The Leadership Institute Roundtable

Healthcare Experience with Silicon Valley DNA

Dan Goldsmith
CEO

Dr. Bala Hota
SVP, Chief Informatics Officer

Our Focus

Improve patient experiences to frictionless and better informed

Reduce clinician burnout through streamlined workflow, rich insights, and reduced screen time

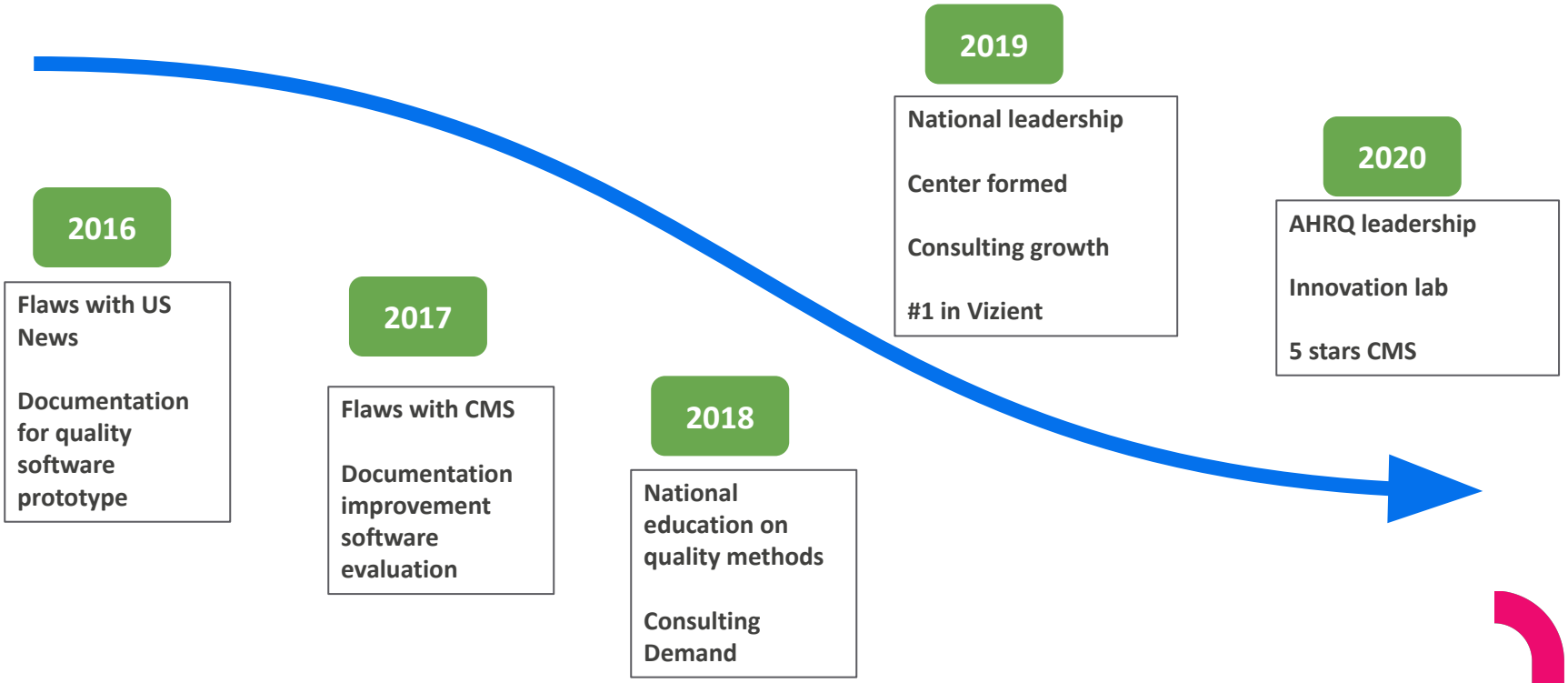
Enable healthcare systems to drive improved quality, outcomes, and economics

How do we get there?

Better, more connected, technology is needed, but it has to be combined with new information and insights for all stakeholders that is:

- **Accurate**
- **Transparent**
- **Reliable**
- **Useful**

The Rush Journey



2016

U.S.News HEALTH » Hospitals Doctors Dentists Senior Care Wellness Diets Conditions Medicare & Marketplace Rankings

HEALTH / SECOND OPINION

Quality Measurement Is a Journey

Rush University study highlights PSI limitations that spurred this summer's methodology change.

