefits of evidence-based practice.

Making changes to how healthcare delivery is organized had mixed results; moves to team-based care sometimes resulted in increased stress or issues with role clarity (e.g., Lavoie-Tremblay, 2011), but a move to physician co-operative structures improved quality of life and stress levels among most respondents (O'Dowd, 2006). In two studies examining the effect of organization type (profit vs. non-profit and chain member vs. independent nursing homes), results were inconsistent. However, the Donoghue and Castle (2009) study was based on a much larger sample than was Castle and Engberg's (2006), which may account for the discrepant results.

A substantial amount of research on various funding schemes was identified in our review. P4P systems tended to show mixed results, but the literature identified several important contextual factors that seem to determine outcomes: appropriate targets for performance improvement, meaningful size of incentives, and engagement of stakeholders all improved provider acceptance and performance. Non-P4P research generally showed that changes to funding systems were not well received by providers and that fee-for-service setups were liked the least.

Strategic planning, physician leadership, and communication were discussed only in the non-empirical and grey literature found in our literature searches, so we cannot draw any firm conclusions about their impact.

Overall, the evidence is mixed with regard to how well the various governance structures we reviewed work to create workforce transformation. More research is needed on each of these topics before we can draw strong conclusions about their effectiveness.

4.1.3 Research Question 3: What are the elements of governance structures and processes that are critical to workforce transformation?

Each of the governance structures we examined did have some effect on the workforce, and there are some critical elements common to all governance types that should be considered by health systems planning new governance initiatives. In sum, the elements that seem most important for successful initiatives are: clear strategy and good leadership that focuses on communication and building trust; engagement of stakeholders from early development through implementation and into ongoing monitoring and refinement of new systems; organizational culture that supports the change and allocates resources to facilitate the process (e.g., funding for training); a reasonable pace for change; and flexibility to take account of local context.

Physician leadership and engagement are also important parts of any healthcare initiative. In fact, a member of our REG emphasized that a lack of physician support, participation, or leadership will negatively affect the success, or perhaps even the implementation, of initiatives. The value of getting and keeping physicians and other staff members involved in any governance structure or process should not be underestimated. Organizations wishing to begin any project should ensure that all relevant stakeholders are involved in planning and implementation, and should consider what they each value when designing the project.

A key topic that was touched on in many articles we reviewed was the importance of clear, open communication during all stages of change. Communication from upper management about the organization's mission and values, along with a clear and reasoned explanation of the need for change were identified as crucial aspects of any kind of governance structure or process transformation.

There were a few critical elements unique to certain forms of governance. For shared governance, an important aspect to consider is whether shared governance is implemented in name only or whether providers truly feel in control of their practice. Two articles noted that shared governance might not develop as quickly or as fully as originally intended, and this should be taken into account when examining outcomes.

For quality improvement, staff seemed to be particularly accepting of and more consistent in implementing this kind of initiative when they received training on how to

follow evidence-based guidelines and how to find and interpret research evidence. Training did tend to increase workload, stress, and time pressure, however, so management should consider ways to balance training with usual work requirements. Another factor to consider is that not all care can be standardized; organizations should only try to implement care protocols when they make sense and are easy for providers to use.

It must be noted that the literature included under *Organization of Healthcare Delivery* covered a wide range of topics, and thus we cannot conclude with certainty that various changes or types of organization are universally positive or negative. However, instilling trust in the workforce was an important factor in these changes. Organizations should also make sure to understand issues facing the workforce and take these into account when designing new care structures. Other aspects of care delivery did not consistently impact, either positively or negatively, workforce transformation.

The funding literature was weighted heavily towards P4P research, which revealed that P4P can be beneficial if certain factors are given proper consideration. For instance, P4P programs should engage stakeholders early on, choose appropriate performance targets, and involve incentives that are appropriately distributed to influence behaviour. The non-P4P research revealed that providers generally prefer payment systems other than fee for service, and that strong leadership improves acceptance.

We held a discussion session at the Accreditation Canada Quality Conference 2013 to elicit feedback on this issue from healthcare managers and quality improvement experts. Their experiences with governance varied widely, but a common thread was the importance of engaging stakeholders, including healthcare workers, from the beginning of any initiative to ensure appropriate representation and consideration. Full engagement (not just consultation) was felt to increase buy-in to new initiatives from the frontline staff who would be tasked with actually carrying out the work. They also noted that clear, open communication and the establishment of trust between workers and managers were crucial to ensuring the success of an initiative. When asked about barriers to making the workforce a more explicit focus of governance initiatives, participants cited the complexity of healthcare governance systems in general and concerns about stakeholder (e.g., union) support. Regarding complexity, it was noted that there are often multiple governance structures in existence in any system (e.g., discipline-specific structures, hospital-wide structures, provincial structures, etc.), and that it can be difficult to navigate between and across these bodies to create a successful initiative. Various stakeholder groups were also thought to increase the difficulty of implementing any new initiative, but some of our participants had had great success by involving all groups from the beginning. One participant noted that they have had very positive results from asking union management to encourage uptake of an initiative, and that when engaged in this way, powerful stakeholder groups can be facilitators instead of barriers.

It is important to note here that although many of the studies we included alluded to the importance of the elements above, we found no evidence that this had been empirically examined and thus cannot draw firm conclusions about whether and in which contexts they will be most useful. That said, in general, elements such as stakeholder engagement, appropriate allocation of resources, strong leadership, clear communication, and training for providers should all be given consideration during the planning phase of any governance initiative.

4.1.4 Research Question 4: How do emerging health system governance structures and processes facilitate workforce transformation and contribute to health system change?

Although there were some clear findings in the literature we reviewed, overall, the evidence on the impact of governance models on transformation of the health workforce is patchy. This is partly explained by methodological weaknesses in the research we reviewed, much of which fails to account for the wide range of factors that may affect intervention implementation and outcomes in health systems. It is also a reflection of under-developed theoretical models for change in the existing research. For example, while incentives such as financial rewards for reaching performance targets are widely used to support change, the evidence of impact is mixed. This may be because the health workforce has a more complex set of motivators than workforces in non-health industries, where performance-related pay originated. More theory-driven research on healthcare workers' performance motives is needed to improve our understanding of how and when P4P will be effective. There is also a case for more in-depth exploration of the contextual influences on transformational change in complex organizations. Richer, theoretically strong research is important for building the evidence base.

