VALUE BASED HEALTHCARE

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ABSTRACT:

In the last two decades the world witnessed an exponential technological advancement that helped in reducing mortality rate from many diseases and extended life expectancy by far compared to 20 years back.

The other side of that coin is that with higher life expectancy and lower mortality rates comes emergence of chronic diseases in aging populations which double down on the imbalance between demand for care and the actual care organizations capability to supply.

This Paper is part of my DBA dissertation addressing the Resilience of a Care organization in crisis-mode, and its long-term sustainability as a critical block in the world population health continuity.

Keywords: Healthcare, Sustainability, Resilience, Technology, Value

PROBLEM STATEMENT

In the last two decades the technology development across all industries touched base on healthcare and delivered new treatment processes, tools, equipment, and many discoveries in terms of drugs, medications and diagnosis mechanism. Additionally, the technological development in telecommunications and internet enabled the delivery of care to rural and remote areas.

All of that technological advancement helped in reducing mortality rate from many diseases and extended life expectancy by far compared to 20 years back.

The other side of that coin is that with higher life expectancy and lower mortality rates comes emergence of chronic diseases in aging populations which double down on the imbalance between demand for care and the actual care organizations capability to supply.

In other words, Care organizations are required to deliver more while they are suffering from unparalleled financial challenges and that is due to several reasons, such as lack of strategic mid to long term strategies aligned with day-to-day activities, adopting cost reduction measures that focuses on the visible and fails to qualify and quantify the invisible costs, underestimating the importance of the human factor to operate new technologies.

An Intervention-research process is under negotiation with FMC Hospital located In Lebanon, classified as general in-patient hospital. The hospital is 50 patients' bed capacity, enclosing all functional department such as Radiology, Laboratory, Emergency Department, Operating Rooms, Intensive care unit, general and specialized wards, etc.

The hospital is managed by a CEO leading a board of directors consists of 3 senior managers, 11 mid-managers, 15 supervisors and around 80 employees.

CORE HYPOTHESIS

Resilience of a Care organization in crisis-mode, and its long-term sustainability are a critical block in the world population health continuity. The Socio-Economic Approach to Management presents a distinguished diagnostic method capable of identifying and analyzing what and where are the tumors to be treated within the organization.

Therefore, addressing the deficiencies in both the social and economic performance of the hospital will unlock an upside capacity bandwidth that will automatically convert into a potential creation that contributes into the hospital economic value.

OUTLINE

The Intervention Outline in compliance with SEAM methodology:

Qualitative Analysis: identify the dysfunctions in the hospital, using the SEAM methodology, and qualify their attributes to the structure and behavioral dimensions.

Quantitative Approach: having the dysfunctions qualified, the next step would to quantify and monetize wherever it is applicable the underlying hidden costs.

Comparative Validation: Validate the observed findings and compare with academic and scientific literatures on the value-based healthcare subject.

Expert Opinion: Propose to the hospital a socio-economic approach plan that serves the intended and outlined objectives.

Guide and Maintain: Provide the necessary guidance to the hospital, for them to articulate the necessary strategies and actions that fits their organization purposes.

LITERATURE REVIEW INTRODUCTION

Three domains enclose the definition of health, Physical, Mental, and Social health that should be classified in priority by care organizations responsible of care delivery.

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enabled the delivery of care to rural and remote areas. All of technological advancement helped in reducing mortality rate from many diseases and extended life expectancy by far compared to 20 years back.

The other side of that coin is that with higher life expectancy and lower mortality rates comes emergence of chronic diseases in aging populations which double down on the imbalance between demand of care and the actual care organizations capability to supply. This intensified imbalance presents the main barrier into the realization of a healthier society.

The value-based healthcare concept comes in alignment with the health objective which is increasing value. This value is created from health thruput relative to the cost of delivering the care service.

To implement value-based healthcare, changes and transformations must be executed and applied at the care organization, care team, policy makers, payers and patients levels: applying proven health outcome metrics, empowering care organizations, building collaboration across stakeholders, realizing an appropriate and integrated health payment schemes, adopting health information and communication technologies, creating the required policies that meets the population demands, all in respect with promoting value creation and reduction of moral hazards.

