Physicians' role in the management and leadership of health care

A scoping review

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Sammandrag

Bakgrund och syfte

På uppdrag av Sveriges Läkarförbund har i denna rapport den vetenskapliga litteraturen om läkares roll för ledning av och ledarskap i hälso- och sjukvården kartlagts och analyserats. Publicerade rön gällande organisatoriska effekter av läkares ledarskap granskades och hinder och möjligheter för ett ökat läkarengagemang sammanfattades i rekommendationer för att vägleda praktik, policy och fortsatt forskning.

Metod

Litteraturstudien genomfördes som en s.k. scoping review. Ett första steg var att övergripande bekanta sig med litteraturen och identifiera centrala begrepp som utgångspunkt för en riktad litteratursökning. För att kunna tolka litteraturen på ett för svenska förhållanden relevant sätt läste forskargruppen också in sådana artiklar i Läkartidningen och rapporter utgivna av Läkarförbundet som behandlade lednings- och ledarskapsfrågor.

En nyligen publicerad systematisk litteraturöversikt med fokus på sambandet mellan läkares ledarskap och sjukhuseffektivitet utgjorde startpunkt för detta arbete. Artikeln presenterade ett antal tänkbara orsaksmekanismer som förklarar hur läkares ledarskap påverkar vårdkvalitet, hantering av finansiella och verksamhetsmässiga resurser och samhällsansvar.

Vi använde för temat centrala artiklar för att identifiera ytterligare publikationer (s.k. snöbollsteknik) och genomförde en systematisk sökning i tre litteraturdatabaser (Medline/PubMed, Web of Science och Psychinfo). Vi fann sammanlagt 1028 titlar som vi sållade med ett slutligt resultat om 82 relevanta artiklar som publicerats efter sakkunniggranskning (s.k. peer-review). Dessa utgjordes av empiriska studier (som tillämpat kvalitativ metod, kvantitativ metod eller en kombination av båda), litteraturöversikter, diskussionsinlägg och konceptuella artiklar. Vi granskade de empiriska artiklarna och litteraturöversikterna med direkt innehållsanalys vägledda av orsaksmodellen ovan. Diskussionsinläggen och de konceptuella artiklarna, som hade ett mer begränsat empiriskt underlag, underkastades tematisk analys.

Resultat

Läkarchefer verksamma på sjukhus kan bidra till positiva utfall på följande resultatområden:

- Vårdkvalitet (hälsonytta, patientsäkerhet och patienttillfredsställelse)
- Hantering av finansiella och verksamhetsmässiga resurser
- Samhällsansvar (d.v.s. bidrag till samhället)
- Personaltillfredsställelse, minskad personalomsättning och utbrändhet
- Tillämpning av informationsteknologi
- Förändringsbenägenhet

Följande mekanismer förefaller förklara förhållandet mellan läkares ledarskap och dessa positiva resultat, även om slutsatserna fortfarande vilar på bräcklig grund:

- En medicinsk bakgrund ger läkarchefer en större trovärdighet bland kollegor än chefer utan medicinsk utbildning
- Kliniskt kunnande är centralt för bättre organisatoriskt beslutsfattande

Vad gäller tänkbara orsaker till en negativ effekt på hantering av finansiella och verksamhetsmässiga resurser diskuterades i några studier att vid en konflikt mellan ledningsoch medicinska hänsyn kan läkarchefers prioriteringar innebära beslut som leder till högre kostnader.

De mönster vi observerat gällande möjligheter och hinder för läkare att ta sig an ledarskapsuppgifter pekar på ytterligare mekanismer som kan relatera till och förstärka hur läkarchefer påverkar organisationens resultat. Vi sammanfattar dem som goda respektive onda cirklar i läkares ledarskap:

- *Den* goda *cirkeln i läkares ledarskap* utmärks av intresserade läkarchefer som betonar delaktighet i sitt ledarskap, vilket främjar engagemang bland läkarna och förankrar ledningsåtgärder i medicinsk kunskap
- *Den* onda *cirkeln i läkares ledarskap* karakteriseras av motvilliga läkarchefer som tar sig an ledarskapet med motivet att trygga sin kliniska autonomi. De utövar ett auktoritärt ledarskap som utmärks av makt och kontroll. Detta leder till att läkarna är oengagerade och saknar intresse och vilja att förbättra arbetsrutiner och –praktik.

Konsekvenser för forskning, policy och praktik

De goda och onda cirklarna i läkares ledarskap pekar på möjligheter att öka vår förståelse av de organisatoriska och omgivningsfaktorer som relaterar till ett effektivt ledningsarbete utfört av läkarchefer och som påverkar organisationens resultat positivt. Vi anser dock att det finns behov av fortsatt forskning på följande områden:

- Observationsstudier som fördjupar vår förståelse av förhållandet mellan management och medicin i klinisk praktik för att utnyttjas i ledarskapsutveckling och personalpolitik.
- Studier av hur medicinskt inriktat ledningsarbete sker inom primärvården, eftersom det mesta av forskningen hittills skett på sjukhus.
- Fördjupande kvalitativa studier som också innefattar första- och andralinjechefer för att ge en större förståelse för de mekanismer som knyter läkares ledarskap till resultat
- Internationella studier som beaktar kulturella skillnader kunde öka kunskapen om hur participatorisk och auktoritär ledarstil påverkar organisationers resultat.

På basen av denna litteraturstudie lämnar vi följande rekommendationer för policy och praktik:

1. Uppmärksamma och tillämpa det s.k. Triple Aim som vägledande princip för hälso- och sjukvården – d.v.s. att samtidigt eftersträva hälsovinst, god patientupplevelse och kostnadseffektivitet.
2. Inrikta ledningsarbetet utifrån medicinsk kunskap som den centrala strategin för att uppnå dessa mål.

3. Främja medicinskt engagemang (läkares vilja och beredskap att medverka i utveckling av verksamhet och praktik) genom att tillämpa medicinskt inriktat ledningsarbete för att bidra till en högpresterande hälso- och sjukvård.
4. Prioritera ett ledarskap som bygger bred delaktighet och skapar medicinskt engagemang - detta praktiseras på ett naturligt sätt i kontinuerligt förbättringsarbete.
5. Engagera medarbetarna i processförbättring genom att påvisa de samtidiga möjligheterna till professionell kompetensutveckling.
6. Planera ledarskapsutvecklingsprogram utifrån punkterna 1-5 ovan och inrikta dem på att förbättra arbetsmiljö- och praktik, vilket bör ses som en integrerad del av organisationens strategi att förbättra hälso- och sjukvården.
7. Ge personaladministrationen en strategisk roll i ett rekryteringsarbete inriktat på att förbättra organisationens prestationer och resultat.
8. Se ledarskaps- och managementkunnande som viktiga komponenter i läkares professionella kompetensutveckling att uppmärksammas i alla stadier av utbildning och livslångt lärande.

Executive summary

Background and aim

This report, commissioned by the Swedish Medical Association, sought to map and examine the published scientific literature on physicians' role in the management and leadership of health care. Published evidence was reviewed regarding the organizational effects of physician leadership and to identify constraints and opportunities for increased physician engagement in order to inform practice, policy, and research.

Method

We employed a scoping review approach to the literature search. The first step was to develop familiarity with the literature and basic concepts that would guide the search. To develop a contextual understanding of the Swedish context that would guide the literature review and to ensure the relevance of the findings, articles in *Läkartidningen* and reports from the Swedish Medical Association were reviewed and summarized.

A newly published review of quantitative articles that looked at the relationship between physician leadership and hospital performance provided a point of departure for this review. The article presented a series of possible mechanisms (an explanatory model) through which physician leadership could mediate effects on quality of care, the management of financial and operational resources, and social responsibility.

We used the key articles to identify additional articles (snowballing) and performed a systematic search of three databases (Medline/PubMed, Web of Science, and Psychinfo). The initial 1028 records were screened and whittled down to 82 peer-reviewed articles. They included empirical studies (with qualitative, quantitative, or mixed methods), literature reviews, position papers, and conceptual articles. We subjected the empirical studies and the literature reviews to an in-depth directed content analysis guided by the explanatory model. The position papers and conceptual articles, because of their weaker empirical evidence, were subjected to a thematic analysis.

Findings

Physician leadership can improve hospital performance in terms of:

- Quality of care (including health outcomes, patient safety, and care experience)
- Management of financial and operational resources
- Social responsibility (i.e. contribution to the community)
- Staff satisfaction, retention, performance, and burnout
- Adoption of information technology
- Approval of reforms.

The following mechanisms, though with inconclusive and unclear evidence, seem to have a role in mediating the positive relationship between physician leadership and performance outcomes:

- A medical background grants physician leaders increased credibility compared to managers without medical training
- Clinical knowledge is essential for improved decision making

In terms of the possible explanations for negative impact on the management of financial and operational resources, a few studies discussed the conflict between management and medicine that can result in physician leaders making decisions at the expense of financial performance.

The patterns we identified regarding the opportunities and constraints for physician engagement in leadership provide further insight about what other mechanisms might mediate and reinforce physician leaders' impact on organizational performance. We have summarized these as the virtuous and vicious cycles of physician leadership:

- *The* virtuous *cycle of physician leadership* is characterized by willing physician leaders who employ participatory leadership practices that foster medical engagement and ground management in medicine.
- *The* vicious *cycle of physician leadership* is characterized by unwilling physician leaders who took on a leadership role incidental to their desire to safeguard their clinical autonomy. They employ authoritarian leadership practices using power and control. This spreads medical disengagement and a lack of interest in and commitment to improve work practices.

