

**TRIPLE AIM PROGRAM:
Assessing Its Effectiveness as a Hospital Management Tool**

**For Consideration
by
Hospital Topics**

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Abstract

[Word count = 90 words]

According to a recent national survey of Hospital CEOs, financial challenges are their top concern, especially government reimbursement. Moreover, the patient faces greater deductibles forcing hospitals to prioritize price transparency. The Triple Aim Program is a tool available to hospital management to help address these challenges. This study indicates that Triple Aim is valuable to healthcare providers and patients by reducing medical errors, improving healthcare quality, and reducing costs on a per capita basis. Managerial implications are discussed for hospitals and health systems considering this approach to addressing financial challenges.

Key Words: triple aim program results, patient outcomes, hospital financial challenges, efficiency and healthcare reforms.

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Introduction

The Triple Aim (TA) program was developed by the Institute of Healthcare Improvement (Berwick and Whittington 2008). It is an important step in addressing escalating costs, waste and errors in health care both domestically and internationally. It is also a cornerstone in the intellectual foundation of the Affordable Care Act. One of the authors, Don Berwick, has been influential in shaping ideas about healthcare reform and served as Administrator for Medicare and Medicaid Services from 2010 to 2011 as important regulations for implementation of the Affordable Care Act were being developed. Researchers have debated the potential and actual outcomes of the Triple Aim (TA) program. The three goals of the TA Program are (1) improving the individual experience of care (2) improving the health of the population, and (3) reducing per capita costs of care.

This paper surveys the TA literature and addresses how it can serve as an effective and efficient health management strategy to organize, finance and deliver health services. Documented outcomes are derived from a panel presentation about how the Triple Aim program has been implemented in various systems by various organizations at the 2013 Global Health Symposium in the Association of University Programs in Health Administration (AUPHA) 2013 annual meeting. Further, a systematic review of the literature was conducted to assess the outcome thus far with the TA program in various healthcare settings (see Exhibit 2). Finally, a concluding discussion of the future scenarios is provided on how the triple aim program will be critical in the future years of health reform implementation for hospitals and health systems.

Why US Health Care Has Been Inefficient

US health spending is widely regarded as inefficient. The US does poorly in rankings of international healthcare systems with 18% of GDP allocated to national health expenditures. Economists have emphasized information asymmetries and institutions that defer decisions to providers as one key problem. Moral hazard, the tendency to over-consume when third party insurance pays much of the cost is another oft cited explanation. An overemphasis on new technology without meaningful ways to identify what is not worth paying for is yet another issue, especially over the long run. Economists have also categorized inefficiency as productive (the failure to produce in a least cost manner) and allocative (the failure to allocate resources to where they generate the greatest benefit (Garber and Skinner 2008). Serious problems have been identified with both kinds of inefficiency in the United States. Coyne et al has studied hospital costs and efficiency in terms of hospital failures, health reforms and the relevance of hospital size and ownership. (Coyne and Singh 2008), (Coyne et al. 2012), (Coyne et al. 2009).

In the TA Program, Berwick and his coauthors identify another key problem that plagues the health sector (Berwick and Whittington 2008). This concern, more commonly found in the literature focusing on natural resources and the environment, emphasizes the tendency of fragmented markets to deplete common resources in an inefficient manner. The authors argue that the lack of coordination in providing healthcare across a broad range of services leads to an over exploitation not dissimilar from the problems encountered in unregulated fisheries, oil fields or parks. The idea was popularized in the 1960's with Garrett Harden's widely read article in Science entitled "Tragedy of the Commons." Solutions for healthcare in this case are found in better integration of resources that should result from a realignment of economic incentives. This helps explain the rationale for an assortment of innovative payment schemes including Accountable Care Organizations, Pay for Performance, Bundled Payment, and Value Based Purchasing. This paper surveys a variety of cases that have sought to implement one or more of these approaches.

Related Literature on The Impact of Triple Aim

McCarthy and Klein developed a model referred to as Genesys Health Works (McCarthy and Klein 2010). Genesys has fully implemented the TA Program and has found that the behaviors of 800 patients have changed for the better after the implementation. One result was that 53% of the patients who did not previously eat adequate amounts of fruits and vegetables now do. Fifty three percent who reported no regular physical activity, now are physically active. Seventeen percent of the smokers quit and 85% of patients, who were not taking their medications regularly, now do. More than 80% of the patients agreed or strongly agreed that the doctor helped them to be healthy and cared about them, and more than 70% agreed or strongly agreed that the doctor knew them well and helped them set a health goal during their visit. In addition, these patients receiving care from Genesys-affiliated providers during the study period paid \$1,428 while patients receiving care from other area providers paid \$2,073.