By **Ben Harder**, Managing Editor and Chief of Health Analysis Oct. 7, 2016, at 4:07 p.m.

WHEN CLINICIANS AND healthcare-improvement experts describe the pursuit of quality as a journey, their word choice reflects a central tenet: healthcare quality may never achieve ...an always be made closer to perfect.

...vement, quality measurement is mid-journey. My group's work at U.S. News & ...nchmark and publicly report hospital performance is evolving as we and ...s learn more about the limitations of extant measures and methods.

ABOUT SECOND OPINION

Second Opinion is the public square where U.S. News

...e of the Joint C... ...Rush University's understa... ...used by U.S. Ne... ...s that report on...

BEST HOSPITALS U.S.News & WORLD REPORT RANKINGS

The U.S. News and World Report changed methods in response to this analysis

The Joint Commission Journal on Quality and Patient Safety

Performance Measures

The Quality Measurement Crisis: An Urgent Need for Methodological Standards and Transparency

David M. Shahian, MD; Elizabeth A. Mort, MD, MPH; Peter L. Pronovost, MD, PhD

...rmation about health care quality. Unfortunately, the ...liferation of commercial or journalistic rating organiza... ...report cards has often not been conducive to this goal. ...h care has a measurement problem. Notwithstanding ...ration of their developers or their intended use, report ...often based on problematic, idiosyncratic, or untested ...logies, which may lead to erroneous or completely ...t grades for the same institution.[5,14] These inaccurate ...tient ratings typically reach the public without ever ...ough the filters of external review that we demand of ...publications, yet their ramifications are at least as con... ...l, if not more so. They can mislead patients in their ...a provider; undeservedly harm or enhance hospital or ...reputations; misdirect the allocation of scarce hospi... ...y resources for quality assessment and improvement; ...t in inappropriate payments or penalties in a zero-sum, ...nce-based payment environment.[15] Eventually, as their ...es become apparent, these flawed report cards foster ...and mistrust of all quality measurement.

...mplexity of Health Care Measurement

...desque state of the measurement enterprise reflects its ...complexity, the lack of auditing, opaque methodologies, ...bsence of enforceable standards. Designing and imple... ...good performance measures is a complicated under... ...e consists of many essential steps, each with a variety ...s that can affect the final results: choosing appropri... ...dures or conditions to profile; specific types of mea... ...inal data source (claims data, electronic health records, ...egistries); data quality assurance; level of attribution; ...matching of patients to providers; patient and pro... ...ervation periods; statistical methodology, including risk ...e, management of clustered observations, and sample ...criteria for outlier determination; assessment of risk ...erformance; measure validity and reliability; patient-...resentation formats; and monitoring for unintended ...nces. Lack of standardization and methodological rigor ...these steps may lead to erroneous or conflicting results.

...2 Number 10 435

The Joint Commission Journal on Quality and Patient Safety

Performance Measures

Consumer Rankings and Health Care: Toward Validation and Transparency

Bala Hota, MD, MPH; Thomas A. Webb, BS; Brian D. Stein, MD, MS; Richa Gupta, MBBS, MHSA; David Anvell, MD, MPH; Omar Lateef, DO

Article-at-a-Glance

Background: Differences between the Centers for Medicare & Medicaid Services (CMS)–measured rates of safety events for Rush University Medical Center (RUMC; Chicago) and the *U.S. News & World Report* (*USNWR*)–determined patient safety score were evaluated in an attempt to validate the *USNWR* patient safety score–based ranking.

Methods: The *USNWR* findings for Patient Safety Indicators (PSIs) were compared with findings derived from RUMC internal billing data, and sensitivity analyses were conducted using a simulated data set derived from the Healthcare Cost and Utilization Project (HCUP) state inpatient data sets.

Results: Discrepancies were found for PSIs 3 (Pressure Ulcer Rate), 9 (Perioperative Hemorrhage or Hematoma Rate), and 11 (Postoperative Respiratory Failure Rate)—an excess of 0.72, 0.63, and 0.26 cases/1,000 admissions, in *USNWR* versus RUMC, respectively). The sensitivity analysis, which included missing present on admission (POA) flags and dates, resulted in an increase of rates by 1.83 (95% confidence interval [CI] = 1.10–2.56) cases/1,000 hospitalizations, 2.72 (CI = 0.00–5.90) cases/1,000 hospitalizations, and 3.89 (CI = 1.60–6.20) cases/1,000 hospitalizations for PSI 3, 9, and 11, respectively. Regression modeling showed that each 1% increase in transfers was associated with an increase of 0.06 cases of PSI 3/1,000 admissions; each 1,000 increase in admissions was associated with an increase of 0.04 cases of PSI 9/1,000 admissions.