Implications for research, policy, and practice

The virtuous and vicious cycles of physician leadership represent an opportunity to delve more into the organizational and contextual factors that impact effective physician leadership practice and which mediate organizational performance. We suggest that there is a need to research the following:

- Observational studies that deepen our understanding of the relationship between management and medicine in everyday clinical practice in order to inform leadership development and human resource management efforts
- Studies of how medical management practices are enacted in primary care since most existing research has a hospital focus
- In-depth qualitative studies to develop insights about the mechanisms at work between physician leadership and organizational performance and which include both middle and first-line managers
- Multi-country comparative studies, which take into account cultural differences in power-gradients, could shed further light on how participatory and authoritarian practice influence organizational outcomes.

Based on the findings of this scoping review, we suggest the following implications for policy and practice:

1. Recognize and adopt the simultaneous goals of patient health outcomes, experience, and cost efficiency, i.e. the Triple Aim, as the guiding principle of health care.
2. Adopt management through medicine as the main strategy to pursue these goals
3. By adopting management through medicine, enable and promote medical engagement which is strongly associated with high performing health services
4. Medical engagement requires participatory leadership which is best practiced and developed in the context of quality improvement

5. Process improvement is more effectively promoted through its close link to professional competency development
6. Leadership development programs should be designed based on points 1-5, contribute to improved work practice, and become an integral part of the organisational strategy to improve care
7. Human resource management should take on a more strategic role in the recruitment and development of staff to improve organisational performance
8. Leadership and management capabilities should be seen as essential parts of professional competency development among physicians, addressed at all levels of their training.

Glossary of Terms

Term	Definition
Authoritarian leadership practices	Leadership practices that refer to the use of power-differentials and control mechanisms to get work done.
Clinical/medical/ physician leadership	All data included in this review related to physicians. The terms medical, clinical and physician leadership are used interchangeably. Other authors might use clinical leadership to refer to any health professional with clinical training, medical leadership to refer to doctors or physician leadership to avoid confusion [1].
Clinical governance	The continuous promotion of quality enhancement, guaranteeing high standards of care and creating an environment geared to clinical excellence [2].
Incidental leaders	Physician leaders who see managerial roles as a passive obligation or as a way to protect their medical work from managerial influence. They are not as interested in improving care and see management primarily as a "box-ticking" exercise [3].
Medical Engagement	"The active and positive contribution of doctors, within their normal working roles, to maintaining and enhancing the performance of the organization, which itself recognizes this commitment, in supporting and encouraging high quality care" [1].
Participatory leadership practices	Leadership practices and organizational strategies that enable staff involvement. For example, these practices invite and engage staff to participate in improving the organization of care. They are characterized by dialogue among all professional groups and across organizational levels, which helps to create interdependent relationships based on mutual trust.

Contents

1 Introduction

This report by the Medical Management Centre, commissioned by the Swedish Medical Association, presents an analysis and summary of the scientific literature on the role of physicians in the management and leadership of health care.

In the current era of constant reforms that seek to find the "strategy that will fix health care", new managerial ideas and approaches are continuously introduced. This puts a considerable burden on the health care staff, particularly on the managers in terms of increasing administrative procedures and constant performance pressures. While there has been a lot of discussion about the decreasing proportion of physicians in managerial positions [4], typically Swedish managers at all levels have health care backgrounds and are accountable not only for clinical but also organisational and financial performance. This leads to questions regarding roles and responsibilities, prioritisation of tasks, and professional ethics. It also raises questions about the role that physicians can and should have in forming the future of medicine. Given the large investments in time and resources necessary to train physicians, it is reasonable to wonder if placing physicians in managerial roles is a worthwhile investment for improving health care.

The specific questions of interests for the Swedish Medical Association were:

1. Are there benefits if managers have medical backgrounds?
2. Does the professional background of managers have an impact on organisational performance and quality?
3. How does the degree of clarity about managerial responsibilities influence organisational success?
4. Are there specific areas in health care where managers' professional background play a particularly important role? E.g. in primary care or psychiatry?
5. Do professionally driven organisations matter for leaders' credibility and authority and other dimensions of management?

1.1 Aim

Based on the insights the Medical Management Centre has developed via its own and others' research in this field, the aim of this scoping review was to map and examine published scientific literature on physicians' role in the management and leadership of health care. The specific research questions were:

1. Does it matter to have physicians as managers? How?
2. What are the constraints and opportunities for involving physicians in managerial roles?
3. What should be done regarding practice, policy and research to further engage physicians in management roles?

This report is structured in the following manner: Background on the context and relevant research in the field of medical management; methods used for conducting the literature review; analysis of the findings; discussion concluded with recommendations for policy and practice.

2 Background

For the past three decades, management thinking has gradually and consistently found applications in health care. The trigger has been a growing realization that the current financing models are unsustainable. There is a need to develop care delivery systems that enable the achievement of better health outcomes and an improved care experience in a cost-efficient manner, i.e. the Triple Aim [5]. Policy reforms, particularly those developed in the UK under the concept of *New Public Management*, have been introduced and much debated in Sweden. At the same time, management applications tied to the delivery of care has grown through an influx of ideas from industry (e.g. Total Quality Management, Six Sigma, lean, and now Value-based Health Care). Even though physicians themselves have introduced many of these, the applications have triggered considerable resistance among health professionals and debates about if and how managerial and medical logics can co-exist.

As the debate has matured, the search for ways to address and integrate the two logics has gained traction. The concepts of medical (clinical) leadership and hybrid managers have been suggested as potential ways forward. There are no uniform definitions for these concepts which means that they are used interchangeably or differently by different researchers [1]. While medical (clinical) leadership mostly refers to individuals with clinical backgrounds who exercise either formal or informal leadership, hybrid managers tend to refer to individuals who combine their clinical work with formal managerial roles [6]. In this review, when using these terms, we refer to physicians exercising either formal or informal leadership.

Within the medical community, the debate has sparked an interest in leadership and leadership development programs and leadership competencies have been included in residency and undergraduate programs. The US, UK, and Canada have been at the forefront, although, evaluations of these programs point to limited successes [7,8].

The Swedish medical journal, *Läkartidningen*, has published numerous, mostly debate articles on the need for more and better leaders in health care for more than a decade. These leaders are expected to arise from systematic leadership and management development in all phases of medical training [9]. Training should include subjects such as economics and administration [9], working in and managing inter-professional teams and teams of doctors, decision-making, delegation [10], organizational development, process management and IT [11], quality management and improvement [12]. Because 40% of the doctors serving in management roles in Sweden are retiring in the coming years, leadership competencies among young doctors need to be developed in order to establish a succession pipeline [13]. However, a recent report evaluated leadership education in medical training and concluded that there are serious shortcomings with the amount and quality of leadership training in medical curricula [14].

2.1 An explanatory model for clinical leadership and hospital performance

Within the research community, studies have looked at the impact of physician leadership on health care performance. A recently published systematic review sought to "map out and critically appraise quantitatively-oriented studies investigating clinical leadership and hospital performance" [15]. They concluded that the inclusion of clinically trained leaders (primarily physicians) as members of the Executive Boards (e.g. as CEO or Medical Director), Board of Directors or Quality Committee has an overwhelmingly positive impact on hospitals' performance. These outcomes or "performance dimensions" include quality of care, management of financial and operational resources, and social performance (the level of social responsibility that an organization displays towards its community). A few of the included studies found negative impacts on management of financial and operational resources and social performance.

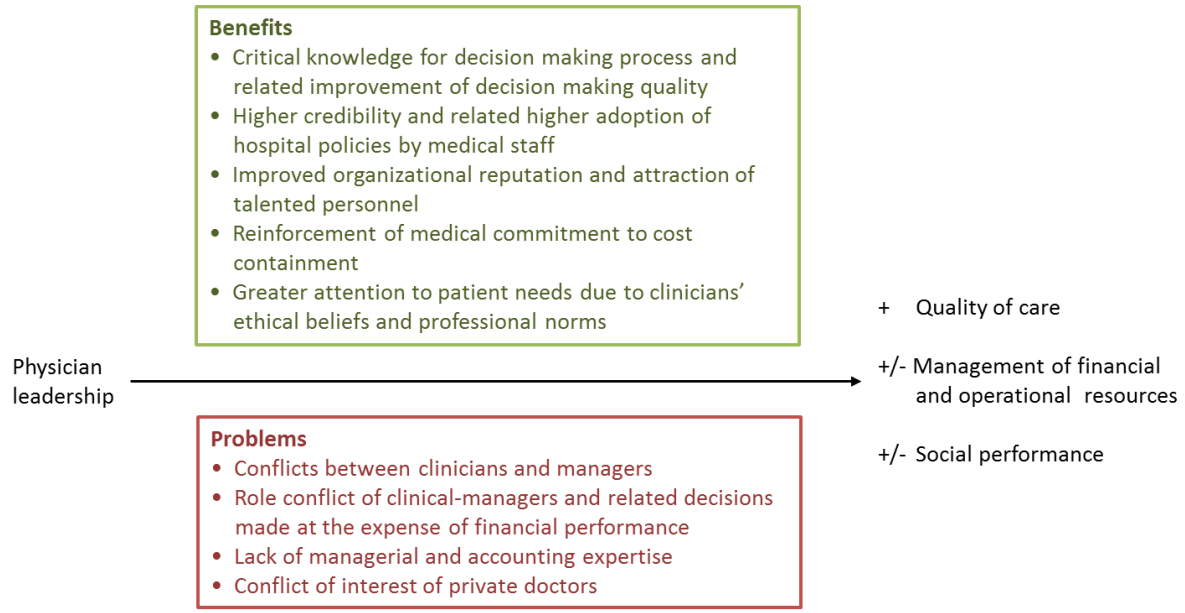

Figure 1. An explanatory model of factors that mediate the positive and negative effects of physician leadership (Adapted from [15] *).*

Based on the discussion sections in the included articles, Sarto and Veronesi [15] present an explanatory model (Figure 1) for the impact clinicians have on hospitals' organisational performance and suggest the following possible mechanisms that would mediate positive effects for the performance dimensions:

- Critical knowledge for decision making process and related improvement of decision making quality
- Higher credibility and related higher adoption of hospital policies by medical staff
- Improved organizational reputation and attraction of talented personnel
- Reinforcement of medical commitment to cost containment
- Greater attention to patient needs due to clinicians' ethical beliefs and professional norms.

