Improving Center for Medicare and Medicaid Services (CMS) Quality Measure System with Data Analytics

Your Complete Name
Florida International University

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Abstract

The United States is among the countries with highest costs of health care globally. Furthermore, the country is also registering high incidences of factors that are used for describing poor patient outcomes such as high mortality, hospital readmission rates, safety of care services, patient experience timeliness of care among others. Such inconsistencies show that most of the care providers in the US health sector are focused on providing quantity care rather than quality care. Therefore, the primary purpose of this paper was to assess how the of Center for Medicare and Medicaid Services (CMS) can improve quality of care through the use of data analytics techniques. Successful implementation of recommendations proposed in this research paper depends on the level of commitment shown by key stakeholders in the US health sector such as CMS, insurance industry, pharmaceutical companies and physicians. Synthesis of evidence about the role of CMS in quality improvement led to the generation four themes such as hospital acquired infections reduction initiatives, bundled payment initiative for quality care improvement, expanding data collection, reporting and analysis as well as increasing competency of health workforce to care for vulnerable populations. Among the four proposed changes, bundled payment initiative for quality care improvement was recommended for implementation as it will help in ensuring that financial reimbursement by the CMS to hospitals and care providers is determined by the quality of care and levels of patient outcomes.

Keywords: Center for Medicare and Medicaid Services, quality of care, bundled payment

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Background Information

In recent years, different movements and policies have been established within the US healthcare sector to address the declining quality of health despite the increasing costs. The CMS, together with the Affordable Care Act (ACA), has established different strategies primarily focused on promoting the concept of paying for quality care (Peikes et al., 2020). Specifically, the CMS has outlined the penalties for health care centers reported to have subjected their patients to unhealthy environment, leading to additional complications such as hospital-acquired conditions (HAC), for example, catheter-associated urinary tract infections (CAUTI), surgical site infections (SSI) central line-associated bloodstream infections (CLABSI) in addition to ventilator-associated pneumonia (VAP) (Downing et al., 2017; Rajaram et al., 2015). Such policies were developed to limit negligence incidences among the care providers who would subject the patients to additional health complications.

Even though the problem of inconsistency between the quality of care and high cost still exists, the CMS, through the directed national efforts, has registered important progress, such as reducing the incidences of HACs by 40% (Rajaram et al., 2015). The CMS has also formulated the Physician Quality Reporting System (PQRS), which allows specialists to voluntarily report to the CMS to facilitate the realization of appropriate quality measures within the context of their clinical practice (Rajaram et al., 2015). In 2015, a new payment penalty Medicare reimbursement for eligible professionals who fail to participate in the PQRS was established as an approach for reducing incidences of low compliance among the care providers (Shrank, 2018). However, the program has not been effective in all parts of the country as there are some care professionals, such as gynecologists, who face a lot of challenges in finding distinct and endorsed PQRS measures that corresponding to the scope of their clinical practice (Peikes et al., 2020). As an approach for addressing such limitations, the

CMS formulated the Qualified Clinical Data Registries (QCDR) to facilitate the reporting of PQRS activities.

Even though the growth rate in spending has increased in recent years, per capita spending within the United States health sector is estimated to range from 50 to 200 percent higher compared to other economically developed countries (Wang et al., 2019). Furthermore, Erekson and Iglesia (2015) noted that the United States is poorly ranked in other parameters for quality life, such as mortality rates, hospital readmissions, despite leading the world in annual health care expenditure. Evidence about the low quality of health care services in the United States has motivated many researchers to explore and identify the specific sources of wasteful spending. Specifically, outcomes from Erekson and Iglesia (2015) and Marr (2015) identified variations in the state-based spending patterns, such as Medicare spending, as the primary factor limiting the provision of uniform quality of care among the United States population. Availability of evidence showing that regional variation in health care spending is not positively correlated with patient outcomes is an indication that health practices within some regions are not cost-effective (Stiehl, 2020; Stulberg et al., 2016). Such information has captured the attention of different policymakers within the health care sector in addition to sparking both private and public sector proposals focused on reducing unjustified variations in quality of care offered to the patients.

