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Is Management Essential to Improving the Performance and Sustainability of Health Care Systems and Organizations? A Systematic Review and a Roadmap for Future Studies

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ABSTRACT

Recent studies have highlighted the importance of management in the health care sector. Positive correlations have been found between clinical and economic performance. Although there is still controversy regarding what kind of management and which managers should lead health care organizations and health systems, we now have interesting evidence to analyze. Starting with a systematic review of the literature, this article presents and discusses the streams of knowledge regarding how management can influence the quality and sustainability of health systems and organizations. Through the analysis of 37 studies, we found that the performance of health care systems and organizations seems to be correlated with

management practices, leadership, manager characteristics, and cultural attributes that are associated with managerial values and approaches. There is also evidence that health care organizations run by doctors perform better than others. Finally, we provide a roadmap that indicates how the relationship between the management and performance of health systems and organizations can be further and more effectively investigated.

Keywords: health care system, management, performance, sustainability.

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Introduction: The Value of Management and the Management of Value

All health care systems, no matter whether they are predominantly tax, social insurance-based, or market-based, have struggled with the issue of sustainability (defined as maintaining quality and service coverage at an affordable cost), particularly for the last decade [1]. Costs have risen as a result of ageing populations and the technologies developed to meet their expectations, concerns, and needs [2], and the recent economic crisis has exacerbated the problem [3]. Maintaining funding levels that are appropriate to the technology innovation curve, the demographic-epidemiological curve, and citizen expectations is an unprecedented challenge for nearly all health systems [4]. When the increase in supply costs must be covered by users, as in market-based systems, equity and access issues quickly emerge [5]. Societies around the world are pressuring health care providers to reduce costs, while stakeholders are seeking improvements in the quality of and access to services. A neoliberal critique of public service provision has also increased awareness of the “patient as consumer,” intensifying existing concerns about the quality and responsiveness of clinical services [6].

Since the 1960s in Western countries, the development of new health techniques and technologies (including pharmaceuticals), the ageing population, higher expectations, and the higher

relative prices of health care inputs has created a cost crisis, with increasing efforts at containment [7]. At the same time, until the 1990s, the possibility of matching skyrocketing costs with increases in funding led many health care organizations and systems to overlook inefficiencies in the production process that have subsequently aggravated sustainability issues. Throughout the 1980s, sustainability issues and the inefficiency of health care delivery were still largely addressed by putting more money into health systems, with more public resources allocated to the National Health Systems (NHS) or insurance fees increased [8]. Figure 1 illustrates the vicious cycle that often plagued tax-based systems during this period: when the technical system (the delivery system) required more resources, the characteristic response of physicians and other health professionals was to press politicians for more funding for the health care system. Within this dialogue, very little attention was paid to the effectiveness or efficiency of health care processes [9–11]: more specifically, clinicians focus on the individual patient, the effectiveness of the care, and evidence-based practices with little attention to cost control; however, addressing managerial and sustainability issues requires a vision that is oriented toward the entire population and greater attention to allocative efficiency and cost control. In retrospect, it is clear that this approach would be problematic in the long term.

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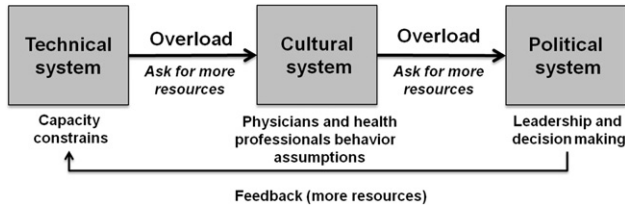


Fig. 1 – The vicious resource cycle prior to the 1990s.

Historically, the professional and cultural autonomy claimed by clinicians [12,13] largely meant that clinical processes were treated as a “black box” with which managers should not interfere. In predominantly market-based systems, some control was exerted through contractual arrangements. In tax-based systems, however, attempts at control occurred via input-output evaluations [14] (Fig. 2). More specifically, in the 1980s, control of health care expenditures was mainly based on the planning and allocation of inputs (e.g., through limitations on the number of beds, staffing, and purchasing policies). Then, in the 1990s, output measures (e.g., measures for medical visits, prescriptions, and diagnostic examinations) were introduced. Only at the end of the 1990s did health outcome measures begin to be used (e.g., measures of prevented deaths, life-years gained, and coverage of health care needs).