And the following were suggested as mechanisms that would mediate negative effects for the performance dimensions:

- Conflicts between clinicians and managers
- Role conflict of clinical-managers and related decisions made at the expense of financial performance Lack of managerial and accounting expertise
- Conflict of interest of private doctors.

3 Method

3.1 Design

Since the purpose of this literature review was to summarize and disseminate previous research to inform policy, a scoping review design [16] was chosen. The scoping review allowed us to employ a broad search approach to capture the recent and on-going discourse on physicians' role and impact in the management of health care and to include contextual aspects that might influence physicians' performance in managerial functions.

3.2 Search strategy

We began with a review of the articles published in *Läkartidningen* and reports from the Swedish Medical Association and other groups in Sweden in order to develop a more nuanced understanding of the current debate. Some of these were included in the background description.

The iterative scoping review search process began with a mapping of search terms followed by the identification of key articles and authors to capture further relevant articles through snowballing. Seventeen records were found through snowballing of reference lists.

A librarian was consulted to identify relevant databases, refine the search terms, and develop a unique search strategy for each of the databases. Boolean searches were performed in three databases: Medline/PubMed, Web of Science, and Psychinfo. We used truncated combinations of keywords and MeSH terms related to "clinical management", "leadership", "organisation and management", "physician executive", "performance", and "quality of health care". The search was limited to scientific, peer-reviewed articles published in the English language over the last decade (2006-2016), regardless of study design. The initial database search identified 1002 records. After adding the 26 snowballed records and then removing duplicates, the search yielded 977 records. Titles were screened which yielded 231 records. The abstracts of these records were screened which yielded 127 articles. The full texts of these were screened, after which 82 articles were included in the qualitative synthesis (Figure 2).

The eighty-two peer-reviewed articles included empirical articles (qualitative, quantitative or mixed methods) and literature reviews, as well as conceptual articles and position papers.

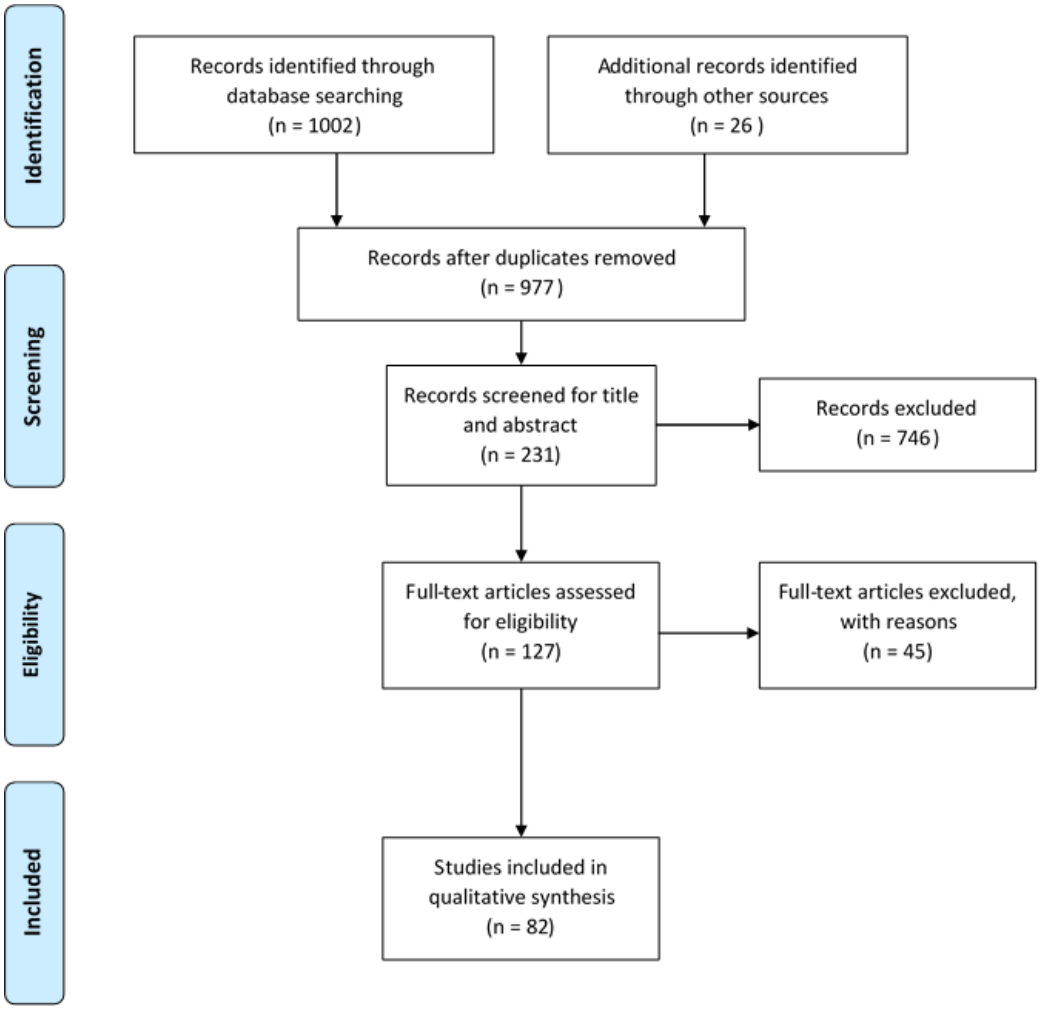

Figure 2. PRISMA Flowchart.

3.3 Data charting and analysis

Data charting refers to the systematic extraction and classification of data from the articles. The explanatory model developed by Sarto and Veronesi [15] informed the inclusion of additional items for extraction. A data charting form was created and the analysis process was conducted in NVivo qualitative data analysis software; QSR International Pty Ltd. Version 10, 2012. For the empirical studies and the literature reviews, data related to setting, type of organisation, level of leadership role, and "performance dimension" outcomes was extracted. These were then compared with the mechanisms described by Sarto and Veronesi to test and refine their explanatory model. As the purpose of the analysis was to capture a thematic account of the literature, the quality of studies in terms of strength of evidence was not assessed [16].

The conceptual articles and position papers were analyzed using a thematic analysis.

4 Findings

The findings are comprised of six sections. First, we present general characteristics of the articles. Secondly, the explanatory model developed by Sarto and Veronesi is analysed in relation to the empirical support for the mechanisms they have described. In the third section, we describe opportunities to increase physician involvement in leadership and in the fourth section, constraints that limit that involvement. In the fifth and sixth sections, the themes identified in the conceptual articles and the position papers, respectively, are described.

4.1 General characteristics

The primary focus of the analysis was on empirical articles and literature reviews. Fifty-three empirical articles and eight literature reviews were included in the analysis. Most studies were carried out in hospitals (n=49). In terms of countries, studies were conducted in the US (n=16), Canada (n=1), the UK (n=15), Italy (n=6), Norway (n=3), Sweden (n=2), the Netherlands (n=2), and Taiwan (n=1). The other articles were either international or did not specify the country. Most articles did not specify the level of medical leadership studied. Of those that did, twenty focused on senior level managers, six on middle managers, and four on first-line managers. Most articles did not measure specific performance outcomes. Fifteen articles looked at the performance dimension related to quality of care, which included clinical outcomes and patient experience. Other outcomes were measured, which were outside of the ones included in the performance dimension of Sarto and Veronesi's explanatory model.

4.2 Analysis of the explanatory model

Based on the analysis of the empirical studies and literature reviews, we found support for the correlation between physician leadership and the quality of care performance dimension [17–30]. We also found support for a correlation to the management of financial and operational resources [22,27,31,32]. Bai [33] found support for physician representation on board of for-profit hospitals and their social performance. The outcomes outside of the performance dimension of Sarto and Veronesi's explanatory model included effects on staff satisfaction, retention, performance, and burnout [23,34,35]; psychological safety, respect, and shared goals [36]; approval and support of political reforms [37]; and the adoption of information technology [38].

In Table 1, we present which articles support the different mechanisms in the explanatory model. We found that thirteen articles support the hypothesis that *higher credibility supports the adoption of management ideas by the rest of medical staff*. Four articles further nuance this: Two highlight that medical qualification on its own does not suffice for legitimacy – managers' abilities to create the right conditions, engage, mediate, and exchange knowledge also play a role [30,39]. And a study among medical students found that they are critical towards senior doctors and faculty as role models [40], suggesting that credibility is not always an automatic function of seniority. Nicol *et al.*[41] add that "leadership with clinical engagement is key" and suggest that the background of the leader does not matter as long as the leader has an inclusive approach to leadership.

Table 1. Analysis of the explanatory model.