The World Health Organizations (WHO) defined health, in 1948, as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. This definition of health has been questioned recently, and specifically since the COVID19 pandemic outbreak early in 2020, as it looks like not in harmony with the 21st century needs and challenges of health. Nowadays, with the increasing number of risk factor exposures and the application of new technologies in screening and diagnostic methods, it is difficult to achieve “health”. Looking into the financial expenditures into the healthcare system, it is noticeable that almost three-quarter of the worldwide health expenditures goes into the chronic conditions, in other words the vast amount of spending is invested in order to reach a balance between increasing demand for care due to extended life expectancy and the actual care organizations capacity to deliver care services. In this context the question to ask is to what extent we practice healthcare, including the adoption of the new technologies and what are the technologies that could drive value of care delivered up and decrease in return the cost of delivery.

The Economist Intelligence Unit defines value-based healthcare as “the creation and operation of a health system that explicitly prioritizes health outcomes which matter to patients relative to the cost of achieving this outcome”. The concept of value-based healthcare questions the need of preventive, proactive, predictive and curative interventions which is costly is few measurable outcomes, while being none productive and lack effectiveness in the medical practice. All at the same time, the global demand drives the healthcare industry to lower their cost of services while sacrificing on the value. Modern healthcare also has four precepts: evidence-based, patients centered and inclusive of care providers and the community, continuous and coordinated, and ethically sound and regulated.

This review intends to define the actual understanding of health ecosystem practice to implement a modern value-based healthcare.

HEALTH AND OUTCOMES

By definition of healthcare goal, it is supposed to reach the ultimate level of society healthiness. In this regard, short-term objectives such as improving access to care organizations and providers and increasing the profitability of care organizations and providers shadowed the strategic mid to long term objectives and dominated over the deliverables and expectations. Therefore, the value-based healthcare in its initial inception model aims to enhance health outcomes in an efficient manner. Porter stated that quality assessment, somehow, does not reflect the actual "quality". Instead, it is a measurement of a process that captures compliance with guidelines. The only true quality lies in the patients' circle, that is, patients' health outcomes.

The most critical point to lock at in delivering a value-based healthcare is the actual value that patients cares about. Care team and care organizations often think that by increasing services accessibility and diversification of specialization they are actual increasing value and they think measuring it by number of visits or admitted, served patients is the significant metric to track. On the other hand, patients who are the service consumers in this case have different perception and expectations of the value which is not reflected not by more visits, procedures or tests, but better health status and lower readmission rates to care organizations. Therefore, there is a need to measure outcomes in an appropriate manner to reflect the amount of dollar spent in terms of cost allocation per value. We need to be mindful of the need to report and evaluate risk-adjusted outcomes for each health condition along with costs to achieve those outcomes. At this point we should be clear that outcomes should take into account the entire patients cycle of care including complications, readmission rates, side effects illnesses, need for continuous care, and recovery time not only and strictly calculated from mortality and morbidity rates. This outcomes report should also be graded by look into patients' actual conditions. Outcomes are measured not for an individual service or intervention but for a full cycle of care.

Porter describes outcomes in three tiers. Tier 1 involves health status achieved, including mortality and functional status. Tier 2 involves the nature of care and recovery, including readmission and duration of return to normal activities. Meanwhile, Tier 3 relates to the sustainability of health. Care Organizations and Providers should take into consideration all dimensions of outcomes and not become narrowed into a single one. For example, a longer five-year survival rate does not necessarily reflect the real health status; yet, we need to be mindful about the readmission, complication and pain that exists, and the patient's ability to perform daily activities independently.

Assessing functional status could be hard and long process. Therefore, patient-reported outcomes (PROs) measurement has been introduced. The Patient-Reported Outcomes Measurement Information System (PROMIS) offers an efficient way to evaluate outcomes after care or medical service treatment delivered. This measurement includes three domains of health (physical, mental, and social domain). Additionally, the use of computerized adaptive testing (CAT), measurement of functional status after discharge could be individualized for every patient's need in the future.

