A Regional Health System Journey from Volume to Value: Roadmap to the Recognition as a 15 Top Health System in the USA for Quality Excellence

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Abstract: The 15 Top Health System program, an IBM Watson study, objectively measures health systems' performance overall on an annual basis using publicly reported data available from the Center for Medicare and Medicaid Services (CMS) and state data banks. Genesis Health System was recognized as an IBM Watson Health 15 Top Health System for two consecutive years in 2020 and 2021. A system-based approach with a "physician-lead, professionally-managed" framework, led to accomplishing the 15 Top Health System. The steps needed included adoption of the IBM Watson database to determine current status of certain key performance indicators, establishing a clinical effectiveness program and governance structure, and adopting Lean methodologies to analyze and determine appropriate interventions with long-term solution. The desire and willingness to accomplish this ambitious goal start with adoption by the Board and the administration of the health system while supplying appropriate financial and human resources that are dedicated to the success of the journey. In this manuscript, we describe the journey and steps implemented to accomplish the outcomes that led to the recognition as a 15 Top Health System for quality excellence.

Keywords: 15 Top Health System, physician lead, clinical effectiveness, Lean methodology, Value of care

Background

Top health systems aim to provide high level value of care based on superior quality, patient satisfaction and access to services at a reduced cost. Several challenges have recently emerged to accomplish these goals including an aging population with a shift in resources towards management of chronic diseases and a significant redundancy in care triggered by the lack of effective communication among providers. Also, today's patients are well informed[10] given their access to powerful search engines on the web and have higher expectations of their providers. Unfortunately, these challenges are also met with continued financial pressures on health systems as a result of dramatically declining reimbursement, higher demands from payers, penalties and recently the COVID-19 pandemic. Despite these pressures, health care systems strive to reach top rankings in quality and safety to earn the trust and loyalty of their patients and communities. The prestige of the contests matters much less than the ability to achieve/demonstrate the objectives related to quality improvement and to prove their merit to those who entrust their lives and health to them.

Quality in health care can be defined by its components of safety (avoiding injuries and complications to patients), timeliness of care (reducing delays in care), effective service (evidence based), efficiency (avoiding waste), equitable (equal for all) and patient-centered care (responsive to individual patients and their needs). Safety has become a critical issue over the past two decades, brought to light by the landmark Institute of Medicine (IOM) report in 1999 To Err is Human: Building a Safer Health Care System[2] in which 98,000 Americans reportedly died of avoidable medical errors. At that time, those mistakes came at a cost of 9 to 15 billion dollars per year, thus raising the cost of health care. More

recent studies have shown that risks may still be underestimated and that one of 10-patients experience adverse events while in the inpatient care setting.[2] With safety at the center of healthcare excellence, ranking among the top health systems for quality starts with the implementation of a safe culture. More recent analyses indicate that while the healthcare industry is focusing heavily on quality and safety, there continues to be a resounding need to improve the value to the consumer by driving down the cost of care through methods to increase the quality and safety. Twenty years later healthcare organizations are getting closer but still have not achieved the levels of quality that are required by the consumer.

There are several ranking institutions[3] that rank performance excellence, such as: Becker's Hospital Review, US News & World Report, Healthgrades, Centers for Medicare and Medicaid Services (CMS), Leapfrog and IBM Watson Health Top 100. All of these ranking institutions have diverse metrics with pros and cons. The IBM Watson Health program (formerly Truven Health Analytics) started conducting the Top 100 Hospital study annually in 1993.[8] This is an independent, quantitative review that identifies the top hospitals, with the best facility-wide performance, from nearly 3000 organizations across the nation. The main outcomes from these top performers were better quality of care and at a lower cost. Later, in 2009, the 15 Top Health System program, also an IBM Watson study, was introduced which objectively measures health systems' performance overall while offering insights to deliver consistent top performance across the communities they serve. The study is conducted annually, using publicly reported data, available from the Center for Medicare and Medicaid Services (CMS) and state data banks. Figure 1 shows the data that was used during the 2021 award year. This grading system divides hospitals into three categories, each has five top health system winners. These categories are based on the size of the system from large, medium to small. The criterion for determining size is derived by using a variety of factors, including total operating expense, as seen in Figure 2. Peer health systems include all US health systems in the study database, excluding benchmark systems.

Performance Measure	Current performance (15 Top Health Systems award selection)	Five-year trend performance
Risk-Adjusted Inpatient Mortality Index	MEDPAR Federal Fiscal Year (FFY) 2018 and 2019*	MEDPAR Federal Fiscal Year (FFY) 2016-2019*,**
Risk-Adjusted Complications Index	MEDPAR FFY 2018 and 2019*	MEDPAR FFY 2016-2019*,**
Mean Healthcare-Associated Infection Index	CMS Hospital Compare Calendar Year (CY) 2019	CMS Hospital Compare CY 2015-2019
Mean 30-Day Mortality Rate (AMI, Heart Failure, Pneumonia COPD, Stroke)	CMS Hospital Compare Jul 1, 2016-Jun 30, 2019	CMS Hospital Compare: Three-year datasets ending Jun 30 in 2015, 2016, 2017, 2018, 2019
30-Day Hospital-Wide Readmission Rate	CMS Hospital Compare Jul 1, 2018-Jun 30, 2019	CMS Hospital Compare: One-year data sets ending Jun 30 in 2015, 2016, 2017, 2018, 2019
Severity-Adjusted Average Length of Stay	MEDPAR FFY 2019	MEDPAR FFY 2016-2019**
Mean Emergency Department Throughput Measure	CMS Hospital Compare CY 2019	CMS Hospital Compare CY 2015-2019
Medicare Spend per Beneficiary Index	CMS Hospital Compare CY 2019	CMS Hospital Compare 2015-2019
HCAHPS Top Box Percent (Overall Hospital Rating)	CMS Hospital Compare CY 2019	CMS Hospital Compare CY 2015-2019