The content and methods of delivery processes were addressed only at the margins. Although clinical/critical pathway tools, process reengineering approaches, and lean management techniques emerged at the end of 1990s, their implementation seemed to be inconsistent and limited [15,16]. In addition, clinical governance tools and audit methods started to flourish and spread in the late 1990s [17]. For many years, the impact of general or business managers on clinical processes was quite limited.

Currently, because of the recent financial crisis, political decision makers and managers are trying to regain control over the cost of health systems through a renewed focus on controlling inputs [18,19]. Limits on the recruitment or replacement of personnel, purchasing policies, and experimentation with new technology are being imposed on health organizations. Payments and tariffs for care treatments are being renegotiated and reduced. Almost without exception, controlling expenditures in the short term means controlling inputs. The renewed focus on inputs and resource containment has several disadvantageous consequences. First, cost-containment policies do not explicitly lead to structural interventions in the working methods adopted by professionals and administrative staff at health care organizations. Second, cost and input containment policies might equally affect high- and low-performing organizations in the same health care system. Moreover, if cuts are implemented horizontally, universality is substantially impaired. Without changes in the way health care services are supplied, cuts can primarily affect access, equity of treatment, and quality.

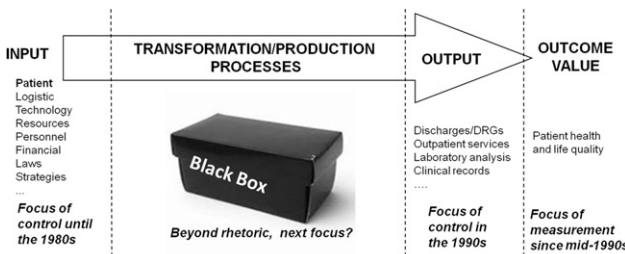


Fig. 2 – The shift in the focus of control. DRGs, diagnosis-related groups.

Beginning in the 1970s, the challenges of sustainability with health care systems were addressed by using the concept of “rationing” as one of the best ways to give patients equitable access to high-quality care within an economically rational framework. Rationing incorporated a series of different perspectives that were intended to promote 1) priority setting in decision making [20] and 2) improved delivery processes through a better understanding of and more appropriate action on the “black box” of clinical process [21]. The inappropriate use of diagnostics, drugs, and therapies, defensive medicine, artificial variability, turf wars among specialists, and resource waste could no longer be tolerated. Sensitive decisions such as those regarding when to use expensive biodrugs, prostheses, or medical devices in patients with a low probability of positive outcomes or which prostheses or drugs to use for patients with limited life expectancy are central issues within public and social insurance-based systems. However, the rationing approach achieved relatively little significant reduction in total provision, as there was a lack of consensus about services to be abandoned and little political will to confront challenging decisions.

Rationing efforts need to be undertaken with a renewed focus on the professional system to improve the involvement of physicians in addressing these challenges [22]. Management models may be helpful in this context. In fact, according to recent studies and debate, management can enhance the value produced by health systems, organizations, and professionals [23–25]. Most health systems are actively pursuing the managerialization of their health organizations [26,27]. What kind of management and which managers, however, should be used? How can management be reconciled with ethics in sensitive decisions? In the last 5 years, interesting, but limited, evidence has increasingly demonstrated that management does matter [19,28,29]. The following section describes some of the most recent studies and streams of research that address management and health organization performance, which ultimately affects the sustainability and universality of health systems. Nonetheless, we also argue that we are not likely to advance research in this field until we address the robustness of our methods and data and consider the barriers to collaborative multidisciplinary studies with a shared focus. A roadmap for such future studies is developed and discussed in the last section.

Does Management Matter in Health Systems: A Review of Literature

In recent years, both practitioners and researchers have renewed their interest in the impact of management on the performance of health systems and organizations. A systematic search of all English references was performed by using Business Source Complete, Emerald, ScienceDirect, and PubMed. Survey items that match with the following keywords were extracted: management, management practice, management impact, health care services, quality, health care organizations, and health care performance. The search included both theoretical and empirical studies with no time restrictions. Moreover, we also included the few relevant reports by international research institutes (London School of Economics, King’s fund). A scientific working paper that details the methods and results summarized in the above-mentioned reports was also included in the analysis [30]. We selected 37 articles and reports on the basis of the search guidelines and their relevance to the topic.