	MECHANISMS OF THE EXPLANATORY MODEL	STUDIES THAT CONFIRM	STUDIES THAT CONTRADICT
BENEFITS	Critical knowledge for decision making process and related improvement of decision making quality	[17,39,42–45]	
	Higher credibility and related higher adoption of hospital policies by medical staff	[22,23,26,30,36,39,44–50]	[39–41]
	Improved organizational reputation and attraction of talented personnel		
	Reinforcement of medical commitment to cost containment	[40,51]	
	Greater attention to patient needs due to clinicians' ethical beliefs and professional norms	[39]	[40,41,44,52]
PROBLEMS	Conflicts between clinicians and managers	[44]	
	Role conflict of clinical-managers and related decisions made at the expense of financial performance	[21,40,53]	[54]
	Lack of managerial and accounting expertise		
	Conflict of interest of private doctors	[55]	[56]

While the other mechanisms found some support, no studies were identified that discussed improved organizational reputation and its effect on attracting talent. Contradictions were found regarding *Greater attention to patient needs due to clinicians' ethical beliefs and professional norms*. While it was stated across the literature that physicians express very clear commitment to patient safety and quality of care, those articles that analysed actual behaviour concluded that this commitment was sometimes questionable. A study among medical students demonstrated that in patient safety related vignettes, medical students acted based on their personal values and norms as opposed to professional consensus [40]. Waring *et al.* found [44] that due to their critique of hospital-wide patient safety systems, doctors refrained from reporting patient safety incidents, which disabled the hospital's ability to systematically improve. Nicol *et al*. [41] found that for some senior health care leaders, the motivation to engage in leadership was tied to personal advancement and not to improving care. Similarly, Sorensen *et al.* [52] suggested that clinicians' competition for status and control impeded clinical managers' ability to recognize and develop organizational systems that improve patient outcomes. Thus, it appears that in the conflict between the managerial and medical domains, power, autonomy, and status may preclude physician leaders' professional norms.

In terms of the mechanisms that may generate problems, the relationship to financial performance was the most frequently studied. The assumption that physician leaders' will make decisions in favour of quality of care at the expense of financial performance was somewhat

challenged by a study conducted by Macinati and Rizzo [54], which found that clinical managers perceive that they use budgetary information to a large extent and achieve a high percentage of budget targets. In the social performance domain, physicians possible conflict of interest and therefore negative influence on donations was confirmed by Brickley *et al.* [55]. A different take on social performance was taken by De Andrade Costa [56] who suggests that physicians can have a positive impact on this domain since they might be better at assessing the potential benefits for the hospital in providing uncompensated care.

4.3 Opportunities for physician involvement in leadership

4.3.1 Management through medicine

Several studies highlighted the opportunity to move beyond an adversarial view of the management and medicine domains and instead create links between them and ground management in medicine. Instead of clashes and resistance, the actual dynamics are much more nuanced and materialize through co-existence, co-optation, mediation, negotiation, merging, and adaptation [53]. Moffat *et al.* [57] studied, using discourse analysis, how recent NHS policy documents portrayed healthcare productivity. They found that top-down command and control measures have been replaced by a new rhetoric that appeals to the professionalism of healthcare staff. This "new professionalism" identifies productivity as an individualised professional duty. If accepted, this responsibility for productive health care might offer the professions a route to self-governance. Management should be intertwined with expert knowledge and understood through its impact on clinical practice [53,58] so that clinical leaders could enhance their identities by bridging management and medicine [59]. Furthermore, everyday work practices can be seen as opportunities to develop and test new approaches to service provision, and to acquire skills relevant to management and leadership (e.g. via efficient meetings, medical teamwork, joint decision-making, and the allocation and delegation of responsibilities) [44,60].

4.3.1.1 Structure work in teams

As healthcare moves toward more team-based service delivery approaches, increasing the amount of work done in multi-professional teams can mediate status differences and facilitate knowledge-sharing across professions [39,47]. This allows physicians to become better equipped for leadership roles later on.

4.3.1.2 Development of new roles

Changes in work practices have contributed to the development of new roles (e.g. pathway coordinators and hospitalists). This has the potential to reshape professionalism as the new roles help to mitigate contradictions between managerial and clinical logics, as well as allow physicians to enter managerial work at an earlier stage of their careers [61]. By working across many wards, these roles help physicians to build social capital and an understanding of different perspectives on problems and solutions [39]. Furthermore, the introduction of new roles for other professions, ease the burden of operational tasks, which provides doctors with more space for strategic management issues [61].

4.3.1.3 Shape and use the professional culture

A common belief, often presented in conceptual and position papers, is that the professional culture is the most difficult obstacle to the introduction of management thinking in health care. Some articles explored how this culture could be a strength by establishing work practices and performance measures that resonate with professional traditions, styles and outcomes (e.g. patient-centred discourse) [60] and build on loyalty and solidarity within the medical profession [48].

4.3.1.4 Clinical governance

Clinical governance was explored as a way to bridge the logics of management and medicine as it relates to operational actions and procedures [2]. Its primary function is to develop organisational responsibility for quality improvement and to hold professionals accountable for their clinical practice and their patients. It is frequently used to describe a management approach that aims to resolve poor performance through the benchmarking of processes and through connecting people management with professional performance. To confront and balance the constant tension between the control-autonomy and standardization-singularity dimensions, clinical governance is exercised through systematic reviews of clinical practice, evaluation of operational procedures, and regulation of medical practice, i.e. clinical monitoring [2]. As the mere presence of these management practices does not assure better performance [23], clinical governance seeks to provide systemic support for professionals, e.g. through education that facilitates the sharing and changing of practices and the cross-fertilization of ideas [2]. Tied to clinical governance, it is also been concluded that there is a correlation between how effectively boards work with quality of care (e.g. use of quality metrics) and how well executive management teams as a consequence monitor quality and manage operations [28].

4.3.2 Organizational strategies and practices for leadership development

4.3.2.1 Top management's role in support

Shipton *et al.* [62] found that overall leadership effectiveness is correlated with hospital performance. Several studies described overarching strategies, practices, and principles that top management teams should cultivate to support leadership in their organizations. Stable top level teams should acknowledge physicians' medical expertise and academic competence [27,48], and foster collaborative relationships, effective communication, and diffusion of expert knowledge between managers and professionals [1,47,53]. This can be done by setting clear expectations, while introducing collective leadership [63]. Or through hybrid organizations rather than hybrid positions [64].The latter resonates well with the idea of professional bureaucracies where staff has greater influence on decision making than people in formal positions of authority [63].

To be able to enact the abovementioned practices, top management needs to remove barriers for involving physicians in leadership such as lack of financial incentives, time commitment pressures, overall lack of support and challenges tied to the timing, location, and process of managerial meetings [47]. Physician leadership positions should be aligned with the hospital's strategy [45]. In terms of board behaviour, it has been concluded that high performing

hospitals have boards that engage physicians more extensively, are fully engaged themselves in governance, and have a more interactive and proactive culture for decision-making [65].

4.3.2.2 Promote dialogue and interaction between organisational levels and professional groups

Health care organizations would benefit from promoting understanding, trust, and respect between doctors and executive leaders by sharing information openly and honestly without hidden agendas [1]. Further dialogue and cooperation can be encouraged through human resource policies and practices that help staff to experience the interdependent nature of their work [39]. It has also been suggested that disagreement between the managerial and medical logics should be made explicit in order to be able to challenge the current ways of thinking about each other [46].

4.3.2.3 Strategic leadership development

Investment in leadership development should occur at all levels of an organization in a concerted way that aligns leadership development with an organization's improvement goals and develops groups of leaders who are able to address challenges at the system level [63]. McAlearney [66] interviewed 200 hospital and health system managers and executives, academic experts, consultants, individuals representing associations, and vendors of leadership development programmes, and programme participants, over five years. Leadership development programmes were found to provide four important opportunities to improve quality and efficiency in healthcare, by (1) increasing the calibre of the workforce, (2) enhancing efficiency in the organisation's education and development activities, (3) reducing turnover and related expenses, and (4) focusing organisational attention on specific strategic priorities. Study by Nicol *et al*. [41] echo these findings by emphasising that leadership training should always serve the benefit of the service not just the individual participant.

4.3.2.4 Leadership development to bridge managerial and professional divides

In recent years, particularly in the UK, there has been a conscious move towards replacing the managerial discourse with leadership discourse [50]. Studies analysing this shift have concluded that leadership seems to be a concept that can remove tensions between operational requirements and visionary aspirations [50]. Thus it resonates better with different professional groups and is therefore able to bridge some of their divides. Leadership development has created space for informal conversations and can thus be used to shape attitudes towards teamwork, safety, management and working conditions [39,50,67].

4.3.2.5 Formalize rewards, recognition, and career paths for physicians in leadership roles

Particularly in case of physicians, management is not perceived as an actual career path, but as a temporary engagement. Several studies suggest that more could be done to formally recognise and reward physicians in leadership roles and to regard leadership contributions as highly as those of research and academic excellence [47,49]. In conjunction with that, structured career paths for clinical managers need organisation-wide commitment that support the development of medical management and leadership [68].

4.3.2.6 Performance measurement

Performance measures should be designed together with clinicians and motivate and provide autonomy so that clinical processes can be designed and improved locally [42]. To support that, a performance infrastructure that includes information systems and support for data analysis need to be developed [42]. A participatory and locally relevant approach makes measurement meaningful and can reinforce professionalism in ways that improve the manager-clinician relationship [53].

4.3.2.7 Foster autonomy

High performing hospitals give physician managers more autonomy than low-performing hospitals [22]. Managerial roles for physicians need to balance responsibility with autonomy – physician leaders should be able to appoint staff and have operational control over resources, including the ability to make budgetary decisions [47,69,70].