The mixed findings may also reflect methodological challenges in accounting for other factors that impact outcomes; this is true across all topics we reviewed. More rigorous research designs would allow stronger conclusions to be drawn about how governance processes affect workforce outcomes.

A purpose of reform is to "enhance the working environment for health professionals" (McAvoy & Coster, 2005). To achieve healthcare reform, policy initiatives must be aligned to organizational and workforce development. However, systems and processes needed to facilitate overall agreement among organizational goals, human resource management policies, and education and training are often absent (Lilley & Stewart, 2009). Strategic planning and direction from boards, upper management, and medical staff are required to convey information and implement changes that will motivate and empower staff (Lugon, 2005). The beliefs, values, attitudes, and actions of senior leaders must demonstrate the prioritization of quality work life for it to become a reality for employees.

4.2 Interviews with Health Systems Experts

We conducted four interviews with members of the REG and subject matter experts from the research team near the end of the project in order to validate the report, determine whether and how it contributed to experts' knowledge, and understand how the results could be applied in healthcare settings. The interview guide is shown in Appendix 7. We also solicited feedback from the REG on a draft of the full report, and some of that feedback is incorporated here.

For the most part, our interviewees were satisfied with the search process and the types of articles we included. Some were surprised by the inclusiveness of our definition of governance, noting that they tended to define governance more narrowly (e.g., as governing boards only). Those that mentioned this noted it was not a flaw in our review but an opportunity for them to reconsider their views.

Interviewees were generally pleased with our topic coverage, but a few potential gaps were noted. For instance, interviewees mentioned that physician compacts (i.e., codes of expectations) and primary care governance could be a useful topic for further study. REG members also commented that topics such as physician engagement programs and attempts at role clarification were also missing from the report. We do not disagree, but note that our literature search did not identify any high-quality articles considering these topics in combination with workforce issues or outcomes. The same was true for self-managed operating units, mentioned by another interviewee as a gap.

The interviewees said there were no surprising findings in this review, but expressed some disappointment with the lack of clear evidence on effective governance strategies and processes to transform the health workforce. They acknowledged that this was largely due to the state of the primary literature rather than our methodology.

Interestingly, one interviewee commented that organizations tend to be a step ahead of the literature as they implement new initiatives before researchers can determine how effective those initiatives actually are in order to "stay ahead of the curve." This suggests that organizations are not taking advantage of empirical research as much as one might expect – or hope – when designing new initiatives, and perhaps are not taking the time to conduct research to determine the effectiveness of those initiatives. This was echoed by another interviewee who noted that the research on P4P funding models has not supported them as much as one might predict given their increasing prevalence in health systems.

Finally, one interviewee reflected on the possibility of developing a different model for reviewing evidence on this topic, perhaps beginning with a detailed review of high performing systems to refine topics for wider searches. While we acknowledge that this may be a useful strategy, our focused search for information on high-performing systems did not identify any literature that would allow us to follow this suggestion.

4.3 Strengths and Limitations of the Review

4.3.1 Strengths

This report was strengthened by the thorough methodological approach used for the review. Each abstract was screened according to preset criteria by four researchers after careful consideration of inter-rater agreement issues, and each full text article was rated and screened for quality by at least two readers. Extractions and summaries were written and validated by two separate researchers to ensure that all relevant information was included.

Another strength of this review was the integration of guidance from knowledge users and health systems experts. These experts were consulted regularly throughout the conception, search, synthesis, and validation phases of the project, and their feedback was used to help shape the report. This was done to ensure that the report would be usable and relevant for a wide array of knowledge users.

Finally, our literature search included not only published empirical literature, but also non-empirical articles and grey literature. This allowed us to examine government and health agency reports and consider expert advice on the topics under review.

4.3.2 Limitations

The primary limitation of this review was the difficulty inherent in conducting a thorough literature search for governance types and processes. Given the potential breadth of the topic area, it is possible that some important topics or articles were missed despite the assistance provided by an experienced research librarian. However, we attempted to mitigate this problem by asking our REG to consider whether any other topics or key papers should be included, and conducted an additional search of the funding literature because this was considered a priority area. We also examined the bibliographies of included articles and retrieved empirical papers within our date range that seemed to address our research questions, and we searched for additional articles written by prominent authors.

The literature search was limited to articles from 2001 and newer, which may have excluded relevant literature. However, this ensured that more current research was the focus of the review and thus that modern governance strategies and processes were examined. We also limited our review to papers from Canada, Sweden, the United Kingdom, the Netherlands, New Zealand, Australia, and the United States of America, which may have again excluded relevant literature. However, this decision was made in order to gain an understanding of governance in health systems similar to Canada's, allowing us to make recommendations relevant to this country.

Generally speaking, the quality of papers we reviewed was not high enough to draw firm conclusions about many of the topics under consideration. Although the majority of literature did tend to agree on key points, there is a genuine need for high-quality research in most of the areas we covered. We were careful to eliminate papers with serious methodological flaws, but much of the remaining research did not include control groups, before-and-after designs, or other design elements that would allow us to infer causal linkages between governance, workforce transformation, and health system change. There is a need for validated measurement tools, larger sample sizes, and the use of comparison groups. In-depth research on how local context impacts policy implementation processes would also help to develop the evidence base. In addition, a segment of the research we reviewed was conducted by individuals working in the organization under study, which raises the question of conflict of interest. Unbiased, methodologically sound research underpinned by a strong theoretical base is sorely needed to allow users to draw strong conclusions about the effectiveness and suitability of any form of governance.

Overall, the quality of evidence hampered our ability to draw strong inferences about the effectiveness of the governance structures and processes we reviewed.