The results of the review demonstrate that some streams of research began to develop in the 1990s, but the more recent empirical reports show that interest in evaluating the impact of management on clinical and other aspects of performance is intensifying. Presumably, this shift is connected with the fact

that managers in health care face inconsistent or conflicting external stakeholder expectations, many of which stem from relatively strong but fragmented institutional forces and from increasingly strong market forces. The greater the complexity of the context, the more systems seek to “managerialize” their health organizations to find a solution [23]. The questions of whether management matters, how it matters, and what kind of management should be used are becoming central. Nevertheless, performance assessment is still controversial: some authors [31,32] have suggested that performance management based on targets could produce a range of unintended and dysfunctional consequences, notably the distortion of clinical priorities, gaming, the bullying and intimidation of staff, and decreased confidence among staff and the public. Although we have to improve the way in which we set performance targets for health care organizations, we also have to determine whether good management practices can have a positive impact on performance.

The studies of the impact of management on health care performance can be broadly divided into four categories: 1) studies that describe the impact of management practices on performance, that is, the impact of planning, organizing, coordinating, commanding, and controlling [33]; 2) research that focuses on the impact of managers’ characteristics on performance, including their background, career history, and investment in management training; 3) research that investigates the impact of the engagement of professionals in management on performance; and 4) studies that analyze the impact of organizational culture and management styles on performance.

The Impact of Management Practices on Performance

Working within the first category of research, earlier contributions did not find a general relationship between management and hospital performance [34]; however, in the same study by Street et al. [34], there was some evidence of a quadratic relationship between management spending and the operating surplus generated and performance as compared with the 3-month waiting time standard for inpatient admission specified in the Patient’s Charter. Although more recent studies have highlighted correlations between management practices and performance [26,35], Bloom et al. [30] conducted a study of more than 1100 hospitals in seven countries and found that management practices in orthopaedics and cardiology departments showed a correlation with clinical performance. The evidence demonstrates that improved management practices in hospital are associated with significantly lower mortality rates (for emergency heart attack admission—atrial myocardial infarction) and better financial performance (increases in income per bed). The same research stream includes studies on operations management as it is applied to health organizations. Mazzocato et al.’s [36] review of lean management practices in health organizations from the 1998 until 2008 identified 33 articles that describe cases of lean change and report positive results in terms of efficiency, productivity, and quality. Furthermore, studies of leadership report a positive and significant correlation with the performance of health organizations. However, leadership is not equivalent to management practices: Kotter [37] indicated that management practices involve planning, budgeting, organizing, staffing, and controlling and distinguished them from problem-solving and leadership processes that establish direction and motivate and align people. Moreover, leaders can engage in a range of managerial behaviors that affect individual and team performance [38]. A review conducted by Gilmartin and D’Aunno [39] identified 60 empirical articles in which leadership in the health care context is associated with individual and group satisfaction, retention, and performance. Alimo-Metcalfe et al. [28] carried out a

longitudinal empirical study that used quantitative methods to examine the relationship between quality and attitudes related to leadership and organizational performance; one leadership quality (“engaging with others”) was shown to be a significant predictor of organizational performance. Moreover, the recent King’s Fund report [29], based on a review of the evidence on the topic, suggests that the NHS requires strong leadership and management “from the ward to the board” and indicated that “one of the defining weaknesses of the NHS over the decades has been the lack of involvement of clinicians in management when it is the decisions of clinicians – in particular doctors – that chiefly influence how the budget is spent.”

The Impact of Managers’ Characteristics on Performance

The second typology of studies addressed the relationship between the characteristics of managers (e.g., background, career, and training history) and the performance of health care organizations. This research seems to advocate for an increasingly vital role for medical managers and leaders. Bloom et al. [30] found that hospitals with clinically qualified managers exhibit better management practices. Goodall [40] found that the chief executives of the best US hospitals (as ranked by *US News and World Report* league tables) were predominantly those with clinical backgrounds: 16 of the 21 top-ranked hospitals were led by doctors. Mascia and Piconi [41] studied the correlation between managers’ career paths and performance in the Italian NHS and found that the chief executive officers who accumulated experience in a large number of health care structures and who spent time working at the most prominent hospitals were also more likely to achieve higher levels of managerial performance.

