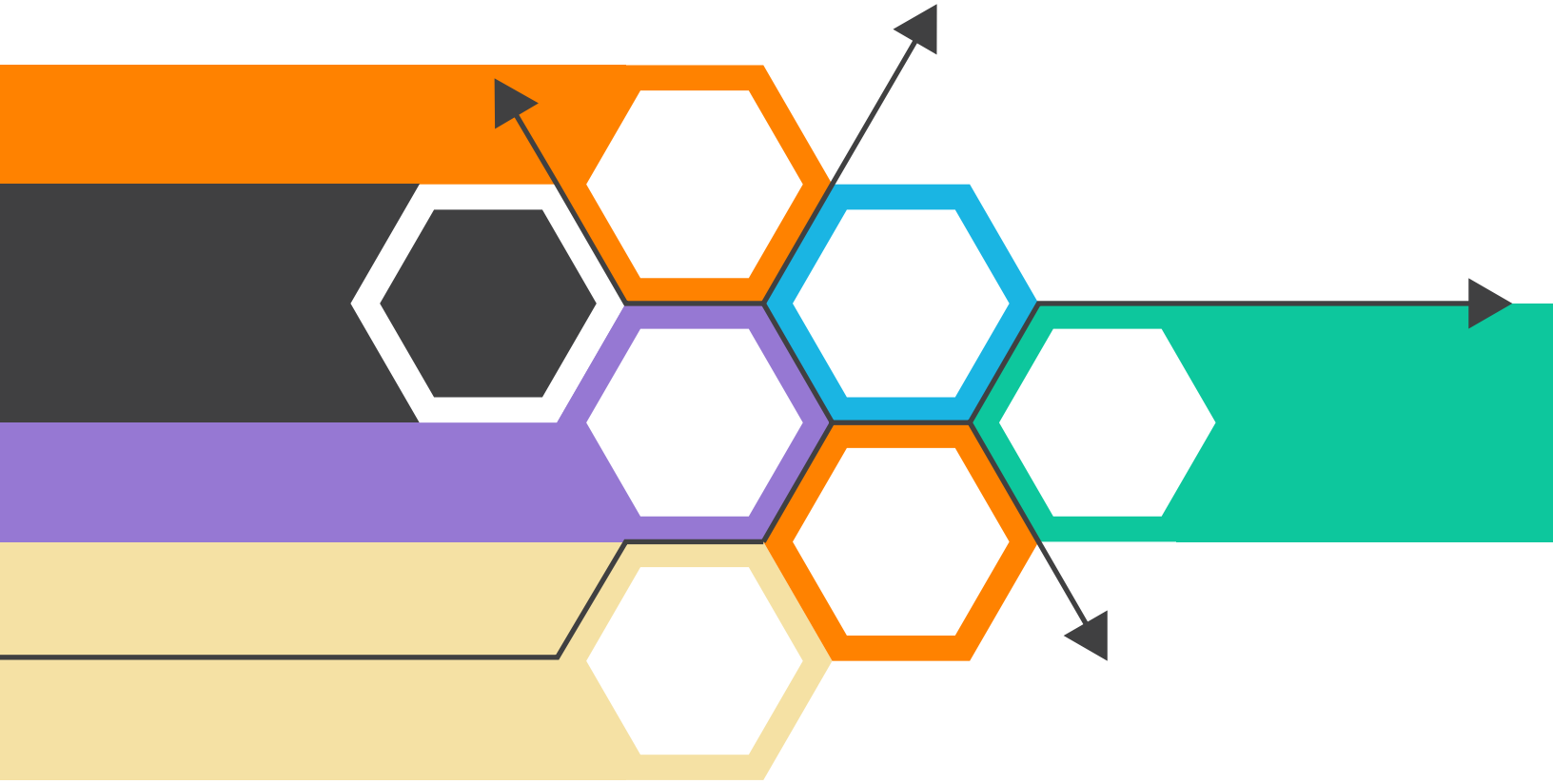
NEJM Catalyst

Insights Report · February 2019

Care Redesign Survey

How Data and Analytics Improve Clinical Care

Amy Compton-Phillips, MD Providence St. Joseph Health
Namita Seth Mohta, MD NEJM Catalyst



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How Data and Analytics Improve Clinical Care

Amy Compton-Phillips, MD
Executive Vice President and Chief Clinical Officer for Providence St. Joseph Health
NEJM Catalyst Theme Leader for Care Redesign

Namita Seth Mohta, MD
Clinical Editor, NEJM Catalyst; Center for Healthcare Delivery Sciences, Brigham and Women's Hospital