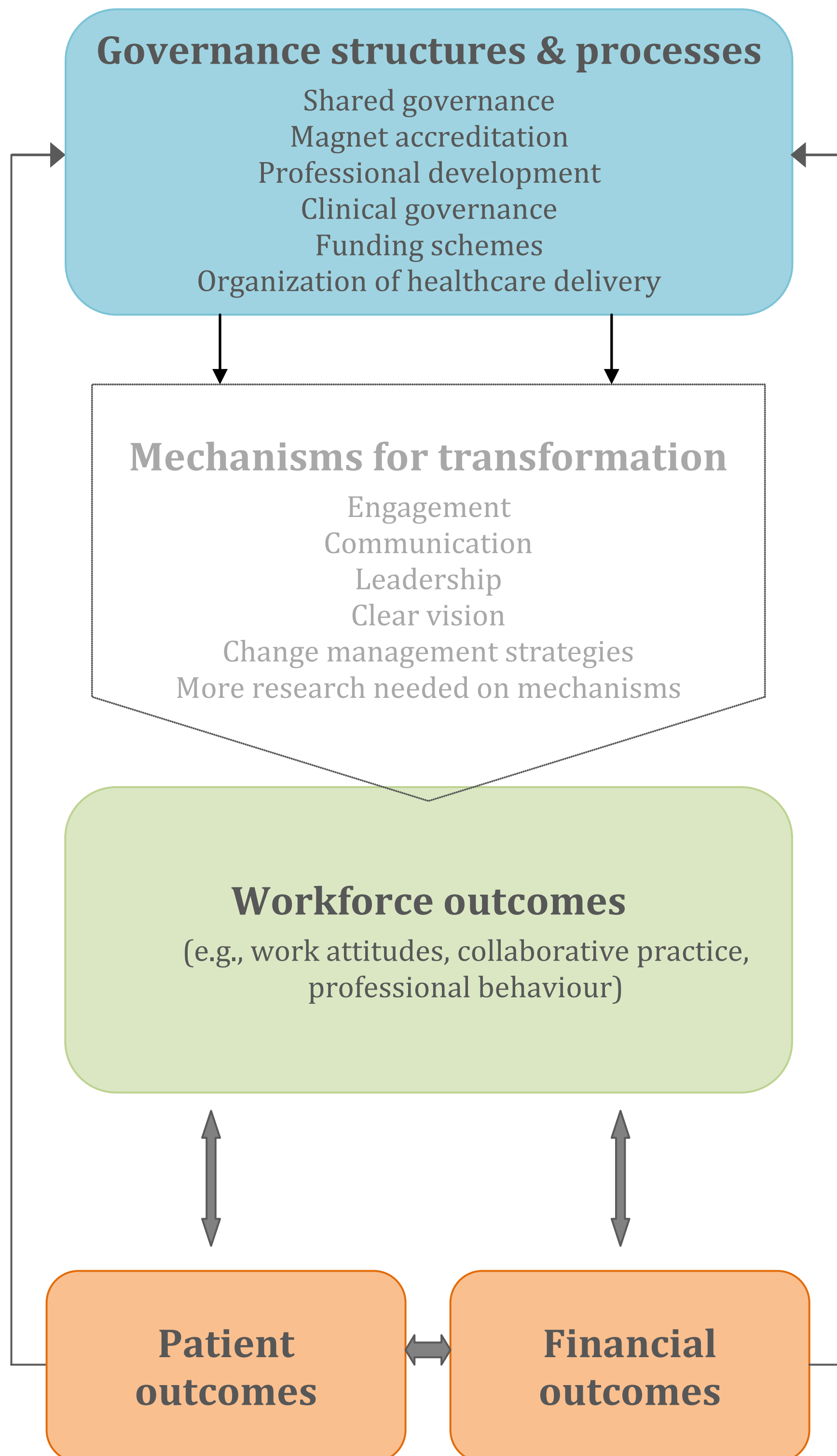
4.4 Recommendations for Researchers and Decision-Makers

The objective of this systematic review was to increase our understanding of the evidence relating health system governance to health workforce transformation. The lack of high quality, empirical evidence making that link limits our ability to make firm recommendations but we suggest the following for consideration:

- Workforce should be considered as a mediating factor between governance initiatives and health system outcomes. The literature we reviewed rarely considered both workforce and patient outcomes together. Governance initiatives that are focused on patient, financial or other system outcomes should include explicit consideration, during the planning, implementation, and evaluation phases, of how the workforce will be affected in order to ensure that the workforce can and will carry out their work in the ways intended. See Figure 4 for a graphical illustration.

- Decision-makers and researchers should work together to develop the evidence base to gain a more complete understanding of the consequences of various types of governance and the mechanisms through which they affect the workforce. Decision-makers and researchers should both advocate for the collection of workforce-related outcomes of governance structures and processes to move research forward in this area.

Figure 4. Workforce outcomes as mediator of relationship between governance and patient or financial outcomes



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6.0 Appendices

Appendix 1: Rapid Engagement Group Members

Name, Title & Organization	Expertise
Anne Harvey VP, Human Resources Services for Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health	Human resources in several large healthcare organizations in Vancouver and area; previous CEO of nursing union in British Columbia, and involved in employee communications, education, and engagement.
Dr. Brian Hutchison Professor Emeritus, Departments of Family Medicine and Clinical Epidemiology and Biostatistics, McMaster University; Co-Chair, Canadian Working Group for Primary Healthcare Improvement; Senior Advisor, Health Quality Ontario	Organization, funding and delivery of primary and community care, needs-based healthcare resource allocation and funding methods, provider payment methods, quality improvement and preventive care.
Carolyn Hoffman VP, Clinical Performance Improvement, AHS	Quality Improvement, health system management, policy development; patient safety program development with the Canadian Patient Safety Institute.
Deb Gordon Senior VP, Health Professions Strategy & Practice, Chief Nursing & Health Professions Officer, AHS	Professional Practice (nursing and allied health), Workforce Planning
Dr. Dennis Kendel Health Services & Health Policy Consultant	Health Policy, Medical Regulation, Accreditation, Health Services Utilization, Physician Leadership
Dr. Herb Emery Svare Professor in Health Economics, University of Calgary	Health Economics, Health Policy, Public Finance, Health Care Finance
Dr. John Cowell CEO, Health Quality Council of Alberta	Health system outcomes, measurement and system performance, patient engagement in the health system, occupational health and safety.
Linda Silas President, Canadian Federation of Nurses Unions (CFNU)	Nursing Practice, Nursing Unions, Collective Bargaining, Worklife Satisfaction, Nursing Leadership, Policy Development, HHR Issues
Pamela Fralick CEO & President, Canadian Cancer Society	Healthcare governance competencies

Appendix 2: Knowledge Translation Strategies

Dissemination Events

- Discussion session, Accreditation Canada Quality Conference, Edmonton, AB: May 19, 2013

Conference Presentations

- Hastings, S.E., Armitage, G., Hepp, S., Jackson, K., Linder, J., Mallinson, S., Misfeldt, R., Suter, E. (2013, May). Exploring the relationship between governance models in healthcare and health workforce transformation: A systematic review. Poster presented at the annual meeting of the Canadian Association for Health Services and Policy Research, Vancouver, BC.