4.3.2.8 Recruitment of physician leaders

Health care organizations as professional bureaucracies and the introduction of value-based health care seem to operate best with distributed leadership. This requires a large number of clinically trained leaders across all levels of the organisation, in particular high quality first-line management on the floor [23,63]. To avoid "incidental" medical leaders, recruitment should be formalized, identification of leadership potential should start at an early stage by engaging in conversations with front-line physicians and these future physician leaders should be supported and moulded through opportunities to lead new initiatives [15,30,47,68]. In that process, assessments of professionals' self-efficacy are recommended as it is a predictor of motivation to lead [70]. Selection of leaders should be part of the overall talent management system [71] and matched to the role's strategic, structural, and political context and to those physicians who demonstrate interest in quality, patient safety, and overall leadership aptitude should be sought [1,45,69]. Backgrounds as general internists and practicing hospitalists (or other holistic specializations) seem favourable for physician leadership [39,45]. The recruitment process should also set clear expectations on what is acceptable professional behaviour as a medical leader in order to be able to enforce these behaviours in case of a mismatch [1]. Furthermore, demographics should be considered to avoid management by the "old boys club" [47].

4.3.3 Facilitate engagement

Physicians become more engaged in management when they continually have opportunities for dialogue with management to align agendas for quality and safety [45]. Involving physicians in the design of new service delivery teams and partnership organisations or programmes can create such a space [46]. Physicians need to be meaningfully involved in decision-making and their managerial self-efficacy needs to be improved, e.g. through positive leadership experiences, as these are positively associated with managerial job engagement and performance [27,32,47].

4.3.3.1 Facilitate engagement through improvement

Quality improvement, when developed within professional practice, has been shown to be a particularly fruitful way to involve physicians in management [44,60]. Doctors who are experienced with quality improvement methodologies tend to welcome new initiatives to further

improve patient safety [44]. In that process, they also become connected with actors of higher status [39]. The combined experience of quality improvement, research and education, and established networks means that leading improvement projects has become a good stepping stone for further managerial roles [45,47].

4.3.3.2 Engage through budgetary involvement

While much emphasis has been put on the importance of engaging physician leaders in health care related quality and production, a set of studies carried out by Macinati *et al.* [32] highlight the importance of also involving physicians in budgetary discussions. However, Sarto and Veronesi [15] concluded that when it came to financial performance, not all studies reported a positive impact of clinical participation in leadership. Budgetary participation has been found to positively correlate with budget goal commitment and use of budget information, which in turn is positively correlated with budgetary performance [54]. Beyond the performance, budgetary participation improves overall managerial job engagement as it affects managerial self-efficacy, helps to identify with organisational goals and, along with role clarity, promotes constructive managerial work attitudes [32,51,54]. Numerato *et al.* [53] adds that tools such as managerial accounting could co-exist with clinical practice as they are often seen as mere technical tools and not as a threat to professional autonomy.

4.3.4 Education and training for leadership

Inter-professional education and training is seen as critical for being able to improve physicians' managerial self-efficacy and thereby their interest and readiness to be involved in managerial work [47,70]. In addition to education on patient safety and quality [45], the introduction of management competencies needs to start early and should focus on taking initiative, organisational and system understanding, becoming team players, communication, and shared decision-making [48,52,61]. Teaching approaches should move from competency to capability development through integration in improvement work where the focus is on participants' actual challenges as opposed to merely talking about problem solving [1,60,68,59]. While facilitating education efforts, it can be helpful to keep in mind that "willing" as opposed to "incidental" medical leaders are more able to "absorb" or construct managerial expertise [30,32].

An additional strategy to support leadership development among physicians is to create networks of physician leaders with similar roles where they can share experiences, tools, and strategies [45]. Another tool for networking but also for learning is mentoring and coaching [30,47,59].

4.3.5 Individual drive to become a leader

Physicians are driven by the desire to make a difference, improve, and innovate and therefore they want to be engaged and to become good leaders [47]. However, for some, the interest in leadership can arise from boredom with clinical routine and the desire to make use of their extra energy and take on new challenges [68]. Some physicians were used to taking responsibility from a young age, while others enjoyed the power and control over their surroundings and opportunity to influence decisions [68].

4.4 Constraints that limit physician involvement in leadership

4.4.1 Recruitment

Recruitment of physician leaders occurs most often through informal networks and succeeds through the persuasive ability of the current managers and without any communication about selection criteria or expectations related to performance objectives, goals, or measures of success [68,69]. In those cases where formal recruitment procedures are followed, the process still tends to be *ad hoc* and lessons learned by search committees are not captured nor shared. Furthermore, 62% of executive positions in teaching hospitals are filled by external hires, which indicates that there is a failure to identify, develop, and promote emerging leaders from within the organization [30,71].

4.4.2 Mismatch between accountability and authority

Clinicians at different management levels in organizations, both in hospitals and primary care, describe a sense of powerlessness that stems from being responsible and held accountable for numerous performance measures and organizational issues without having the authority, staff, budget, time, and support to actually implement change or improve [42,45,46]. This same situation exists in matrix structures and triggers the use of workarounds to achieve objectives [69]. Distributed leadership has been presented as a way to distribute authority, yet even in these organizations, clinician leaders still believe that real decision-making power lies outside of care environments, is externalised, and hierarchical [46]. Physicians experience the impact of decisions made "outside" and feel that it has a disengaging effect on them [47].

4.4.3 Difficult to balance leadership and clinical work

Most physician leaders will choose to continue with their clinical practice as this allows them to maintain a sense of belonging to the professional staff. It is also considered important for maintaining the option of returning to clinical work in case one fails in a leadership role [59]. The continuation of clinical practice, together with continued research, is believed to enhance their legitimacy as managers as the clinical and research activities provide continual insights into daily work and provide inspiration [30,58]. However, it is also a challenge to balance the workload. Clinical leaders tend to end up allocating more time to leadership than they have been allotted or are remunerated for [30,45,58]. Decentralization processes have led to a perceived loss of clinical autonomy, increased specialization, and a wide range of expectations from society, which causes a sense of de-professionalization [70].

4.4.4 Mismatch between expectations and managerial practice

There seems to be a mismatch on both sides of the relationship regarding hopes, expectations, and actual behaviour. Clinical managers are perceived not to enact their roles in practice according to the expectations and authority vested in them [61]. Senior leadership teams, particularly CEOs, manage physicians by nagging, arguing, and reminding them of their responsibilities, i.e. they fail to meaningfully engage clinical leaders [48,72]. These CEOs and senior leadership teams tend to crowd clinical leaders' agendas with numerous committees or "strategic " meetings that are instead filled with operational and not strategic matters [45,50]. Furthermore, while being inspirational is perceived by physicians as an important leadership attribute, and it is also the attribute most frequently displayed by physician leaders, it actually has the least impact on staff satisfaction [34].

4.4.5 The organization overwhelmed by external performance demands

The overwhelming number of performance targets and guidelines that are externally imposed on health care organizations are so demanding that managers tend to focus on compliance, rather than the proactive development of new solutions [39]. This has negative consequences on hospitals' internal interest for knowledge creation and innovation; it triggers compliant behaviour throughout the organization [39]. Bureaucratic, policy-driven, and hierarchical workplaces also hamper engagement [47].

4.4.6 Education disconnected from practice

Current undergraduate medical education programs provide only limited opportunities for professional development and neglect strengthening the ethos and professionalism that would make physicians better fit for the purpose of their work [45]. Traditional leadership development programs tend to emphasize the difference between management and leadership, which adds to the problem of translating these to practical situations where they actually are intertwined [50]. A further barrier to physician engagement in leadership is that leadership training is rarely followed up with concrete opportunities to engage in hospitals' strategy making [61].

4.4.7 Conflict between medicine and management

4.4.7.1 Mistrust of management approaches

Managerial and clinical objectives are challenging for physicians to reconcile [39]. For example, the standardization of clinical practice can be understood as merely another efficiency strategy, rather than an approach that contributes to improving care [53]. A possible contributor to this distrust is the often short mandate period of CEOs, which leads to a lack of contextual understanding and a frequent change in agendas introduced by each incoming CEO [72]. Proponents of professional opposition to management would conclude that the idea that managerial culture has affected medical autonomy is merely theoretical, while others would argue that management discourse has in fact been internalized by physicians and it influences their self-monitoring [53].

4.4.7.2 Values conflict

Managerial and medical logics are commonly believed to contradict each other on the level of values [46]. Clinicians have difficulties in developing the necessary management skills as these are perceived to be in conflict with a medical case-orientation and tradition of interventionist professional action [60]. Furthermore, the common top-down focus on performance indicators and competition does not find resonance with physicians' professional values and interests [73].

4.4.7.3 Loss of credibility among peers

Physician leaders are perceived to occupy a no-mans-land between managerial and clinical communities [63]. Therefore, they are concerned with losing their credibility [45] in the eyes of their clinical peers and of being regarded as outsiders of the clinical group, with management often referred to as the "dark side" [46,59]. At the same time, some leaders feel it would be inappropriate to retain clinical commitments due to a risk of being seen as partisan in relation to a specialty or service [59].

4.4.7.4 Safeguard medicine through management

Ironically, doctors use managerial approaches to challenge managerial decision-making in order to protect the medical community [44,73]. Denis and can Gestel refer to such behaviour as "paradigm freeze" where medical professions organize to defend their interest and resist changes [73]. In an analysis of the evolution of patient safety practices in an ethnographic study of a British hospital, Waring [74] observed that physicians resisted managers' attempts to control patient safety programmes and succeeded in capturing that practice. This "modernised professionalism" integrates managerial discourses (like patient safety regulation) and creates new forms of self-regulation and self-management, thus safeguarding the influence of the medical profession. Thus, physicians adopt or strategically adapt managerial practices and accept managerial roles as a custodial strategy to protect their autonomy, status, and power [23,53,68]. Such behaviour is observable in practice when clinicians choose to selectively participate in managerial meetings, send out meeting agendas at the last minute to avoid certain managers' participation, and conceal the significance of certain decisions [53].