Nonetheless, evidence presented in Wang et al. (2019) provides positive correlation between higher intensity care and improved quality of patient outcomes, hence creating an important gap in literature about the possible benefits that can be enjoyed by all health care stakeholders if wastage in spending is reduced to the minimum. Relationship between treatment intensity and quality of care has also been explored in recent years as an approach for assessing the most effective strategies that may be used for ensuring that patient outcomes are improved. For example,

 Erekson and Iglesia (2015) stressed the existence of inconsistencies between the treatment intensities (such as hospitalization rates, number of physician visits, and concentrations of diagnostic tests) and the quality of patient outcomes among the Medicare enrollees. The study specifically reported a significant level of variation between health care spending (including additional costs incurred by the patients) and the quality of patient outcomes across different regions within the United States.

Corresponding to the outcomes from Erekson and Iglesia (2015), Marr (2015) noted that regions of the United States within the highest Medicare spending quintile registered 65% more health care experts per capita, but with 24% fewer family and general practitioners. Furthermore, Stiehl (2020) reported that Medicare and Medicaid beneficiaries from high-spending regions often receive nearly 60% additional services compared to their colleagues from low-spending areas. From this perspective, quality of care and patient outcomes with the least deprived regions are relatively higher compared to more deprived regions. There is limited evidence to show a strong relationship between costs or health care expenditure and quality of care or patient outcomes within the United States context. An area that has attracted additional attention of scholars to identify and report possible mediating factors. For example, Wang et al. (2019) identified low commitment levels among the health care practitioners to successfully execute their roles of patient care as a key factor, which is further medicated by other variables such as a limited number of care practitioners increasingly growing patient population. The CMS, which is a key stakeholder within the United States healthcare sector, has a significant role to play to ensure improved quality of care among the patients.

Downing et al. (2017) and Shortell, Casalino, and Fisher (2017) described value-based care as the quality care services rendered efficiently and effectively. Therefore, the success of value-based health care models is measured by their ability to facilitate reduction over-use or wastes and

 limiting incidences of negligence among the care providers. Even though most of the strategies for improving quality of care often emphasize the reduction of under-use incidences such as performance of appropriate screening tests and increasing the appropriate vaccination rates, Shortell, Casalino, and Fisher (2017) and Shrank (2018) identify controlling health care spending to decrease the over-use such as unnecessary testing and emphasis on eliminating the low-value care as some of the key approaches that can be used for improving quality of care services and patients outcomes in the United States health care context. Furthermore, the adoption of Choosing Wisely® campaign, which underwrote by the American Board of Internal Medicine and investing in accountable-care organizations (ACO), has been proposed as a key strategy of eliminating the low-value care within the United States health care setting (Downing et al., 2017; Peikes et al., 2020). However, more incidences of low-quality care and poor patient outcomes are still be being registered hence calling for the need to conduct a review on the existing policies for efficiency improvement.

Problem Statement

Despite spending highly on health care, the United States is not still achieving comparable performance in terms of patient outcomes and quality of care offered to the patients and their families (Wang et al., 2019). Patient outcome is a key standard for measuring the success of any health care intervention. The specific aspects of poor patient outcomes widely evidenced in the United States context include low life expectancy and higher incidences of chronic diseases (Peikes et al., 2020). Despite the availability of CMS quality measurement systems for health care services offered to the patients, the problem of poor quality of care persists (Downing et al., 2017). A key factor that has been associated with this problem is the increasing focus of available health policies on patient satisfaction rather than their outcomes. For example, patients might be

 satisfied with the quality of public relations offered to them by the hospital receptionists or the health practitioners caring for them, but such relationships do not represent the actual quality of care offered to them as they are unable to register positive outcomes from health problems. For this reason, there is a need to critically appraise the efficiency of CMS quality measurement systems in order to formulate more effective policies that focus on both patient satisfaction and patient outcomes to help in creating a proper balance between the cost and quality of care offered to the patients or “clients.”

Landscape

Key Stakeholder

Center for Medicare and Medicaid Services

The CMS is the primary stakeholder for this project focused on implementing strategies for improving quality of care as well as lowering the cost of care. The CMS is an important federal agency in the US health care sector which tasked with the role of administering Medicare program and partners with other stakeholders in the US health sector to other programs such as Medicaid, health insurance portability standards (Arditi, Burnand & Peytremann-Bridevaux, 2016; Silva et al., 2020). Kayyali, Knott, and Van Kuiken (2016) further noted that the CMS has other important responsibilities, which include the administrative simplification standards from the Health Insurance Portability and Accountability Act (HIPAA), whose primary emphasis is to ensure improved quality of health care services offered to the patients regardless of their regional orientations. Therefore, the CMS forms an important component of the present project as it is among the key agencies in the US healthcare sector that helps in ensuing improved quality of care for patients and reduced cost of care (Kneafsey et al., 2016; Silva et al., 2020). Therefore, any of the proposed changes in this project may direct influence the operation of CMS as the agency will be required to adopt new supervisory strategies to ensure

improved quality of care delivery and reduced cost of care incurred by people eligible for Medicare Medicaid subsidized care services.

