Chapter 7
Value-Based Healthcare Paradigm for Healthcare Sustainability

Camilla Falivena and Gabriele Palozzi

Abstract Healthcare represents a paramount issue in the current debate around sustainability. Developing sustainable practices within health systems is fundamental not only to guarantee the right of care, but also to enhance the growth of a country. The widespread dissemination of innovation, on the one hand, could represent a way for providing a better service, in terms of quality and access. On the other hand, it is severely undermining the sustainability of health organisations due to high costs and magnitude on existing organisational arrangements. Among the various research strands aimed to identify theoretical framework to face the various challenges, Value-Based Healthcare is largely considered as the blueprint for promoting sustainable management approaches in healthcare. This paradigm stresses the importance to deliver care towards enhanced value for the patient, which could be measured through the ratio between outcomes and costs.

This chapter has a twofold aim. First of all, it is aimed at exploring the concept of Value-Based Healthcare to realise the state-of-art and to identify main issues and open questions around the drivers of value in health. Besides, it attempts to understand whether this approach could effectively contribute to the attainment of sustainable development goals. To do that, an in-depth explanation of the concepts of outcome and cost in healthcare has been carried out.

At the end of the analysis, principles of Value-Based Healthcare seem to be usefulness to cope with the need of improved practices. The focus on the value of patient, instead, allows to foster behaviours that could support the achievement of sustainable goals aimed to provide better and more accessible infrastructures. Within this complex mosaic, accounting could represent the common language to orient health management towards a higher sustainable value for the patient.

Keywords Value-based healthcare · Health innovation · Sustainability · SDGs · Accounting in health care

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7.1 Healthcare Sustainability in the Era of Innovation

United Nations (UN) Sustainable Development Goals (SDGs) aims at meeting fundamental needs of present and future generations and to guarantee the same rights to the entire population, including women and children. They are all interconnected and address the three dimensions of sustainability: economy, society and environment (United Nations 2015). Their achievement requires the involvement and cooperation among governments, public and private sector organisations, civil society and individual citizens (Bebbington and Unerman 2018).

Within the accounting field, plenty of researches are tackling the topic of sustainability. Main issues addressed concern human rights (Arnold 2010; McPhail and McKernan 2011; McPhail et al. 2016) and environment (Ascui and Lovell 2011; Bebbington and Larrinaga-Gonzalez 2008; Cuckston 2013; Kolk et al. 2008; Larrinaga-Gonzélez and Pérez-Chamorro 2008; Stechemesser and Guenther 2012).

In the current debate, a paramount issue—sometimes neglected—is represented by healthcare sustainability. Healthcare is one of the most complex and fastest growing sectors (Purbey et al. 2007) and has a significant magnitude on government budgets. Besides, it could be considered as a social indicator of the quality of life and development of a country (Andaleeb et al. 2007).

Several definitions of healthcare sustainability have been provided. Some authors embraced a social perspective, asserting that sustainable healthcare concerns with an improvement of the health status of the population. Others, adopting a more management-oriented perspective, claimed that healthcare sustainability deals with the continuous innovation and improvement of components and relationships among them (Lifvergren et al. 2008). Because of the high number of interests and—sometimes conflicting—goals, even health programmes for sustainability proposed in the literature tend to be fragmented, and evidence about their effectiveness is scarce (Gruen et al. 2008).

In order to pursue sustainable objectives, there is the need for a clear strategy (Epstein and Wisner 2001) and a long-term perspective (Hahn et al. 2015), based on an interdisciplinary dialogue (Ulhoi and Ulhoi 2009). To do that, innovation may represent effective support to improve economic productivity according to SDG 8.1. The attainment of this goal is critical to allow nations to develop reliable and resilient infrastructures, guaranteeing fair and convenient access, consistently to SDG 9.1.

Over the years, plenty of disruptive innovations have been implemented within the healthcare sector to provide more affordable and accessible treatments (Hwang and Christensen 2008). However, healthcare organisations are rigid and difficult to manage due to the number—and often conflicting—interests among the various stakeholders (Glouberman and Mintzberg 2001). Politicians press for containing cost, without reducing the volume and the quality of services. Physicians and other health professionals are interested in treating diseases, with an interest in economic and management matters. Patients seek for enhanced care pathways that embrace both health-related benefits and satisfaction for the service received. Industries invest in research and development activities to deliver an innovative solution that could

increase their profit. Managers have to face the conflict of interest and conciliate internal and external expectations (Lega et al. 2013).

Besides, health innovation, on the one hand, provides solutions aimed to improve current procedures or to introduce new approaches for delivering care. On the other hand, it often represents the primary cost driver within health expenditure. Innovation, in fact, entails huge economic efforts, additional competencies and significant changes in current arrangements. Its sustainable implementation represents a severe challenge in order to avoid that innovation from common good may become a mean of inequity in accessing to care, undermining the achievement of SDG 3. Dissemination of innovation is heavily determined by: (1) the perception of innovation; (2) characteristics of people who adopt the innovation; (3) environmental factors, which include communication, leadership and management (Berwick et al. 2008). Hospital management, therefore, has to assess whether innovative technologies and approaches could lead to desired gains and benefits, consistently to the specific context and expectations of the various stakeholders.