Appendix 3: Search Strategy and Grey Literature Websites

Search Strategy for General Governance Literature

MEDLINE (OVID)
Cochrane CENTRAL Register of Controlled Trials (OVID)
1. Health Manpower/ or models, nursing/ or nursing services/
2. health personnel/ or emergency medical technicians/ or home health aides/ or exp nurses' aides/ or operating room technicians/ or pharmacists' aides/ or physical therapists/ or exp physician assistants/ or exp dental staff/ or exp dentists/ or exp medical staff/ or exp nurses/ or exp nursing staff/ or pharmacists/ or exp physicians/ or exp laboratory personnel/
3. acupuncture/ or chiropractic/ or exp nursing/ or nursing, practical/ or exp nutritional sciences/ or optometry/ or pharmacy/
4. exp Midwifery/
5. exp Naturopathy/
6. exp Occupational Therapy/
7. exp Allied Health Personnel/
8. Allied Health Personnel/
9. exp Podiatry/
10. exp Psychiatric Nursing/
11. exp Nursing Staff/
12. exp Respiratory Therapy Department, Hospital/
13. Social Work/ or patient care team/
14. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
15. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
16. ((health care or healthcare) adj10 governance).tw.
17. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16
18. exp canada/ or exp great britain/ or exp ireland/ or sweden/ or netherlands/ or new zealand/ or exp australia/ or london/ or exp united states/

19. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in.
20. 18 or 19
21. 17 and 20
22. limit 21 to yr="2001 -Current"
23. limit 22 to animals
24. limit 22 to (animals and humans)
25. 23 not 24
26. 22 not 25
27. governance.tw.
28. *clinical governance/ or *governing board/ or *hospital administration/
29. *models, organizational/ or *decision making, organizational/
30. *"organization and administration"/
31. (govern or governing).tw.
32. (administra* adj5 (power* or function*)).tw.
33. ((administrative or leadership or managerial or management or organisation* or organization*) adj5 (decision making or framework* or missions or model or models or philosoph* or policy or policies or practice* or processes or structure*)).tw.
34. 27 or 28 or 29 or 30 or 31 or 32 or 33
35. Health Care Reform/
36. organizational innovation/
37. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or restructur* or revolutioni* or transfigur*)).tw.
38. ((quality or performance) adj10 (improv* or innovat*)).tw.
39. 35 or 36 or 37 or 38
40. 34 and 39
41. 26 and 40

Health Technology Assessment HTA (OVID)
Cochrane Database of Systematic Reviews (OVID)

1. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.

2. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
3. ((health care or healthcare) adj10 governance).tw.
4. 1 or 2 or 3
5. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in.
6. 4 and 5
7. limit 6 to yr="2001 -Current"
8. governance.tw.
9. (govern or governing).tw.
10. (administra* adj5 (power* or function*)).tw.
11. ((administrative or leadership or managerial or management or organisation* or organization*) adj5 (decision making or framework* or missions or model or models or philosoph* or policy or policies or practice* or processes or structure*)).tw.
12.8 or 9 or 10 or 11
13. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or restructur* or revolutioni* or transfigur*)).tw.
14. ((quality or performance) adj10 (improv* or innovat*)).tw.
15. 13 or 14
18. 7 and 12 and 15

EMBASE (OVID)
1. *health care manpower/
2. *nursing/ or exp *nursing practice/ or *practical nursing/
3. *health care personnel/ or *health auxiliary/ or exp *hospital personnel/ or exp *medical personnel/ or exp *mental health care personnel/ or exp *nursing home personnel/ or exp *paramedical personnel/
4. *optometry/
5. *acupuncture/
6. *alternative medicine/
7. *podiatry/
8. *psychiatric nursing/
9. *social worker/
10. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language

pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
11. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
12. ((health care or healthcare) adj10 governance).tw.
13. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12
14. north america/ or exp canada/ or exp united states/
15. United Kingdom/
16. Ireland/
17. Sweden/
18. Netherlands/
19. exp New Zealand/
20. exp Australia/
21. "Australia and New Zealand"/
22. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in.
23. 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22
24. 13 and 23
25. limit 24 to yr="2001 -Current"
26. limit 25 to animal studies
27. limit 25 to human
28. 26 and 27
29. 26 not 28
30. 25 not 29
31. governance.tw.
32. "board of trustees"/
33. *hospital management/
34. *"organization and management"/
35. *organization/
36. (govern or governing).tw.
37. (administra* adj5 (power* or function*)).tw.
38. ((administrative or organisation* or organization*) adj5 (decision making or model or models or structure*)).tw.
39. 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
40. *health care policy/
41. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)).tw.
42. ((quality or performance) adj10 (improv* or innovat*)).tw.
43. 40 or 41 or 42
44. 39 and 43
45. 30 and 44
46. 30 and 31
47. 45 or 46

Alberta Health Services

PsycINFO (OVID)

1. health personnel/
2. exp allied health personnel/
3. exp medical personnel/ or clinicians/
4. exp mental health personnel/
5. home care personnel/
6. therapists/ or occupational therapists/ or clinicians/ or exp social workers/
7. exp Acupuncture/
8. Alternative Medicine/
9. Occupational Therapy/
10. therapists/
11. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
12. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
13. ((health care or healthcare) adj10 governance).tw.
14. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in,lo.
16. 14 and 15
17. limit 16 to yr="2001 -Current"
18. limit 17 to animal
19. limit 17 to (animal and human)
20. 18 not 19
21. 17 not 20
22. governance.tw.
23. 21 and 22
24. Clinical Governance/ or Organizational Structure/
25. Hospital Administration/
26. Organizational Behaviour/
27. Health Care Administration/
28. Management Decision Making/
29. (govern or governing).tw.