In another study by Klein and McCarthy, they explain the impacts of TA on CareOregon institutions (Klein and McCarthy 2010). After implementation of the TA Program, they surveyed patients as to whether they "usually or always" received all aspects of patient-centered care, and approximately 80% of patients responded yes, while 20% percent responded no. CareOregon reports that it has observed a \$400 per member per month (PPPM) cost savings in the year following a member's enrollment, which means that approximately \$5,000 per member per year, or between \$5 million and \$7 million per year in total cost savings.

Ory and colleagues examined the effectiveness of TA goals for the Chronic Disease Self-Management Program using a national sample of participants. They reported that there were significant improvements for all health outcome variables. They observed significant improvements from baseline to 6 months in communication with physician scores and health literacy. There also found reductions in costs. Further, the number of ER visits was reduced by 27% from baseline to 6-months and 21% from baseline to 12-months. The mean number of hospitalizations among participants was reduced by 22% from baseline to 6 months (Ory et al. 2013).

In another study, Nundy and colleagues examined the impact of using a mobile phone to achieve triple aim. (Nundy et al. 2014, 265-272) 73% of the participants in the treatment group were satisfied with the program, and agreed that the text messages received on their mobile phones helped them with self-care. Patient satisfaction significantly improved from baseline to the end of the study. Control of HbA1c improved in the treatment group and glycemic control also improved in a subset population with poorly controlled diabetes. Overall, quality of life improved in the treatment group and outpatient visit costs declined.

Kaiser Permanente implemented a new project with a video ethnography program. Neuwirth and colleagues reported that readmission rates decreased from 13% to 9% in six months. (Neuwirth et al. 2012) Video ethnography was also found to be an effective means to improve communication between patients and caregivers. They found it to be a powerful tool for providing teams with a shared understanding of the experiences of patients and caregivers.

In another study conducted by Dahl and colleagues, Banner Health used telehealth technology to achieve triple aim. (Dahl, Reisettler and Zismann 2008)¹They reported significant reductions in the length of stay (LOS), mortality, and complications, while also finding an improvement in best practice compliance at Banner Health. They reported that overall the quality of care improved and patient satisfaction increased. They reported cost savings of approximately \$84 million attributed to these reduction.

Triple Aim in the US, New Zealand, Ireland and Germany

From his panel presentation, Arbuckle points out that the Triple Aim Program was formally implemented in 2012 at MemorialCare Health System, a six hospital not-for-profit system in California. Arbuckle presents these conclusions to date, through Saddleback Memorial's hospital outpatient disease management, that 128 heart failure patients enrolled in 2012 reported their quality of life score increased by 38%, functional scores improved by 37% and readmission rates decreased from 30% to 3%. In the Special Care Center, run by MemorialCare's Greater Newport Physicians IPA for post-discharge follow-up, readmissions decreased by 50% and patient satisfaction increased to 4.73 on a 0-5 scale. In the MemorialCare Medical Group Virtual Care Clinic, visits decreased by 43%, Emergency Department (ED) visits decreased by 82% and the costs from claims decreased by 41%. Other data reported from MemorialCare's focus on employee wellness and disease management showed patient compliance with medication was improved from 37% to 94%, compliance with clinical coaching was 91%, compliance with wellness coaching was 94%, weight losses of up to 29 pounds by 79% of weight coaching participants was achieved, and an average gBA1C reduction of 0.9 was realized for participants in diabetes coaching programs. (Arbuckle 2013) The health system has taken these key facts into consideration and is putting these methods into practice system wide.

Kureshy reports results at AutoGenomics that are aimed at increasing healthcare quality by using molecular genetic testing. (Kureshy 2013) He emphasized that genetic information is playing an increasingly critical role in the selection of the correct drugs, influence on the dosage, early detection of infectious organisms, early detection of genetic disorders, and guiding therapy for patients in hospitals and health systems worldwide.