*Two years of data are combined for each study year data point.

**Trend years reduced to four data points due to limited ICD-10-CM data

Figure 1 Rank weights and public data sources. *Federal fiscal year is Oct 1 through Sep 30. **Measures with only 4 years of trend data points due to ICD-10 available in MEDPAR data. Watson Health © IBM Corporation 2021.

Health System Comparison Group	Criteria	Number of Systems in Study	Number of Winners
Large	>= $2.5 billion total operating expense **OR** >= $1.5 billion & >= 3 states **OR** $1.5B & >= 5 STGAC	129	5
Medium	>= $800 million tot exp & >= 5 STGAC **OR** >= $1 billion total operating expense	92	5
Small	Does not meet large or medium system criteria	103	5
Total Systems		**324**	**15**

Figure 2 Health system comparison groups and winners. Watson Health © IBM Corporation 2021.

As compared to their peer health systems, the hospitals included in the IBM Watson 15 Top Health System list of winners have better results on performance indicators intended to measure clinical outcomes, operational efficiency, and patient experience.[8] These include lower inpatient mortality rates, fewer patient complications considering patient severity; care that resulted in fewer hospital acquired infections; higher influenza immunization rates; lower 30-day readmission rates; shorter lengths of stay; faster emergency care; higher scores on their patient ratings of their overall hospital experience, and lower expenses for inpatient hospital stays as well as care following discharge.[8] Quality and safety recognition instills confidence for patients and communities knowing they have access to the highest level of quality, safe care.

Genesis Health System was recognized as an IBM Watson Health 15 Top Health System for two consecutive years in 2020 and 2021 for their performance relative to 2018 and 2019. These awards are validation to the commitment of the health system's mission which states, "Genesis Health System exists to provide compassionate, quality health services to all those in need." This manuscript summarizes the most recent Genesis Health System performance data from 2019 that was used in the 2021 15 Top Health Systems Award, and describes the journey of the small health system, to achieve national recognition for quality and safety outcomes.

Methods
Historical Perspective
The Genesis Health System quest for top decile performance in quality and safety has resulted in transformational improvement since the establishment of the multi-hospital system in 1994.[5] What began with the merger of two community hospitals, St. Luke's and Mercy, located in Davenport, Iowa, eventually resulted in further expansion with the addition of another community hospital, Illini, located in Silvis, Illinois, in 1996. In 1997, Genesis Health System acquired the critical access hospital in DeWitt, Iowa, followed by the acquisition of an Illinois-based critical access hospital, in Aledo, Illinois, in 2013. Each new affiliation for the growing health system presented challenges in learning how to collaborate their diverse quality of care efforts. There were cultural differences, as well as differing opinions about quality and safety of care priorities. The independent cultural thinking led to inconsistencies and variations in care.

Initially, the approach for measuring quality and safety was based on internal year-over-year performance and there was not a methodology in place to achieve a larger vision of delivering the highest level of quality and safety when compared to peer institutions. Individual hospital campus (business unit) scorecards were created for monthly evaluation of both process and outcome metrics at the entity level, providing at a glance, the progress towards target achievement. The Quality Index scorecard was designed as a health system document that rolled up the data from all entities to demonstrate successes and opportunities as a whole. The two-pronged approach (entity and system-based data) was relevant and offered insight into the organizational status. Predominantly, the organization only used historical data from CMS to establish an aim toward excellence, but this did not lead to robust improvement steps. The data analytics

available early on provided valuable insight, although the cohort for national comparison was small and cost analytics data were not available to impact the value of care.

The Early Steps

The development of a culture of safety was the foundation necessary to edify the organization in preparation for future gainful improvements in quality. Definitions of safety culture and safety climate from Groves, Meisenbach & Scott-Cawiezell[7] were initially unrealized by Genesis, but these valuable characteristics were later understood. In the early years after the establishment of Genesis Health System, the organization possessed neither a culture of safety, nor a safety climate, two things that are essential for transformational change.[6] There were policies and procedures, but none that were specific to safety behaviors. The lack of tools to guide safe practice also meant there was an absence of a safety climate where all levels of employees saw safety in everything they did. Ultimately, without safety, there cannot be quality.