4.4.8 Lack of support for managerial role

Health organizations have failed to develop and provide physician leaders with the necessary support functions [72]. This is in terms of information technology (e.g. use of performance information), financial management [68], and the managerial staff and competence resources needed [61]. This makes problem identification and solution generation difficult without additional organizational intervention [52]. The correct support could relieve physician leaders of administrative tasks and enable them to focus on the aspects of their managerial roles that they have been trained for and where they can actually make a difference [68]. Absence of systems to manage and review multi-service care processes leads physicians to rely on their personality, status, and hierarchy, which are insufficient for such complex tasks [43,52]. Decentralization has been highlighted as a contributor to role ambiguity and overload where physicians do not know how to perform their managerial role successfully [70]. Their engagement is further hindered with poor organizational communication practices, lack of support for innovation, conflicts, and incompetence [47].

4.4.8.1 Financial incentives

Physician leaders have no financial incentives to take on leadership roles and often feel that they are actually working more for lower income than their full-time clinical peers [58,68].

4.4.8.2 Lack of support from peers and general managers

Perceived lack of internal peer support makes physician leaders feel that they are alone with their managerial challenges and have limited opportunities to discuss and develop ideas for improvement [45]. Similarly, lack of support from general managers was described as not being "allowed" to contribute to management, particularly in budgetary matters [30].

4.4.8.3 Lack of learning and information systems

There are no systems evident in hospitals where differences in clinical decisions could be openly discussed and resolved and this hinders the development of sustainable clinical routines and relationships [52]. The positive potential of performance measurement, particularly in terms of monitoring quality data, does not materialize due to a lack of ownership over the

indicators and also because of problems with access to data and insufficient resources for data collection [42,45]. Furthermore, the delay between, for example patient safety incidents and quality indicators reports is too long to be able to inform meaningful quality improvement [43]. This undermines clinicians' confidence in the data [43], impedes accountability for outcomes [52], and reduces the function of information systems to monitoring as opposed to improving quality – all this contributes to clinicians' rejection of information systems [44].

4.4.9 Challenges to increasing managerial responsibility

4.4.9.1 Due to previous experience

Clinician face difficulties in transitioning into management roles. During their clinical careers, they are not sufficiently exposed to professionals who are able to develop their managerial mindset [61]. Previous experiences of being a manager at the unit level were not enough either – physicians still have the tendency to be occupied with small scale problem solving which makes it difficult to develop the necessary strategic, hospital-wide perspective, which is essential [61]. Clinical leaders felt that they are thrown into their roles and then expected to learn management on-the-fly and on their own [68].

4.4.9.2 Due to identification as a clinician

Different professional groups seem to occupy different worlds [46] and even if doctors enter management, they see this as merely an intermediate role [58]. It has been argued to be the nature of professional bureaucracies that professionals will always identify themselves more with their own groups than the organization as a whole [63]. A highly specialized professional orientation and the resultant status further supports this dynamics and it is questionable if even the introduction of multi-professional teams could change that [39]. These are illustrated by management strategies such as separating physicians from the rest of the organisation (e.g. department meeting for physicians only) and compensating them for participating in meetings or other activities [48].

4.4.9.3 Reactive attitudes

Clinicians in managerial roles perceive themselves as struggling heroes who are "working against the odds or as righteous victims struggling in the face of adversity" [46]. Senior clinical managers have a tendency to romanticize former arrangements, which becomes a barrier to the development of new structures [46]. As clinicians disengage from difficult interactions with colleagues and patients due their personal struggles as managers, medical decision-making suffers negative consequences [52]. When ignoring as opposed to engaging with these aspects of professional cultures, professional resistance to change process can be triggered [60].

4.5 Conceptual articles

Twelve articles which met the inclusion criteria, were categorised as "conceptual" or "theoretical". They reasoned about pros and cons of doctors in management, identified features of physician managers' management practices and roles, and the relationship between physicians and managers. None of the articles were based on original empirical research, but some referred to empirical studies. In the following, the main arguments of these articles are presented, focusing on how benefits and challenges of medical management are explained or argued.

Brommels [75] presents examples of medical management research, defined as ‘‘medically informed research on the organisation and management of health services’’, and proposes that such research done in cooperation between researchers with a health professions background, practitioners and managers will result in shared knowledge generation and a greater understanding among stakeholders and less tensions between “medicine and management”. Partially echoing this notion, Burgess and Currie [76] claim that “hybrid middle level managers”, meaning managers with a health professions background, may act as strategic knowledge brokers, mediating between upper and lower levels of hierarchy as well as across professional boundaries. The cases they refer to, however, demonstrate mainly the ability of those managers to engage their staff in process improvement by introducing management tools like root cause analysis. Baker and Denis [77] further emphasise the importance of collective leadership and collaborative culture, suggesting that increased physician involvement in improvement of services can become a vehicle for designing health care organisations and policy. Focus on improvement allows, with the initiative of medical leaders, to engage doctors, patients and other stakeholder in producing a shared vision, which is in general perceived as problematic [77,78].

Kirkpatrick *et al.* [79] summarize in an editorial, introducing a special issue on recent strategies in a number of European countries to involve physicians in management, the perceived benefits of those arrangements. Articles the authors refer to are a mix of concept or positions papers and one empirical study. “Co-opting physicians into management” is believed to lead to greater influence among clinical colleagues and compliance, and contribute to better quality and outcomes through a higher degree of engagement in clinical process improvement. These benefits are said to stem from physicians’ greater knowledge of the “core business [of a hospital]”.

In a “perspective” article Kirkpatrick *et al.* [80] introduce a suggested framework for a comparative analysis of medical manager roles across European countries. That role is, according to the authors, formed by the governance structure (e.g. degree of market pressure), “the nature of organisational settlements with key professions” (e.g. the legal status and power of physicians in a specific country) and the content and process of public sector reform (e.g. paying attention to early or late introduction of “new public management”).

Kyratisis *et al.* [81] present the history of physician involvement in management in the UK. They describe how the physician manager role has been formalised and demonstrated through the establishment of a professional society and the delivery of competence development programmes. It is argued though that for such programs to have impact, they need to be conducted in concerted manner on all levels, include space for assessing, reflecting upon, and developing one’s professional values [78] and aligned with actual improvement goals [77].

Based on challenges identified in the English NHS, a model for clinical leadership development is presented by Malby *et al.* [82]. They illustrate the importance of clinical leadership by referring to healthcare’s nature as a professional organisation where front-line clinical staff control resources and expect decision-making to be collegiate.

McSherry and Pierce [83] discuss what requirements should be met by clinical leadership in order to engage the organisation in quality improvement and patient safety promotion. The authors claim that "this is achieved by recognizing, influencing, and empowering individuals through effective communication in order to share and learn from and with each other in practice". Mechanic [84] argues that these can be strengthened by information technology solutions which support transparency and peer influence, and through that help to maintain high professional standards.

Saxena *et al.* [85] apply dialectical analysis in their discussion on how "dualities" of physician leadership are reconciled. They start by highlighting complementary tasks of leaders: to be affirming and enabling, as well as to assume responsibility and maintain legitimacy. In a healthcare context, dualities needed to be aligned on a personal level are influence vs. accountability, promoting effectiveness vs. nurturing colleagues, and clinical practice vs. administrative work.

Schei [86] discusses power and trust in the patient-doctor relationship, and proposes that "clinical leadership" is needed to safeguard patient vulnerability and emphasise medical ethos.

In summary, those articles emphasise – as do many of the empirical studies included in the formal analysis of this review – the importance of the ability of medical managers to communicate with their clinical colleagues and engage them in organisational tasks like process improvement and patient safety. They are seen as "knowledge brokers" with access to front-line staff. Their familiarity with healthcare's core business and the patient advocacy which is part of their professional role give them legitimacy among their colleagues. However, they will not be successful unless they acquire management skills and techniques, and adopt a leadership style that involves staff in shared decision-making.

4.6 Position papers

Full-text versions of nine articles included as position papers were read. They discussed benefits or challenges related to physician managers and were analysed as to their content and findings are reported below.

Angood and Birk [87] describe physician leaders as "interface professionals" who connect the front line care production to its related management, leadership and governance. They see physicians' tendency toward autonomy and independence as impediments to successful multi-disciplinary team work and patient care outcomes. Their individual problem-solving mindset does not help them to thrive in complex and ambiguous work situations.

Apple [88] discusses MDs as chief medical information officers and chief information officers based on a few interviews and her own experience. She cites one CIO on the benefits of physicians in the CIO role. "Honestly, they have an advantage because they understand patient care better. They have credibility with colleagues and better understand what nurses are talking about".

Checkland [89] discusses leadership in the English NHS in general terms. She reproduces a table (Table 2), which is stated to be a summary of UK Department of Health and NHS briefings and documents, compiled by the NHS Leadership Academy.

Table 2 Benefits claimed for 'clinical leadership': count of claims made across 36 briefing and other documents issued by the Department of Health and NHS England between 2010 and 2012. (Source: http://www.leadershipacademy.nhs.uk/discover/leadershipmodel/leadership-dimensions/)

BENEFITS CLAIMED FOR CLINICAL LEADERSHIP	NUMBER OF APPEARANCES
Improve efficiency	11
Improve quality	11
Improve patient care	9
Improve outcomes	8
Enable innovation	7
Unleash potential	7
Enable partnership working	4
Improve clinical behaviour	
And decision making	3
Benefit communities	3
Reduce health inequalities	2
Increase integration of services	2
Reduce admissions	2

Thirteen other claimed benefits including increasing accountability, accessibility, responsiveness, safety mentioned at least once. The table is a collection of experts' opinions. It is unclear if they were collected in a systematic fashion.

