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Who owns responsibility? An administrator's take on implementing time-variable medical training in teaching hospitals

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ABSTRACT

Introduction: Developments in outcome-based medical education led to the introduction of time-variable medical training (TVMT). Although this idea of training may be a consequence of competency-based training that calls for individualized learning, its implementation has posed significant challenges. As a new paradigm it is likely to have repercussions on the organization of teaching hospitals. The purpose of this study is therefore to explore how hospital administrators cope with this implementation process.

Methods: We conducted an exploratory qualitative study for which we interviewed administrators of hospitals who were actively implementing TVMT in their postgraduate programs.

Results: Several problems of implementation were identified: existing governance structures proved unfit to cope with the financial and organizational implications of TVMT. Administrators responded to these problems by delegating responsibilities to departments, reallocating tasks, learning from other hospitals and scaling up their teaching facilities.

Conclusions: Hospital administrators perceived the implementation of TVMT as challenging. TVMT affects the existing equilibrium between education and clinical service. Administrators' initial attempts to regain control, using steering strategies that were based on known concepts and general outcomes, including cutting departmental budgets did not work, nor did their subsequent wait-and-see approach of leaving the implementation to the individual departments.

Introduction

Different approaches to postgraduate medical education (PGME) are evolving. The introduction of competency-based medical education (CBME), for instance, marked a significant step towards making education more outcome-based. The conventional method of organizing medical education into pre-set blocks or rotations structured around fixed time frames, however, was still at odds with outcome-based targets. Time-variable medical training (TVMT), therefore, became an important focus of attention in the medical education community. Implying a shift from 'fixed time and various outcomes' to 'fixed outcomes and variable time' in PGME, this new approach calls for adapted training programs that have a more flexible – hence time-variable – structure.

In the medical education literature, we can find several good rationales for TVMT. First, a move away from fixed time structures allows educational programs to be tailored to trainees' individual learning needs, thereby better reflecting their individual learning curves. To ensure the quality of education and physician performance, medical education is structured around a set of standards. With the introduction of CBME, these standards became outcome-based, but the organizational structure of PGME has not changed accordingly. This is unfortunate because the time needed to reach these standards is likely to vary between trainees (Irby et al. 2010; Thistlethwaite et al. 2013; Hirsh et al. 2014; Woloschuk et al. 2014; Nousiainen et al. 2017). Second, the aforementioned gain may lead to greater educational efficiency at the level of the individual (Emanuel and Fuchs 2012; Cangiarella et al. 2016). This is a welcome effect considering the increased focus on healthcare costs in general and the search for more resource-efficient models of medical education in particular. Patients, policymakers and other healthcare advocates are demanding a greater return on investment (Cooke et al. 2006; Weinberger et al. 2006; Cooke et al. 2010; Frenk et al. 2010; Eden et al. 2014). TVMT can represent a step towards

Practice points

- Time-variable medical training affects the organization of both teaching hospitals and clinical service.
- Time-variable medical training stresses the way healthcare institutions are organized.
- Barriers to the implementation of time-variable medical training may, therefore, lay outside the educational domain.
- Implementing time-variable medical training requires effective implementation strategies.

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meeting these new demands. The final rationale behind TVMT is that it can contribute to the differentiation of trainees. TVMT makes it possible to include additional activities in the training program that are not part of the regular curriculum, such as those aimed to acquire management, educational and leadership skills. By tailoring training to the trainee's specific interests and available cognitive resources, the program can be enriched (Goldberg and Insel 2013; DeLuca et al. 2016), resulting in a valuable variation of competencies in trained physicians.

Despite these reasons for making the transition to TVMT, it has proven very difficult to implement. Not surprisingly so, perhaps, as teaching hospitals are complex organizations which render the introduction of large-scale changes to PGME particularly difficult. Complex organizations typically consist of different interacting systems, the boundaries of which are not always clear, while actors can be active in multiple systems. In the case of PGME, the main actors are trainees and clinical teachers whose role is not only to provide clinical service, but also to be actively engaged in the process of learning or teaching and designing education, respectively. A change in such an organization can have non-linear, unintended and far-reaching effects (Plsek and Greenhalgh 2001; Mennin 2007; van Rossum et al. 2016). Since PGME is workplace-based, it is fully embedded in teaching hospital organizations, meaning that education and clinical service are very much intertwined. Consequently, a change in one of these systems will inevitably bring about a change in the other. Abandoning the fixed time structures of time-based education will complicate the scheduling of future rotations in PGME. Hence, it seems reasonable to assume that introducing TVMT will fundamentally impact the organization of teaching hospitals.