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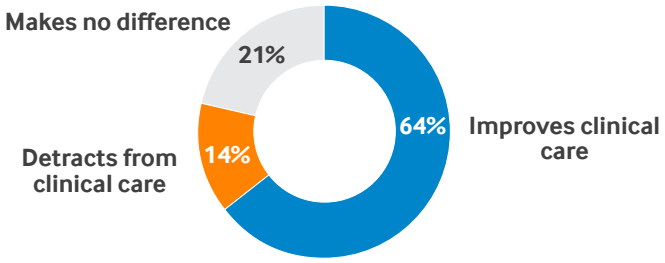
Data and analytics are a key means for clinicians, clinical leaders, and executives to transform health care delivery. Yet health care organizations have work to do in getting measures right and much to learn about effective use of data, according to our most recent Insights Council survey.

Does the current emphasis on data and analytics in health care improve clinical care or detract from it?



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Nearly two-thirds of Council members – a qualified group of U.S. clinicians, clinical leaders, and executives at organizations directly involved in health care delivery – say that the current emphasis on data and analytics among health care organizations serves to improve clinical care. Two-thirds of respondents say their organizations are effective in using data to guide business leadership, and 62% say they use data well to guide clinical leadership.

"Analytics fueled by genomics, big data, artificial intelligence, machine learning, and more allows us to see what was previously hidden. We can take observations and turn them into knowledge to make life better for our patients," says Amy Compton-Phillips, MD, Chief Clinical Officer at Providence St. Joseph Health and NEJM Catalyst's Care Redesign Theme Leader.

"How to best use analytics in health care is going to come to us in a different way than before," says NEJM Catalyst Clinical Editor Namita Seth Mohta, MD. "Amazon, Apple, Google, and Microsoft – all with expertise in data aggregation and interpretation – are intensely

looking at how they can leverage their data and apply their analytics capabilities to improve health outcomes. It is encouraging that they are partnering with health care providers so that there is more bidirectional collaboration, which will lead to more creative and innovative solutions."

The majority of respondents (69%) see analytics as an opportunity to drive both improvement and accountability. Compton-Phillips warns against starting with the wrong goal, however. "If you start with accountability, you will stifle people's willingness to use data to change behavior," she says.

> *You have to get the fundamentals of governance correct before data and analytics can be effectively used to realize improvement goals.*

"You have to get the fundamentals of governance correct before data and analytics can be effectively used to realize improvement goals," Mohta says. For instance, it is important for leaders and clinicians to be aligned on which outcomes are most important. Council members say that readmissions (76%) and patient experience (75%) are the two outcomes most often measured, with safety of care and mortality tied for third (each at 59%).

Physicians often bemoan the plethora of process measures, which sometimes come at the expense of outcome measures. Survey respondents are roughly split about how health care quality is currently measured: just over a third say their organizations emphasize process, a third say outcomes, and a just under a third say both. But a majority (60%) say that both process and outcomes should be measured. Compton-Phillips agrees. "Outcomes tell us if we are doing what we're hired to do in health care, which is to make lives better. To drive outcomes usually takes measuring a few key process steps to get timely, actionable information along the way," she says. For instance, reducing the outcome of deaths from heart disease requires tracking processes such as checking control rates for cholesterol and blood pressure.

In Mohta's opinion, both process and outcome measures are necessary so that what is working can be "effectively spread and scaled." She also emphasizes that different types of metrics – clinical, cost, and experience (patient and care team) – should be collectively measured.

Does success in using analytics depend on the visibility of the data? Insights Council members report that executives (84%) and clinical leaders (83%) far surpass frontline physicians (56%) in their ability to access an organization's clinical data. Compton-Phillips says physicians, nurses, and other members of the care team should have access to analytics data, and patients as well. "Executive and clinical leaders have data that's not always transparent to frontline caregivers. For doctors and nurses to know their performance, they need a mirror, a way to see the outcomes of their care. If we don't give those creating the data access to the information, they won't engage in driving change," she says.

Where analytics efforts fall short, say survey respondents, is in organizational learning. Just under half (46%) say their organizations are very good or outstanding at creating data, half say they do well at storing data, but only 28% say their organizations are good at learning from data.

Overall, this Insights Council survey shows health care leaders and clinicians making good use of data and analytics, but there is more work to be done, particularly in guiding decisions for individual patients. Just over half (51%) say their organizations are effective in using data to support care decisions for individuals, but 47% of respondents say they do a poor job. Compton-Phillips is optimistic: "We're not yet at the sharp end of where we need to be at the individual or population level, but we will get there soon".