Conclusion: The *USNWR* data set produced inaccurate PSI rates for RUMC, and false-positive event rates were more common among high-transfer and high-volume hospitals. More transparency and validation is needed for consumer-based benchmarking methods. In response to these findings and concerns raised by others, in 2016 *USNWR* made changes to its methodology and data sources and reported them in announcing its 2016–17 Best Hospitals.

The Institute of Medicine (now known as the Health and Medicine Division) has established the critical need to improve patient safety and quality,[1] and to achieve this aim, to use data to measure and improve health care through positive feedback and change.[2] Section 501(b) of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, with a goal of improving health care quality through measurement and feedback, enabled the Centers for Medicare & Medicaid Services (CMS) to develop the Hospital Inpatient Quality Reporting program, and link payment rates to measures of quality.[3]

The Agency for Healthcare Research Quality (AHRQ; Rockville, Maryland) Patient Safety Indicators (PSIs) illustrate how measure usage can diffuse through stakeholder groups to become policy. In 2008, in an effort to enable Medicare to pay for quality over quantity, CMS added the PSIs as a measure of inpatient care quality following almost a decade of development and testing of the validity of these measures.[4] Each PSI has well-described criteria for counts of eligible patients (denominators) and cases (numerators), as well as exclusion criteria. Indicator measurement also depends on understanding when events in the hospital occur; adverse events, particularly those related to surgery, must clearly have followed procedures and not preceded them. Thus, it is critical to have accurate data on conditions that are present on admission (POA). Following the lead of CMS, many other private and commercial entities now rank hospitals using PSIs, either with identical or modified methodologies. Perhaps the most well-known use in the lay press of PSIs is in the *U.S. News & World Report* (*USNWR*) patient safety score, which uses seven PSI scores (Table 1, pages 440–441).

Consumer sites have been criticized for presenting too much information, with potential inaccuracies affecting the patient's (or consumer's) ability to choose.[5] Although some components of the *USNWR* ranking have been criticized as being too reliant on reputation,[6] the patient safety score represents a quantitative, objective component of the ranking. For a ranking measure to fulfill the aims of transparency, validity, and credibility,

October 2016 Volume 42 Number 10 439

January 19, 2016

Omar Lateef, DO
Chief Medical Officer and Vice President
Rush University Medical Center
Chicago, Illinois 60612

Dear Omar,

Thank you for your letter. I want to again thank your group for identifying a limitation of the MedPAR data set that was previously undocumented. After reviewing the implications of the absence of procedure dates in MedPAR, we have committed analytical resources to using a different data set, the SAF LDS, for our calculation of PSIs for the 2016-17 rankings. We believe the use of the SAF LDS will address the issue regarding procedure dates.

2018-2019

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CMS hospital star-rating system has been wrong for two years, health system finds

By Maria Castellucci | June 15, 2018

The CMS has miscalculated hospitals' star ratings since they were first releas
in 2016, according to leaders at Rush University Medical Center in
Chicago.Rush's quality leaders found that instead of evenly weighting the eigh
measures in the safety-of-care group, the CMS' star-ratings formula relied hea

Article

American Journal of Medical Quality

Disagreement Between Hospital Rating Systems: Measuring the Correlation of Multiple Benchmarks and Developing a Quality Composite Rank

Bala Hota, MD, MPH[1], Thomas Webb, MBA[1], Avanthi Chatrathi, MPH[2], Elizabeth McAninch, MD[1], and Omar Lateef, DO[3]

Modern Healthcare

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March 01, 2019 02:47 PM

Commentary: Four steps would help CMS fix star-rating program's unintended flaws

Dr. Bala Hota, Dr. Omar Lateef and Thomas Webb

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Rush University Medical Center in Chicago.