The steps taken by Genesis Health System to achieve a high performing safety program were reported in a previous publication (Cropper et al).[4] The implementation of seven safety essential elements within the system was crucial and included: safety rounding, a safety oversight team; safety huddles; safety coaches; safety catches/safety heroes; safety education; red rule, and the systematic reporting, codifying and evaluating of unusual occurrences (U.O.) followed by root cause analysis (RCA) of serious safety events. The Quality and Safety teams were trained by Healthcare Performance Improvement (HPI), LLC on how to conduct a root cause analysis (RCA), and improvement processes for safety were established. Genesis Health System's one and only red rule was adopted and is the standardized performance of patient identification using both name and date of birth. Red rule is the one absolute act that must be performed for every patient interaction to ensure safety. A curriculum for safety education was developed and made mandatory for the system Board of Directors, executive team, leaders, providers, and staff across the organization. The creation of a Patient Safety Fellowship, as well as the Leadership Development Institute (LDI) resulted in an approach of layered and ongoing learning to continuously remain focused on safety. These efforts led to a steady decline of serious safety events and eventually a zero serious event occurrence in 2018. The full details of this program can be found in the aforementioned publication. The program was a success and became a crucial component in the wider aim at bringing the highest level of safety and quality of care to the patients served in the region. The 15 Top Health System national recognition validated the excellent outcomes from the engagement and hard work.

In addition to the safety program, a Performance Excellence structure was established to bring together the executive leadership of business units in order to manage and unify quality and safety initiatives. This effort aided in the collaboration of the system and enabled further transformation of quality and excellence.

The Application of Six Sigma and Lean Principles

Six Sigma tools and techniques were implemented to accomplish the goal of delivering value of care in the Genesis Health System and achieve top national rankings as a health system. The application of process improvement focused on improving safety, reducing cost and providing efficient and standardized patient-centered care. This started with defining (D) and measuring (M) several of the existing problems by identifying metrics of special importance and comparing it to national benchmarks, analyzing (A) existing data to investigate the root causes, improving (I) and controlling (C) existing processes by implementing the A3 Lean methodology. The Six Sigma steps (DMAIC) were implemented by launching the following:

(a) Transitioning from the historical methodologies and solutions to IBM Watson Health for more extensive benchmarking and larger data sets for comparisons and analysis

(b) Implementing the Clinical Effectiveness Program with "Physician Lead, Professionally Managed" focused teams. The provider-led teams meant that they were providing clinical insight into solutions for existing problems, gaining the trust of the providers with the data, and obtaining their input into new technologies and procedures for quality and cost analysis.

(c) Redefining metrics to be aligned with CMS, Leapfrog, and IBM Watson, the three main ranking systems chosen by the institution. This enabled them to compare outcomes with other institutions across the nation. The "Be Good, Look Good" concept was promoted, as it is not enough to be good at taking care of patients. In today's environment, national recognition for top performance in quality and safety demonstrates how good an organization looks compared to peers delivering the same services. The public deserves to see who is "the best of the best" when making decisions about where to receive health care.

The IBM Watson 15 Top Health System

To be eligible for the Watson Health™ 15 Top Health Systems,[8] the system must have at least two acute care hospitals and must report a parent or related organization relationship on the hospital Medicare cost report. Critical Access Hospitals are also included in the analysis. Fifteen systems are selected (five in each category of large, medium, or small systems) based on overall performance across all included measures from the most recent year of available data while also looking at overall trends from the last five years for rates of improvement. Overall performance is determined by ranking each measure individually then summing the weighted ranks and re-ranking overall. The comparative group is from peer US health systems.

The IBM Watson Health Data[8] uses Present on Admission (POA) condition coding in the risk models for mortality, complications, and average length of stay (ALOS). Some adjustments were made to the Medicare Provider Analysis and Review (MEDPAR) data when invalid POA code "0" was present. When a POA code "0" is present the following was done:

(a) All principal diagnoses (dx) were treated as "present on admission".
(b) All secondary dx on the CMS exempt list were treated as "exempt".
(c) All secondary dx for which the POA code "Y" or "W" appeared more than 50% of the time in Watson Health's all-payer database were treated as "present on admission".
(d) All others were treated as "not present".

The Following Measures Were Used to Evaluate the 15 Top Health Systems

1. Risk-Adjusted Inpatient Mortality
2. Risk-Adjusted Complication (COMP)
3. Healthcare-Associated Infections (HAI)
4. 30-Day Mortality (acute myocardial infarction – AMI, heart failure, pneumonia, chronic obstructive pulmonary disease COPD, stroke)
5. 30-Day Hospital-Wide Readmissions (H-WR)
6. Severity-Adjusted Average Length of Stay (ALOS)
7. Emergency Department Throughput (ED)
8. Medicare Spend Per Beneficiary (MSPB)
9. Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)

Many of these measures are aligned with CMS measures including those of MEDPAR and CMS Hospital Compare. The 15 Top Health Systems Performance Matrix compares the system's current performance and 5-year rate of improvement in percentiles when compared to national benchmarks in the database. Percentiles are calculated by dividing the rank within the comparison group by the number of systems in the group and multiplying by 100. The IBM Watson description of how individual metrics were calculated was as follows:

> Mortality, complications and length of stay (LOS) indexes are calculated by summing hospital observed and expected values to the health system level. Expected values are normalized by system class. LOS indexes are converted to average length of stay in days for reporting, using the in-study health system grand mean LOS.[8]

Healthcare-associated infections, 30-day mortality and 30-day hospital-wide readmissions are calculated by summing member hospital observed and eligible patient counts to the health system level. According to the IBM Watson Health methodology, Genesis Health System is categorized as a small health system to calculate the percent or rate.