The current sets of standards that defines outcomes for a specific medical condition or care service have been proposed by the International Consortium for

Health Outcomes Measurement (ICHOM). ICHOM was founded in 2012 and has already been working on several medical problems by publishing comprehensive outcomes. For example, ICHOM's outcomes for coronary artery disease (CAD) and lung cancer have published. In the CAD working group, they focused on short-term (hospitalization, 30 days post-discharge) and long-term (one-year and five-year survival) outcomes. Besides clinically measured outcomes, they also included patients' quality of life through several instruments. Those outcomes were also adjusted for several risk factors determined by working groups.

TECHNOLOGY ROLE

The use of Information Communication Technologies (ICT) in healthcare is relatively new than in other sectors. It is tempting to assume that simply the adoption of ICT will improve value, yet that is not straight forward because the productivity in terms of performance does not only depend on the process or assets used but also on the human capital involved as a user. Angst, et al. proposed the concept of integration of health information technology. In their paper, health information technical is defined as an information process that manages storage, retrieval, sharing and use of healthcare data for communication and decision making. Technologies will turn into information technology when on premises data are stored in isolation in the form of centralized data base becomes accessible as an information and communication network in a decentralized manner. For example, radiology images such as computed tomography (CT) scan or (MRI) will become integrated an interoperable within hospital or group of hospitals. This concept supports our idea about integrated healthcare that improve value. Outcomes, Cost and Data are essential elements in a value-based health era. The Economist Intelligence Unit evaluated the fact that patients will not require to perform repeated diagnostic tests from one care organization to another for getting a care service, accordingly reducing waste of time and reducing cost. The ICT via the Electronic Medical Record (EMR) also allows care team to collaborate having the same accessibility to patient's health status, tests, results, when needed. The Electronic Medical Record is an initial stepping stone in the advancement of an integrated patient-focused care.

Despite the utilization of ICT to integrate healthcare systems and conduct evidence-based healthcare, failure of healthcare deliver, especially in developing countries, still exists. People living in resource-poor settings face many challenges to reach health including poor nutrition, limited transportation, and social norms. In such resource-poor settings, Kim, et al. proposed a suitable framework to implement a value-based health system, namely: (1) care delivery value chain for medical conditions, (2) shared infrastructure, (3) align healthcare delivery with external context, and (4) design a system to optimize equitable economic and community development. The idea of care delivery value chain starts with the preventive care as an initial step of the cycle of care and ends with monitoring and managing the patients' medical conditions. Interventions should not focus on one intervention as every chain takes part in improving value. Shared infrastructures could distribute and integrate healthcare delivery across sites. Infrastructures include primary clinics, district and referral hospitals, and community-based care.

Remote and rural areas keep on emerging in the developing countries where inhabitants have little access to care organizations and care organizations that possibly exists there have limited capacity to acquire knowledge or adopt the value-based concept. In this context the role of care team and community health requires much more support by technology to bring the value of healthcare to the patients. For example, smart phones and internet enables the remote care communication, diagnosis and monitoring of patients in rural areas. Porter stated that external factors have also reasonable impact on population health living in resource-poor settings. These include nutrition, social inequalities, travel incapability, etc. these problems require a holistic solution which depends on specific population needs.

Integrated health system can also solve the lack of care team availability in resource-poor settings. This is supported by the study of Chen, et al. who reported their success in delivering ophthalmic care in the Matsu archipelago, Taiwan, as it is a remote archipelago which limited access to healthcare. Using their system, ophthalmologists were capable of delivering eye care in a specific period of time using shift rotation basis. Therefore, the author suggests expanding care delivery in value-based healthcare by adopting ICT and Integrated care to overcome challenges in delivering the most efficient healthcare.

Many countries are already in the process of adopting value-based healthcare as indicated In a recent research by the Economist Intelligence Unit (EIU) that evaluated 25 countries. The research evaluation accounted the following elements to base their assessment: a) context of policy and institution toward value-based healthcare, b) measurement of health outcomes, c) integrated and patient-focused care, d) and outcome-based payment. A Country needs to set up institution that sets and reviews guidelines, monitor and evaluate the impact of health intervention in the medical, economic, and ethical dimensions and allocate sufficient funding for research to promote and create awareness for a value-based healthcare systems adoption.

A recent study in the UK reported the area of improvement regardless of incentive programs in rural areas and probably this will be promoted anywhere there is an inequality of care access and/or geographical challenges like remote and rural areas.