Indeed, there is strong evidence that TVMT can have external effects, such as a greater need for supervision time (Sonnadara et al. 2014; Frank et al. 2017) and difficulties to organize and schedule departments, which jeopardizes the continuity of clinical service delivery (Greenhalgh et al. 2004, 2008, 2010; van Rossum, et al. 2016; Cleland et al. 2018). These issues complicate the implementation of TVMT in daily practice. Other external effects concern the return on investment in PGME (van Rossum et al. 2018), as efficiency gains at the level of individual learners seem to be offset by deficiencies at the level of the system as a whole.

The implementation of TVMT can thus be defined as a classical wicked problem to which there is no obvious solution, in which many individuals and organizations are necessarily involved, there is disagreement among the stakeholders and the desired change is part of the solution (Rittel and Webber 1973). If we are to make sense of such problems, we must take a closer look at the way these teaching hospitals are organized and administered and the coping strategies they use.

Since education and clinical service are so heavily interconnected in PGME, the implementation of TVMT, in addition to changing the way we teach, necessarily implies a corresponding change in the teaching hospital organization. Even though the hospital administration plays an important role in the overall management and strategy of the hospital organization and despite many studies on CBME and its practical implications (Ferguson et al. 2017; Gruppen et al. 2017) few studies have specifically examined the implementation strategies used and their impact on the hospital organization. Knowledge about the role of teaching hospital administrations in implementing TVMT and the respective strategies they use could help identify important facilitators of educational change in PGME and, more specifically, of an effective transition to TVMT.

In light of these research gaps, the present study seeks to explore the research question: How do hospital administrators cope with the introduction of time-variable medical training and what strategies do they use to manage uncertainty in educational change? To this end, we conducted and analyzed semi-structured interviews with members of hospital administrations in both academic and nonacademic teaching hospitals, using an exploratory qualitative design informed by concepts of complexity theory.

Methods

Setting

We conducted this study in the Netherlands where reforms in PGME led to the nationwide transition to TVMT in 2015. Driven by cuts in governmental funding for PGME, these reforms were believed to reduce the average length of training, and, ultimately, to decrease the total costs of medical training. The new programs are based on national and specialty-specific guidelines. TVMT is currently being implemented in the local PGME programs of all teaching hospitals. In reality, some programs are further in the implementation process than others. Approached at the level of a teaching hospital this means that each hospital has local programs that are in different phases of the implementation process. Most of these programs are offered in a dual setting of academic and non–academic teaching hospitals. The duration of the programs differs between specialties, as does the number of trainees enrolled in each program.

Design

Given the paucity of research into the non-educational effects of TVMT, we conducted an exploratory qualitative study using a design informed by the complexity and network theory. More specifically, we conducted semi-structured interviews with hospital administrators to explore their take on the implementation of TVMT. In analyzing the data, we took a constructivist and interpretative, phenomenological, epistemological position (Bunniss and Kelly 2010), which means that we – the researchers – created knowledge and insights by interpreting our dialog with the participants.

Participants and procedure

Participants were hospital administrators who were purposively selected from five different university and non-university hospitals across different national regions. The included hospitals had between 60 and 400 trainees at the time of the interviews, as they represented smaller teaching hospitals and large university hospitals. The boards of Dutch hospitals typically consist of three or more administrators who each have their own responsibility. We invited two administrators per hospital, specifically the administrator responsible for education and the one responsible for

finance. A total of nine participants participated in this study, five responsible for education and four for hospital finance. In addition, we took care to select administrators from teaching hospitals of different sizes, geographically distributed across the country. All agreed to participate in the study. The individual interviews took place in participants' offices in the period between September 2016 and April 2017. We obtained ethical approval from the ethical review board of the Netherlands Association for Medical Education (NVMO-ERB; file number 549).

Analysis

We performed a thematic analysis of the data (Savin-Baden and Major 2012) using qualitative data analysis software ATLAS.ti (Berlin, Germany). The first author initiated the open coding process, while a second researcher (LB) open-coded two of the transcripts. Both researchers discussed their results and differences until they reached consensus on the formulation and interpretation of the coding. After the first author had organized concepts into main categories, the two researchers discussed their preliminary results with all other research group members, resulting in the formulation of general themes.