The Impact of the Engagement of Professionals in Management on Performance

The third stream of research is based on the idea that the engagement of doctors in management is beneficial; some scholars concentrate on approaches to measuring and developing clinical engagement as a means to achieve organizational performance. This category includes studies that show how “doctor-leaders” are better able to influence their colleagues’ clinical activities than are nonmedical managers but also struggle to win over fellow doctors in asserting the importance of management for performance [42]. Several scholars have also discussed the risks of and resistance to this hybridization process in which doctors are becoming clinician-managers [9,43–45]. Others, however, argue that the engagement of clinicians in management is necessary and produces a positive impact on performance [11,13,46–48]. More specifically, some studies of high-performing hospitals found a connection between performance and physician engagement [49,50]. Moreover, recent evidence suggests a clear association between medical engagement and indicators of improved performance in the United Kingdom [47]. On the basis of the definition of medical engagement as “the active and positive contribution of doctors within their normal working roles to maintaining and enhancing the performance of the organisation which itself recognises this commitment in supporting and encouraging high quality care” [47], Spurgeon et al. developed a reliable and valid measure of medical engagement (the medical engagement scale). The authors collected data from more than 3500 doctors across 30 secondary care trusts (three from each Strategic Health Authority) and found that high levels of medical engagement were significantly associated with improved patient mortality rates, a reduction in incidents leading to severe harm, the maintenance of service provision in all areas (as defined by NHS performance ratings), financial status, care quality, and the achievement of targets across all areas. Figure 3

	Medical engagement index	Meta 1: Working in a collaborative culture	Meta 2: Having purpose and direction	Meta 3: Being valued and empowered	Sub 1: Climate for positive learning	Sub 2: Good interpersonal relationships	Sub 3: Appraisal and rewards effectively aligned	Sub 4: Participation in decision making and change	Sub 5: Development orientation	Sub 6: Work satisfaction	<i>n</i> Trusts
HSMR mortality indicators, Dr Foster Unit April 2009	−0.50**	−0.56**	−0.37**	−0.50**	−0.46**	−0.64***	−0.33*	−0.36*	−0.45**	−0.50**	25

Levels of significance: * $P < .05$, ** $P < .01$, *** $P < .001$

Fig. 3 – The impact of medical engagement on hospital standardized mortality rates.

shows the correlation between medical engagement and hospital standardized mortality rates.

A comparison of the 10 trusts that demonstrated the highest levels of medical engagement and those that demonstrated the lowest levels of performance (as defined by the Care Quality Commission's ratings) showed clear and significant differences in overall quality, financial management, core standards, and fulfillment of existing commitments and national priorities (Box 1).

These results indicate that there is a clear and consistent link between medical engagement and performance, confirming that if doctors become more involved in service changes and innovation, productivity and quality outcomes will improve. Because these findings are based on correlations—albeit strong, consistent ones—we cannot presuppose any definitive causal relationship between the two phenomena. It is difficult, however, to see how radical changes in service delivery could be implemented by disengaged, disaffected, and uncooperative medical staff. Furthermore, as health organizations and hospitals in particular reorganize around concepts such as focused care, clinical directorates, and product or service lines, several studies suggest that management skills are required to effectively run the new organizational models, which ultimately contributes to better clinical and financial performance [51]. Finally, a recent editorial in the *BMJ* by Ham [25] emphasizes that the loss of experienced managers as a consequence of redundancy can jeopardize performance.

The Impact of Organizational Culture and Management Styles on Performance

The fourth category of studies revealed that a contingent relationship exists between performance and organizational culture and management styles. Cultures and management styles varied across hospital organizations and can be associated with a variety of organizational characteristics and measures of performance. An investigation of the cultural attributes of “high”- and “low”-performing hospitals shows that the best performers diverge from the rest in terms of their approach to leadership, which is transactional rather than charismatic, and their management orientation, which is based on multidimensional performance management, clear goals, and the use of managerial processes and tools such as strategic planning, budgeting, and

Box 1—The benefits of medical engagement

- Better patient mortality rates
- Fewer serious incidents
- Maintenance of high levels of service provision and patient care
- Sound financial status
- Achievement of goals
- Maintenance of core standards

business planning [52]. The authors, however, also warn against the risk of dysfunction associated with cultural shifts toward the attributes of high-performing hospitals, such as tunnel vision and an overemphasis on targets. A recent study of what distinguishes top-performing hospitals with regard to their acute myocardial infarction mortality rates reveals that hospitals in the high-performing and low-performing groups differed substantially in the domains of organizational values and goals, senior management involvement, broad staff presence and expertise in atrial myocardial infarction care, communication and coordination among groups, and problem solving and learning. Diverse protocols or processes for atrial myocardial infarction care (such as the use of rapid response teams, clinical guidelines, hospitalists, and medication reconciliation) were found in all organizations, although these traits did not systematically differentiate high-performing hospitals from low-performing ones [53]. Last, these studies are connected with the research that aims to show that the mere presence of management practices does not assure better performance if it is not coupled with cultural and training efforts that enhance physician engagement in the management process [10,27,54–57].