The following infections were captured: CLABSI – Central line-associated blood stream infections; CAUTI – Catheter-associated urinary tract infections; COLON – Surgical site infection (SSI) from colon surgery; SSI: HYSTERECTOMY – SSI from abdominal hysterectomy; MRSA – Methicillin-resistant *Staphylococcus aureus* blood laboratory-identified events; and C. DIFF – *Clostridium difficile* identified by laboratory testing.

The system-level emergency department (ED) throughput measure is the arithmetic mean of the two included ED throughput measures. Each individual ED measure is aggregated to the system level by summing the member hospital wait time minutes and dividing by the sum of the member hospital count.

Medicare spend per beneficiary index (MSPB) is calculated by weighting the member hospital MSPB indexes by the hospital MEDPAR discharges. The weighted indexes are summed and divided by the total member hospital discharges. This produces the weighted MSPB for each system.

The HCAHPS top box percent is calculated by summing the member hospital HCAHPS survey numbers and eligible patient counts to the health system level to calculate the percent.[8]

The Clinical Effectiveness (CE) Program

A 2015 article in the British Medical Journal stated that a key theme in changing a safety culture was to take action.[9] In 2017, the Genesis Health System Chief Medical Officer and Quality/Business Intelligence teams studied and interviewed corporations with data analytics capabilities and decided to partner with IBM Watson Health to launch the Clinical Effectiveness (CE) program using comparative quality and cost data to drive performance improvement by taking action in the top areas of opportunity for improvement. This led to a change in governance structure in 2018 (Figure 3) followed by the formation of various CE teams led by providers to focus on decreasing variation of care through standardization of definitions, coding, and process improvements that are sustainable and reproducible all while using data to promote actions intended to achieve the top 10th percentile. This included decreasing complications, length of hospital stays and variations to reduce cost.

The structure took a bi-directional approach, where CE teams reported up to the Board of Directors sub-councils (Quality and Safety and Finance Committees) but also received feedback regarding solutions, interventions, and progress. The "professionally managed" component came in the form of two program managers, a clinical manager as well as a data manager, who led the teams, but also reported through the structure to the various councils. The program managers, along with the executive sponsor, created the feedback loop and reported progress to the Medical Executive Committee (MEC) and the Medical Operations Council (MOC) at the hospitals. Those teams are comprised of physician leaders that oversee a multitude of service lines and specialties. This process not only kept the providers engaged and informed of what was going on, but it gave them the opportunity to view the data, weigh in, and come up with other solutions that could be impactful in their own areas as well.

Step 1

Using the IBM Watson Health Data, key performance indicators (KPIs) were identified to be significantly inferior to the benchmark. For instance, major bleeding was noted to be excessively high at 8% after percutaneous coronary intervention procedures. The benchmark was noted to be in the 2–3% range.

Step 2

A CE team was developed to focus on the particular problem that had been identified. For instance, a CE team was put together to discuss major bleeding to develop a solution to the problem. The team consisted of a cardiologist, anesthesiologist, nurses, cath lab technicians, coding experts and the chief medical officer.