Insurance Industry

Many individuals are currently barred from obtaining health insurance by strict requirements and rising premiums. The insurance companies have ventured so much into business with their services; they should not focus on making a profit. However, most health insurance companies are profit-driven. (Kayyali, Knott & Van Kuiken, 2016). If public health is to address the need for expensive medical care and lead the cause of improving people's health, suitable and unassailable public health financing process is sustainable with reference to health care and the national economy (Silva et al., 2020). Lack of coordination and evenness among national, state, and local public health agencies. Some public health department activities' responsibility is centralized in some state's industries (Kayyali, Knott & Van Kuiken, 2016). They should find suitable stability between their responsibilities towards both patients and shareholders.

Reports for stockholders reassure the companies to focus more on profit compared to affordability. The insurance companies should have stiff governance against the already existing circumstances so that patients are offered care services based on their plans and not care needs (Arditi, Burnand & Peytremann-Bridevaux, 2016). As the Medicare rolls get bigger, the demand for publicly funded health care will continue to grow with older Americans. Medicaid gets bigger under new reforms to ensure everyone gets access to health care insurance (Kayyali, Knott & Van Kuiken, 2016). The most effective and the best method to dominate these pressures and protect the nation's health is to ensure adequate funding and reform public health infrastructure (Silva et al., 2020). It is unethical of health insurance companies for patients not to use costly procedures as often as those with chronic illness because it bars those in need from receiving care and reduces healthcare to a profit-centered industry.

Pharmaceutical Companies

Many patients rely on pharmaceutical companies because they take the main position in the healthcare system. There are no caps to prevent the rising prices of drugs from reaching extravagant. It is not true that to cover the research cost, the pharmaceutical corporations should charge higher prices as argued by those who monitor healthcare activities (Kneafsey et al., 2016). PHARM constantly has profit margins above most Fortune companies because it spent an average of $83 billion on development and research in 2016 and which is nearly as much on promotion (Kayyali, Knott & Van Kuiken, 2016). PHARMA publicly supported reforms that transform management to increase the quality of care among the US population, keep the patients out of the hospital, and transform the American's health care system into a contemporary healthcare system that focuses on the management of different health care problems, such as metabolic syndromes.

Pharmaceutical companies must practice fair marketing and be honest to show their noble responsibility to warrant the affordability of their products (Arditi, Burnand & Peytremann-Bridevaux, 2016). Kneafsey et al. (2016) have extensively written about the improper acts of pharmaceutical companies. For instance, she argued for many years in the office since the 1980s (Silva et al., 2020). The industry committed billions of dollars in reduced drug spending over decades without authorizing the government to eliminate the public option and negotiate prices in exchange for expanding Medicare drug coverage.

Physicians Physicians are obligated to control the rising cost of healthcare and making sure their patients receive qualified healthcare and have the responsibility of developing a balance between acting the advocates for their patients and ensuring successful implementation of insurance companies’ policies (Van Der Heijde et al., 2018). The beginning of the

 medical, educational experiences is the physician's relationship with the health care delivery organization and not upon entering practice (Silva et al., 2020). Joining the medical school is the beginning of their clinical training, and occurs within a health care delivery setting, concerning patient safety without corresponding changes in the culture and environment that may negatively impact their quality of life. Therefore, it is not easy to imagine changing physicians' education. The number of patients seen in a day to reimburse for their decrease in revenue is a result of increased diagnostic testing. Health care practitioners do not have ample time to interact with patients and review charts. Therefore, they order more tests to lower their susceptibility to risks. A contend is created when physicians or two different roles are put together (Kayyali, Knott & Van Kuiken, 2016). The presiding doctor has a fiduciary role in ethically protecting the interest of the patient. In the contemporary health care environment, insurance companies give more incentives to physicians to cram more patients and order referrals into each workday.