The main message of all four strands of this literature is that management does have consequences for organizational performance but that in most cases these consequences are mediated by context.

Limitations of the Available Literature and Risks Faced by Further Research

The above review of the research on the relationship between management and performance in health organizations reveals the existence of evidence supporting a positive impact of management on performance. Several limitations of the current literature, however, should be considered. First, the evidence is mounting but remains far from conclusive. More specifically, some limitations of the research presented above are as follows:

- Some studies [10,25,27,54–57] are qualitative and descriptive rather than being based on empirical data.
- In the quantitative studies [30], the methods used to score management practices can be misleading.
- In other analyses [27], the causal relationship between the dimensions of management under study and performance is not demonstrated.

In addition, previous studies have demonstrated some of the risks that future empirical research will face. First, measures used to evaluate management practices may result from the attested presence of “formal” managerial roles, tools, and practices. This dynamic may be misleading because doctors may adopt formal managerial roles as part of a “custodial” strategy. In other words, doctors prefer to be appointed in a managerial role (e.g., head of directorate or department) in an attempt to maintain their professional autonomy, status, and power as well as the interests and conventions of their professional family of service

providers, but they do not actually exercise the managerial tasks and practices expected from that role and do not use managerial logics and tools [58,59]. In contrast, the measures used to evaluate management practices must be built on knowledge of, real involvement in, and commitment to managerial responsibilities. Second, causality cannot be easily assessed in this area of study. For instance, health organizations are often subject to profound external influences, and especially in NHS-based systems, their performance may be politically “designed” as a means of consensus building (given that health care organizations are subject to funding transfers from political authorities), which can shape an organization’s financial performance.

Conclusions and a Roadmap for Future Research

As mentioned in the Introduction, cost reduction without regard to the outcomes achieved can be dangerous and self-defeating, leading to false “savings” and potentially limiting effective care and access. Thus, the future universality and sustainability of health systems is increasingly considered to be based on improving “value” in health care, defined as outcomes relative to costs [23]. The creation of value is strictly connected to the capacity to better manage the “black box” of health care processes. Consequently, more attention to measuring outcomes (the numerator in the value equation) is required, especially given their condition-specific and multidimensional nature. On the other hand, costs (the denominator) must be measured and managed with reference to the total costs of the full cycle of care associated with the patient’s medical condition; it is insufficient to consider the cost of individual services. It is clear that addressing the value question requires us to tackle issues of artificial variability (e.g., unnecessary differences in therapies, the use of diagnostics, timing, pathways, resource utilization rates, and second opinions) [60] as well as defensive medicine [61] and cost-benefit decision making [62]. Not only are the architecture and governance of health systems at issue, but we must also consider the quality of the micromanagement occurring on the hospital or clinic floor (the so-called shop floor), where care and cure are delivered.

For the last two decades, most health systems have continuously reorganized their structures and governance, but such efforts will be insufficient unless they are accompanied by the clear long-term development of management capabilities [63]. What we need to know is how to increase, support, and direct investment in the development of management capabilities in health systems. The evidence that has been collected thus far, though far from conclusive—and limited in some respects—suggests that management does matter from a range of perspectives: performance seems to be correlated with management practices, leadership, manager characteristics, and cultural attributes that are associated with managerial values and approaches. Furthermore, there is evidence that health organizations run by doctors perform better than others. This evidence seems to suggest that clinician managers perform comparatively better than managers with other backgrounds. Clinician managers may also adopt a different perspective than do managers with business or other backgrounds. Such arrangements may be more successful because of the sensitivity to and knowledge of clinical decision making of the former [35,40].

In this light, given the current research and its limitations, there seem to be important directions for future studies to consider. First, the current stream of research must become more robust and the following three key questions addressed:

1. Does management matter? The empirical efforts of researchers must extend our understanding of the relationships

between managerial roles and performance and between management practices and performance. The focus, methods, samples, and performance measures need to be carefully defined.