30. (administra* adj5 (power* or function*)).tw.
31. ((administrative or organisation* or organization*) adj5 (decision making or model or models or structure*)).tw.
32. 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31
33. exp Health Care Reform/
34. exp Innovation/
35. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)).tw.
36. Organizational Change/
37. ((quality or performance) adj10 (improv* or innovat*)).tw.
38. 33 or 34 or 35 or 36 or 37
39. 32 and 38
40. 21 and 39
41. 23 or 40

CINAHL (EBSCO)

1. (MH "Health Manpower+") OR (MH "Health Personnel+")
2. TI(acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
3. TI (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*)
4. AB(acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.

5. AB (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*)
6. 1 or 2 or 3 or 4 or 5
7. (MH "North America") OR (MH "Canada+") OR (MH "United States+") OR (MH "Australia+") OR (MH "New Zealand") OR (MH "United Kingdom+") OR (MH "Ireland") OR (MH "Sweden") OR (MH "Netherlands")
8. TI(canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa)
9. AB(canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa)
10. 7 or 8 or 9
11. 6 and 10
12. (MH "Governing Board") OR (MH "Shared Governance") OR (MH "Health Facility Administration") OR (MH "Personnel Management") OR (MH "Decision Making, Organizational") OR (MH "Quality Management, Organizational") OR (MH "Organizational Objectives")
13. TI(govern or governing or governance)
14. AB(govern or governing or governance)
15. TI(administra* NEAR (power* or function*))
16. AB(administra* NEAR (power* or function*))
17. TI((administrative or organisation* or organization*) NEAR (decision making or model or models or structure*))
18. AB((administrative or organisation* or organization*) NEAR (decision making or model or models or structure*))
19. 12 or 13 or 14 or 15 or 16 or 17 or 18
20. (MH "Health Care Reform") OR (MH "Organizational Change")
21. TI((health or healthcare or hospital* or organization* or organisation* or workforce or work force) NEAR (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*))
22. AB((health or healthcare or hospital* or organization* or organisation* or workforce or work force) NEAR (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*))
23. TI((quality or performance) NEAR (improv* or innovat*))
24. AB((quality or performance) NEAR (improv* or innovat*))
25. 20 or 21 or 22 or 23 or 24
26. 11 and 19 and 25
27. Limit 26 to years=2001-2012

ABI Inform (ProQuest)
Business Source Premiere (EBSCO)
ERIC (EBSCO)

1. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner*

or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff) KeyWords
2. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*)KeyWords
3. ((health care or healthcare) and governance)KeyWords
4. 1 or 2 or 3
5. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa)KeyWords
6. 4 and 5
7. limit 6 to yr="2001 -Current"
8. (governance or govern or governing)KeyWords
9. (administra* and (power* or function*))KeyWords
10. ((administrative or leadership or managerial or management or organisation* or organization*) and (decision making or framework* or missions or model or models or philosoph* or policy or policies or practice* or processes or structure*))KeyWords
11.8 or 9 or 10
12. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) and (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or restructur* or revolutioni* or transfigur*))KeyWords
13. ((quality or performance) and (improv* or innovat*))KeyWords
14. 12 or 13
18. 7 and 11 and 14

Search Strategy for Funding Literature

MEDLINE (OVID)

1. Health Manpower/ or models, nursing/ or nursing services/
2. health personnel/ or emergency medical technicians/ or home health aides/ or exp nurses' aides/ or operating room technicians/ or pharmacists' aides/ or physical therapists/ or exp physician assistants/ or exp dental staff/ or exp dentists/ or exp medical staff/ or exp nurses/ or exp nursing staff/ or pharmacists/ or exp physicians/ or exp laboratory personnel/
3. acupuncture/ or chiropractic/ or exp nursing/ or nursing, practical/ or exp nutritional sciences/ or optometry/ or pharmacy/
4. exp Midwifery/
5. exp Naturopathy/
6. exp Occupational Therapy/
7. exp Allied Health Personnel/
8. Allied Health Personnel/
9. exp Podiatry/
10. exp Psychiatric Nursing/
11. exp Nursing Staff/
12. exp Respiratory Therapy Department, Hospital/
13. Social Work/ or patient care team/
14. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
15. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
16. ((health care or healthcare) adj10 governance).tw.
17. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16
18. exp canada/ or exp great britain/ or exp ireland/ or sweden/ or netherlands/ or new zealand/ or exp australia/ or london/ or exp united states/
19. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in.
20. 18 or 19
21. 17 and 20
22. limit 21 to yr="2001 -Current"

23. limit 22 to animals
24. limit 22 to (animals and humans)
25. 23 not 24
26. 22 not 25
27. Health Care Reform/
28. organizational innovation/
29. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)).tw.
30. ((quality or performance) adj10 (improv* or innovat*)).tw.
31. 27 or 28 or 29 or 30
32. 26 and 31
33. exp Reimbursement Mechanisms/ or financial management, hospital/
34. pay for performance.tw.
35. pay for service.tw.
36. funding model*.tw.
37. payment model*.tw.
38. Fee-for-Service Plans/
39. fee for service.tw.
40. ((approach or model or models or scheme*) adj3 (fund or funding or pay or paying or reimburs*)).tw.
41. 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40
42. 32 and 41

EMBASE (OVID)
1. *health care manpower/
2. *nursing/ or exp *nursing practice/ or *practical nursing/
3. *health care personnel/ or *health auxiliary/ or exp *hospital personnel/ or exp *medical personnel/ or exp *mental health care personnel/ or exp *nursing home personnel/ or exp *paramedical personnel/
4. *optometry/
5. *acupuncture/
6. *alternative medicine/
7. *podiatry/
8. *psychiatric nursing/
9. *social worker/
10. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or

registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
11. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
12. ((health care or healthcare) adj10 governance).tw.
13. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12
14. north america/ or exp canada/ or exp united states/
15. United Kingdom/
16. Ireland/
17. Sweden/
18. Netherlands/
19. exp New Zealand/
20. exp Australia/
21. "Australia and New Zealand"/
22. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in.
23. 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22
24. 13 and 23
25. limit 24 to yr="2001 -Current"
26. limit 25 to animal studies
27. limit 25 to human
28. 26 and 27
29. 26 not 28
30. 25 not 29
31. *health care policy/
32. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)).tw.
33. ((quality or performance) adj10 (improv* or innovat*)).tw.
34. 31 or 32 or 33
35. 30 and 34
36. (fee for service* or funding model* or pay for performance* or pay for service* or payment model*).tw.
37. ((approach or approaches or model or models or scheme*) adj3 (fund or funding or pay or paying or payment* or reimburs*)).tw.
38. 36 or 37
39. 35 and 38
40. reimbursement/ or financial management/ or funding/
41. limit 40 to exclude medline journals
42. 35 and 41
43. 39 or 42