Three tenants of any healthcare policy and the goals of the triple aim program are to increase access to quality healthcare, improve quality of healthcare services and reduce overall healthcare cost. For the past 30 years there has been considerable investments in genetics technologies. Implementation of this knowledge and technology has already produced a profound impact on the practice of medicine. Genetic technologies are changing the way we diagnose and monitor infectious agents, access cardiac patients, treat mental health, increase our awareness of genetic disorders, manage statin therapy, manage pain therapy, further our understanding of drug addiction and increase the efficiency of chemo therapeutic agents. It is very encouraging when we briefly look at specific healthcare markets and the impact of these molecular technologies and information.

1. Infectious Diseases – With molecular technologies we have greater specificity and sensitivity. It used to take weeks to detect drug resistant TB but with molecular technologies the result is produced within hours. Detection of 20 to 30 organisms all at the same time is currently being used in deciding therapy for women's health, respiratory viruses and drug resistant TB.
2. Cardiac Assessment – Multiple panels are used to monitor anti-platelet therapy, the impact of genetics on warfarin therapy, coagulation and many other cardiac risk factors.
3. Genetic Disorders – Many of the genes involved in common genetic disorders have been identified. We can identify the carriers of various genetic disorders associated with Bloom, Canavan, Familial Dysautonomia, Fanconi Anemia,

Gaucher, Mucolipidosis, Niemann Pick, Tay Sachs, Cystic Fibrosis, Thalassemia and FMF, to name a few.

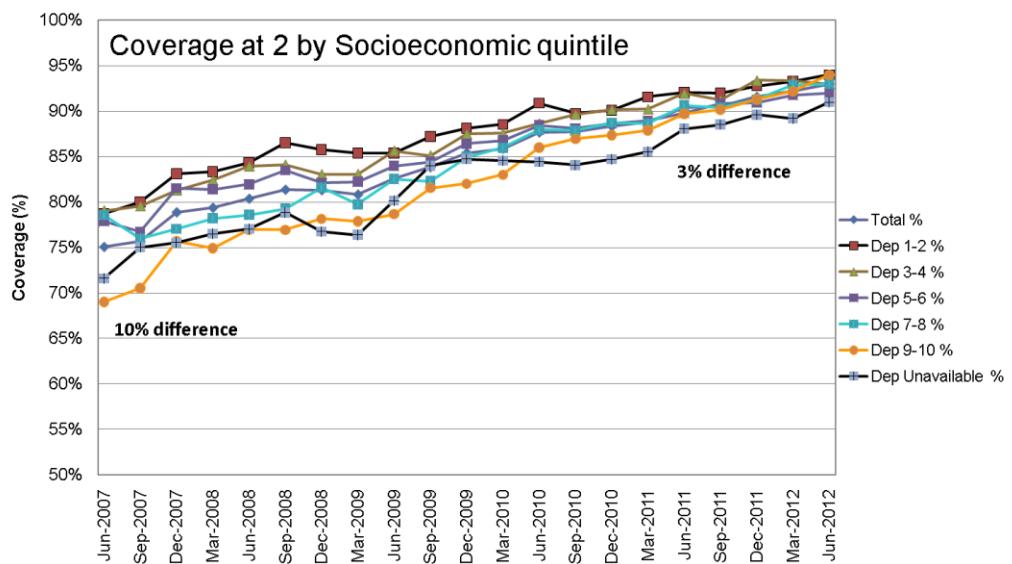
4. Pain Management and Drug Addiction – there are some powerful compounds such as opioid, hydrocodone and morphine that are administered to manage pain. These are also very addictive. Knowledge of an individual's genetic makeup is a powerful tool to manage pain therapy and avoid addiction problems.
5. Mental Health – there are over 85 drugs that are used to address and manage different mental conditions. A physician will be able to select the correct dosage and prescribe based on the individual genetic makeup.

Use of genetic information to guide therapy is not science fiction; it is state-of-the-art medicine. It is cost effective, practical and has a positive impact on managing healthcare cost and quality. Use of genetics in mainstream healthcare practices worldwide is a key factor in achieving the goals of the triple aim program. In the near future we need to support a rational reimbursement program and continuous genetic education and adopt molecular methods in every institution's laboratories.

Grayson reports that the TA Program was implemented across New Zealand to improve immunization rates and reduce disparities in healthcare coverage during a 2 year study period. (Grayson 2013) He reported that the goal of this program was to achieve the target of 95% healthcare coverage by July 2012. He reported disparities in coverage decreased from 10% to 3% (see Exhibit 1). The immunization program was budget neutral in that additional capital funds were not required, apart from some infrastructure enhancements. In another example, Counties Manukau Health ran a campaign that gave back 23,060 healthy and well days to their community by reducing hospital bed days.