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Charts and Commentary

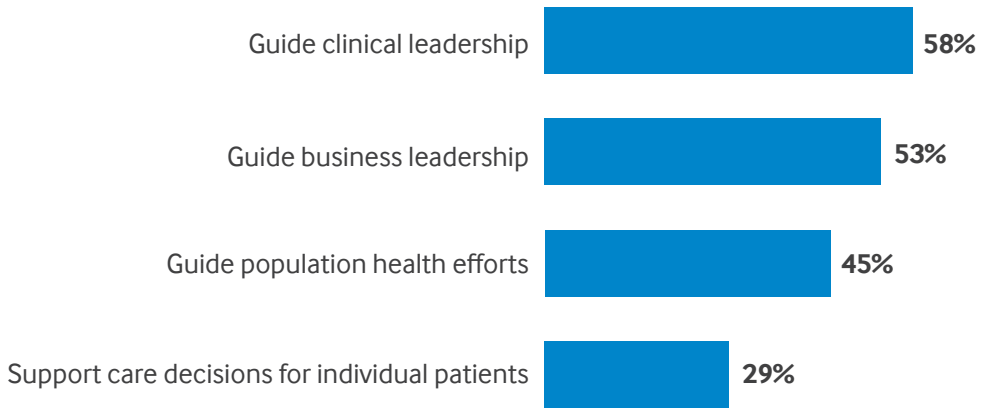
We surveyed members of the NEJM Catalyst Insights Council — who comprise health care executives, clinical leaders, and clinicians — about data, analytics, and outcomes. The survey explores the goals and effectiveness of data analytics at Insights Council members' organizations; their effectiveness at creating, storing, and learning from data; clinical decisions guided by analytics efforts; the visibility of clinical data at organizations; how health care quality is and should be measured; clinical outcomes measured at organizations; and the impact of data analytics on clinical care. Completed surveys from 566 respondents are included in the analysis.

> *Data analytics "both improves and detracts depending on how it is used. We sometimes get caught up in over-measuring, which can be confusing and detract from care because it is time consuming and doesn't usefully inform decision-making. Alternatively, we have some great sources of data but variability in how much people are willing to pay attention to them."*

NEJM Catalyst Insights Council members place guiding clinical leadership and guiding business leadership as the top goals of analytics efforts. Executives rated population health efforts a good bit higher than did clinicians – 50% of respondents versus 39%, respectively. Analytics efforts are weakest in supporting care decisions for individual patients. In a written comment, a clinical leader says, "We do not have the platform yet to best understand other important outcomes such as mortality and readmission. Thus, we are largely left with studying proxies such as HbA1C, etc."

Analytics Guides Clinical and Business Leaders

What are the top two goals of your organization's analytics efforts?



Base: 566 (multiple responses)

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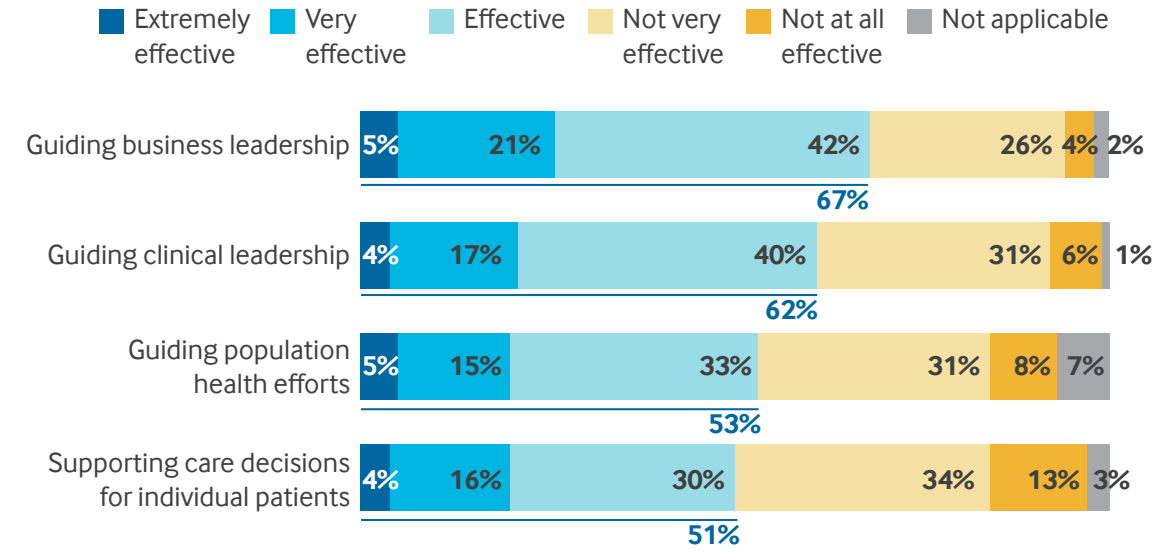
> *The data is not available in real time. Any attempt at gathering or collating info takes so long that it's six months out of date by the time it gets to anyone who might make a difference.*