The interactive and interdisciplinary nature of the process of data analysis demands that the researchers involved in this study reflect on their background (Watling and Lingard 2012). All researchers are experts in the field of health professions education. The first author and main researcher (TvR) has a background in public administration and is, as a faculty member of Maastricht University, not in a position of power over the participants of this study. The other researchers are physicians who are well versed in innovation, implementation and change management in undergraduate (FS) and postgraduate medical education (FS, LB, IH, and HS). In addition, FS, IH, and HS are actively involved in committees and organizations that advise on PGME in the Netherlands.

Results

In the next paragraphs, we will explain how administrators perceived the introduction of TVMT, the problems they encountered and the strategies they consequently resorted to in their attempt to manage these.

Implementing TVMT: The general sentiment among administrators

Administrators perceived the implementation of TVMT as a significant change in the structure of PGME, the effects of which they found difficult to assess. Yet, like the ones bearing ultimate responsibility for all processes in their hospitals, including education, they were very keen to make TVMT work for two reasons. First, they believed that adjusting training programs to the individual learning needs of trainees would help raise the quality of education to which they attached great importance, thereby contributing to the overall performance of the hospital as well. Second, administrators strongly felt that the transition would strengthen external accountability to society. In their view, tailor-made training programs responded to the modern need of society to reach a higher level of individualization. As such, they considered PGME as a primary responsibility, which sometimes took priority over other tasks or the making of a financial profit. Consequently, they approached implementation difficulties with a make-it-work attitude to ensure the process could be continued. These observations demonstrate that teaching hospitals assigned great importance to PGME and that they were willing to put in a great deal of effort to attract future trainees and continue the programs. In the words of one administrator: "Well, let that be clear. We think that that is a core task of [our hospital]". (Respondent 7)

Despite administrators' firm commitment to the TVMT cause, they did identify several problems associated with the transition to TVMT that had their repercussions on the hospital's organization. The three main challenges and subsequent coping strategies will be outlined in the next subsections.

Challenges

Reconciling the goal of achieving educational quality with the need to be cost-efficient

One of the results of TVMT that administrators first mentioned were the consequences of trainee availability for clinical service and the accompanying rise in costs of staffing and clinical care. The degree of the severity of this problem depended on the hospital's overall financial condition: when the hospital had a budget surplus, these effects were perceived as manageable; when this was not the case, however, the financial strain on the hospital administration was considered more problematic. Nevertheless, all administrators agreed that the financial consequences of TVMT were significant and caused them to actively pursue strategies of budgetary restrictions and clearly defining the financial outlines.

Hence, the positive prospect of cost savings in education because of the reduced length of training for trainees who achieved the required outcomes early was counterbalanced by a rise in costs needed to ensure the continuity of care. When confronted with this downside, administrators approached the implementation of TVMT with more caution, clearly revealing a tension between the goal to be cost-efficient and to achieve the best quality of education. In other words, the introduction of TVMT threw these two opposing domains, with different interests and values, out of balance. The following quotes are indicative of the financial and ensuing organizational problems introduced by the transition to TVMT:

> It becomes ugly when money comes into the picture. That is what it is about. [...] Because, where does the resistance come from? Training medical specialists is inseparable from their deployment in clinical service. [...] But no one knows what the equilibrium is. As a first-year trainee in an outpatient clinic, you need a lot of attention from a supervisor. And the clinical output will be low. Opposed to this, when this trainee is in his fifth year, he can do the clinical care on his own. This has a huge influence on the clinical output. (Respondent 5)

> I think if you look very precise, if the training is shortened by half a year it does not affect educational quality that much. But what does matter is how a [teaching] hospital is organised. (Respondent 8)

Managing educational quality with existing, inflexible quality systems

A second problem the administrators encountered was to assess and monitor the quality of TVMT. Educational quality had hitherto been monitored using quality management systems, standardized procedures, and protocols such as the System for Evaluation of Teaching Quality (SETQ) and the Dutch Residency Educational Climate Test (D-RECT)(Lombarts et al. 2007; Boor et al. 2011) that were keyed to the preexisting situation. Accrediting educational programs and granting formal licenses to departments is another formal way to achieve educational quality assurance. Continuing along this line, however, administrators felt the conventional quality assessment procedures were not compatible with the flexible time structures of TVMT. Based on the known and existing quality management and governance structures, the dominant strategy used to steer appeared to no longer function properly in a time variable setting. Hence, there was a mismatch between the existing quality assessment and rigid governance structures on the one hand and the more flexible characteristics of TVMT on the other. This feeling of a lack of a proper system is expressed in the following statement: "Well, let me say, if you want to know if the quality of the educational programme is good, then you need a system, not a feeling". (Respondent 11)