Falcone and Satiani [90] reflect on MDs as CEOs:

> The letters MD or DO behind one's name are a distinct advantage when interacting with physicians, but only, and this is an important point, if they imply clinical credibility. …Without a body of shared experience and clinical success to point to, the title of MD or DO will in and of itself provide very little in the way of additional credibility. The same goes for continuing education, whether formal or informal.

As there is no reference to empirical research the statement represents the authors' personal opinions.

Fitzgerald [3] discusses the importance of "willing hybrid (MD) managers" in an editorial. She writes:

> 'Willing hybrids' can really make a difference. Research evidence suggests that willing hybrids are critical in several ways. They lead front-line service improvements better. For this task, they have a better combination of experience and skills than general managers with no clinical experience. Essentially, clinical hybrids have more credibility with their clinical colleagues and can therefore engage their support. They interface with patients and are in direct contact with clinical colleagues and this enables them to prioritize improvements.|…| They may act as entrepreneurs seeking ways of innovative improvement and problem solving.

The author repeats the credibility among peers argument, which is frequent in the empirical studies scrutinised in this review. Two additional potential benefits are expressed: guidance to choose right priorities and to solve problems based on clinical know-how and experience.

Goodall *et al.* [91] is an article on "expert leadership", which is a theory developed by Goodall based on an analysis of researcher-presidents of universities in relation to organisational success. The authors ask, "How might the elite US model of physician executives be used to improve the organisational leadership of mainstream Australian mental health?". Their answer is,

> First, a psychiatrist executive is viewed as 'first among equals', because he or she originated from among the collegial group; having been 'one of us' signals credibility, which can extend a leader's influence… Second, an expert leader, having grown out of the same environment, will be more able to understand the culture, values, incentives and motivations of their psychiatrist colleagues, and other core professionals. …Third, psychiatrist executives are uniquely placed to link clinical services with academic departments of psychiatry to provide a gateway for translational medicine, which is increasingly recognised as essential if health services are to improve. … Fourth, it is generally recognized that the success of any organization relies on the quality of its people. Individuals who have excelled in their field of expertise (in medicine and beyond) can be expected to attract and hire others who are also outstanding in their field … Finally, expert leaders can also signal different messages – about themselves and their organisations – to their staff and outsiders. An accomplished clinician and researcher commands respect because of his or her proven track record.

These observations are in line with the arguments in the Sarto and Veronesi article – the "index article" for this review – with some more details. However, they are based reasoning guided by a theory generated on data acquired outside healthcare.

Hernandez [92] identifies the responsibilities of a medical director of an anatomic pathology service. Most important is the duties of the medical director specified in the laboratory's so-called CLIA license. Unless a medical director fulfils those duties the laboratory risks to lose its license, and consequently, the ability to bill the federal insurance schemes. The message is that the formal specialist education (required by the accreditation body) of the medical director is more important than hybrid managerial skills.

Jacobs and Mallmann [93] describe the tasks of a Chief Medical Clinic Manager(CMCM) of a University OB/GYN Clinic:

> To reach and influence the daily resource = cost decisions by physicians, input and influence can only be given at the daily operational level of care. The approach of a CMCM within the physicians' team allows implementing basic economic rules and influencing cost decisions on-site. A CMCM can help and encourage physicians caught in the dilemma of costs and ethics to stay within the financial limits but actively identify and distinguish between ethically necessary quality of care and desirable but unfunded convenience or unfunded expansion of medical service. Since physicians are better in addressing the patients' needs than business experts, physicians have to implement cost consciousness unless they are willing to give up and accept economic advice from the outside. This additional knowledge increases the control over the entire process as well as costs and the physicians' competence and freedom of action.

This article reiterates the communication ability argument (talking to peers) as a benefit of the physician manager.

Walsh and Lynas [94] suggest that clinical leadership and quality improvement is "vital for good health care". They start by defining clinical leadership as leadership by healthcare professionals. In addition to a health professions background a clinical leader must demonstrate that he or she focuses primarily on clinical priorities.

> Their goals are excellence in clinical care; patient experience and patient welfare are why they come to work and why they lead. With good clinical leadership, these priorities trump other concerns: they are more important than top-down targets, or financial objectives, or even professional standing among peers.

The authors claim that recently evidence has been presented that establishes a relationship between clinical leadership and clinical performance in healthcare, measured as quality of care, patient satisfaction and reduced harm.

5 Discussion

The aim of this scoping review was to map and examine published scientific literature on physicians' role in the management and leadership of health care. Physician leadership improves hospital performance in terms of care quality; staff satisfaction, retention, performance, and burnout; adoption of information technology; and adoption of reforms. Physician leadership also can influence the management of financial and operational resources and social performance in both positive and negative directions. When it comes to the mechanisms that influence and explain the link between physician leadership and these outcomes, the evidence is fragmented and unclear. In addition to the credibility among staff that is gained by a medical background, there are numerous other factors that seem to influence the impact physician leaders have on organizational performance. Based on the findings, we suggest that there are a number of organizational factors (blue) that can trigger perpetuating virtuous (green) or vicious (red) cycles of physician leadership (Figure 2). Each type of cycle feeds into and reinforces itself.

5.1 Virtuous cycle of physician leadership: management through medicine

The virtuous cycle starts with the recruitment approach to find candidates for managerial roles. When the expectations, roles, and responsibilities are clearly and explicitly articulated, candidates can be found who fit better with the requirements of the role. A formalized recruitment process can be used, which can also open up for more candidates. This improves the likelihood of identifying willing leaders who are motivated and committed to continually improve their own management and leadership competencies. They practice participatory leadership, i.e. a leadership that invites and engages staff to participate in improving the organization and care. Participation fosters medical engagement among staff and thereby increases the interest for leadership roles and management positions. This, in turn, contributes to an expansion of the recruitment pool for future managers.

Organizations can reinforce this virtuous cycle by formalizing rewards and recognition for leadership, viewing leadership development as an organizational strategy, and integrating education and training with clinical practice. The promotion of dialogue and interaction between organizational levels and professional groups, and leadership development and practice through quality improvement initiatives support participatory leadership practices and medical engagement. This is the manifestation of management through medicine.

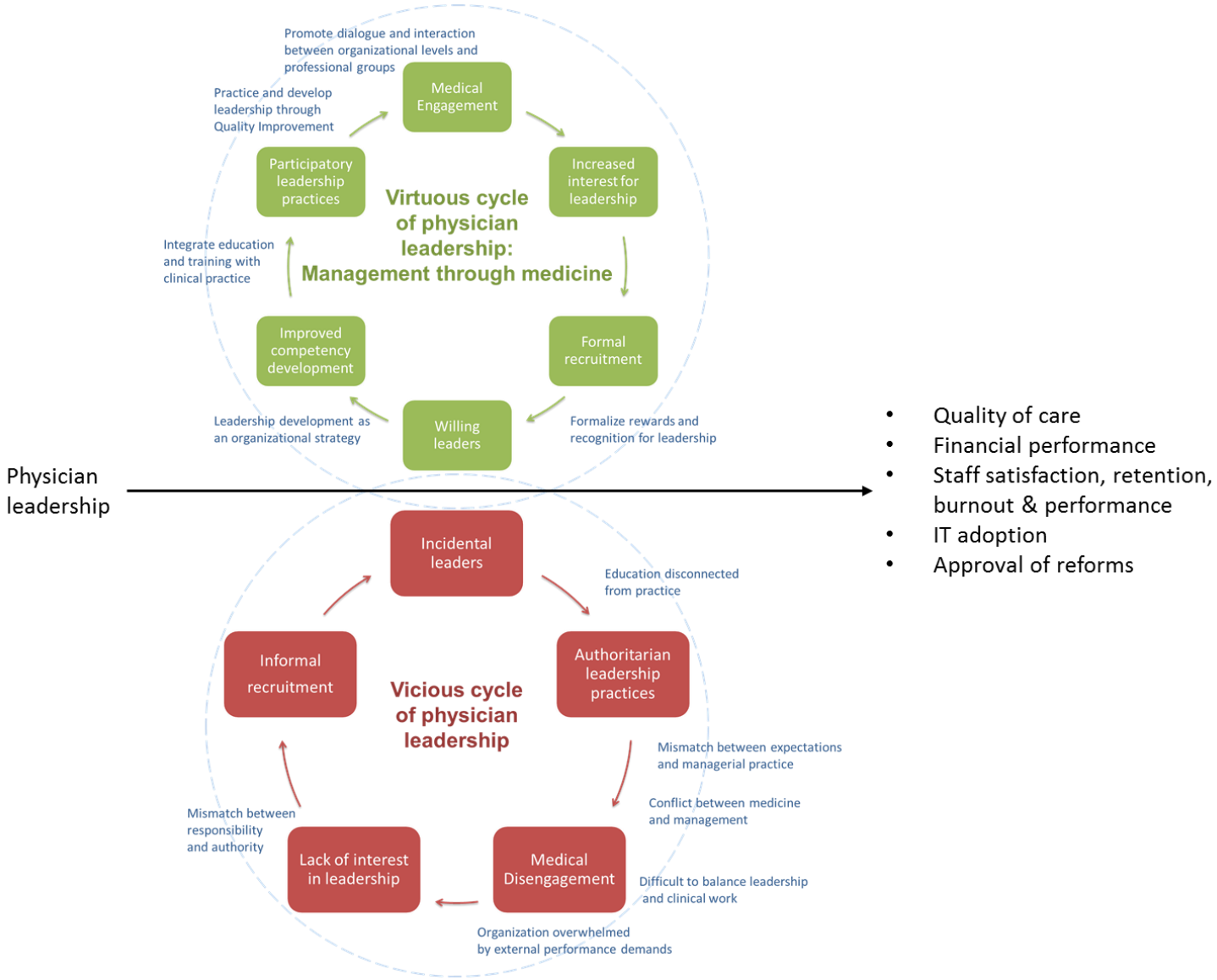

Figure 3. The virtuous and vicious cycles of physician leadership

5.2 Vicious cycle of physician leadership

The vicious cycle starts with informal recruitment practices where roles and expectations are ambiguous. Managerial positions are filled by convincing people to accept the position. This leads to incidental leaders with questionable motives such as wanting to safeguard their specialty or as a temporary platform to secure their research and clinical goals. In other words, they become leaders as a minor part or a result of wanting to continue their work as a clinician or researcher. With less of an interest in improving and developing their own leadership, they employ authoritarian leadership practices, e.g. giving orders. The consequence is medical disengagement among staff that contributes to further lack of interest in leadership roles. The lack of role models and heavy burden of administrative work does little to improve the situation.