Moving from organizational goals to effectiveness in using data, Council members rate their abilities to guide business leadership highest and support care decisions for individual patients lowest. Respondents from the South (57%) choose the latter more often than people from other regions. According to one clinician respondent, effectiveness is difficult because "the data is not available in real time. Any attempt at gathering or collating info takes so long that it's six months out of date by the time it gets to anyone who might make a difference."

Health Care Organizations Are Moderately Effective in Using Data

How effective do you consider your organization's use of data for each of the following?



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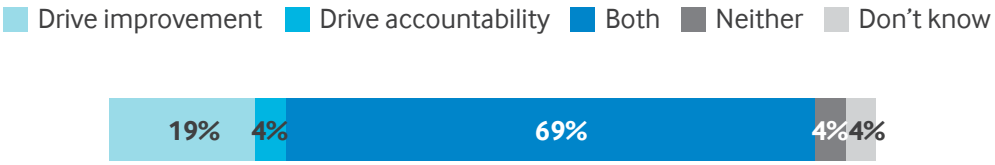
> *Data, when handled properly, can minimize "the tendency to make decisions based on opinion."*

Driving improvement and accountability are twin goals for a majority of Insights Council members. "[Analytics] allows identification of gaps and provides accountability for hospitals/units/provider groups and individual providers," an executive respondent says. Meanwhile, a clinical leader shares that "rapid cycle reports (weekly) audit and feedback drove a huge improvement" in vaccination rates, but stresses that a limitation in the number of people with expertise in analyzing data hinders more widespread success.

Data Is Used for Both Accountability and Improvement

Is the goal of using data analytics at your organization to drive accountability, improvement, or both?



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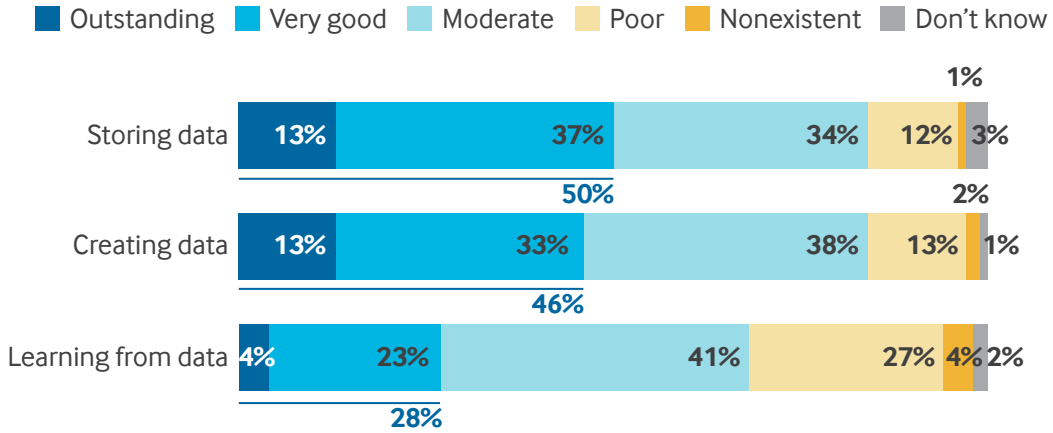
Respondents consider their organizations fairly effective at storing data but much less good at learning from that data. A higher incidence of executives (50%) and clinical leaders (also 50%) than clinicians (38%) say their organization is outstanding or very good at creating data. Data, when handled properly, can minimize "the tendency to make decisions based on opinion," an executive respondent says. A clinical leader's organization created an artificial intelligence algorithm for learning that has been able "to identify patients at risk earlier and has led to fewer events outside of the critical care environment."

Health Care Organizations Lag in Learning from Data

How good do you consider your organization at creating, storing, and learning from data?