PsycINFO (OVID)
1. health personnel/
2. exp allied health personnel/
3. exp medical personnel/ or clinicians/
4. exp mental health personnel/
5. home care personnel/
6. therapists/ or occupational therapists/ or clinicians/ or exp social workers/
7. exp Acupuncture/
8. Alternative Medicine/
9. Occupational Therapy/
10. therapists/
11. (acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff).tw.
12. (health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker*).tw.
13. ((health care or healthcare) adj10 governance).tw.
14. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15. (canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa).tw,in,lo.
16. 14 and 15
17. limit 16 to yr="2001 -Current"
18. limit 17 to animal
19. limit 17 to (animal and human)
20. 18 not 19
21. 17 not 20
22. exp Health Care Reform/
23. exp Innovation/
24. ((health or healthcare or hospital* or organization* or organisation* or workforce or work force) adj5 (transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)).tw.
25. Organizational Change/
26. ((quality or performance) adj10 (improv* or innovat*)).tw.
27. 22 or 23 or 24 or 25 or 26
28. 21 and 27

29. exp funding/ or fee for service/ or professional fees/ or "cost containment"/ or monetary incentives/
30. (pay for performance or pay for service* or fee for service* or funding model* or payment model*).tw.
31. ((approach* or model or models or scheme*) adj3 (fund or funding or pay or paying or payment* or reimburs*)).tw.
32. 29 or 30 or 31
33. 28 and 32

Cochrane Database of Systematic Reviews (OVID)

1. (fee for service OR funding model OR pay for service OR pay for performance OR payment model).tw
2. ((approach OR approaches OR model OR models OR scheme*) AND (fund OR funding OR pay OR paying OR payment* OR reimburs*)).tw
3. 1 or 2
4. (health worker* OR healthcare worker* OR health professional* OR healthcare professional* OR health workforce OR health personnel* OR healthcare workforce OR hospital personnel OR health worker* OR healthcare worker*).tw
5. (transform* OR change OR changing OR innovat* OR reform* OR remodel* OR reconstruct* OR renewal OR restructur* OR revolutioni* OR transfigur*).tw
6. (canada OR canadian* OR united kingdom OR great britain OR england OR scotland OR ireland OR wales OR british OR UK OR uk OR sweden OR swedish OR netherlands OR dutch OR new zealand* OR australian* OR australia OR united states OR usa).tw
7. 3 and 4 and 5 and 6

ABI Inform Global (ProQuest)
Business Source Premier (EBSCO)

1. (fee for service OR funding model OR pay for service OR pay for performance OR payment model)[all fields]
2. ((approach OR approaches OR model OR models OR scheme*) AND (fund OR funding OR pay OR paying OR payment* OR reimburs*))[all fields]
3. 1 or 2
4. (health worker* OR healthcare worker* OR health professional* OR healthcare professional* OR health workforce OR health personnel* OR healthcare workforce OR hospital personnel OR health worker* OR healthcare worker*)[all fields]
5. (transform* OR change OR changing OR innovat* OR reform* OR remodel* OR reconstruct* OR renewal OR restructur* OR revolutioni* OR transfigur*)[all fields]
6. (canada OR canadian* OR united kingdom OR great britain OR england OR scotland OR ireland OR wales OR british OR UK OR uk OR sweden OR swedish OR netherlands OR dutch OR new zealand* OR australian* OR australia OR united states OR usa)[all fields]
7. 3 and 4 and 5 and 6

Alberta Health Services

Search Strategy for Grey Literature

ProQuest Digital Dissertations

1. SU/TI/AB(health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker* or health or healthcare or hospital* or organization* or organisation* or workforce or work force) NEAR/10 (govern or governing or governance or transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)
2. SU/TI/ABacupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff) NEAR/10 (govern or governing or governance)
3. 1 or 2
4. SU/TI/AB(canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa)
5. 3 and 4
6. Limit 5 to 2001-2012

Canadian Research Index (Proquest)

1. SU/TI/AB(health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker* or health or healthcare or hospital* or organization* or organisation* or workforce or work force) NEAR/10 (govern or governing or governance or transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)
2. SU/TI/ABacupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray

technologist* or allied health personnel* or provider* or hospital staff) NEAR/10 (govern or governing or governance)
3. 1 or 2
4. Limit 3 to 2001-2012

Web of Science Conference Citations

1. TOPIC/TITLE(health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker* or health or healthcare or hospital* or organization* or organisation* or workforce or work force) AND governance
2. TOPIC/TITLE(acupuncturist* or audiologist* or chiropractor* or clinician* or dental assistant* or dental hygienist* or dentist* or denturist* or dietician* or doctor* or general practitioner* or hearing aid practitioner* or lab technician* or lab technologist* or laboratory technician* or laboratory technologist* or licensed practical nurse* or LPN or LPNs or medical technologist* or medical technician* or diagnostic technologist* or diagnostic technician* or healthcare aid* or healthcare technician* or health care technician* or midwif* or midwives or naturopath* or nurse* or nursing aid* or nursing or occupational therapist* or optician* or optometrist* or paramedic* or pharmacist* or physical therapist* or physician*or podiatrist* or poediatrist* or psychiatric nurse* or psychologist* or registered nurse*or respiratory therapist* or social worker*or speech language pathologist* or surgeon* or therapy assistant* or x-ray technician* or x-ray technologist* or allied health personnel* or provider* or hospital staff) AND (govern or governing or governance)
3. TITLE(health workforce or health personnel* or healthcare workforce or hospital personnel or health worker* or healthcare worker* or health or healthcare or hospital* or organization* or organisation* or workforce or work force) AND (govern or governing or transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)
4. 1 or 2 or 3
5. TOPIC/TITLE(canada or canadian* or united kingdom or great britain or england or scotland or ireland or wales or british or UK or uk or sweden or swedish or netherlands or dutch or new zealand* or australian* or australia or united states or usa)
6. 4 and 5
7. Limit 6 to 2011-2012