Important element to deal with is the moral hazard along with the discussion of a value-based healthcare or patient-centered care and associated health payment schemes. As Care Organizations and Care Service Providers aims into increasing their outcomes and lower their operation cost, there are several potential negative blind spots that cause people to be less concerned about their health status and risk factors exposure. We must be conscious that patients' attitude and behavior will always be the main success block prerequisites for a value-based healthcare.

CONCLUSION

It is clear that the concept of value-based healthcare is not new to the healthcare community. Nevertheless, the concept requires evolution and adoption at a larger and most probably at the global scale. As reviewed earlier, the initial concept of value-based healthcare accounts for prevention, cost effectiveness and efficiency for achieving a higher "value" while optimizing the cost. This framework requires a leap forward toward a clear and tangible integration of big data into the information and communication ecosystem for the creation of Predictive Value-based healthcare. Big Data in healthcare refers to the massive amount of health data combined from different sources including Electronic Medical Records, Radiology Imaging, genomic sequencing, providers records of transactions including medication prescriptions, pharmaceutical research, medical devices, wearables, etc. Big Data in healthcare is available in massively high volume, it presents an extraordinary digital universe and high variable in structure and nature.

Why do we need to paradigm shift the value-based healthcare to include Prediction and not just prevention? Because the global healthcare ecosystem needs to become pandemic and epidemic ready. The readiness can be categorized into at least two main levels: a) Monitoring and Predicting outbreaks b) mitigation of emergency response plans for any potential outbreak. The COVID19 outbreak in 2020 is a clear proof that the healthcare ecosystem including organizations and team needs to have early warnings to enable them acting in advance for containing critical situations. For that to happen, on top of the integrability at a large-scale big data comes to the role as a corner stone for artificial intelligence and machine learning to predict patterns before they happen. There are already new technological improvements enabling healthcare big data to be converted into useful and actionable information. By employing the right software tools, big data can drive the value-based healthcare and open the door for remarkable advancements, crisis management while at the same time reducing cost. Important to mention in here the hidden cost of not predicting a pandemic outbreak is the economy losses. It is not hidden to the economy but it is not accountable within the healthcare system. in a connected world, we have to be mindful of the butterfly effect in the sense of cause and effect and consequences. For example, system failure to early detect infectious disease cases leads to surge of COVID19 cases, leading to lockdown, leading to closing the economy, which is disrupting the economy demand and supply, resulting in layoffs, lower consumer power, higher unemployment rates, industries loss of trillions of dollars, etc. The healthcare industry is responsible of putting the learning of the COVID19 outbreak into actual action plan practices to avoid similar scenarios from happening in the future. We need to be prepared for the next pandemic by leveraging value-based healthcare reform plans built on top of big data to enable not just reduction of cost, increasing effectiveness and efficiency for increasing value and quality of services but most importantly to be able predicting what's next and act before it happens.

This model will have at least the following implications: a) keeping patients healthy, by enabling smart diagnostics using data mining and analysis to identity causes of illness. Preventative medicine, Precision medicine, Medical Research, Reduction of adverse medication events, cost reduction and ultimately monitoring of dig data to identify disease trends and health strategies based on

demographics, geography and socio-economics. b) Expanding diagnostic service giving patients greater access to professional care.

There are many challenges in the face of Value-Based Healthcare reform and adoption plan. To start with, the data aggregation challenges, policy and process challenges, management challenges, all of these challenges will be part of my research plan to understand who we can develop a system that could deliver the value intended while at the same time working on facilitating the adoption by understanding the root cause of the challenges.

METHODOLOGY

This document is intended to justify the need and added value of adopting the Socio-Economic Approach to Management (SEAM) in my DBA research focusing on four pillars. Being a holistic approach with a strong foundation that invests in creation of human potential and ultimately being grounded in any organizational change.

The Healthcare ecosystem can be categorized amongst the following: a) Care Organizations b) Care Team c) Technology Providers d) Policy Makers & Payers. Several sub-categories can fall under any of the four mentioned such as, but not limited to, insurance companies that fall under Policy Makers and Payers.