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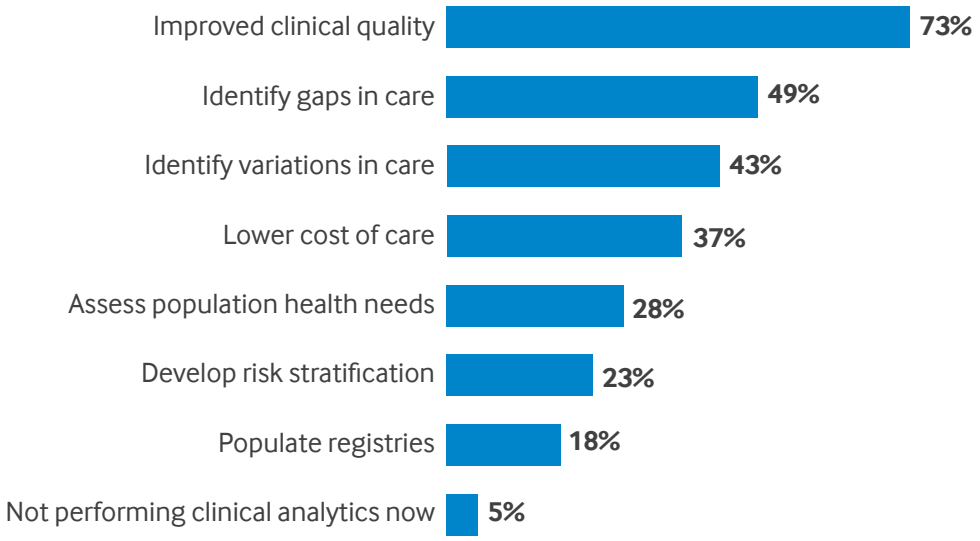
Three-quarters of respondents say their organizations use data to improve clinical quality. "We can respond to challenges quickly and our decisions are driven by data versus whim," an executive says. Another executive says analytics leads to "fewer unnecessary tests and procedures." One clinical leader finds, however, that "clinical decisions are made from incomplete data." Identifying variations in care is indicated more frequently by executives (48%) and clinical leaders (48%) than clinicians (35%) as one of their top clinical decisions guided by data.

Clinical Quality Is Guided by Analytics

What are the top three clinical decisions guided by your organization's analytics efforts?



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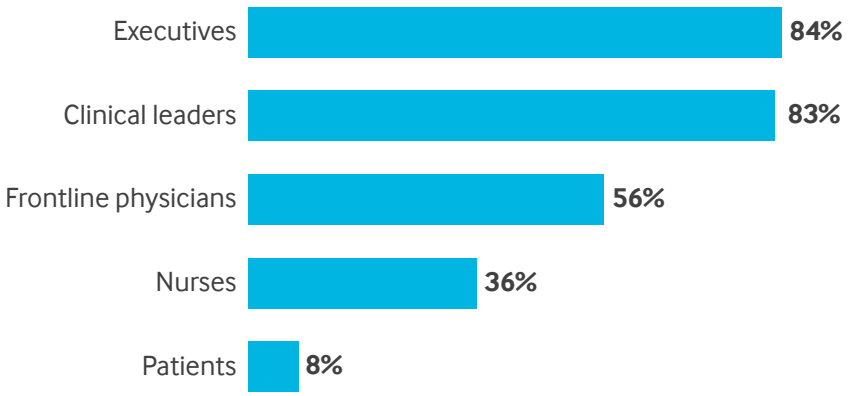
> *Getting data into the hands of frontline physicians lets them "connect data with the work they do, which leads to engagement."*

Executives and clinical leaders have the most visibility into clinical data in their organization. One executive says getting data into the hands of frontline physicians lets them "connect data with the work they do, which leads to engagement." A clinician from a health system focusing on driving down variations in physician practice says data is necessary because "frontline caregivers do not know there is a problem with what they are doing. They don't know they can be better without comparison regionally or nationally with other like units/populations."

Leaders Have the Most Visibility into Clinical Data

Who sees your organization's clinical data?