Canadian Health Research Collection (Ebrary)

1. KeyWord (govern or governing or governance or transform* or change or changing or innovat* or reform* or remodel* or reconstruct* or renewal or revolutioni* or transfigur*)
2. Limit 1 to 2001-2012

Alberta Health Services

Websites Searched for Grey Literature

Search strategy: Manual searches of each site and site-specific Google search **(**In site:[…] governance AND health workforce OR health human resources; Date range = 2001 to 2012)

Canada
Accreditation Canada Canadian Association for Health Services and Policy Research Canadian Health Services Research Foundation Canadian Institute of Health Information Canadian Institutes of Health Research Health Canada Health Council of Canada Institute of Health Economics Public Health Agency of Canada
Alberta Alberta Innovates Health Solutions (formerly Alberta Heritage Foundation for Medical Research) Alberta Health Services Health Quality Council of Alberta ***Ontario*** Institute for Work & Health Ontario Ministry of Health and Long Term Care Ontario Hospital Association ***Academic institutions*** Centre for Health Economics and Policy Analysis (McMaster) McMaster Health Forum
Australia
Australian Institute of Health and Welfare Australian Centre for Healthcare Governance Health Workforce Australia Australian Council on Healthcare Standards
Netherlands
Ministry of Health, Welfare, and Sport National Institute for Public Health and the Environment
New Zealand
Health Research Council of New Zealand Ministry of Health
Sweden
Ministry of Health and Social Affairs

United Kingdom
Department of Health National Health Services National Institute for Health and Clinical Excellence NICE
United States
Veterans Affairs Hospitals Magnet – American Nursing Credentialing Center
International
RAND Corporation World Health Organization Campbell Collaboration Organization for Economic Co-operation and Development
Unclassified
Health Human Resources Planning Toolkit e-watch newsletter (santepop.qc.ca) OpenGrey Repository Trip Database Grey Literature Report Linda Aiken's website Institute for Healthcare Improvement

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Appendix 4: Article Screening Criteria

ABSTRACT RATING INSTRUCTIONS

Definition of governance from grant proposal:

There are many definitions for health system governance; some authors define health system governance as encompassing the strategic policy frameworks, mechanisms, effective oversight, coalition building, accountability, information, regulations, and incentives as they relate to health system design. Others refer to health system governance as the actions and means adopted by society to organize itself in the promotion and protection of the health of its population. Ramsay et al. have outlined several key levels and characteristics of health system governance. They differentiate between external levels of governance (e.g., the mandates and strategic planning of regulatory bodies, unions, regional health authorities, accreditation, provincial Ministry's of health) and local levels of governance which include the strategic plans, committees, quality assurance systems and other management structures and processes at the level of the organization (e.g., hospitals, clinics). These two formal levels of governance are contrasted to informal governance factors such as the relationships between professional cultures, the presence of local champions, and leadership

1. Read over the questions for the review to re-familiarize yourself with its purpose. As we go through the abstracts, we are trying to flag abstracts that will inform these questions.

- How is workforce transformation accounted for in emerging health system governance models in Canada and internationally?
- How do these emerging governance models facilitate workforce transformation and contribute to health system change?
- What are the elements of governance structures and processes that are critical to workforce transformation?

2. Rate each abstract according to the following scale:
    - Y* (definitely informs the review questions; 3 points)
    - Y (informs the review questions; 2 points)
    - P (might possibly inform the review questions; 1 point)
    - N (does not inform the review questions; 0 points).
3. Use the attached relevancy rating criteria to help determine the Y*, Y, P, or N classifications.
4. Input your judgment (either Y*, Y, P or N) on the article rating sheet. Please include any thoughts or comments relating to your rating on the sheet.

5. Respond according to your initial instincts rather than agonizing about your decision for each abstract. You should be re-reading very few. Remember that at least one other person will be rating the same set of abstracts. Even though we will all be "imperfect raters", the most important papers will tend to rise to the top through multiple ratings.

Instructions for Rating Abstracts

Total number of abstracts to be reviewed is 1028 for Medline. Four raters will review a portion of the abstracts. After the ratings are tabulated, all instances of discrepancy (2 or 3 Yes and 1 or 2 No) will be reviewed.

ABSTRACT RATING CRITERIA

YES* **and** ***YES*** **Abstracts**

The abstract contains the following elements:

- Based on work in Canada, Sweden, UK (i.e., England, Scotland, Wales, Ireland), Netherlands, New Zealand, Australia, or USA
- Focus is on governance *at higher than unit level*
- Discusses governance, clinical governance, governing board(s), hospital administration, organizational models, organizational decision making, or organizational structure IN COMBINATION WITH health care reform, organizational innovation, quality improvement, or performance improvement
- Inclusion of health workforce/HR considerations
- Be published between 2001 – 2012

POSSIBLE Abstracts (P)

The abstract meets one or more of the following conditions:

- The abstract meets most of the Yes criteria but is not clearly relevant
- The abstract does not have sufficient information.
- No abstract

NO **Abstracts**

- The paper does not consider the health workforce
- The paper only addresses the impact of governance on patient outcomes, quality assurance, service delivery (e.g. access or availability of services), or quality of care.
- The paper addresses unit-level governance (e.g., mentoring programs or medication safety programs implemented on unit, not hospital-wide)
- The research was conducted before 2001.
- The research was conducted in countries other than Canada, Sweden, UK, Netherlands, New Zealand, Australia, or USA

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Appendix 5: Article Classification Sheet

Reader's initials: ________

Article #: ________

First author surname / year of publication: ________________________/__________

Instructions: after the initial reading, please classify this paper on the following items.