2. If management does matter, what is the relative value of specific aspects of management?
3. What drives the development of management among professionals? Are clinician-managers the most appropriate managers, and among them, is there a specific clinical background that prevails? It would be interesting to determine whether among clinicians, there are backgrounds that encourage or facilitate the transition into management or that improve manager performance.

Second, the above research will remain incomplete if it does not contain contextual analysis. Collaborative multidisciplinary studies that consider the context in their analysis of management are necessary to determine whether management issues can be disconnected from the organizational choices made by health organizations and from their cultures. On the other hand, especially within international comparative studies, scholars need to adopt a common framework for analysis in investigating the drivers of performance. In particular, this stream of research should answer the following research questions. Is the adoption of management practices determined by and which isomorphic factors [64] (i.e., coercive isomorphism that results from political influence and pressures exerted on organizations by other organizations upon which they are dependent, or mimetic isomorphism that push the organizations to model themselves imitating other organizations)? There could be a decoupling phenomenon for which organizations formally adopt managerial models and tools but do not actually implement these practices? Is it stimulated by financial or nonfinancial incentives? For instance, how important are 1) system governance (i.e., market pressure or incentives, the adoption of the clinical directorates model); 2) reform and theoretical paradigms (new public management or others); and 3) the relationships among key professions (nurses, doctors, administrative staff)? The new research should help us to understand to what degree an experience is particular to its individual context and how it can be exported. For instance, Switzerland, Italy, the United Kingdom, Germany, France, and Spain have different cultural traits, and even internally, each country contains diverse cultures. Thus, scholars have to study the development of medical engagement in management with reference to the cultural context at play.

Third, we must reconcile the studies on the impacts of leadership, management, and organizational culture. In this research field, there is a significant opportunity to bridge academia with practice. At a minimum, researchers who focus on this field and practitioners need to draw more effectively on each other’s work, even if such collaboration is a significant challenge, as both groups have much to gain from each other. Such joint efforts could lead to renewed contributions by relevant research to health systems facing a challenging mission.

Future research in this field could be very useful to understand not only “if” but also “how” management could be the real keystone for pursuing the sustainability of health care systems (in particular, NHS and social insurance-based systems) that struggle to preserve or develop a real universal health coverage.

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REFERENCES

- [1] European Observatory on Health System and Policies. Financing the health care in European Union. 2009. Available from: <http://www.euro.observatory.org>