Accounting has largely revealed its effectiveness in facing these challenges, contributing to the improvement of quality and increasing of transparency in healthcare (Kaplan and Porter 2011). Therefore, several advantages could be provided by accounting disciplines in investigating current practices of healthcare innovation management and in proposing new solutions for stemming individual and organisational resistance, as demonstrated by previous experiences (Argyris and Kaplan 1994). Notwithstanding, accounting needs to be understood and operationalised in new ways to be useful for the improvement of health processes (Pflueger 2015).

Among the various research strands developed to cope with matters that undermine the management of health organisations and care delivery, the Value-Based paradigm may represent the blueprint for developing sustainable management approaches in healthcare. The contribution of the Value-Based Healthcare theory to sustainability chiefly concerns the centrality of the value. Settling the value as primary interest endows a framework that could orientate operations carried out by health organisations.

However, within this approach, a critical question to begin with is conceptualising the value. As well as the value in the public sector, it is extended on three dimensions: (1) legitimacy and support, (2) organisational capacity, and (3) public value (Moore 1995). Thus, it encompasses access to services, profitability, high quality, cost containment, safety, patient-centredness and satisfaction. Due to the constant growth of the population's health needs, the achievement of high value for patients is becoming the overarching goal of health systems. Therefore, the value could be defined as the health outcome achieved per each unit of money spent (Porter and Teisberg 2006). Adopting such a patient-centred explanation promotes a longitudinal analysis of outcomes and costs.

As a consequence, the value is measured for each condition, affecting the whole cycle of care (Kaplan and Witkowski 2014). The evaluative process has to involve health circumstances most relevant to patients, as well as should cover both short and long-term, addressing a period long enough to catch the ultimate result of care. In this

way, evaluation activities could overcome the limits of measurement systems based on a single department—providing too scant evidence—or on the whole hospital—providing too ample evidence (Porter 2010).

This chapter has a twofold aim. First of all, it is aimed at exploring the Value-Based paradigm from a theoretical standpoint to realise the state-of-art and main issues around the drivers of value in health (i.e. outcome and cost). Then, it attempts to understand whether healthcare designed around value for patient could effectively contribute to pursuing sustainable development.

To that end, an in-depth explanation of the concepts of outcome and cost in healthcare has been carried out. Disentangling most relevant issues within the logic of Value-Based Healthcare theory could pave the way for the development of a conceptual approach for orienting managers towards decision-making processes that are able to integrate continuous technology development with organisational, financial, environmental and social requirements.

The following section introduces the most relevant principles that ground the Value-Based Healthcare paradigm. It measures the value from the relation between outcome and cost. Therefore, the Sect. 7.3 and the Sect. 7.4 explore the numerator (i.e. the outcome) and the denominator (i.e. the cost) of this equation in order to provide an extensive exploration of these two concepts aimed to highlight and disentangle most relevant matters and open issues. Section 7.5 explains the relevance of the organisational performance for enhancing the value and contributing to sustainable development. The last section synthesises the contribution of this chapter to the existing literature and illustrates potential rooms for further researches.

7.2 Value-Based Healthcare Paradigm

Value-based healthcare has been largely considering as the pivotal theory for reorganising healthcare worldwide. It overcomes previous theories that fostered the adoption of asset-based tools for aligning planning activities to the specific environment. Moreover, it represents an advancement of the Total Quality Management (TQM) approach aimed to enhance performance by increasing the quality (Deming 1994). TQM theory, as well as value-based paradigm, was based on: (1) the centrality of the customer; (2) empowerment of employees and involvement of all individuals within the organisation; (3) continuous improvement of the quality according to responses from customers; (4) ongoing quantitative assessment of the performance in order to identify strengths and rooms for refinement. Despite these similarities, the value-based approach attempts to introduce a new universal language in healthcare management around the value for the patient. This one could be raised only jointly considering outcomes and costs, operating towards maximisation of their ratio. Identifying quality into health outcome, by default this approach leads to quality improvement.

Value-based healthcare principles were introduced in the USA by Porter and Teisberg (2006) to face the zero-sum competition that characterises the health sector.

Several causes engender this situation. First of all, policies aimed at improving cost allocation lead to cost shifting rather than rationalisation of costs consistently to effective resources employment. This way, the burden of costs is transferred from a player to another, entailing to gain for one participant at the expense of others. Such a mechanism encourages providers to concentrate their efforts in enforcing their bargaining power instead of delivering a better and more efficient service. As a consequence, patients have restricted choice and access to care (Porter and Teisberg 2004). Due to several wrong strategic choices supported by short-sighted regulations, zero-sum competition is characterising both public and private health systems.

Starting from previous theories on competition and strategic management (Porter 1991, 1997), value-based logic involves a shift from a concept of care based on volume and intensity of services towards patient-centred care, based on value. The goal should be improving the outcome and increase the number of treatments. Better health inherently improves resources allocation, reducing the expensiveness of health (Porter and Teisberg 2006). Consequently, health systems could be characterised by a competition on value, which is the most potent driver of continuous improvement.

According to this perspective, performance measurement and management represent important tactics for increasing the value. However, they do not replace the measurement of outcomes and costs, which are the only factors that provide a measure of value created for the patient (Porter 2010). Figure 7.1 illustrates the relationship between outcome and cost. As shown, improvement in the outcome is not always due to costs increase.