Therefore, researching into the healthcare industry in order to answer the question of balance between cost and service for creating a value-based care requires a holistic approach for understanding and investigating all the external and internal factors influencing the hidden and obvious costs.

The human potential plays a critical role in the healthcare industry having the caregivers or front liners as a must have actor involved in the research being probably the mostly needed one for a care delivery.

Keywords: “Care Organizations” meant to describe Hospitals, Medical Cities, Ambulatory, remote, specialized or any other type of institutions certified to deliver care.

“Care Team” meant to describe all workers and employees in a Care Organization including doctors, physicians, nurses, technicians, housekeepers, engineers, accountant, etc.

“Technology Providers” meant to describe all manufacturers or providers of goods, assets, equipment’s, solutions to the Care Organization used by the Care Team.

METHODOLOGY SELECTION

The “Socio-Economic Approach to Management” SEAM is the result of a scientific approach to consulting was first developed in 1973 by Henri Savall. Since then, SEAM has grown and developed into the ISEOR institute with the assistance of colleagues like Veronique Zardet and Marc Bonnet.

SEAM

The SEAM – Four Leaf Clover is the framework of the research and it covers the following pre-defined dimensions.

First dimension is the Social Dysfunctions and it covers the Working Conditions, Work Organizations, the 3C’s Communication – Coordination – Cooperation, Time Management, Integrated Training and Strategic Implementation.

Second dimension is Behaviors and it includes Individual, Group, Division, Trans-organizational, Pressure Group and Collective.

Third dimension is the Structures which enclose Physical, Technological, Demographic, Organizational and Mental.

Fourth dimension is the hidden costs which accounts for Absenteeism, Turnover, Injuries, Quality, Productivity and Waste.

SEAM METHODOLOGY

In the subsequent clauses we will go over the possibility unlocked using the SEAM methodology to address the healthcare industry challenges and in specific the ones that prevented the ecosystem from performing profitably and in a sustainable manner despite of the last two decades technological development and the rapid innovations cycle.

DYSFUNCTION CATEGORY WORKING CONDITIONS

We will look into the physical working environment of a care organization and to which extent are hospitals and care facilities are actually healthy environment for both workers and patients.

WORK ORGANIZATION

Closer understanding on how the work is being designed and executed, and to which extent the policies and procedures are clear and streamlined across functions, divisions and departments.

3C'S

Communication – Coordination – Cooperation between the different stakeholders. Management and Employees in terms of Care Organization and Care Team, Management and Policy Makers / Payers, Patient who is the consumer of care service in this case with all the other ecosystem actors. The research will enable a deeper look into the care collaboration aspect within the 3C's context to understand its implication on a value-based healthcare system.

TIME MANAGEMENT

Many questions unfold when locking into time management inside a healthcare organization processes. How much being wasted on admission, discharge and transfer processes. How care teams are spending their time, how none clinical healthcare workers are spending their time and how much of this time is being actually allocated to drive value at the customer "patient" end.

INTEGRATED TRAINING

The most recent COVID19 pandemic uncovered, amongst many, one of the main system deficiencies in relation to training. While medical equipment manufacturers pivoted their production capabilities to produce more oxygen ventilator for supporting the critical ill cases, it was noticeable the minimum amount of training given to care teams on how to operate those equipment's to physical distancing, lockdown and curfew.

STRATEGIC IMPLEMENTATION

The research will investigate the way strategic objectives are translated into action including the tools and decisions that support them. It is essential that objectives are clearly explained and there is a common understanding regarding the urgency for developing an agile, cost-effective and value driven care system.

BEHAVIORS INDIVIDUAL

The research will look into the induvial behavior of a caregiver, healthcare worker by function at a time to better understand the driving behavior that could contribute into creation of value.

GROUP

The Group behavior is an aggregation of individual behaviors of a specific cluster of workers or employees that performs the same job at different levels of the care organization which will help me understand the underlying route cause of collective or group patterned behavior.

DIVISION

The Complexity of a Care Organization falls under the fact that there are numerous divisions with extremely different pre-requisites of activity performing and challenges. To name an example I would refer to the emergency department and the standard pediatric ward. Both divisions are in the same care organization while in the emergency department unlike the pediatric department the processes are different, the routine shifts are different, and the cases are not alike. Therefore, it requires an in depth understanding of what it makes a problem in one place doesn't necessarily be a problem in another one.