1. Article relevancy (based on original criteria): _____ NOT relevant for review
_____ Useful background information
_____ relevant (**continue**)

2. Useful references (circle in article reference list) __________ yes _______ no

3. Setting of study - city, province/state, country (not country of publication): _
(Canada, Sweden, UK, Netherlands, New Zealand, Australia, USA)

4. Type of article:

___non-empirical (e.g. general principles, letters to editor, local experience w/o data)

___empirical (e.g. data/info of at least an observational level was collected)

qualitative________ quantitative_______

___systematic literature review

5. Type and/or name of organization:________________________

6. Level of governance: _____ External____ Organizational _____ Unit

7. Type of governance: __ Funding models __ Measures of governance _____ Shared governance
____Learning/Innovation ____Accreditation/Inspection ___Evidence-based practice
Laws______Registries ____Quality improvement ___Accountable Care Organization
Other:____

8. Details of governance factor: ________________________________

9. HR factors discussed: _______ recruitment __ retention__ scope/value-added care __ collaborative practice __ overtime__ sick time __ staff mix
__ care protocols __ role clarity __ standardized job descriptions __ absenteeism
__ work attitudes (engagement, satisfaction, etc.)__ learning/training__ Workforce trends
__ professional behaviour other________________________________

10. Workforce type:___ nursing_____ physicians _Allied health _____ Multiple
other ____

Brief description of article (2-3 sentences)

____

____

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Appendix 6: Article Quality Rating Criteria

Empirical Article Quality Rating Sheet

Reader's initials: _________

Article #: _________

First author surname / year of publication: ____________________________/______________

Section A: Methodological Quality

Score

0 = not present
1 = present but low quality
2 = present and medium quality
3 = present and high quality

___1. **Literature review**

- directly related recent literature is reviewed
- research gap(s) identified

___2. **Research questions and design**

- hypotheses, a research purpose statement, and/or a general line of inquiry are outlined.
- study design or research approach is articulated.

___ 3. **Population and sampling**

- the setting is described in detail
- sample type is clear
- participants are described in detail
- approach to sampling is described in detail
- participants' anonymity and confidentiality were assured and maintained

___ 4. **Data collection and capture**

- key concepts/measures/variables are defined
- systematic approach to data collection is reported
- measures used, if any, have been validated and are reliable
- response or participation rate and/or completeness of information capture is reported.
- methods/interventions are described in sufficient detail as to be replicable

___ 5. **Analysis and reporting of results**

- an approach to analysis and a plan to carry out that analysis is specified; statistical analyses, if any, are appropriate for the study design
- description of results is clear and comprehensive
- adequate sample size was used
- conclusions follow logically from findings
- potential confounding variables are noted

___ / 15

Section B: Researcher Bias/Conflict of Interest

Score

0 = No
1 = Yes

___ At least one researcher is not affiliated with facility or organization under study
___ Sources of funding are disclosed

___ /2

Total score: ____/17

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Non-empirical Article Quality Rating Sheet

Reader's initials: __________

Article #: __________

First author surname / year of publication: ____/_______

Section A: Quality

Circle appropriate score

Description	Decision	Score
· directly on topic · progressive · evidence of critical thought · strong conceptualization · leading edge · pre-eminent, ground-breaking paper by leading researcher in field · prestigious journal · very recent (2008-2012)	**Critical to include**	**10**
· on topic · raises new issues · highlights some interesting ideas · quite good · good journal · quite recent	**Definitely include**	**9** **8**
· relevant and a few interesting ideas · of average interest · not sure of authors credentials · not sure about the journal · mid-date range (2003-2007)	**May reinforce key ideas; perhaps should include**	**7** **6** **5**
· 1 or 2 interesting ideas, but not innovative · author has strong ties to/is employed by organization under consideration · fairly unknown journal and authors · a bit stale or ideas covered in more recent material · redundant	**Will not be missed**	**4** **3**
· barely relevant · poor writing style · poor logic · local experience · narrow frame of reference · obscure journal · commentator with low-level, non-research related credentials · at old edge of date range (2001-2002)	**Best not to include**	**2** **1**

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Grey Article Quality Rating Sheet

Reader's initials: __________

Article #: __________

First author surname / year of publication: ______________________/______

Section A: Quality

Circle appropriate score

Description	Decision	Score
• directly on topic • progressive • evidence of critical thought • strong conceptualization • leading edge • pre-eminent, ground-breaking paper by leading researcher in field • very recent (2008-2012)	**Critical to include**	**10**
• on topic • raises new issues • highlights some interesting ideas • quite good • quite recent	**Definitely include**	**9** **8**
• relevant and a few interesting ideas • of average interest • not sure of authors credentials • mid-date range (2003-2007)	**May reinforce key ideas; perhaps should include**	**7** **6** **5**
• 1 or 2 interesting ideas, but not innovative • a bit stale or ideas covered in more recent material • redundant	**Will not be missed**	**4** **3**
• barely relevant • poor writing style • poor logic • local experience • narrow frame of reference • commentator with low-level, non-research related credentials • at old edge of date range (2001-2002)	**Best not to include**	**2** **1**

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Appendix 7: Rapid Engagement Group Interview Guide

Governance Knowledge Synthesis
Interview Guide

Validation of the report

- Overall, what do you think of the report? Do you feel it addresses the 4 research questions we identified in the proposal?
- Do you think the data is organized appropriately? Is there anything that doesn't work well?
- Do you think our topic coverage is about right? Are there any areas of surprise for you or things you expected to see that aren't covered?
- Is the coverage of findings adequate?
- Did we miss any key sources?

Contribution to experts' knowledge

- What stands out for you as findings? i.e., what is your biggest AHA moment?
- How has this report changed the way you think about governance and its importance to HHR?
- Are the findings what you expected?
- What, if anything, is missing or is 'weak'?

Application of results

- How do you think these results could be used to inform governance and workforce transformation?
- Can you think of ways to use these findings for planning processes you are involved in? Integrate them into ongoing initiatives?
- What aspects/elements of governance do you think will be most valuable (and for whom)?
- If one was to implement any of the aspects/elements of governance, what workforce outcomes should be monitored? What workforce outcomes need to be considered when evaluating any changes to governance?
- What else is needed to support evidence-based policy development and implementation? What are the barriers/facilitators to evidence-based policy development and implementation? How might these barriers be overcome?

Next steps

- What do you think should be next steps in terms of:
  - Communication of these findings
  - Future research
  - Areas for further exploration and/or development
  - Other...