The centrality of the patient is fundamental within the value-based approach. Increasing the value for the patient, indeed, should represent the primary interest for everyone involved in healthcare. It concerns not only the medical dimension but also ways by which care and treatments are delivered. Accordingly, the concept of value for patient embraces the value of choices regarding resources allocation; technical value relating to the appropriateness of decision implemented in satisfying

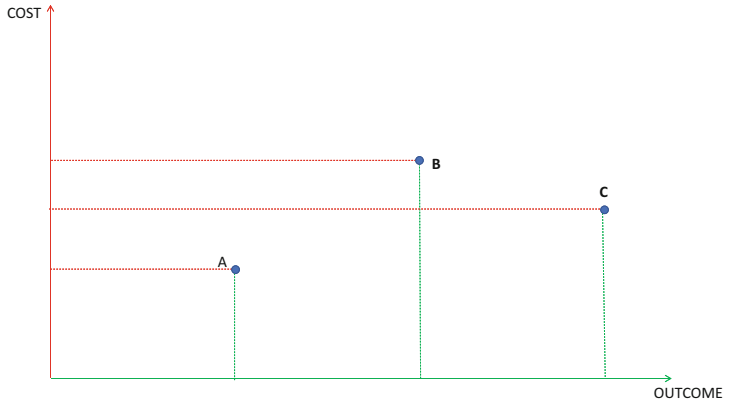

Fig. 7.1 Outcome–cost ratio. Authors' elaboration inspired by Kaplan and Witkowski (2014)

population needs; the value of results concerning consistency between health outcomes and patients' expectations. Orienting operations towards the creation of value for the patient, therefore, integrates the interests of each type of stakeholder involved (Porter and Teisberg 2006).

The paradigm of healthcare based on value requires even a shift from a vertical approach in treating diseases to a horizontal one, tailored on the patient. To do that, management should move the attention on process rather than on structure. The focus is a specific medical condition and its relating care pathway. A medical condition involves multiple and interrelated specialities and activities and includes common conditions, complications and comorbidities. The unit of analysis, thus, is a particular patient population, distinguished by similar primary care needs (Kaplan and Porter 2011). Considering it as the unit of value creation and the unit of value measurement, organisations could better understand how to allocate resources and how the roles are appointed to various stakeholders for the different types of health problems.

To implement a high-value healthcare delivery model, Porter and Lee (2013) defined a six-steps strategy:

1. An organisation of care delivery into Integrated Practice Units (IPUs);
2. Outcome measurement and cost estimation for each patient;
3. Introduction of bundled payments that embrace the whole cycle of care;
4. Integration of care delivery across separate facilities;
5. Geographic expansion;
6. Development of an appropriate Information Technology Platform.

Such a strategy underlines the importance to analyse the full cycle of care rather than an individual phase or a single technology for treating a disease. To do that, many actors are involved, and all could actively contribute to the improvement of value. Within this approach, therefore, there is a need for effective data management. Collection and dissemination of data should be supported by a robust infrastructure, which is fundamental both to identify current and new best practices and to engage the various stakeholders.

Despite the strong theoretical background mainly built thanks to Porter's engagement, there is a paucity of studies that attempted to introduce Value-Based principles into clinical practice. Main efforts dealt with the implementation of these logics with regard to costs and reimbursement policies (Buttorff et al. 2013; Haywood 2010; Maciejewski et al. 2014; Paulden et al. 2015; Sussex and Towse 2013). Value-Based Healthcare experiences located in Sweden proved the effectiveness as a trigger strategy towards better performances. Most relevant improvements concern patients' health outcomes, care planning and reporting of outcomes. Additional efforts are required in order to increase the participation of stakeholders who are not directly involved (Nilsson and Sandoff 2015, Nilsson et al. 2017a, b). Other experiences demonstrated an in-depth understanding of the concept of the value for the patient which ground the Value-Based paradigm and advancements in outcomes measurement. However, cost assessment is neglected (Erichsen Andersson et al. 2015).

Because of the attention to measurement issues, the value in health is largely unmeasured. This is the reason why several providers perform below the Value Frontier, entailing ineffective administrative and clinical procedures and large unused capacity (Kaplan and Witkowski 2014).

As above mentioned, following sections explore most relevant issues relating to the outcome and costs, in order to promote a higher awareness around the two drivers of the value under the Value-Based paradigm, expressed by the following equation:

$$\text{Value} = \frac{\text{Outcome}}{\text{Cost}}.$$

7.3 The Numerator of Value-Based Healthcare Equation: The Outcome

The numerator of the Value-Based Healthcare equation is the outcome. For each medical condition, there is not a single outcome that could express the ultimate result of care (Porter 2010). The assessment of outcome represents the primary driver to move towards most fulfilling treatments from the patient's point of view rather than preferring highly reimbursed services. At the same time, it is a critical challenge. Indeed, the outcome is a broad concept. Besides being strongly relating to a specific condition, it embraces multiple dimensions, involving both health-related indicators and measures relating to patient experience.

The assessment of outcome from a clinical standpoint begins within the decision-making process. Because of the need for higher reliability and accountability in resource allocation choices, evidence-based approaches are currently largely exploited for assessing the appropriateness of the decisions are going to be taken. Managers and physicians are strongly engaged in implementing available guidelines and in developing new protocols in order to ensure the best outcome for the patient. The widespread diffusion of methods based on the evidence, on the one hand, is fostering research activities towards new solutions for managing care coherently to several parameters, fitting not only in medical sciences. On the other hand, it is engendered confusion around differences among the various approaches.