Step 3

A root-cause analysis was conducted for the identified problem. In the case of major bleeding, a chart review of patients with "major bleeding" indicated that even a minor hematoma was coded as a major bleed by the providers. It became
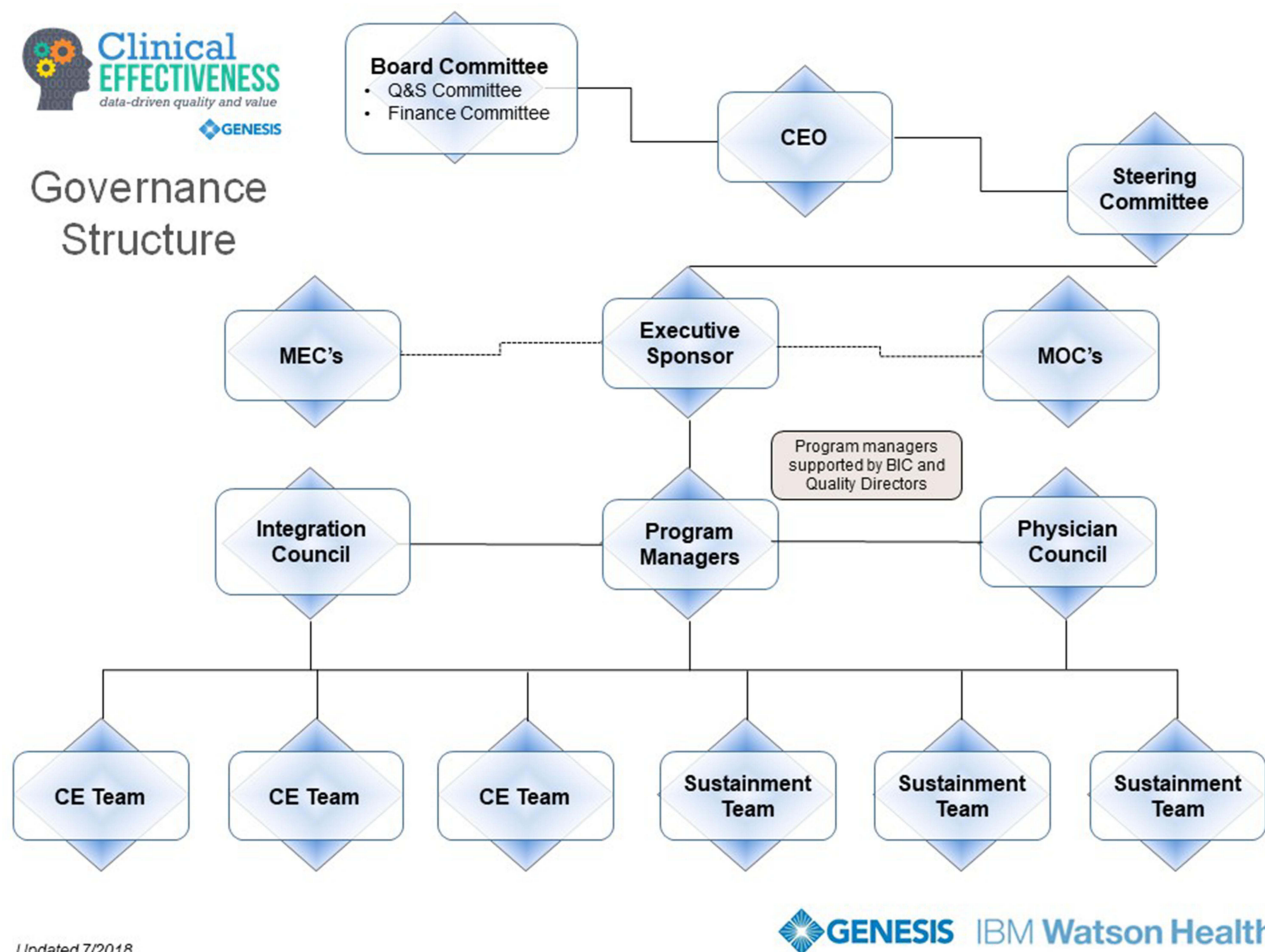
Figure 3 Clinical effectiveness program governance structure.
Notes: This structure was initially put in place in 2018. It is reviewed on an annual basis to ensure best practices are still in place and that the structure is operating efficiently and effectively.
Abbreviations: CEO, Chief Executive Officer; CE, Clinical Effectiveness; MOC, Medical Operations Committee; MEC, Medical Executive Committee.

clear that there was no consensus on what constituted a major bleed thus creating inconsistencies in the way major bleeds were documented.

Step 4

Solutions were then proposed by the team and a process for implementing them was recommended. In the case of the major bleeding, a health system definition was adopted and supported with national guidelines. Once this definition was adopted, a system-wide education methodology was deployed to the coding departments, providers, and nurses. The most important aspect was the documentation of the bleed, its location, and a decrease in hemoglobin levels, transfusion requirements, and emergency measures taken to stop it.

Step 5

Controlling, improving, and sustaining the process was vital to success. Once the true major bleeding rate was identified, champions across the health system were educated on using the A3 Lean process to find better ways to lower bleeding risk. Using the A3 9-box problem solving methodology, these teams came out with various solutions to the current state of the problem and individuals were assigned to monitor it and report on its progress to the CE committee. Standardization was the main intent when implementing solutions to achieve the quality performance.

Results

[Figure 4A](#) shows 2019 Performance. Winners are selected based only on performance. Six of the measures were above the median performance and three below the median. Despite this, the overall performance was calculated at 95.1 percentile, qualifying the system as one of only five small health systems in the nation to receive the 2021 15 Top Health System Award.

[Figure 4B](#) shows the rate of improvement. While the rate of improvement is not used to determine top performing status, it does indicate how the organization compares to peers also striving to improve the quality of care. Knowing the consumer demand for quality excellence is gaining momentum, every institution is challenged to expand their energy to improve quality and safety for patients being served. The Genesis Health System rate of improvement demonstrates eight of the nine measures had improvement over the median percentile. The overall rate of improvement was ranked in the 93.1 percentile.

[Figure 5](#) shows the relationship between performance and rate of improvement. Six of the measures landed in the right upper quadrant showing a higher than median improvement and performance rank percentile. The overall rank of both performance and improvement was very high in the mid-90th percentile.