[Insert Exhibit 1 about here]

Exhibit 1: Immunization Coverage by Socioeconomic Status



Source: New Zealand Ministry of Health – chart showing progress on immunization coverage as well as narrowing of disparity gap from 2007-2012 (with permission Dr. P. Touhy)

Vaughn reported on Ireland, where there were positive results after the TA Program was implemented. (Vaughn 2013) The length of stay decreased by 14%, and bed days decreased by 5%. This resulted in savings of \$650 million by using 50,000 less bed days over 3 years (2009-2012). Implementing National Early Warning led to savings of \$750,000. There was an 18% reduction in stroke mortality rate since 2006 in the largest hospital. 95% of hospitals admitting stroke patients have a stroke unit, a significant increase from 5% of hospitals in 2007. 50% of patients with the condition of chronic heart failure (CHF) were admitted to a hospital with a structured heart failure program.

Hildebrandt and colleagues report on implementing triple aim in Germany. Gesundes Kinzigtal is one of the few population-based, integrated care approaches in Germany (Hildebrandt et al. 2010). Their aim was to achieve more effective care coordination in Germany's health care system. To do this, they increased investments in well-designed preventive programs that lead to a reduction in morbidity, and in particular to a reduced incidence and prevalence of chronic diseases. This, in turn, led to a comparative reduction in annual health care costs.

Discussion

According to Hilsenrath (Hilsenrath 2013), the TA Program and the Affordable Care Act do not effectively address allocative efficiency to ensure resources are allocated to maximize social welfare in a systematic way. Berwick's article suggests global budgeting as a blunt instrument but nothing of this nature appears in the Affordable Care Act to constrain economy-wide healthcare spending even though Medicare spending could be subject to fairly stringent global constraints guided by the Independent Payment Advisory Board. Hilsenrath underscored that the TA framework does not emphasize new technology

as a central problem and views it rather as an "obstacle" even though technology is consistently reported as a key driver of long run cost growth.

An important measure to improve allocative efficiency and curb spending is the use of high deductible insurance policies, which are part of the health insurance exchanges. Employers are also rapidly embracing this approach. These plans have their genesis in the previous legislation of the George W. Bush and Bill Clinton eras. Hilsenrath also notes that cost shifting, especially to the private sector, is a major problem in the US and not well addressed by TA. However, he also emphasized that the TA Program is part of the solution to more efficient health spending. In spite of these Triple Aim limitations, it is a new approach and research has shown important success with the implementation of Triple Aim. These are documented in the summary table of patient outcome results from implementation of the TA Program (see Exhibit 2).

[Insert Exhibit 2 about here]

Exhibit 2: The Global Impact of the Triple Aim Program

<u>Triple Aim</u>	Better Healthcare	Better Health for Population	Low Costs	Authors
<u>Place</u>				
Genesys Health System	<ul style="list-style-type: none"> 80% of the patients agreed that the doctor helped them to be healthy and cared about them 70% agreed that the doctor knew them well and helped them set a health goal at the visit 	<ul style="list-style-type: none"> healthier food physically active smokers quit 	<ul style="list-style-type: none"> patients paid less, \$1,428 not \$2,073. 	McCarthy and Klein (2010)
Saddleback Memorial Disease Management	<ul style="list-style-type: none"> heart failure readmission reduction: from 30% to 3% quality of life score increased by 38% functional scores increased 37% 	employee wellness and disease management <ul style="list-style-type: none"> 94% compliance with medications 91% compliance with clinical coaching 92% compliance with wellness coaching Weight loss of up to 29 pounds by 79% of weight 	NA	Arbuckle (2013)