Achieving the right balance between Central and decentralized control of the implementation process

The final main problem that administrators addressed was how to exercise control over the implementation process. There was an evident uncertainty about who bears the responsibility for TVMT, its implementation, and its effects. Initially, none of the hospital administrations used a central implementation strategy and all hospitals delegated the implementation of TVMT to the departments. As a result, the departments were held accountable for both the educational and financial consequences of TVMT. When the effects of TVMT became noticeable, however, administrators sought to regain control by defining tangible outlines, such as budgetary restrictions and the use of monitoring systems. In these internal steering mechanisms, the administrative power controlled the educational policy framework, while departments were free to interpret and execute the training programs within the outlines specified. Hence, although traditional and restrictive, this approach still left room for ownership and self-directed capacities by departments:

> How to achieve such a balance? Well, it is the responsibility of the department anyway and the only thing we do is monitoring and discussing it with [them] and trying to gain as much efficiency as possible. (Respondent 1)

Strategies to overcome problems of implementation

Task reallocation

As the introduction of TVMT allowed trainees to end or interrupt their service delivery prematurely upon reaching the desired level of competence, departments were faced with an undersupply of doctors. Administrators responded to this problem by reallocating tasks to other healthcare workers within departments, thereby raising the efficiency of healthcare delivery and ensuring its continuity. However, since educational responsibilities originally rested with the individual departments, this managing strategy was only used when the effects of TVMT started to unfold at the central level. When this happened, administrators sought to facilitate the process by providing physician assistants, hospitalists or other healthcare workers as incentives to stimulate change or to protect the organization from negative effects. This approach was not often used, however, because administrators had difficulties in assessing the individual needs of departments:

> Precisely, substitution, however you call it. But we need to create a budget to do the work those [trainees] did. […] And in the beginning we act like we do not know anything of it. (Respondent 8)

Benchmarking

In their quest for better implementation procedures, administrators also looked at other teaching hospitals to see how they were coping with the implementation of TVMT. More specifically, they benchmarked their healthcare as well as their educational performance against their peers. Benchmarking often took place within national cooperations between hospitals in which they defined their internal strategy on the basis of specific performance indicators.

Regional teaching facilities

A final strategy the administrators used to enhance efficiency in education was to scale up the organization of education and educational facilities to regional levels. In the Netherlands, PGME programs are structured into regions surrounding academic hospitals and most teaching hospitals have internal infrastructures to facilitate their educational programs, such as departments for educational support, libraries, and skills labs, that are costly. By scaling up these educational facilities and centralizing it at the regional level, administrators hoped to enhance efficiency. Although mentioned as a plausible strategy to reach educational efficiency, this strategy can also be effectuated in situations in which TVMT is not being implemented. Therefore, it is unclear if this is directly linked to the implementation of TVMT. They also tried to influence national educational policy by sending representatives to national associations and interest groups.

Discussion

In the present paper, we have sought to bring into focus how teaching hospital administrators have coped with the implementation of TVMT. To this end, we conducted qualitative interviews with the administrators responsible for education and finance.

The general sentiment among administrators was that implementing TVMT is no easy feat. Not only did the introduction of TVMT have unforeseen financial implications, but it also had a fundamental impact on the hospital organization, with existing quality and governance structures proving unfit to manage the new situation.

Changes to the educational system disrupted the existing equilibrium within the organizational hospital systems, indicating that teaching hospitals had become dependent on learners for the delivery of healthcare (Holmboe et al. 2017).

Before these problems became manifest, administrators adopted a wait-and-see approach, delegating the responsibilities for teaching and finance to the departments. This conservative attitude may stem from an awareness of the complexity involved in introducing changes to an organization in which the educational and overall financial system and clinical service are all heavily interconnected (Plsek and Wilson 2001). Moreover, in the teaching hospitals included in our study, these three responsibilities already rested with the individual departments. As this wait-and-see attitude turned out not to be the most effective strategy to approach the implementation process, our findings demonstrate how hospital departments are in need of administrative backup when implementing TVMT (Cleland et al. 2018). The fact that administrators initially preferred a decentralized to central management of this new type of education supports the finding by Cleland and colleagues that organizations' commitment to education is not always reflected in their actions (Cleland et al. 2018).