Another round of data analysis comparing the health system to other like systems prompted focused efforts to achieve best practice for Average Length of Stay (ALOS). A physician led, professionally managed CE team was established with the goal of reducing the overall length of stay for patients admitted for observation.
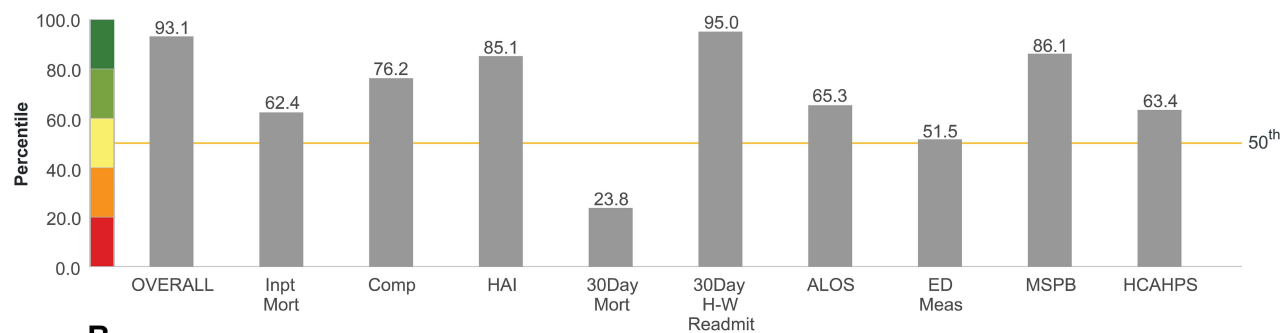
Timely and efficient observation care management was achieved by grouping patients with specific diagnoses and developing inclusion and exclusion criteria for admittance. Protocols and pathways were designed, and an area within the