A culture of intimidation has been created by both the physician practice experience and the medical education process. Physicians are expected to always accept their mistakes which might have put the patients at risks of additional health problems (Arditi, Burnand & Peytremann-Bridevaux, 2016). The state scope of practice laws does not protect the overall care of physicians and tend to put the responsibility on the physician, has hardened the same laws. They also have the role to patients independent of insurance companies (Kayyali, Knott & Van Kuiken, 2016). They also have a role of goodwill to do whatever is necessary to their patients. However, the physician is practicing paternalism for acting independently without considering the desires of the patient (Silva et al., 2020). Thus, the beneficence obligation must be equitable by the principle of patient autonomy. Patients have different needs and have an obligation to participate completely in decisions about their health.

The oversight role played by it leads to physicians' defiance to participate in team-based care, even though team-based care leads to safer and better outcomes (Kayyali, Knott & Van Kuiken, 2016). Local concerns, specialty oversight, local peer review, and licensure accentuate the physician as the sole source of responsibility for mistakes as well as reinforcing the physician's lone nature in the health care system (Van Der Heijde et al., 2018). It is easy comprehend how difficult it will be to include physicians in the leadership roles for ensuring improved patient outcomes.

Key Influencing Factors

Political Factors

The federal has an obligation to amend all forms of the US health sector. According to Arditi, Burnand, and Peytremann-Bridevaux (2016), the US government, including the Democrats and Republicans in both houses, often play an important role in formulating policies for managing and ensuring efficiency in the health care sector. The federal government should carry out a survey and make the public data available and compare the quality of care among providers and should give financial rewards to doctors and hospitals who improve care (Wang, Hao & Platt, 2021). Enhancing the quality of care in them is likely to provide clarity to the rest of the health care system, given the size of the programs in the health care system.

Over the years, there have been substantial changes in the types of regulatory concerns, though the federal government has for a long time depend extensively on supervisory strategies to address the raised concerns of quality concerns (Tončinić, de Wildt-Liesveld & Vrijhoef, 2020). Traditionally, regulatory requirements focused on health care professionals where nurses and physicians must obtain or complete a set level of training in a known and certified institution and maintain current state licenses, or quality assertion competency or structural requirements for hospitals where hospitals must formulate and implement infection control processes

 inspected by the health officials (Niles, 2019). Regulatory strategies suitable to the government plans that offer care through the private sector have integrated quality development methods that emphasize improved quality of life among patients (Tončinić, de Wildt-Liesveld & Vrijhoef, 2020). Although little is known about the ways that works best to tackle the quality assurance and the quality improvement strategies, those strategies focus on the quality distribution to the right.

Economic Factors

According to Wang, Hao, and Platt (2021), people living in poverty are often highly vulnerable to poor quality of health because of their high susceptibility to different forms of metabolic syndromes, including hypertension, diabetes, or stroke have more common conditions. Individuals in low-income families, normally less than the anticipated percentage of the federal poverty level, often have higher chances of engaging in substance and drug abuse which exposes them to poor quality of life (Niles, 2019). Economic resources enable access to healthcare services and material goods and services.

Individuals of ethnic and racial groups who were over the age of 18 years and had family income below the poverty level in 2009-2010 were probable compared to their colleagues with higher incomes (Tončinić, de Wildt-Liesveld & Vrijhoef, 2020). Furthermore, from 200 to early 2011, it has been established that adults (people aged 18 years and above) with low income are less likely to seek medical care on time because of the high costs associated with such services (Wang, Hao & Platt, 2021).

Correspondingly, Wang, Hao, and Platt (2021) noted that people from least deprived areas or wealthy families often have higher chances of receiving high-quality care services compared to their colleagues from most deprived areas who mainly depend on Medicare and Medicaid care plans (Tončinić, de Wildt-Liesveld & Vrijhoef, 2020). Discriminatory behaviors of health care providers directed to patients from most deprived

Options

Option 1: Hospital Acquired Infections Reduction Initiative

Available evidence shows that most of the patients seeking care services from the hospitals are often at risk of acquiring additional infections, which deteriorate their quality of life further (Li, Kim & Doshi, 2017). Therefore, the CMS is expected to formulate effective strategies for ensuring the reduction of hospital-acquired infection. Even though the Hospital-Acquired Condition Reduction Program (HACRP) has been extensively implemented in almost all US hospitals, the efficiency of this program is often threatened by the inability of some stakeholders in the health care sector to abide by the policy's recommendations (Bradley et al., 2016). The hospital-acquired infection reduction program is primarily a Medicare pay-for-performance program that supports the overall goal of CMS to connect the Medicare payments to the quality of care provided in the inpatient hospital settings.