		<ul style="list-style-type: none"> coaching participants • Diabetes: average reduction of 0.9% of HgbA1C 		
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Greater Newport Physicians IPA Special Care Center	<ul style="list-style-type: none"> • readmissions with post discharge follow-up clinic decreased 50% • patient satisfaction increased to 4.73 (out of 5.0) 		NA	Arbuckle (2013)
MemorialCare Medical Group Virtual Care Clinic	<ul style="list-style-type: none"> • admits decreased by 43% • ER visits decreased by 82% 		<ul style="list-style-type: none"> • Claims cost decreased by 41% 	
CareOregon	<ul style="list-style-type: none"> • 66% of the clinics were able to achieve the target of 80 percent of their patients seeing a provider on their own care team • 80% of patients perceive they are receiving all aspects of patient-centered care. 	<ul style="list-style-type: none"> • 10.8% increase in the proportion of diabetic patients receiving HbA1c testing • 7.6% increase in the proportion of diabetic patients with blood sugar under control • 7.6% increase in the proportion of hypertensive patients with blood pressure under control 	<ul style="list-style-type: none"> • it has observed a \$400 per member per month (PMPM) cost savings 	Klein and McCarthy <small>Error! Bookmark not defined.</small>
USA	<ul style="list-style-type: none"> • communication with physician score reduced • medication compliance score reduced • confidence filling out 	<ul style="list-style-type: none"> • unhealthy mental days reduced • unhealthy physical days reduced 	<ul style="list-style-type: none"> • emergency room visits in the past 6 months reduced • time hospitalized in the past 6 months reduced 	Ory et al (2013)

	medical forms increased			
Mobile Phone Diabetes Project -Chicago-	<ul style="list-style-type: none"> patient satisfaction is seventy-three percent 	<ul style="list-style-type: none"> glycemic control and control of HbA1c improved. quality of life improved 	<ul style="list-style-type: none"> total cost of healthcare declined by \$812 per participant per six months. net cost savings are \$437 per participant 	Nundy et al (2014)
Kaiser Permanente	<ul style="list-style-type: none"> readmission rates decreased to 9% from 13% in 6 months improved care transitions for elders with heart failure 	NA	NA	Neuwirth et al (2012)
Banner Health	<ul style="list-style-type: none"> length of stay decreased from 80 to 55 hours. 	<ul style="list-style-type: none"> delirium and coma free days 	<ul style="list-style-type: none"> savings are approximately \$84 million 	Dahl et al (2012)
Auto Genomics	<ul style="list-style-type: none"> less adverse events 	<ul style="list-style-type: none"> right person right drug philosophy yields improved health for the population served 	NA	Kureshy (2013) <small>Error! Bookmark not defined.</small>
New Zealand	NA	<ul style="list-style-type: none"> the disparities in coverage decreased from 10% to 3% 	<ul style="list-style-type: none"> no new money 	Grayson (2013)
Ireland	<ul style="list-style-type: none"> length of Stay (days) reduced 14% bed days used by medical patients increased 10% discharges nationally(all DRGs) 	<ul style="list-style-type: none"> 18% reduction in stroke mortality rate in largest hospital since 2006 thrombolysis rates 9.5%, (2.4% in 2007) 95% of hospitals admitting stroke patients have a stroke unit (5% in 2007) 	<ul style="list-style-type: none"> \$750,000 saving \$650 million saved by saving bed days. 	Vaughan (2013)

Germany	NA	<ul style="list-style-type: none"> eight care management and preventive programs have been developed 	<ul style="list-style-type: none"> increase in contribution margin is 3.7% 	Hildebrandt et al Error! Bookmark not defined.
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Hilsenrath compares TA to managed care efforts in the 1980's and 90's. HMOs initially demonstrated some success in curbing costs but eventually encountered a major backlash. Reliance on supply side management was often unpopular. The Triple Aim and current efforts at healthcare reform benefit from improved technology including better insurance rate adjustments as well as lessons from the previous era. It will not rely on such heavy handed supply side approaches. But it is not clear that TA measures will prove much more effective than 20th century experimentation with managed care. The integration sought by TA may bring unwelcome side effects. Integration promises substantial improvement in productive efficiency. Better coordination should improve both health outcomes and costs. Unfortunately, it may also lead to higher prices as integrated structures develop market power. The implications and policy measures necessary to address market concentration concerns remain largely unaddressed.

Conclusions on The Future Role of the Triple Aim Program

It is important for hospital management to assess how the Triple Aim Program can engage with hospitals and health systems in their community to achieve its targets. A prerequisite is that the hospital or health system has robust and accurate health information and electronic financial reporting systems. It is clear that going forward hospitals will only survive the current and future round of financial challenges if they monitor and better manage both cost and prices. Such strategic commitment is necessary for hospital management to achieve financial sustainability. The Triple Aim Program may be the critical tool for accomplishing this.

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