Hospital Quality Star Ratings on *Hospital Compare*

Technical Expert Panel (TEP): Meeting 1

November 4, 2019

CORE

CENTER FOR OUTCOMES RESEARCH AND EVALUATION

YaleNewHavenHealth

1

NATIONAL QUALITY FORUM

Driving measurable health improvements together

National Quality Task Force: *Driving Value through the Next Generation of Quality*

DRAFT RECOMMENDATIONS

October 2019

Interest in the Rush results exceeded expectations

Insights for better quality, experiences, and outcomes

tendo + RUSH

2021

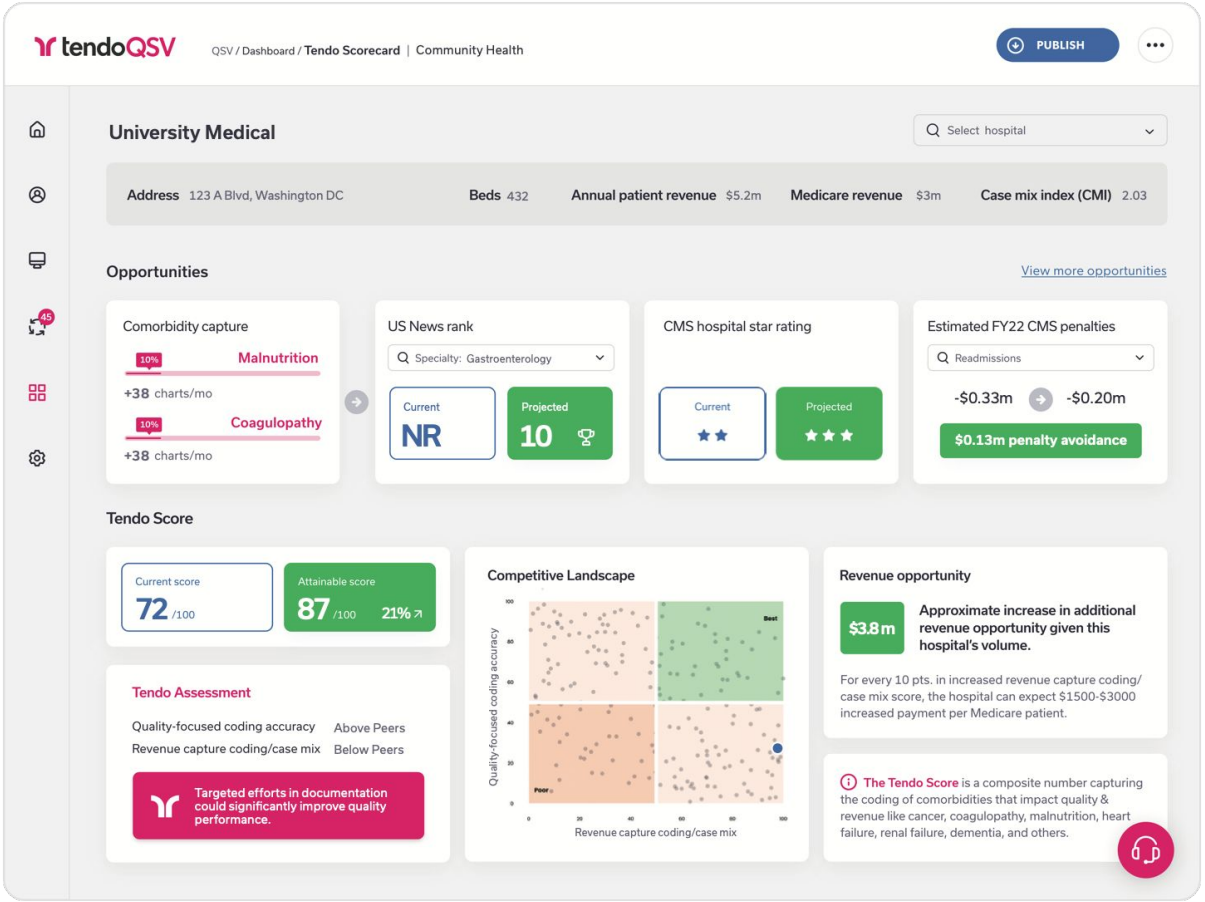
Tendo partnership

Productized approach

Measures that matter

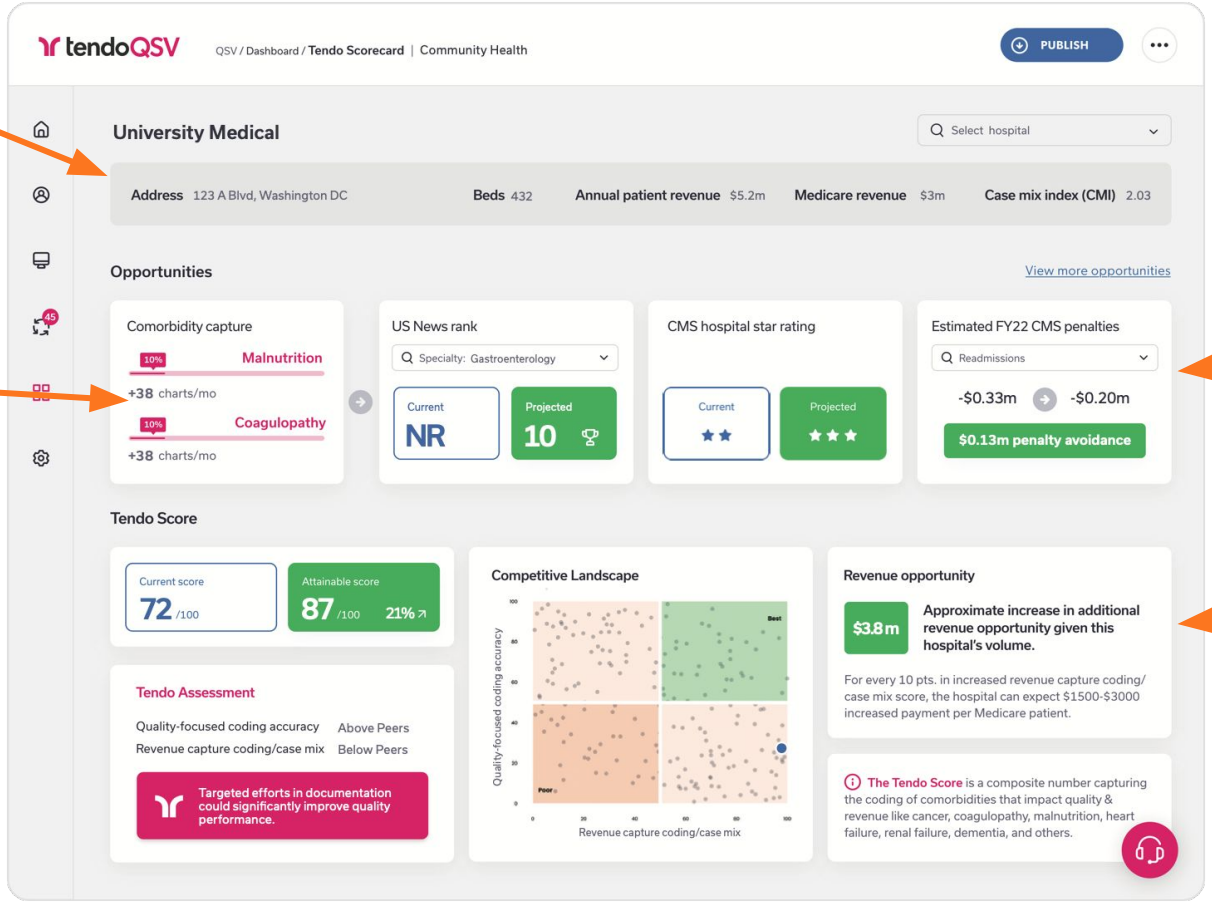
2022

Tendo QSV


tendoQSV
QSV / Dashboard / Tendo Scorecard | Community Health
PUBLISH
University Medical
Select hospital
Address 123 A Blvd, Washington DC
Beds 432
Annual patient revenue $5.2m
Medicare revenue $3m
Case mix index (CMI) 2.03
Opportunities
View more opportunities
Comorbidity capture
10% Malnutrition
+38 charts/mo
10% Coagulopathy
+38 charts/mo
US News rank
Specialty: Gastroenterology
Current
NR
Projected
10
CMS hospital star rating
Current
Projected
Estimated FY22 CMS penalties
Readmissions
-$0.33m
-$0.20m
$0.13m penalty avoidance
Tendo Score
Current score
72 /100
Attainable score
87 /100 21%
Tendo Assessment
Quality-focused coding accuracy Above Peers
Revenue capture coding/case mix Below Peers
Targeted efforts in documentation could significantly improve quality performance.
Competitive Landscape
Quality-focused coding accuracy
Revenue capture coding/case mix
Best
Poor
Revenue opportunity
$3.8m
Approximate increase in additional revenue opportunity given this hospital's volume.
For every 10 pts. in increased revenue capture coding/ case mix score, the hospital can expect $1500-$3000 increased payment per Medicare patient.
The Tendo Score is a composite number capturing the coding of comorbidities that impact quality & revenue like cancer, coagulopathy, malnutrition, heart failure, renal failure, dementia, and others.