The program specifically requires the CMS to adjust the hospitals' payments based on their rankings (Casalino et al., 2016). Hospitals that register more than 75% of the total HAC scores, including the worst-performing quartile, will be subjected to at least 1% payment reduction, with the reduction of payments is often executed during the period when hospital claims are paid by the CMS (Casalino et al., 2016). To increase the efficiency of this program, the HAC score for determining the worst-performing quartile should be based on different types of quality measures that have been extensively used in the US health care sector, such as CMS Recalibrated Patient Safety Indicator.

Option 2: Bundled Payment Initiative for Quality of Care Improvement

The next option that the CMS may use for increasing the quality of care is through the implementation of bundled payment approach. Within this initiative, health care organizations entered into payment arrangements

IMPROVING CMS QUALITY MEASURE SYSTEM 15 which include both performance and financial accountability for the episodes of care. Specifically, this type of model will focus on increasing the quality of care and coordination of care services at a lower cost to Medicare. Bradley et al. (2016) and Casalino et al. (2016) noted that Medicare often makes separate payments to the providers for every service offered to the beneficiaries, both for a single illness or course of treatment. The strategy has led to fragmented care with relatively limited coordination among the providers and health care settings. Consistent with Li, Kim and Doshi (2017), payment is a process for rewarding quantity of care provided by the health practitioners in stead of quality of care and quality of life registered by the patients.

There is need to restructure the payment method employed by the Medicare, with focuses on quality of care rather than the quantity of care offered by the hospital. Previous research studies by Bradley et al. (2016) and Li, Kim and Doshi (2017) revealed that bundled payment approach helps in aligning incentives for the care provider and providing them with the opportunity to collaboratively work together with the primary goal of improving quality of care offered to the patients rather than emphasizing on the quantity of care. Within this proposed structure of bundled payment, an awardee is the entity which assumes the financial liability associated with episode spending, with the episode initiators being the acre providers who trigger provision of bundled payment for quality improvement for the episodes of care. However, it is important to note that the care providers in this model will not directly break the risk but take part in the model through an agreement with the bundled payment for care improvement awardee.

Option 3: Expanding Data Collection, Reporting and Analysis

In addition of competency levels of care providers, demographic characteristics of the patients have been determined to act as a mediating factor for reduced quality of care, as a result of increased cases of discrimination based on patient ethnicity. Therefore, this option emphasizes

 on the need for CMS to promote equality in the health care sector in order to ensure improved quality of care services offered to the patients regardless of their ethnicity. The third option in this proposed change management focuses on increasing understanding and awareness of the value for gathering and analyzing standardized patient data as well as formulating appropriate solutions and tools that the health care stakeholders can use for collecting and analyzing local data as well as pinpointing the needs and health disparities within their communities. The existing body of literature suggests that the increased collection of standardized patient data across the health care systems is an effective strategy for improving the quality of health provided to the patients (Duncan et al., 2017; Herold & Bonuck, 2016; Perla et al., 2018). According to Aaronson et al. (2017), the inability of the health care providers to understand the health care needs of their patients limits the quality of care.

Through data analytics, stakeholders in the CMS, such as care providers, can collect comprehensive patient data, such as their race, language, ethnicity, sexual orientation, disability status, which are required for planning quality improvement as well as for addressing changes among the targeted population overtime. The Affordable Care Act advocates for federally conducted or supported health care and public health programs and the government surveys that may help assess and understand the patients' health care needs based on the collected data (Prasad, 2018). Even though research has identified evidence-based guidelines and practices for improving the collection of standardized patient data, such guidelines are not often available to health care providers and staff hence limiting their successful implementation (Perla et al., 2018). Best practices of collecting sexual orientation and gender identity information have been developed for some population (Aaronson et al., 2017). Nonetheless, there are no evidence-based guidelines for standardizing data collection process, which

has significantly led to the disparities in the quality of care offered to the patients.