Nevertheless, later in the process, when the implications started to be felt, administrators took a more active stance by introducing financial restrictions, guidelines and monitoring systems in an attempt to restore the balance. They took control to overcome problems encountered during the implementation of TVMT as a strategy to keep the system functioning. As a result, the focus of the discussion about TVMT shifted from "optimizing education" to the "financial implications" of TVMT, evoking a general but false sense of security as steering strategies were based on general concepts such as staffing and financial criteria that could be controlled.

Although these strategies proved unsuccessful in easing the tension between the goal to be cost-efficient and to achieve the best educational quality, administrators held on to existing organizational systems or even strengthened these, showing that established practices are difficult to transform. However strong their commitment to improving education, administrators did not know how to cope with the emerging budgetary issues. On the other hand, they did find solutions such as task shifting, benchmarking, scaling up of teaching facilities and attempts to negotiate national guidelines at the government level. In this context, however, the bottom line of the discussion – that is, the costs of training – should not be forgotten. Benchmarking served to compare the way and the speed with which TVMT was organized in other teaching hospitals, helping hospital administrators to comply with national guidelines on education (Caverzagie et al. 2017). In these circumstances, it is vital that hospitals have good examples of governance structures that incorporate adequate strategies for the implementation of TVMT.

All things considered, we suggest that a top-down approach to implementation is not the solution either. The process of implementing TVMT will inevitably produce dedicated leaders from both the administration and clinical teaching units. If these leaders work in unison, they have the potential to support this process and generate realistic scenarios for educational change at both a national and local level (Bland et al. 2000; Fokkema et al. 2012).

Strengths and limitations

To our knowledge, the implementation of time-variable medical education has received scant attention in empirical research, as TVMT is a relatively new educational method in PGME. Our contribution to the literature can, therefore, be considered a strength of this study. Similarly, the inclusion of administrators from both academic and nonacademic institutions with different responsibilities (PGME and finance) covering almost half of the teaching regions in the Netherlands can be regarded as strengths. One of the limitations of this study, however, is that we may not have been able to capture all the implementation effects at this point in the process; TVMT was introduced in the Netherlands only recently and its effects may still change and continue to evolve over time, while new ones may present themselves. We therefore welcome studies on similar changes in other countries as this will add to the knowledge of TVMT implementation.

Further research

We invite future researchers to investigate how the implementation of TVMT is viewed by other relevant stakeholders, such as patients, trainees, clinical teachers, teaching units and hospital administrators. Future studies could also explore the different scenarios for TVMT execution, as the Dutch scenario seems to have been a relatively scarce one until now.

Practical implications

With the present study, we have demonstrated that the implementation of TVMT has effects outside the educational system, and barriers to implementation may very well lie outside the educational domain as well. TVMT changes the way PGME is approached and, according to hospital administrators, is not compatible with the way healthcare institutions are currently organized. Therefore, to make TVMT possible, teaching hospitals need an effective implementation strategy or at least a safety net to resolve the undersupply of doctors. In addition, they need leaders who have both educational vision and organizational insight and who can shape new scenarios for the execution of TVMT. If both the safety net and such leaders are lacking, it seems wise to reconsider the implementation of TVMT.

Conclusions

This study has demonstrated that the implementation of TVMT not only affects the PGME programs but also puts the organizational system of teaching hospitals under pressure, creating uncertainty among hospital administrators as to how to manage the new situation. Hospital administrators first responded by delegating responsibilities to the departments, but later on resorted to coping strategies that were based on tangible concepts, such as finance, productivity, and educational quality. One of their

strategies was to introduce budgetary restrictions, which, in turn, put pressure on the organization of departments, giving rise to new barriers to the implementation of TVMT. Insights into these barriers are a first step in the development of new approaches to deal with the complexity of large-scale changes in PGME and to overcome the current trend to adopt a wait-and-see attitude.

Ethical approval

This study was approved by the ethical review board of the Netherlands Association for Medical Education (NVMO-ERB; file number 549). The work was carried out in accordance with the Declaration of Helsinki.

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Glossary

Time variable training: A change in medical training that implies a move from a fixed time with variable outcomes training to a fixed outcome achieved in variable time type of training.

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