Evidence-based medicine is first devoted at systematically reviewing different clinical experiences relating to a specific health problem (Sackett et al. 1996). By the time, the collection of evidence has been affected also other fields, closer to policy and ethics (Eddy 1997). Nowadays, the primary scope of evidence-based practices concerns the research of a shared answer to the following questions: "Can it work?"; "Does it work?"; "Is it worth it?" (Luce et al. 2010). These questions are, respectively, aimed at understanding the efficacy, the effectiveness and the economic value of a healthcare intervention. The economic value may affect either the patient or the payer/society.

Answers could be found only by comparing a treatment to its alternatives for identifying the best solution. A treatment is considered appropriate whether it provides desired health outcomes when adopted for a well-defined population and according to established guidelines. Efficacy and effectiveness often result from randomised clinical trials. Similar explanatory tests minimise potential biases, demonstrating a causal relatedness between selected criteria and outcomes.

The comparison among the various intervention has been originated a further approach, known as Health Technology Assessment. Including drugs, devices, procedures and systems under the term "technology", it has been defined as a multidimensional and multidisciplinary approach for the assessment of clinical, social, organisational, economic, ethical and legal implications of a technology, trough evaluation of several dimensions, as efficacy, security, costs, social and organisational impact (World Health Organization 2001).

The synthesis of evidence concerning benefits and weaknesses of alternatives methods to prevent, diagnose and/or manage a clinical condition is often known as Comparative Effectiveness Research (Institute of Medicine 2009). Used by different individuals and organisations, this methodology fosters informed decisions for improving the delivery of care.

So far, it has not fully understood whether the various methods could be considered interchangeable. In accordance with Luce et al. (2010), evidence-based medicine focuses on the efficacy of the intervention and economic value for the patient's perspective, without a synthesis of evidence collected. Health Technology Assessment, instead, attempts to provide an answer to the questions "Does it work?" and "Is it worth it?". To that end, it deals with the collection and synthesis of evidence relating to economic, social, ethical and legal issues mainly to support reimbursement decisions. Comparative Effectiveness Research concerns, by definition, with the assessment of the effectiveness, producing information for Health Technology Assessment evaluations.

The most common measure of the outcome for the patient is the Quality Adjusted Life Years (QALY). It is a generic quantitative indicator devoted to assess the quantity and quality of life is achievable through healthcare interventions (Drummond et al. 1997). Despite the fact that it combines quality and quantity improvements through reduced morbidity and mortality, it does not capture relevant aspects concerning the quality of service, which affects patient experience. In the era of co-production (Ostrom and Ostrom 1977; Osborne and Strokosch 2013; Voorberg et al. 2015), in which the participation and contribution of the patients is a significant input for delivering care, evaluative process should consider also the difference between the medical outcome and the value derived from the patient for its experience (Prahalad and Ramaswamy 2004). Over the years, indeed, the patient from a passive recipient of the service is becoming an actor who actively creates value. The engagement of patient affects both policy formulation and planning activities and the management and the governance of health service (Pestoff 2006) in a perspective of value creation (Osborne and Strokosch 2013). Value co-creation does not benefit only the individual co-creator patient, but also other citizens and users who currently or in the future need

the service (Bovaird and Loeffler 2012). This is the reason why the patient standpoint is an important growing dimension of assessment.

Several factors influence patient experience in his care journey. In particular, six priorities have been identified (Berkowitz 2016):

1. safety of care;
2. engagement individuals and families as partners;
3. effective communication and coordination of care;
4. prevention promotion;
5. efforts to promote healthy living;
6. a more affordable quality of care.

A paramount issue highlighted both in political talk and in health management literature is the length of waiting time for accessing to care. It is often perceived as a part of the cycle of care from the user's standpoint. Also, there is a widespread agreement that it is one of the foremost causes of patient dissatisfaction (Manolitzas and Stylianou 2018). Lower is the waiting time, and better is the patient's experience. Interaction with the provider represents another key element within value creation. It has been defined as the "moment of truth" into service management field (Norman and Skinner 2007) as it is critical in determining the level of safety and trust perceived by the user. The establishment of co-production logics has increased the relevance of this aspect as it also contributes in making the patient more conscious about his health status and his role in treating the disease. Supporting the user throughout the whole cycle of care is essential to increase his participation. In particular, fostering self-management practices by the support of innovation, on the one hand, improves the quality of life of the sufferer; on the other hand, guarantees high access to care.

Because of plenty of intangible factors, the measurement of the dimension of outcome relating to the patient experience requires huge efforts and cannot be expressed in a standardised way. Moreover, the lack of conceptual clarity around the interchangeability and variability of the terms "patient satisfaction" and "patient experience" could lead to underestimate it, neglecting important aspects (Lewis et al. 2013). Despite influenced by the level of satisfaction for the service received, patient experience is heavily actuated by the patient's own expectancies. Beliefs on how the service should be delivered and feelings relating to the health status and interactions with the environment represent an unexplored field, which cannot be easily measured.

To conclude, in accordance with Porter and Teisberg (2006), the outcome measure affects three levels. The first level incorporates the health-related dimension of the outcome. The second level within the outcome measures hierarchy deals with the assessment of the process. The last one embraces the sustainability of health in a long-term perspective. Figure 7.2 provides an illustration of most relevant measures for each level outcome measurement, highlighting the grey zone relating to the patient's own concerns.