2019 Performance Rank Percentiles
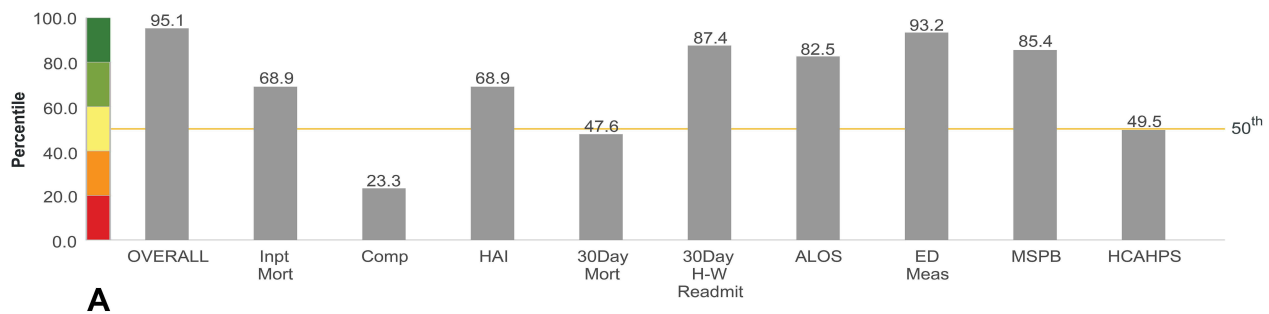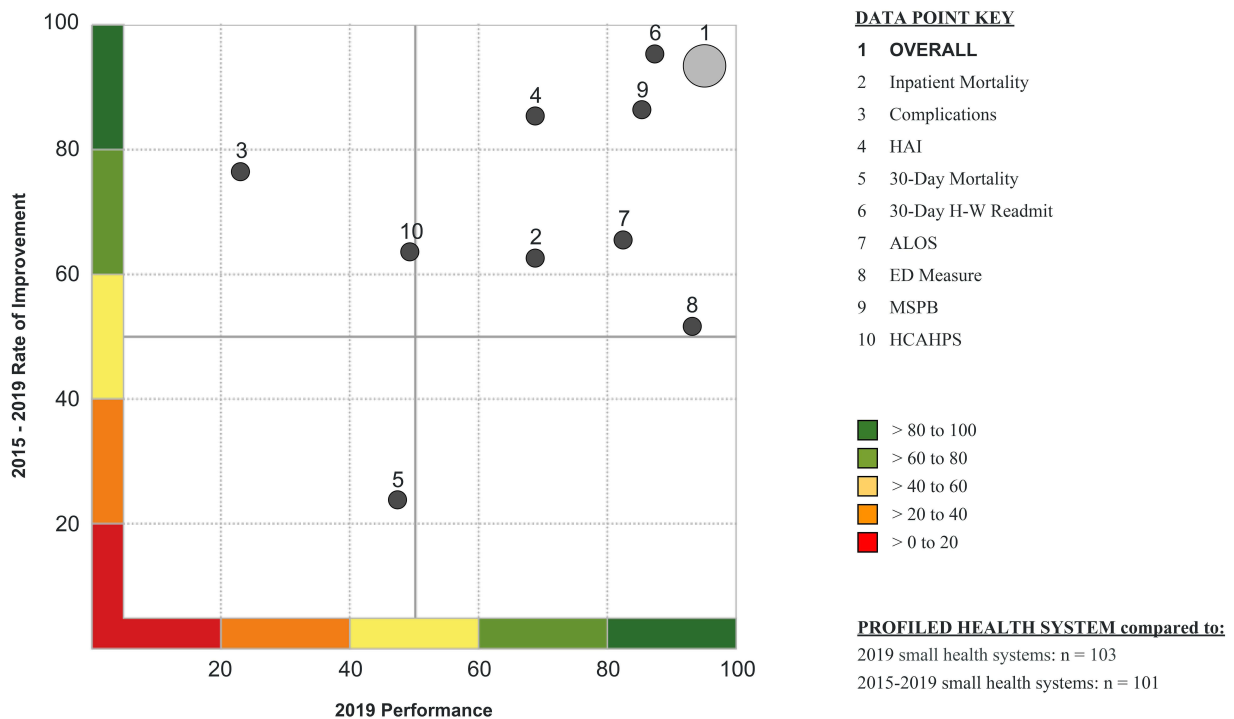
A

2015 - 2019 Rate of Improvement Rank Percentiles

B

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Figure 4 2019 performance rank percentiles (**A**); 2015–2019 rate of improvement rank percentiles (**B**). Watson Health © IBM Corporation 2021.
Notes: This figure is the property of IBM Corporation. It portrays how Genesis Health System performed in each of the scored domains for the most recent analyzed year of data, reported as rank percentiles. Individual measure percentiles were calculated by dividing the measure rank within the comparison group by the number of systems in the group and multiplying by 100.

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Figure 5 2019 performance and five-year rate of improvement matrix. Watson Health © IBM Corporation 2021. This figure is property of IBM Corporation. Overall health system performance is a composite score based on the sum of the ranks of individual measures. For 2019 Performance overall, all measures had a weight of 1 in both the current and trend profiles. This sum is used to rank your health system versus your comparison group. The matrix "Overall" dot integrates your national rank percentile for current overall performance with your national rank percentile for 5-year overall rate of improvement.

health system was dedicated to being the Observation Unit. Grouping observation patients allowed for STAT orders and expedient turn around for results. Patients were quickly discharged or moved to a higher level of care more efficiently. This implementation drastically improved the length of stay and the quality of care being delivered, as patients were treated promptly with the appropriate resources and interventions necessary.

The 2018 Average Length of Stay (ALOS) performance was in the 78.8 percentile rank per IBM Watson Health, and after implementing the Observation Unit in 2019, the ALOS performance ranking improved to 82.5 percentile. In fact, prior to the Clinical Effectiveness team focus on LOS, patient stays were exceeding 33 hours to a best practice standard of 24 hours. The extensive work of establishing an Observation Unit decreased the LOS to 22 hours.

The health system realized the value for the patients and expanded eligibility for admission to the observation unit based on diagnoses and criteria and continually expanded acceptable diagnoses including chest pain, syncope, atrial fibrillation, heart failure, chronic obstructive pulmonary disease (COPD), asthma, transient ischemic attack (TIA), pneumonia, dehydration/nausea/vomiting/diarrhea, and cellulitis. Figures 4A and B reveal the percentile rank for performance for ALOS at 82.5, with the rate of improvement at the 65.3 percentile.

In addition, the ED throughput performance achieved a percentile rank of 93.2 in part by the efficiency of getting the observation patients appropriately and expediently placed for care, allowing for further capacity in the ED where patients may otherwise need to wait to be admitted to a bed.

Discussion

Several hospital methodologies have been put forth to compare hospitals' performance. There are pros and cons for each of these ranking models. For instance, Hospital Compare has significant methodological problems identified by the American

Hospital Association (AHA) as published in a February 2019 letter.[1] These include "ratings driven by methodology and not performance, high level of inconsistency between reporting periods, individual metrics are unequally balanced, inability to predict future metrics that will drive performance ratings, lack of adjustments for social risk factors".

The Leapfrog Hospital Safety Grade rates hospitals based primarily on patient safety, using grades of A, B, C, D, and F. The Becker's Hospital Review uses analysis based on rankings from other agencies such as US News and World Report, CMS Star Ratings, Leapfrog grades, and IBM Watson Health's Top rankings. The US News and World Report uses five years (instead of three) of claims data from CMS and some of those include 30-day mortality rates for Medicare patients, patient safety data from the Agency for Healthcare Research and Quality (AHRQ), other care-related indicators such as nurse staffing and patient volume. When rating the ranking systems from A to F, Bilimoria et al[3] noted that none of these systems received an A or an F. US News and World Report received a B ranking, whereas CMS Star Ratings and Leapfrog received a C. Finally, Healthgrades received a D in their "Rating the Raters" report.

Recognizing IBM Watson Health as a gold standard, the CE program adopted their framework to achieve quality excellence and the best value of care. This decision was based on several considerations. First, the system compared like hospitals making the comparison more meaningful. Second, the benchmark data were more comprehensive as it utilized one of the largest available and renowned data sets for comparison. Third, the metrics utilized were aligned with those of CMS, one of the largest healthcare regulators, thus moving the organization into a higher CMS rating, which comes with more rewards and less penalties.

A high ranking on each of the metrics is not necessary to achieve top performance using the IBM Watson Health ranking. It is clear that not all measures are ranked high at Genesis Health System, and despite this, the overall performance was excellent at the 95th percentile. The rate of improvement rank percentiles are predictors of how fast competing institutions will be moving ahead in the future and is a crucial comparison to understand how far those peers will lead or lag on the journey to achieving top performance outcomes.

