How teams use indicators for quality improvement – A multiple-case study on the use of multiple indicators in multidisciplinary breast cancer teams

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ABSTRACT

A crucial issue in healthcare is how multidisciplinary teams can use indicators for quality improvement. Such teams have increasingly become the core component in both care delivery and in many quality improvement methods. This study aims to investigate the relationships between (1) team factors and the way multidisciplinary teams use indicators for quality improvement, and (2) both team and process factors and the intended results. An in-depth, multiple-case study was conducted in the Netherlands in 2008 involving four breast cancer teams using six structure, process and outcome indicators. The results indicated that the process of using indicators involves several stages and activities. Two teams applied a more intensive, active and interactive approach as they passed through these stages. These teams were perceived to have achieved good results through indicator use compared to the other two teams who applied a simple control approach. All teams experienced some difficulty in integrating the new formal control structure, i.e. measuring and managing performance, in their operational task, and in using their 'new' managerial task to decide as a team what and how to improve. Our findings indicate the presence of a network of relationships between team factors, the controllability and actionability of indicators, the indicator-use process, and the intended results.

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Introduction

Over the past three decades, the needs to increase care quality and ensure accountability and transparency in processes, products and services to stakeholders have motivated the development of performance management systems. The main process activities in these systems are the development and actual use of indicators (Bourne, Kennerley, & Franco-Santos, 2005). Indicators are increasingly used by multidisciplinary teams treating patients with complex health problems such as cancer (Lemieux-Charles & McGuire, 2006). Studies investigating quality improvement collaboratives – in which using indicators is a prominent element (De Vos et al., 2009; Schouten, Hulscher, Van Everdingen, Huijsman, & Grol, 2008) claim that the effectiveness of indicator use can at least be partly ascribed to how multidisciplinary healthcare teams use indicators for improvement (De Vos et al., 2009; Dückers,

Spreeuwenberg, Wagner, & Groenewegen, 2009; Vos, Dückers, Wagner, & Van Merode, 2010). Indicator use by multidisciplinary healthcare teams is a relatively new and complex task. Previously, healthcare providers were each responsible for their own domain and contribution, but now a team is held accountable for the care that is delivered to patients. Whereas healthcare providers would account for their individual decisions to their own professional group, they now, as a team, have to codify and share performance widely. Further, not only medical and nursing performance, but also organizational performance dimensions might be reflected in indicators (Donabedian, 1980), so extending the responsibility domain of the multidisciplinary team. These issues might reduce the willingness of healthcare providers to use indicators and lead to worsening change conditions. Developing effective improvements in multidisciplinary healthcare teams is also challenging because professionals from different backgrounds and cultures have to cross professional boundaries (Ferlie, Fitzgerald, Wood, & Hawkins, 2005; Meltzer et al., 2010). However, little is known about how multidisciplinary healthcare teams can use indicators effectively or how team factors impact on the process of indicator use. In such settings, having awareness and knowledge about performance is

not sufficient to accomplish an intended change (Rhydderch, Elwyn, Marshall, & Grol, 2004); healthcare providers also need to be motivated and supported in working with indicators and to be able to turn indicator information into improvements. Bourne et al. (2005), Bourne, Melnyk, and Faull (2007) have shown that interactive indicator use by actors in business units has more impact on performance than a simple control approach. Further, Kleingeld, Van Tuijl, and Algera (2004) have demonstrated the relevance of a participative approach to using indicators. In the present study, we focus on how multidisciplinary teams create their own process of indicator use, and how these teams address the elementary steps therein. Moreover, we analyse team factors that render some teams more effective in applying indicators than others.

To accomplish these objectives, we conducted an explorative multiple-case study, involving four breast cancer teams, employing a predefined set of indicators. For practice, this study provides insights into factors that could be helpful when using indicators to achieve improvements and in managing and organizing multidisciplinary healthcare teams in this process.

Theoretical background

In the literature on performance management, scholars have discussed various theoretical perspectives, with corresponding ranges of influencing factors, to explain how such management systems can affect performance (e.g., Bourne et al., 2007; Franco-Santos, Lucianetti, & Bourne, 2012; Kluger & DeNisi, 1996). In practice, the process of indicator use, the content of these indicators and the organizational context will all impact on effectiveness (Bourne et al., 2005; Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1989).