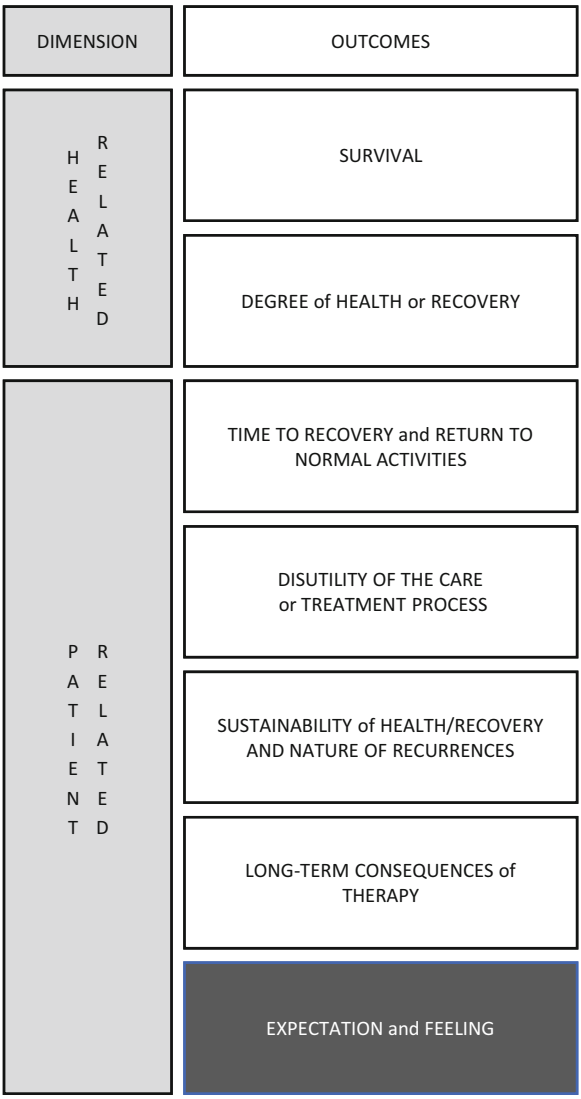

Fig. 7.2 The outcome hierarchy. Authors' elaboration inspired by Porter and Teisberg (2006)

7.4 The Denominator of Value-Based Healthcare Equation: The Cost

As explained in the previous section, outcomes measurement is somewhat arduous. However, often estimating the total cost of treatment is ever a complicated task. Cost, which represents the equation denominator, refers to the total amount of costs within the whole cycle of care of a given medical condition (Porter 2010). Therefore, accountants have to be able to trace all costs incurred and most appropriate costing

methods in order to be able to compare them with outcomes. These duties are heavily challenging in healthcare. From the first contact with the patient to the ultimate stage of the care journey, many different types of resources are employed, plenty of stakeholders are directly and indirectly involved and a high number of—sometimes interrelated—activities are performed. The massive fragmentation of the care pathway contributes to increasing the complexity of this depicted mosaic. In addition, patients affected by the same disease might be treated differently, carrying out different procedures and/or employing different technologies (Kaplan and Porter 2011).

Prevalent approaches for economic evaluations in healthcare do not focus only on costs but also involve qualitative measures. Reasons behind deal with the aim to compare resources consumption to potential outcomes of alternative healthcare interventions. However, the various methods mainly differ for the unit of measure referring to possible benefits. Economic appraisals are also affected by reimbursement mechanisms. Table 7.1 briefly explains the most common economic evaluation models adopted in the health sector.

The above-explained methods are not consistent with the purpose of a care delivery oriented towards an enhanced value for the patient as they neglect several qualitative issues. In order to determine the quantitative value of the denominator of the Value-Based Healthcare equation, there is a need for advanced cost accounting systems, which could catch the causal relation between outcomes and costs. These, on the one hand, have to involve several dimensions simultaneously (Kaplan et al. 2015); on the other hand, these have to hit the causal relation between outcomes and costs (Philips et al. 2006; NICE 2013).

Performing cost accounting tools should be implemented for each stage within the entire cycle of care (Kaplan and Porter 2011). This way, costs could be compared to outcomes time by time, allowing managers to detect inefficiencies and improvement opportunities. Accurate cost information, indeed, is fundamental for identifying best services, requirements for improved cost allocation and consistency to reimbursement tariff (Capettini et al. 1998). Traditional cost systems consider the hospital setting as the cost objective (El Alaoui and Lindefors 2016). Such an approach, first of all, engenders the absence of a cost measure that affects the whole cycle of care. Then, it encourages arbitrary allocation of overheads at the patient level. Lastly, it is jeopardised by the high variance of prices relating to supply

Table 7.1 Most adopted economic evaluation approaches

Method	Description	Outcome measure
Cost–benefit analysis	Comparison between costs and monetary incremental consequences of an intervention	Patient's willingness to pay
Cost-effectiveness analysis	Comparison between costs and qualitative and quantitative health-related benefits.	QALY ICER
Cost-minimisation analysis	Comparison of costs against identical outcomes	None

Source: Authors' elaboration

chain (Kaplan et al. 2014). Due to diversification strategies, complexity and variability of internal arrangements, traditional cost accounting systems could lead to misleading cost information. Erroneous cost appraisals severely undermine operative and planning activities both in short and in the long term. As a consequence, accountants cannot evaluate the appropriateness of investment decisions and health interventions. Unjustified over(under)use of treatments cannot be recognised, as well as overhead costs allocations could be misevaluated (Chan 1993).