The CE program was instrumental in achieving high levels of improvement and overall performance. The change in the governance structure was key in setting up teams to deal with specific, identified opportunities, and then reporting to the physician council for feedback and accountability. This also ensured that sustainable change was implemented. Using Lean principles and methodologies by the teams significantly sharpened their ability to move forward on gap identification and solution implementation. Targeting opportunities for improvement in the KPIs by analyzing the IBM Watson Health data and the focused approach on solution and implementation were critical to the success of achieving recognition as a higher performing quality leader in the nation. It should be noted that our team validated the findings from IBM with internal sources to ensure data integrity. Also, we continue to use the governance structure and methods to drive ongoing and future quality improvements. For example, infection prevention, LOS, fewer Patient Safety Indicator fallouts, and excellent ED throughput (ED arrival to admit times) to ensure that we have sustainable, lasting changes. The commitment from administration, the investment of needed human and financial resources and the "physician-lead, professionally managed" approach, led to a higher level of trust in the process with less resistance from providers and healthcare workers.

Limitations

There are limitations within our framework that should be noted for anyone else attempting to replicate. First, the mission must exist to be an aspiring organization for quality excellence as this journey takes a significant amount of time and resources to be successful. This means that the Board of Directors and leadership need to be driven by that mission and fully supportive of the work and the teams that are doing the work. This includes not just the hospital administration, but also a fully engaged medical staff, at all levels, as they are the ones that are leading the changes that are necessary. Next, the program must have dedicated resources, including human personnel or else the scope and impact would be limited. This would be in the form of dedicated clinical and analytical skills, dedicated framework for processes, dedicated meeting times, and the commitment from the leaders to push projects and ideas forward. Finally, organizations ought not limit themselves to just looking internally at their data, but rather, to look at how they are performing as compared to national cohorts, to see how they are performing against peers. This allows organizations to view levels and trends to see where their opportunities for improvement exist.

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Conclusion

In summary, a system-based approach with a "physician-lead, professionally-managed" framework, led to Genesis Health System's ability to achieve top quality performance, resulting in the IBM Watson Health 15 Top Health System Award for excellence. The steps required included adoption of the IBM Watson Health database to determine the current status of certain KPIs, establishing a clinical effectiveness program with a governance structure, and adopting Lean/Six Sigma methodologies to analyze and determine appropriate interventions with long-term solution. The desire and willingness to accomplish this ambitious goal start with adoption by the Board and the administration of the health system while supplying appropriate financial and human resources that are dedicated to the success of the journey.

Disclosure

Dr Nicolas W Shammas reports grants from AngioDynamics, Boston Scientific, VentureMed Group, and Bard; speaker bureau from Janssen, Boehringer Ingelheim, Merck, and Bayer, outside the submitted work. The authors report no other conflicts of interest in this work.

References

1. American Hospital Association. Joint letter star ratings; 2019. Accessed from: https://www.aha.org/system/files/2019-02/JointLetterStarRatingsFeb2019Release-020119.pdf. Accessed November 29, 2022.
2. Arora S, Tsang F, Kekecs Z, et al. Patient safety education 20 years after the Institute of Medicine Report: results from a cross-sectional national survey. *J Patient Saf*. 2021;17(8):e1884–e1888. doi:10.1097/PTS.0000000000000676
3. Bilimoria KY, Birkmeyer JD, Burstin H, et al. Rating the raters: an evaluation of publicly reported hospital quality rating systems. *NEJM Catalyst*. 2019;1–42. doi:10.1056/CAT.19.0629
4. Cropper DP, Harb NH, Said PA, Lemke JH, Shammas NW. Implementation of a patient safety program at a tertiary health system: a longitudinal analysis of interventions and serious safety events. *J Healthc Risk Manag*. 2018;37(4):17–24. doi:10.1002/jhrm.21319
5. Genesis Health System. The history of genesis health system and its predecessor organizations; 2022. Accessed from https://www.genesishealth.com/about/timeline/. Accessed September 24, 2022.
6. Groves PS. The relationship between safety culture and patient outcomes: results from pilot meta-analyses. *West J Nurs Res*. 2013. doi:10.117700/09193945913490080
7. Groves PS, Meisenbach R, Scott-Caqiezell J. Keeping patients safe in healthcare organizations: a structuration theory of safety culture. *J Adv Nurs*. 2011;67:1846–1855. doi:10.1111/j.1365-2648.2011.05619x
8. IBM Watson Health. Watson Health 15 top health systems; 2021. Accessed from https://www.ibm.com/products/15-top-health-systems. Accessed January 12, 2022.
9. Mitchell I, Schuster A, Smith K, Pronovost P, Wu A. Patient safety incident reporting: a qualitative study of thoughts and perceptions of experts 15 years after 'To Err is Human'. *Br Med J*. 2015;2016(25):92–99. doi:10.1136/bmjqs-2015-004405
10. Santilli J, Vogenberg FR. Key strategic trends that impact healthcare decision-making and stakeholder roles in the new marketplace. *Am Health Drug Benefits*. 2015;8(1):15–20.