Option 4: Increasing Competency of Health Workforce to Care for Vulnerable Populations

Health care providers have the responsibility of caring for every patient regardless of their ethnicity. Therefore, the fourth option in this change proposal project emphasizes reducing disparities, formulating solutions to equip the health care workforce to deliver linguistically and culturally effective care services, and disseminating best practices for driving stakeholders to actions that facilitate improvements in health care workforce quality and impact. Competency and an adequate number of care providers are critical factors that influence the quality of care services offered to the Medicare beneficiaries (Prasad, 2018). Both CMS and Affordable Care Act includes provisions focused on improving access and delivery of care to the underserved population by creating opportunities targeting workforce development and expansion (Duncan et al., 2017). Some of the key examples of such opportunities include incorporating expanding roles mid-level providers and the options to increase the role of community health workers within the US health care system (Aaronson et al., 2017; (Herold & Bonuck, 2016). Care providers must be equipped with adequate skills and knowledge that are required when caring for patients from different ethnic backgrounds and of varying health needs.

Diversification of the health care workforce through expansion of the roles for community health workers is among the key priorities for the CMS stakeholders, and successful implementation of such a program would help in supporting HHS Disparities Action Plan (Perla et al., 2018). The standard further provides a detailed explanation of the strategies that the care providers can use for reducing disparities by increasing cultural competence, addressing health literacy in addition to the provision of communication and language assistance. Previous studies by Duncan et al.

 (2017) and Prasad (2018) acknowledged the challenge of patient and family engagement in a new value-focused health paradigm. The more severe nature of this challenge is often experienced in hospital settings which work towards accounting for the social needs and connect the patients and families to the wrap-around services. Therefore, the reformulated health delivery program should facilitate improved engagement of patients and their families through all the care providers from the physician interactions to community health workers and dieticians with high level of competency to reach patients and communicate effectively with them for improved quality of care.

Recommendations

Out of the four proposed options, this project has chosen to recommend implementation of option 2 “bundled payment initiative for quality of care improvement.” Kivlahan et al. (2016) described bundled payment as a reimbursement for health care providers, including physicians and hospitals, based on the expected costs for clinically defined episodes of care. For this reason, the bundled payment approach is a linking factor between the free-for-service reimbursements (involving payment of health practitioners based on each care service they render to the patients) and capitation (within which the providers are reimbursed a specific amount regardless of how many services they offered to their patients) as long as the risk is shared between the payer and provider (Agarwal et al., 2020). Even though the CMS has been advocating for the implementation of the bundled payment approach, there are still significant inconsistencies that can be observed between the quality of care delivered to the patients and the amount of money incurred in such care delivery process (Agarwal et al., 2020). For this reason, it is important for the CMS to consider implementing bundled payment approach focused on reimbursement of financial compensation to the hospitals based on the quality of care they offer to their patients and not on the quantity basis as currently observed.

Successful adoption of this approach will further influence gradual movement from fee-for-service payments to compensation based on the totality of care provided to the patients, with the transition predicted to influence the improved quality of care services offered to the patients.

Consistent with the arguments by Kivlahan et al. (2016), most of the hospitals and care providers are emphasizing on treating a large number of patients within a short period of time, an approach that has negatively impacted the quality of care services provided to the patients as their main goal is to increase the amount of financial reimbursements from the CMS. The bundled payment approach incorporates the costs of hospital, the physician in addition to other health care services into discrete groups and then the spending targets are being formulated by the CMS (Yates et al., 2018). Therefore, those care provider and hospitals participating in this program have the responsibility of delivering care services which are below the set target by the CMS in order to be eligible for incentive payments. Even though this approach may help in improving the quality of care, it has been criticized based on its possible downside risks, which the care providers and participating hospitals should accept in situations where the actual expenditures are above the spending target (Kivlahan et al., 2016; Yates et al., 2018). In such incidences, the CMS must be repaid the overage.

Through the bundled payment approach for improved quality of care, the CMS will be able to reimburse hospitals based on the quality of care they provided to the patients and not on the basis of the number of patients cared for within that specified period of time. One of the key factors that the CMS can use for assessing efficiency of respective hospitals to provide quality care services to the patients in the rate of hospital readmissions. Through data analytics process, the CMS will collect standardized data and health information of the patients which it may use for assessing their rates of hospital visiting and whether their health problems have been addressed by the health care centers. The approach will help in limiting the

occurrence of forgery incidences where some of the hospitals may choose to provide inappropriate data about their readmission rates.