The introduction of Value-Based Healthcare logics has fostered the implementation of the cost accounting systems based on the activity (i.e. Activity Based Costing (ABC); Time-Driven ABC). They guarantee a more precise cost measurement, moving from cost drivers based on volumes to cost drivers representing by needful activities for delivering the service. Focusing on the efficiency of each activity performed (Ippolito et al. 2016), the ABC approach supports the pursuit of the value creation objective. Under this method, starting from the mapping of the specific healthcare path, costs could be decreased through the elimination of non-value-added activities (Turney 1991). Focusing only on value-added activities, in turn, is fundamental to enhance the value for the patient. Consequently, providers are able to lower their cost sustainably, maintaining or improving outcomes still pursuing value increasing goals.

Due to complexity and expensiveness of the ABC method, demonstrated by several experiences into different fields (Kaplan and Anderson 2007; Kaplan and Porter 2011; Tse and Gong 2009), its usage is not pervasive. With the aim to foster the adoption of ABC paradigm, Kaplan and Anderson (2007) introduced the Time-Driven ABC, as a less expensive and more precise approach, ever based on activities. Besides better measuring costs, it has been widely implemented also as a method to trace costs of treatments in order to make comparisons to reimbursement tariff or to develop value-based reimbursement strategy. Time-Driven ABC involves two phases. The first one dealt with the recognition of all resources employed within the provision of a specific health service. The second phase is devoted to allocating overheads costs according to activities performed and their duration. In the end, it provides patient-level cost information. To be applied, it requires data around: (1) the cost of each resource used in the process, and (2) the time spent to perform each activity (Kaplan and Anderson 2007). In 2011, after the former adoptions, Kaplan and Porter suggested the following seven steps that have to be followed in implementing Time-Driven ABC:

1. Select a specific medical condition;
2. Define the care delivery value chain;
3. Develop process maps of each activity in patient care delivery;
4. Obtain time estimates for each process;
5. Estimate cost of supplying patient care resources;
6. Estimate the capacity of each resource, and calculate the capacity cost rate;
7. Calculate the total cost per patient.

Additional experiences have heightened the understanding of this methodology and created the conditions to improve guidelines for its implementation. Therefore,

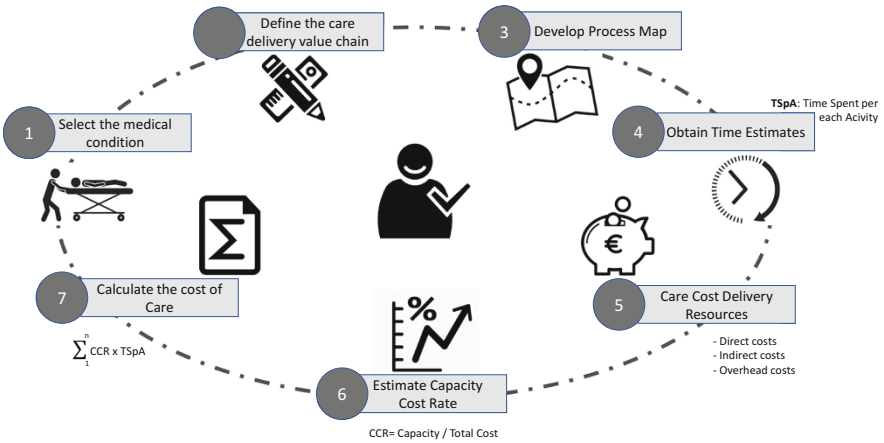

Fig. 7.3 Time-Driven ABC development steps. Source: Authors' elaboration inspired by Keel et al. (2017)

the seven steps have been updated (Keel et al. 2017). Figure 7.3 explains how to apply Time-Driven ABC in healthcare.

Over the years, it has been applied to several medical disciplines. However, its main benefits have been revealed in surgery specialities due to the high level of standardisation of procedures. Relevant experiences were also conducted with regard to the management of chronic diseases.

Following Öker and Özyapici (2013), the allocation of indirect cost through TDABC allows determining the resources' idle capacity (Tanis and Özyapici 2012). Carrying out a case study on different healthcare services, the authors highlighted how Time-Driven contributed to increasing available information for hospital management in comparison to other cost accounting systems. This allows continuous improvement of healthcare processes (Demeere et al. 2009; Marshall et al. 2012), redesigning initiatives (McLaughlin et al. 2014) consistently to the necessity of balancing the various dimension of health value—quality, efficiency and affordability—to guarantee the continuum of care.

7.5 Accounting as a Common Language to Foster Sustainable Value

Healthcare sustainability represents a severe challenge worldwide. Ageing of the population, the development of costly disruptive innovation and the growing demand for services are among the main factors that undermine processes appointed at delivering care. Besides, the dissemination of co-production logics is making the patient more involved within the care journey and more exacting regarding the service that he would receive. Therefore, addressing the issue of sustainability

does not affect only the economic field. It requires to face several matters relating to the quality of care. Management of healthcare innovation, in particular, is engendering plenty of questions around the appropriateness of clinical and investment choices. Executing decisions that are not tailored to the context and sustainable for the organisation could determine unjustified over(under)use of treatments, restriction in accessing to care and resources wastes.