The process of indicator use

The process of indicator use contains several stages that have been identified in earlier studies: design of the indicator system, data collection, data analysis and interpretation, discussion of insights, and developing suggestions for improvement (Bourne et al., 2005; Kleingeld et al., 2004). In the present study, these stages were used as a starting point. Research in the business field has shown that users of indicators can process these stages in different ways: from a control-based system approach in which data are gathered through standard company systems, analysed, compared against company targets, communicated and acted upon, to a very active and sophisticated approach (Bourne et al., 2005, 2007). The latter of these approaches involves continual interaction with data, developing additional systems for own data collection and creating one's own approaches for analysing and using these data to advance future performance. Further, both managers and employees become more intense in their interactions and more varied in their courses of action (Bourne et al., 2005, 2007; Franco-Santos et al., 2012). The 'productivity measurement and enhancement system' (ProMES) offers other examples of how a participatively designed performance system can increase performance (Kleingeld et al., 2004; Pritchard et al., 1989). One note of caution is that these studies focused primarily on separated phases such as controllability of indicators, goal setting, and defining roles and responsibilities; and further viewed design and implementation as separated sequential stages (Kleingeld et al., 2004; Pritchard, Harrell, DiazGranados, & Guzman, 2008).

In healthcare, studies often focus on one specific stage in this process, such as the development and selection of indicators, quality of feedback, or the way such feedback is provided (Freeman, 2002; Gagliardi et al., 2011; Van der Geer, Van Tuijl, & Rutte, 2009). Studies on multidisciplinary healthcare teams that address all these stages are unknown. Given the importance attached to an interactive, participative and sophisticated approach elsewhere, the question is whether such an approach would also be effective in healthcare.

Type of indicators

Many studies address the importance of using "good" indicators (Freeman, 2002; Mainz, 2003). "Good" addresses many aspects that can be grouped into four main areas: validity, reliability, comparability and controllability. Perhaps the most fundamental and continuing question over indicators is their controllability in that a direct and causal relationship should be perceived between action and outcome (Kluger & DeNisi, 1996). Two aspects are important here: knowledge of how action and outcome are interrelated (Leung & Trotman, 2008), and also the experience of having the authorities to affect outcomes through changed actions. The absence of either or both of these aspects can frustrate the use of indicators. Therefore, we introduce 'actionability' as an important characteristic of a given indicator, i.e. its ability to produce feedback that elicits willingness to learn and appropriate action rather than defensiveness (Cannon & Witherspoon, 2005).

A very common classification in healthcare comprises structure, process and outcome indicators (Donabedian, 1980). Structure indicators address organizational procedures and structures, such as multidisciplinary patient meetings or the availability of a specialized nurse. Process indicators address logistical and technical medical treatment, such as lead times and guideline compliance. The third group, outcome indicators, provides information about the intended or intervening results, such as unexpected readmissions and 5-years survival. Previous research has demonstrated that feedback on different types of indicators affects performance differently. The perceived lack of control over outcome indicators seems to limit their effectiveness as these increase users' feelings of discomfort (Leung & Trotman, 2008). In addition, task characteristics affect what types of indicators are developed. For instance, Van der Geer et al. (2009) found that teams with high levels of task uncertainty developed significantly more process indicators than teams with less task uncertainty.

Multidisciplinary healthcare teams and improvement

Although several studies are available on effective teams in patient care (e.g., Lemieux-Charles & McGuire, 2006), less empirical research is available on effective *multidisciplinary* healthcare teams in *improvement* tasks. Here, we summarize the team factors that might have an impact on these improvement tasks and have proved to be important for effectively functioning teams in general.

Team integration is important in facilitating team processes and effective team performance (Marks, Mathieu, & Zaccaro, 2001). Having different professional backgrounds can impede multidisciplinary team members in integrating their unique insights (Ferlie et al., 2005), and diversity often complicates critical group processes such as communication and consensus building (Rink & Ellemers, 2010). Further, a *team climate for innovation,* i.e. a shared perception of how a group can innovate, is positively related to team performance (e.g., Olson, Tooman, & Alvarado, 2010). However, for multidisciplinary teams, it is quite a challenge to develop a shared, attainable and valued vision, as well as a shared concern for excellence in task performance. Another important factor is *leadership*. According to West et al. (2003), a lack of leadership clarity blocks a leader's efforts or results in leader's efforts going unrecognized. To be effective, leadership should be demonstrated through behaviour, i.e. communicating the goals and values to the team and organizing the team to ensure progress (Ammeter