Conclusion

The low quality of care offered to the patients has been a major concern despite the increasing costs. A key goal of CMS is to ensure the provision of positive patient outcomes, with a specific focus on reduced mortality, the safety of care services, hospital readmissions, patient experience timeliness of care, among others. Existing evidence shows that most hospitals and care providers are mainly focusing on quantity rather than the quality of care. Such inconsistencies have led to reduced quality of care. The primary purpose of this research paper was to propose strategies that the CMS can use for increasing quality of care using a data analytics approach. For the proposed changes to be successfully implemented, all the US health sector stakeholders such as CMS, the insurance industry, pharmaceutical companies, and physicians must play their roles effectively. Synthesis of evidence about CMS strategies for improving quality of care led to the generation of four key options such as hospital-acquired infections reduction initiatives, bundled payment initiative for quality care improvement, expanding data collection, reporting, and analysis as well as increasing competency of the health workforce to care for vulnerable populations. Out of the four options, this project recommended the implementation of bundled payment initiative for quality care improvement. Through this approach, the CMS will be able to reimburse hospitals and care providers based on the quality of care their rendered to the patients and not on the quantity or number of served patients. Successful implementation of this proposal will help in increasing the quality of care offered to patients.

References

- Aaronson, E. L., Filbin, M. R., Brown, D. F., Tobin, K., & Mort, E. A. (2017). New mandated Centers for Medicare and Medicaid Services requirements for sepsis reporting: caution from the field. *The Journal of emergency medicine*, *52*(1), 109-116.
- Agarwal, R., Liao, J. M., Gupta, A., & Navathe, A. S. (2020). The Impact of Bundled Payment on Health Care Spending, Utilization, And Quality: A Systematic Review: A systematic review of the impact on spending, utilization, and quality outcomes from three Centers for Medicare and Medicaid Services bundled payment programs. *Health Affairs*, *39*(1), 50-57.
- Arditi, C., Burnand, B., & Peytremann-Bridevaux, I. (2016). Adding non-randomised studies to a Cochrane review brings complementary information for healthcare stakeholders: an augmented systematic review and meta-analysis. *BMC health services research*, *16*(1), 1-19.
- Bradley, E. H., Herrin, J., Elbel, B., McNamara, R. L., Magid, D. J., Nallamothu, B. K., ... & Krumholz, H. M. (2016). Hospital quality for acute myocardial infarction: correlation among process measures and relationship with short-term mortality. *Jama*, *296*(1), 72-78.
- Casalino, L. P., Gans, D., Weber, R., Cea, M., Tuchovsky, A., Bishop, T. F., ... & Evenson, T. B. (2016). US physician practices spend more than $15.4 billion annually to report quality measures. *Health Affairs*, *35*(3), 401-406.
- Downing, N. S., Cloninger, A., Venkatesh, A. K., Hsieh, A., Drye, E. E., Coifman, R. R., & Krumholz, H. M. (2017). Describing the performance of US hospitals by applying big data analytics. *PloS one*, *12*(6), 19-27.
- Duncan, S. T., Jacobs, C. A., Christensen, C. P., Nunley, R. M., & Macaulay, W. B. (2017). Is physician quality reporting system worth

the cost to report to Center for Medicare and Medicaid Services? *The Journal of arthroplasty*, *32*(4), 1055-1057.

- Erekson, E. A., & Iglesia, C. B. (2015). Improving patient outcomes in gynecology: the role of large data registries and big data analytics. *Journal of minimally invasive gynecology*, *22*(7), 1124-1129.
- Herold, R. A., & Bonuck, K. (2016). Medicaid IBCLC service coverage following the Affordable Care Act and the Center for Medicare and Medicaid Services update. *Journal of Human Lactation*, *32*(1), 89-94.
- Kayyali, B., Knott, D., & Van Kuiken, S. (2016). The big-data revolution in US health care: Accelerating value and innovation. *Mc Kinsey & Company*, *2*(8), 1-13.
- Kivlahan, C., Orlowski, J. M., Pearce, J., Walradt, J., Baker, M., & Kirch, D. G. (2016). Taking risk: early results from teaching hospitals' participation in the center for Medicare and Medicaid innovation bundled payments for care improvement initiative. *Academic Medicine*, *91*(7), 936-942.
- Kneafsey, R., Brown, S., Sein, K., Chamley, C., & Parsons, J. (2016). A qualitative study of key stakeholders' perspectives on compassion in healthcare and the development of a framework for compassionate interpersonal relations. *Journal of clinical nursing*, *25*(1-2), 70-79.
- Li, P., Kim, M. M., & Doshi, J. A. (2017). Comparison of the performance of the CMS Hierarchical Condition Category (CMS-HCC) risk adjuster with the Charlson and Elixhauser comorbidity measures in predicting mortality. *BMC health services research*, *10*(1), 1-10.
- Marr, B. (2015). *Big Data: Using SMART big data, analytics and metrics to make better decisions and improve performance*. John Wiley & Sons.
- Niles, N. J. (2019). *Basics of the US health care system*. Jones & Bartlett Learning.