In order to identify a theoretical framework that could promote the sustainability of healthcare from a long-term perspective, recent years have been characterised by the development of Value-Based Healthcare. Accordingly, the pursuit of enhanced value for the patient is largely considered as the overarching goal within each health system (Porter and Teisberg 2006). Such an understanding shifts the attention towards processes carried out throughout the entire cycle of care and the quality of the service delivered. Indeed, the value of healthcare is not measured by the variety or the volume of services delivered (Kaplan and Porter 2011). The sole drivers of value are outcomes and costs. Decision-making processes that do not deal simultaneously with outcome and cost could originate false "savings" and/or false "improvement", limiting the effectiveness of care (Porter 2010). Figure 7.4 synthetises this concept within a value matrix

The development of the Value-Based paradigm in health demonstrated the limitations of earlier assessment methods. The comparison between the number of resources employed and expected outcomes, in terms of benefit (*cost–benefit analysis*), efficacy (*cost-minimisation analysis*) and effectiveness (*cost-effectiveness)*, neglects significant aspects affecting the patient experience. These approaches, in fact, are aimed chiefly at evaluating the convenience to invest (Drummond et al. 2015). Moreover, the focus on structures rather than of care procedures does not allow to identify rooms for reallocation of resources for increasing the use of capacity. Therefore, they lead to incremental, ineffective and sometimes counterproductive cost-containment strategies (Porter 2010). Cost measurement approaches based on activities could overcome these limitations (Kaplan and Anderson 2007).

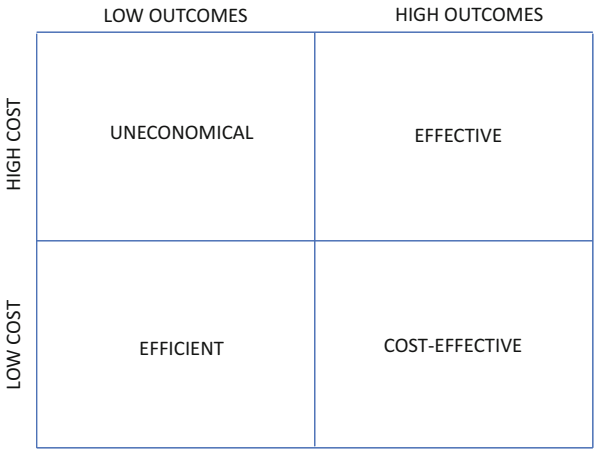

Fig. 7.4 The value matrix. Source: Authors' elaboration

Adopting a holistic perspective, Value-Based Healthcare may represent a support to face various challenges. Evidence-based methodologies from the outcome side and activity-based systems from cost side increase rationality of decision-making processes and appropriateness in cost allocations, focusing only on value-added activities. However, due to the limited knowledge of value drivers and the absence of an organisational framework, there is not a strategy behind the dissemination of this approach.

As illustrated by Fig. 7.5, a strategy for optimising the ratio between outcomes and costs could be based on management principles aimed to orientate organisations towards enhanced organisational efficacy and effectiveness. This way, the structure (Kaplan and Norton 2001), the technology (Nasi 2013) and the organisation (Bellé 2015) are all involved in creating more value for the patient.

The principle of economic productivity, in particular, has to stand for the guiding principle to implement the Value-Based Healthcare paradigm and to operate in the lens of sustainability. Within the public sector, economic productivity means to operate both to achieve strategic organisational objectives and to satisfy citizens' expectations, employing resources as the best (Onida 1971). It is consistent with Value-Based logics and contemplates the adoption of different criteria to face the complexity of managerial action, which has to balance different needs (Cavalieri and Ferraris 2010).

Therefore, the debate should move from health economics to health accounting. Differently from economics, accounting focuses on processes within the perspective of going concern. Current challenges that health systems have to face are not relating only to resource allocation decisions. Although researches mainly fit into the medical field, fundamental gaps are organisational instead of clinical (Mariani et al. 2016). The paucity of management-related studies leads to the so-called "knowing-doing gap" (Pfeffer and Sutton 2000).