Organizations feed this vicious cycle if there is a mismatch between expectations and managerial practice, and between leaders' responsibilities and their actual degree of authority. This can lead to conflicts between medicine and management, which are further aggravated when the organization is overwhelmed by external performance demands. When education is disconnected from practice, it prevents leaders from developing the competencies they need to reflect and proactively escape the vicious cycle. Instead, managers develop and perpetuate the idea of a struggling hero or a righteous victim of circumstance.

5.3 Professionalism in the light of complexity

Quite surprisingly, the conceptual articles and position papers included in this review made few references to organisational theory relevant to health care. Health care provides professional services by highly skilled professionals, and health care can be referred to as a (multi)professional organization. Anderson and McDaniel [95] refer to Mintzberg's [96] characterisation of health care as a professional bureaucracy, with features of command and control, prediction and planning, and managerial dominance over resources. On the other hand, professional services are provided by competent experts with specialised skills and autonomy in their work, calling for more decentralised decision making than is prevalent in a "machine bureaucracy". Their professionalism is expressed both by their expertise and values, which embed them in a larger social context that award them trust, appreciation and formal status through state licensing. Anderson and McDaniel [95] suggest that the professional organisation is an important mechanism for reducing uncertainty – about what *can* be done based on professional expertise – and what *should* be done guided by professional values.

While the "professional logics" discourse has made an important contribution to understanding the relationship between management and medicine by deepening our understanding of identities, values and culture among medical professionals, the actual dynamics are more complex than claiming that the logics of medicine and management conflict. Drawing on mental models of different professional groups might be a more flexible and fruitful concept that could help facilitate resonance between managerial and medical thinking [97].

That quality of the professional organisation is of growing importance as both health care and its surrounding environment turn more complex and unpredictable. Health care – as many other human endeavours – is increasingly looked upon as a complex adaptive system (CAS), defined by Plsek and Greenhalgh [98] in the following fashion: "A collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions

are interconnected so that one agent's actions change the context for other agents". The authors propose that a complex adaptive systems have a number of organisational properties, making them difficult to control: fuzzy boundaries, agents act in internalised rules, agents and the system itself are adaptive, systems overlap and co-evolve, systems show tensions and paradoxes, systems are non-linear and thus unpredictable, systems are governed by inherent patterns, actors are influenced predominantly by "attractors" (a term from chaos theory), and systems self-organise trough simple locally applied rules.

Given the challenge of predicting the future ("the system trajectory") Anderson and McDaniel [95] claim that "sense-making becomes more important than decision making". Sense-making is about clarifying identity and meaning. It is a social activity calling for reflection and interaction among those who belong to an organisation. The authors write: "A profession can be seen as a framework of values, roles, rules, procedures, and authority relations that focus attention for people allowing them to reflect and develop meanings.|…| Many organisations, following the bureaucratic model, spend a great deal of time on the development and polishing of a decision-making system.|…| Professional complex adaptive systems will focus on strategies for sense-making as well".

Another consequence of the non-linearity of the CAS is that planning and control becomes ineffective. The need to respond to unanticipated situations calls for improvisation skills among actors and organisational flexibility. Only skilled experts are good at improvising [95]. Experts are also "bricoleurs" – they are able to use whatever resources at hand in creative ways to respond to unpredicted demands. Management is wise to create a climate or conditions that allow professionals to work "at bricolage", to cleverly use available resources in ways that best meet the needs of patients and maximise the benefits to patients and the organisation.

Andersen and McDaniel [95] summarise their analysis by defining eight leadership tasks that are essential in a professional CAS and contrast it what is typical for professional bureaucracies (see Table 3).

Table 3 Key leadership task

PROFESSIONAL COMPLEX ADAPTIVE SYSTEM	PROFESSIONAL BUREAUCRACY
Relationship building	Role defining
Loose coupling	Tight structuring
Complicating	Simplifying
Diversifying	Socialising
Sense making	Decision making
Learning	Knowing
Improvising	Controlling
Thinking about the future	Forecasting

This conceptual analysis provides a theoretical foundation for how medical engagement, shown in our empirically based review, is an important promoter of organisational performance in health care. A plausible hypothesis is that a physician manager would be well equipped to understand, and personally embody the professionalism shown to be of im-

portance to engage professional experts to make collaborative contributions to their organisation's mission. It also shows, on the other hand, that there are a number of capabilities and skills a physician manager has to acquire in order to be successful in creating medical engagement.

Organisational theory offers an additional perspective to the importance of professionalism as a value foundation for health care management. The early pioneer in the sociology of professions, Elliot Freidson, who explained the sources of power in a professional organisation, proposed in another seminal work [99] that professionalism acts as a "third logic" – an alternative governance structure to the market and the hierarchy. Freidson [99] defined professionalism as an ideal type where the organisation and control over work and workers is realised by the occupation. Freidson claims that professionalism is the most effective form of organisation when problems and tasks are complex and require specialised knowledge and skills. Routines (as well guidelines and standard procedures, referring to the current practices of "evidence-based medicine") will be certainly present in many of those tasks, but expert knowledge and judgement is needed when it is appropriate to make exceptions from them. Evetts [100] makes the remark that control continues to be normative, but is tied to professional values. Mintzberg would refer to this phenomenon as "the standardisation of norms".

5.4 Limitations of this review

This review has limitations. We did not assess the quality of evidence provided in the primary studies. This is common practice in scoping reviews [16] because of the range of articles (from empirical articles to position papers) that were included which makes an assessment of primary studies unfeasible. This focus on breadth regarding the types of articles meant that there was a variety of research methods used in the included studies. For this reason, we adopted a more qualitative approach to summarize and describe the articles and then look for patterns among them. This means also that while correlations between mechanisms and performance outcomes are to some extent explored in the various studies, there is no evidence of conclusive causal relationships between the ideas presented in this report. To establish causality, would require the development of studies using other approaches to test and determine the strength of the relationships. Data charting for the empirical articles and literature reviews and for the conceptual articles and position papers were carried out by two researchers separately. To strengthen the trustworthiness of the findings, all authors were involved in the analysis and development of the entire data set.

6 Implications for research, policy, and practice

The virtuous and vicious cycles of physician leadership model represents an opportunity to delve more into the organizational and contextual factors that impact effective physician leadership practice and which mediate organizational performance. We suggest that there is a need to research the following:

- Observational studies that deepen our understanding of the relationship between management and medicine in everyday clinical practice in order to inform leadership development and human resource management efforts
- Studies of how medical management practices are enacted in primary care since most existing research has a hospital focus
- In-depth qualitative studies to develop insights about the mechanism at work between physician leadership and organizational performance and which includes both middle and first-line managers
- Multi-country comparative studies, which take into account cultural differences in power-gradients, could shed further light on how participatory and authoritarian practice influence organizational outcomes.

Based on the findings of this scoping review, we suggest the following implications for policy and practice:

1. Recognize and adopt the triple aim as the guiding principle of health care.
2. Adopt management through medicine as the main strategy to pursue the triple aim
3. By adopting management through medicine we will enable and promote medical engagement which is strongly associated with high performing health services
4. Medical engagement requires participatory leadership which is best practiced and developed in the context of quality improvement
5. Process improvement is more effectively promoted through its close link to professional competency development
6. Leadership development programs should be designed based on points 1-5, contribute to improved work practice, and become an integral part of the organisational strategy to improve care
7. Human resource management should take on a more strategic role in the recruitment and development of staff to ensure high organisational performance
8. Leadership and management capabilities should be seen as essential parts of professional competency development among physicians, addressed at all levels of their training.

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8 Appendix 1

The following empirical articles, literature reviews, conceptual articles, and position papers were included in the review.

8.1 Empirical articles

1. Albert K, Sherman B, Backus B. How Length of Stay for Congestive Heart Failure Patients Was Reduced Through Six Sigma Methodology and Physician Leadership. American journal of medical quality. 2010;25(5):392–7.
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Clinical Management Research Group, MMC

The Medical Management Centre (MMC), Karolinska Institutet, offers academic education to health care professionals and managers, and carry out research to support a science based management practice in health care. MMC's vision is to address how resources in the form of competence, knowledge, material and other assets can best be used and developed to improve human health.

We work nationally, regionally, and locally with authorities, health care providers, and patient representatives as well as with educational and research institutions in medicine and health care, to serve as a conveyor of knowledge and research related support for change and development. Our aim is to develop new knowledge through interaction with our partners and fruitful meetings between theory and practice.

The Clinical Management Research Group at MMC strives to bridge the medical management know-do gap by researching and developing innovative management practices together with practitioners that generate value for staff and patients. Our ambition is to help managers in health care to be better able to make sense of health care and make evidence informed decisions.

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