Hospital information

What If Assumptions



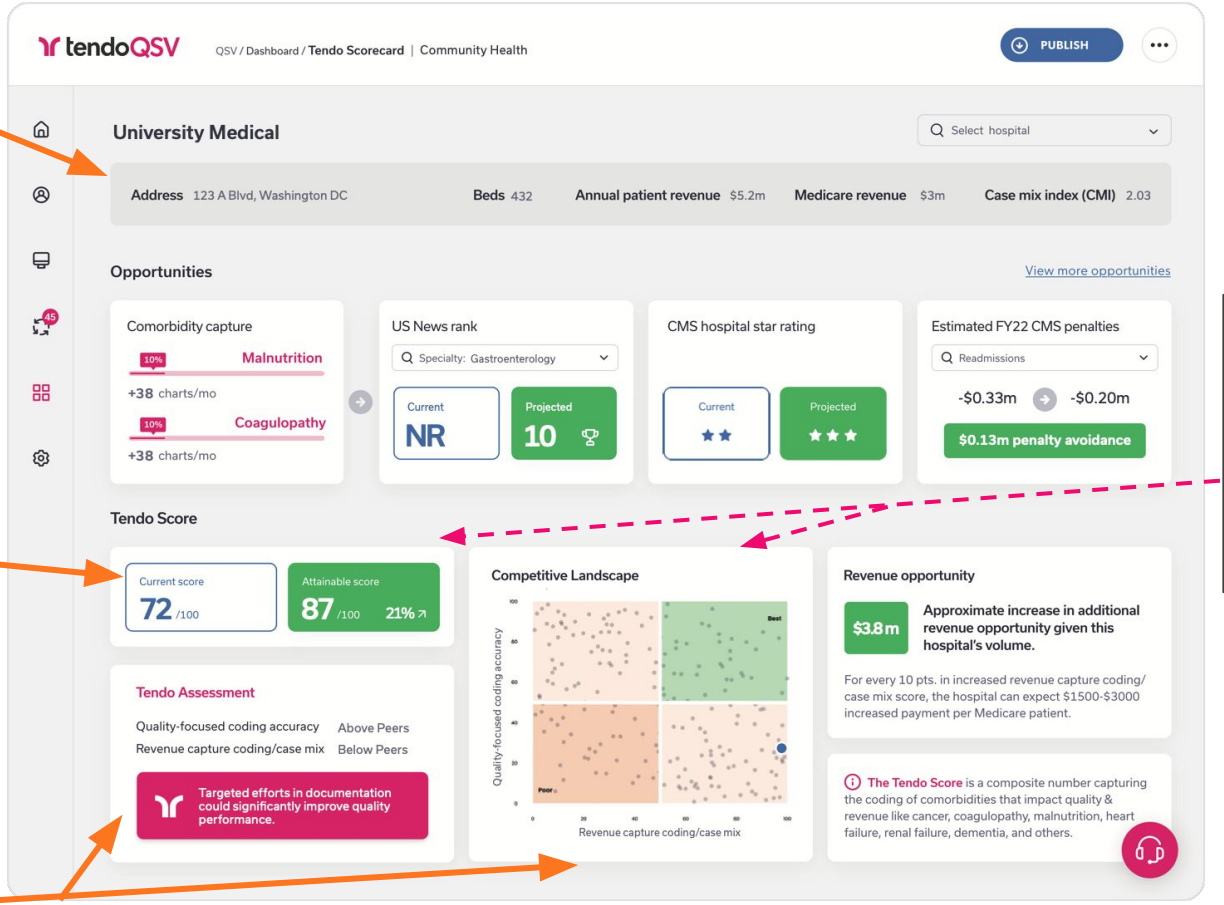
Results of better comorbidity capture for US News, Star ratings, and CMS Penalties

Results of better comorbidity capture for DRG based revenue

Hospital information

Tendo Score – before and after comorbidity capture improvements, rating of documentation

Comparison of documentation accuracy with peers



The Tendo Score is a composite that captures coding accuracy of multiple comorbidities that impact quality and revenue like cancer, malnutrition, heart failure, renal failure, dementia, and others