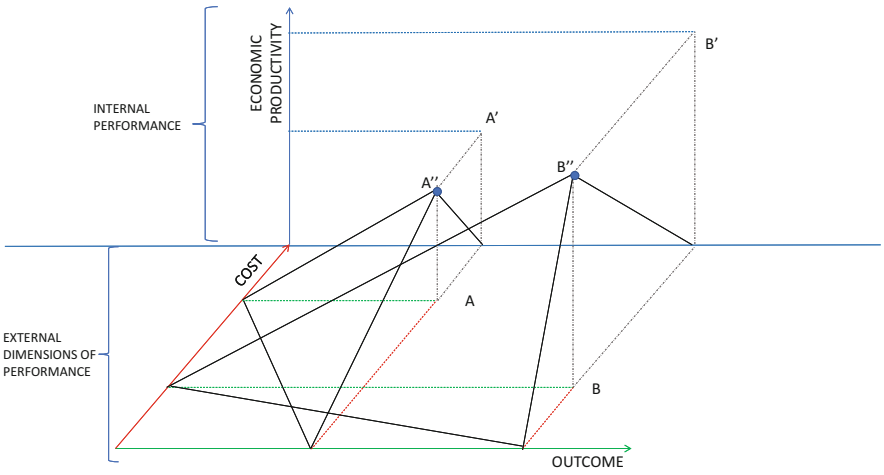

Fig. 7.5 The leverage of economic productivity. Source: Authors' elaboration

Higher heed to managerial issues requires the understanding of the various operations over the value chain as well as a profound knowledge of the organisation itself. To that end, performance management systems may assist managers in identifying key aspects of the performance, encouraging strategic thinking (Silva and Ferreira 2010). Coherently, experiences of implementations of management accounting tools to foster sustainability provide several insights into their usefulness for operating towards value creation and sustainable development. Promoting a comprehensive approach in the management and measurement, these tools allow measuring both the organisational performance and the outcome. Whereas a strand of literature dealing with the adoption of performance management systems to orient behaviours (Fottler et al. 2006; Helm et al. 2007; Aryankhesal et al. 2013; Miller et al. 2013; Smith 2015), plenty of studies analysed the role of management control systems to improve outcome. The assessment concerns either the outcome from the organisation perspective (Chang et al. 2008; Luo et al. 2012; van der Voort and Kerpershoek 2010) or the outcome from patient standpoint (Werner et al. 2008; Lorden et al. 2008; Ryan and Doran 2012).

In order to successfully introduce accounting instruments into clinical practice, there is a need for participation of the entire staff involved in delivering healthcare. Aside from facilitating the change management, the engagement of the various participants contributes to boost their awareness of the operations performed and their implications. In addition, it enforces communication and collaboration, stimulating the development of best practices. Better managing the core processes indirectly allow improving supporting activities, such as reporting of outcome and cost data. Higher transparency and accountability reduce uncertainty and make health providers closer to the external environment. Therefore, the ultimate effect of accounting-based practices may be improved outcomes and decreased costs.

Accounting disciplines may also enrich the Value-Based Healthcare knowledge, individualising value improvement opportunities at the local level (Kaplan et al. 2014). Main contributions, in particular, concern with the estimation of consequences—both outcomes and costs—of new treatments for a medical condition as well as the exploration of implications on the organisation of value-based reimbursement mechanism (Kaplan and Witkowski 2014).

7.6 Final Remarks

This overview of Value-Based Healthcare highlighted how this paradigm might improve current practices in the health sector. Shifting the attention on medical condition rather than on structure allows both scholars and practitioners to focus on the analysis of processes for delivering care. Such a perspective creates large rooms for further improvements and development of best practices. In pursuing these objectives, accounting may represent a shared language to orient the management of health organisations. Accordingly, well-defined process maps and management accounting systems are valid tools to cope with the absence of an organisational framework to deliver Value-Based Healthcare initiatives. Indeed, they lead to an

in-depth understanding of how the organisation operates towards the value creation and the achievement of strategic objectives. This way, managers could better measure outcomes—both for the organisation and for the patient—and costs as well as easily identify activities, behaviours and technologies that more contribute to enhance value for the patient.

By analysing the main aspects relating to the outcome and cost, this chapter provides useful insights for future experimental implementations of Value-Based Healthcare. Besides, the exploration of open questions allows developing a research agenda for the future. Scholars may identify most relevant gaps that have to be filled by further researches. In particular, experiments of management approaches based on the value should be carried out in local health systems to disentangle issues that could undermine the effectiveness of the paradigm.

The provision of healthcare processes aimed to enhance the value for the patient is fundamental to act in the lens of sustainability. As the relationship between outcomes and costs defines the value, economic productivity is its primary leverage. According to the SDG 8.2, in high-value-added and labour-intensive sectors—such as healthcare—economic productivity must be increased through diversification and innovation in order to promote economic development in a long-term perspective. Therefore, there is a need for better healthcare innovation management practices. If developed, technological advancement could be more sustainable entailing higher access to care and well-being of the population, consistently to the SDG 3. In addition, it represents the basis for the attainment of the SDG 9.1, developing high-quality, affordable and resilient infrastructures to foster fair and responsible growth of economies. As for last but not least goal, improved and more conscious approaches in managing health organisations set up more participatory work environments. Consequently, decision-making processes may be more responsive, inclusive and representative, in coherence with the SDG 16.7. Collaboration, in turn, raises the transparency, reducing room for corruption events (SDG 16.5).

Figure 7.6 concludes this chapter, showing the application of the Value-Based Healthcare model in the attainment of sustainable development goals.

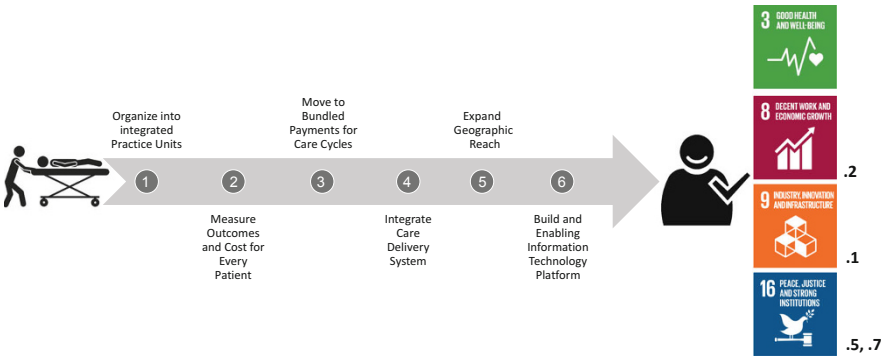

Fig. 7.6 Value-based healthcare towards sustainable development goals. Source: Authors' elaboration

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