TRANS ORGANIZATIONAL

Critical to understand due to the wide impact across a care organization unit or division being basically an internal common policy or procedure.

PRESSURE GROUP

To understand the pressure group behavior, it is important first of all to define the group whether being an internal one e.g., Quality or Infectious Disease Control or external being policy makers or accreditation standards.

COLLECTIVE

We will try to understand to which extent it is possible to generalize a collective behavior within a care organization and accordingly assessing its impact on the objective of this research.

HIDDEN COSTS ABSENTEEISM

In this care we will look into the actual absenteeism hidden cost in a care organization and the physical presence without significant value creation deliverables and their impact on the overall hidden or none-measured costs.

TURNOVER

What is the turnover rate of care team as an average globally and we will try to understand the underlying reasons as well as the hidden cost related to the actual turnover, training of less than a 6-month employee, etc.

INJURIES

Working in a care organization is a none risk free injury that could take the shape of not just an actual injury from the standard description but also could take the shape of an infection from a contagious disease that could cost a care giver his or her life and the care organization a massive amount of money in reimbursements and reconciliations.

QUALITY

Quality Control in a care organization is very important for a simple reason which is that your product is care and your end user is the patient. Therefore, in case your product has a product deficiency your end user life might be put at risk unlike the product of goods manufacturing where if your remote control is not working properly, you can return back and claim for another. In the care deliver case the optimum level of quality is required and the cost of none compliance Is very expensive.

PRODUCTIVITY

Productivity of care organization and its relation with individual care team member is a critical aspect the research will look into. The productivity indicators must not remain hidden and should identified in a Qualimetric approach. In order to fix any lack of productivity problem, care organization needs first to be able measuring it in a scientific manner.

WASTE

Waste of Time and Resources as well as Waits.

The research will look into the various areas suspected to be a source of waste. The waste in this sense is not just the tangible assets or resources that could be wasted in the physical form which is in this case very obvious to be quantified and accordingly not being hidden anymore. To be more specific the research will look into the none-obvious source of waste and most importantly waste of time. The waste of physical assets in a care organization can take the form of loss of medical equipment, utilization rate of an expensive medical equipment, theft of an asset and the list goes one. Yet on the other hand, it is critical to look into the waste of time due to processes, people and technology. For example, a caregiver not equipped with a voice communication device will have to walk into the patient room every time there is a call for support without being able to address the call remotely which represents in cumulation a waste of time and will not necessarily impact positively the care value.

STRUCTURES PHYSICAL

There is a clear guideline from the international care bodies in regards to care organization and hospital planning. Therefore, the research will not emphasis in this aspect.

DEMOGRAPHIC & MENTAL

This research will tackle this important aspect in a general manner focusing only on its possible implications on a value-based care delivery system.

ORGANIZATIONAL

The organizational type of a care organization is very critical in defining the care delivery methods, values, and reputation of institutions. We assume that University Hospitals and Medical Cities associated with Research Centers and Educational Facilities will be much more value driven compared to commercial privately held organization. This is just an assumption that the research will try to investigate.

TECHNOLOGICAL

Technology is playing a significant role in our day-to-day activities and the recent technological developments enabled the world to work from home, learn from home and many more examples like the electric car and in a consumer level product the mobile phone and its development is enabling billions of people of lively interact with each other. The question our research will ask is what is the technology set required to enable a value-based care delivery system. to which extent can technology serve care organizations' will to reduce cost, increase productivity, increase efficiency while at the same time raising visibility, compliance to quality and predict in terms of assisted clinical decision-making tool.

SUMMARY

I am going to adopt the Qualimetrics research method which is a socio-economic organizational innovation intervention research that addresses all the hierarchical levels from employees to top managers of a care organization. The method is referred to as HORI-VERT and consists of two aspects "VERTIcal" and "HORIzontal" whereas VERTical action involved at least two departments and the line care worker and leading to vertical diagnosis while HORIzontal consists of a diagnosis of dysfunctions with the board of directors and the management team of a care organization that focuses on the overall dysfunctions of the organization.

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