- Peikes, D., Taylor, E. F., O'Malley, A. S., & Rich, E. C. (2020). The Changing Landscape of Primary Care: Effects of The ACA and Other Efforts Over the Past Decade: A description of primary care delivery system reform models developed and tested over the past decade by the Center for Medicare and Medicaid Innovation, which was created by the Affordable Care Act. *Health Affairs*, *39*(3), 421-428.
- Perla, R. J., Pham, H., Gilfillan, R., Berwick, D. M., Baron, R. J., Lee, P., ... & Shrank, W. H. (2018). Government as innovation catalyst: lessons from the early Center for Medicare and Medicaid Innovation models. *Health Affairs*, *37*(2), 213-221.
- Prasad, V. (2018). Why the US Centers for Medicare and Medicaid Services (CMS) should have required a randomized trial of Foundation Medicine (F1CDx) before paying for it. *Annals of Oncology*, *29*(2), 299-301.
- Rajaram, R., Chung, J. W., Kinnier, C. V., Barnard, C., Mohanty, S., Pavey, E. S., ... & Bilimoria, K. Y. (2015). Hospital characteristics associated with penalties in the centers for medicare & medicaid services hospital-acquired condition reduction program. *Jama*, *314*(4), 375-383.
- Shortell, S. M., Casalino, L. P., & Fisher, E. S. (2017). How the Center for Medicare and Medicaid Innovation should test accountable care organizations. *Health Affairs*, *29*(7), 1293-1298.
- Shrank, W. (2018). The Center for Medicare and Medicaid Innovation's blueprint for rapid-cycle evaluation of new care and payment models. *Health Affairs*, *32*(4), 807-812.
- Silva, H. P., Lefebvre, A. A., Oliveira, R. R., & Lehoux, P. (2020). Fostering Responsible Innovation in Health: an evidenceinformed assessment tool for innovation stakeholders. *International Journal of Health Policy and Management*, 12(3), 19-23.

- Stiehl, J. B. (2020). Impact of Big Data Analytics for Assessing a Common Orthopedic Procedure: Commentary on an article by Kevin Bozic, MD, MBA, et al.: “Quality Measure Public Reporting Is Associated with Improved Outcomes Following Hip and Knee Replacement”. *JBJS*, *102*(20), e119-e127.
- Stulberg, J. J., Delaney, C. P., Neuhauser, D. V., Aron, D. C., Fu, P., & Koroukian, S. M. (2016). Adherence to surgical care improvement project measures and the association with postoperative infections. *Jama*, *303*(24), 2479-2485.
- Tončinić, S., de Wildt-Liesveld, R., & Vrijhoef, H. J. (2020). Evaluation of a digital platform that engages stakeholders in the co-creation of healthcare innovations: A mixed-methods study. *International Journal of Care Coordination*, *23*(1), 33-42.
- Van Der Heijde, D., Daikh, D. I., Betteridge, N., Burmester, G. R., Hassett, A. L., Matteson, E. L., ... & Lakhanpal, S. (2018). Common language description of the term rheumatic and musculoskeletal diseases (RMDs) for use in communication with the lay public, healthcare providers and other stakeholders endorsed by the European League Against Rheumatism (EULAR) and the American College of Rheumatology (ACR). *Annals of the rheumatic diseases*, *77*(6), 829-832.
- Wang, Y., Hao, H., & Platt, L. S. (2021). Examining risk and crisis communications of government agencies and stakeholders during early-stages of COVID-19 on Twitter. *Computers in human behavior*, *114*, 106-1112.
- Wang, Y., Kung, L., Gupta, S., & Ozdemir, S. (2019). Leveraging big data analytics to improve quality of care in healthcare organizations: A configurational perspective. *British Journal of Management*, *30*(2), 362-388.

- Yates, A. J., Kerr, J. M., Froimson, M. I., Della Valle, C. J., & Huddleston, J. I. (2018). The unintended impact of the removal of total knee arthroplasty from the Center for Medicare and Medicaid Services inpatient-only list. *The Journal of arthroplasty*, *33*(12), 3602-3606.