- who.int/_data/assets/pdf_file/0009/98307/E92469.pdf. [Accessed July 1, 2012].
- [2] Busse R, Wurzburg G, Zappacosta M. Shaping the societal bill: past and future trends in education, pensions and healthcare expenditure. *Futures* 2003;35:7–24.
 - [3] Mladovsky P, Srivastava D, Cylus J, et al. Health policy in the financial crisis. *Eurohealth* 2012;18:3–6.
 - [4] Lega F, Calciolari S. Coevolution of patients and hospitals: how changing epidemiology and technological advances create challenges and drive organizational innovation. *J Healthc Manag* 2012;57:17–33.
 - [5] Thomson S, Mossialos E. Funding health care from private sources: what are the implications for equity, efficiency, cost containment and choice in Western European health systems? In: Exter den A, ed. Copenhagen: World Health Organization Regional Office for Europe; 2004.
 - [6] Bode I. Social citizenship in post-liberal Britain and post-corporatist Germany—curtailed, fragmented, streamlined, but still on the agenda. In: Maltby T, Kennett P, Rummery K, eds. *Social Policy Review* 20. Bristol: Policy Press; 2008.
 - [7] European Observatory on Health System and Policies. Health systems, health, wealth and societal well-being: assessing the case for investing in health systems. 2011. Available from: http://www.euro.who.int/_data/assets/pdf_file/0007/164383/e96159.pdf. [Accessed July 1, 2012].
 - [8] European Observatory on Health Care Systems. *Health Care Systems in Eight Countries—Trends and Challenges*. London: London School of Economics, 2002.
 - [9] Freidson E. *Professionalism Reborn: Theory, Prophecy, and Policy*. Cambridge: Polity Press, 1994.
 - [10] Drife J, Johnston I. Management for doctors: handling the conflicting cultures in the NHS. *Brit Med J* 1995;310:1054–6.
 - [11] Degeling P, Maxwell S, Kennedy J, et al. Medicine, management and modernisation: a “danse macabre”? *BMJ* 2003;326:649–52.
 - [12] Fitzgerald L, Ferlie E. Professionals: back to the future? *Hum Relat* 2000;53:713–39.
 - [13] Davies H, Harrison S. Trends in doctor-manager relationships. *BMJ* 2003;326:646–9.
 - [14] Bohmer R. *Designing Care: Aligning the Nature and Management of Health Care*. Boston, MA: Harvard Business Press, 2009.
 - [15] Vissers JMH, Bertrand JWM, De Vries G. A framework for production control in health care organizations. *Prod Plan Control* 2001;12:591–604.
 - [16] McCarthy M. Can car manufacturing techniques reform health care? *Lancet* 2006;367:290–1.
 - [17] Davies C, Walley P. Clinical governance and operations management methodologies. *Int J Health Care Qual Assur* 2000;13:21–6.
 - [18] Ferrè F, Cuccurullo C, Lega F. The challenge and the future of health care turnaround plans: evidence from the Italian experience. *Health Policy* 2012;106:3–9.
 - [19] The King's Fund. *The Future of Leadership and Management in the NHS*. London: The King's Fund, 2011.
 - [20] Ham C. Priority setting in health care: learning from international experience. *Health Policy* 1997;42:49–66.
 - [21] Eddy DM. Clinical decision making: from theory to practice. The individual vs society: resolving the conflict. *JAMA* 1991;265: 2405–396.
 - [22] Strech D, Persad G, Marckmann G, et al. Are physicians willing to ration health care? Conflicting findings in a systematic review of survey research. *Health Policy* 2009;90:113–24.
 - [23] Kaplan R, Porter M. How to solve the cost crisis in health care. *Harvard Bus Rev* 2011 September:47–64.
 - [24] Spurgeon P, Clark J, Ham C. *Medical Leadership: From the Dark Side to Centre Stage*. London: Radcliffe Publishing, 2011.
 - [25] Ham C. The management of the NHS in England. *BMJ* 2012;344:e928.
 - [26] Ham C. *Enhancing Engagement in Medical Leadership: A Rapid Survey of International Experience*. Birmingham: NHS Institute for Innovation and Improvement, 2008.
 - [27] Kirkpatrick I, Kragh Jespersen P, Dent M, et al. Medicine and management in a comparative perspective: the cases of England and Denmark. *Social Health Ill* 2009;31:642–58.
 - [28] Alimo-Metcalfe B, Alban-Metcalfe J, Bradley M, et al. The impact of engaging leadership on performance, attitudes to work and wellbeing at work: a longitudinal study. *J Health Organ Manag* 2008;22:586–98.
 - [29] McKinsey & Company & Centre for Economic Performance. *Management in healthcare: why good practice really matters*. October 2010. Available from: http://cep.lse.ac.uk/textonly/_new/research/productivity/management/PDF/Management_in_Healthcare_Report.pdf. [Accessed July 1, 2012].
 - [30] Bloom N., Propper C., Seiler S., et al. *Management Practices in Hospitals (Working Paper 09/23)*. Health, Econometrics and Data Group: University of York, 2009.
 - [31] Mannion R, Davies H, Marshall M. Impact of star performance ratings in English acute hospital trusts. *J Health Serv Res Policy* 2005;10:18–24.
 - [32] Radnor ZJ. Muddled, massaging, maneuvering or manipulated? A typology of organisational gaming. *Int J Prod Perform Manag* 2008;57:316–28.
 - [33] Fayol H. *Administration industrielle et générale*. Bulletin de la Société de l'Industrie Minière 1916;10:5–164.
 - [34] Street A, Carr-Hill R, Posnett J. Is hospital performance related to expenditure on management? *J Health Serv Res Policy* 1999;4:16–23.
 - [35] Ham C, Dickinson H. *Engaging Doctors in Leadership: What Can We Learn from International Experience and Research Evidence?* Coventry: NHS Institute for Innovation and Improvement/Health Services Management Centre, 2008.
 - [36] Mazzucato P, Savage C, Brommels M, et al. Lean thinking in healthcare: a realist review of the literature. *Qual Saf Health Care* 2010;19:376–82.
 - [37] Kotter JP. *Leading Change*. Boston: Harvard Business School Press, 1996.
 - [38] Hackman JR. *Leading Teams: Setting the Stage for Great Performances*. Boston, MA: Harvard Business School, 2002.
 - [39] Gilmartin MJ, D'Aunno T. Leadership research in healthcare: a review and roadmap. In: Brief A, Walsh JP, eds. *Annals of the Academy of Management*. New Jersey: Erlbaum; 2007.
 - [40] Goodall A. Physician-leaders and hospital performance: is there an association? *Soc Sci Med* 2011; 73:535–9.
 - [41] Mascia D, Piconi I. Career histories and managerial performance of health care chief executive officers: an empirical study in the Italian National Health Service. *Health Care Manage Rev* 2011;48:215–24.
 - [42] Witman Y, Smid GAC, Meurs PL, et al. Doctor in the lead: balancing between two worlds. *Organization* 2011;18:477–95.
 - [43] Degeling P, Zhang K, Coyle B, et al. Clinicians and the governance of hospitals: a cross-cultural perspective on relations between profession and management. *Soc Sci Med* 2006;63:757–75.
 - [44] Garelick A, Fagin L. The doctor-manager relationship. *Adv Psychiatr Treat* 2005;11:241–50.
 - [45] Jacobs K. Hybridisation or polarisation: doctors and accounting in the UK, Germany and Italy. *Financ Account Manage* 2005;21:135–61.
 - [46] Vlastarakos P, Nikolopoulos T. The interdisciplinary model of hospital administration: do health professionals and managers look at it in the same way? *Eur J Public Health* 2008;18:71–6.
 - [47] Spurgeon P, Mazelan PM, Barwell F. Medical engagement: a crucial underpinning to organizational performance. *Health Serv Manage Res* 2011;24:114–20.
 - [48] Guthrie M. Engaging physicians in performance improvement. *Am J Med Qual* 2005;10:235–8.
 - [49] Keroack MA, Youngberg BJ, Cerese JL, et al. Organizational factors associated with high performance in quality and safety in academic medical centers. *Acad Med* 2007;82:1178–86.
 - [50] Reinertsen J.L., Gosfield A.G., Rupp W., et al. *Engaging Physicians in a Shared Quality Agenda (IHI Innovation Series White Paper)*. Cambridge: Institute for Healthcare Improvement, 2007.
 - [51] Ham C. Improving the performance of health services: the role of clinical leadership. *Lancet* 2003;361:1978–80.
 - [52] Mannion R, Davies H, Marshall M. Cultural attributes of ‘high’ and ‘low’ performing hospitals. *J Health Organ Manag* 2005;19:431–9.
 - [53] Curry LA, Spatz E, Cherlin E, et al. What distinguishes top-performing hospitals in acute myocardial infarction mortality rates? *Ann Intern Med* 2011;154:384–90.
 - [54] Harrison R, Miller S. The contribution of clinical directorates to the strategic capability of the organization. *BMJ* 1999;10:23–9.
 - [55] Detmer D. Clinician-managers: the ‘boundary spanners’ of health services. *J Health Serv Res Policy* 2000;5:197–8.
 - [56] Atun R. Doctors and managers need to speak a common language. *BMJ* 2003;326:655.
 - [57] Nash DB. Doctors and managers: mind the gap. *BMJ* 2003;326:652–3.
 - [58] Ackroyd S, Hughes JA, Sothill K. Public-sector services and their management. *J Manage Stud* 1989;26:603–19.
 - [59] Ackroyd S, Kirkpatrick I, Walker R. Public management reform and its consequences for professional organisation: a comparative analysis. *Public Admin* 2007;85:9–26.
 - [60] Litvak E, Long MC. Cost and quality under managed care: irreconcilable differences? *Am J Manag Care* 2000;6:305–12.
 - [61] Healey B, Kopen D, Smith J. Physicians, defensive medicine and ethics. *Acad Health Care Manage J* 2011;7:59–78.
 - [62] Moreno E, Girón FJ, Vázquez-Polo FJ, et al. Optimal healthcare decisions: the importance of the covariates in cost-effectiveness analysis. *Eur J Oper Res* 2012;218:512–22.
 - [63] Lega F. Lights and shades in the managerialization of the Italian National Health Service. *Health Serv Manage Res* 2008;21:248–61.
 - [64] DiMaggio PJ, Powell WW. The iron cage revisited: institutional isomorphism and collective rationality in organizational. *Am Sociol Rev* 1983;48:147–60.