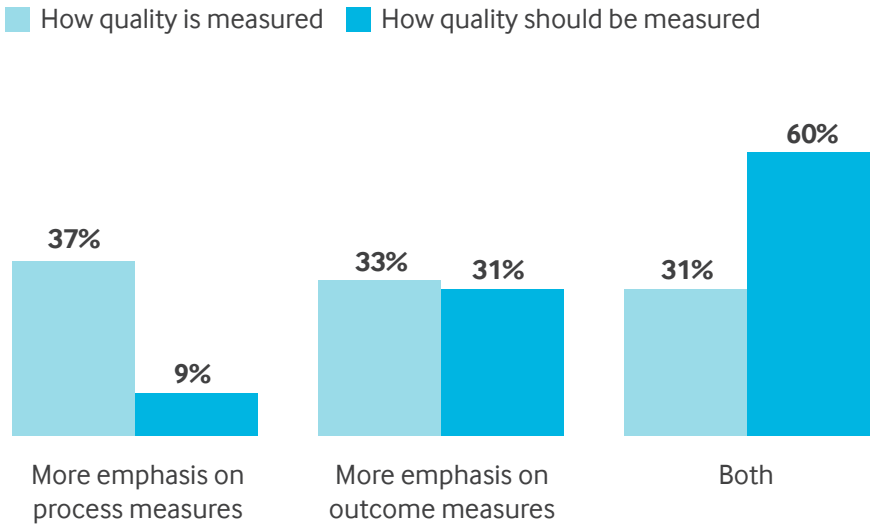
Base: 566 (multiple responses)

> *Frontline caregivers do not know there is a problem with what they are doing. They don't know they can be better without comparison regionally or nationally with other like units/populations.*

Insights Council members are roughly divided on what quality measures they emphasize; just over a third say their organizations primarily use process measures, a third say outcome measures, and a just under a third say both. A majority, though, believe health care quality should be measured through both processes and outcomes. More clinicians (37%) than executives (27%) indicate a greater emphasis on outcome measures at their organization. According to one executive, "[It] makes no difference when the emphasis weighs on one aspect (clinical outcomes) more than the other (process). There needs to be an equal emphasis of the data analytics for both aspects, process and clinical outcome, in order for the data analytics to have an impact in the improvement of clinical care."

Process and Outcome Measures Are Both Important

How is health care quality measured at your organization?
How should health care quality be measured at your organization?



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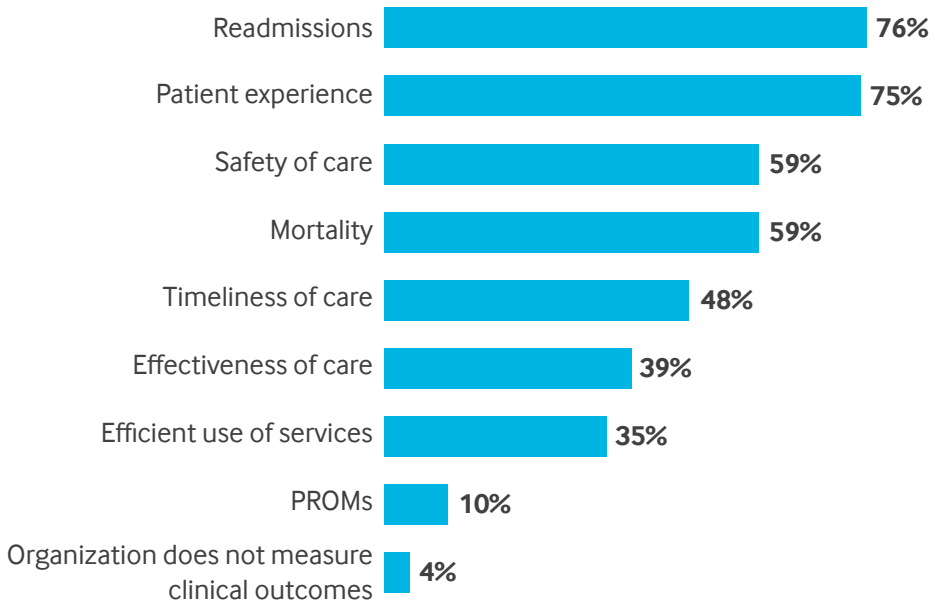
> *There needs to be an equal emphasis of the data analytics for both aspects, process and clinical outcome, in order for the data analytics to have an impact in the improvement of clinical care.*

Readmissions and patient experience lead the ranking of clinical outcomes measured at organizations. Patient-reported outcome measures rank last. One executive says, "Analysis is just starting to look at outcomes. There are a few voices in the wilderness. We gather a great deal of data, but only simple outcomes are measured, and no action is taken to specifically improve outcomes except in the most general sense." One clinical leader observes a "disconnect between data and analytics and all important care measures that could alter outcome." A clinician calls traditional measures "retrospective" and because they are not in real time, believes the impact on patient care is "negligible."

A Range of Clinical Outcomes Are Measured – But Rarely PROMs

If your organization measures clinical outcomes, which ones?



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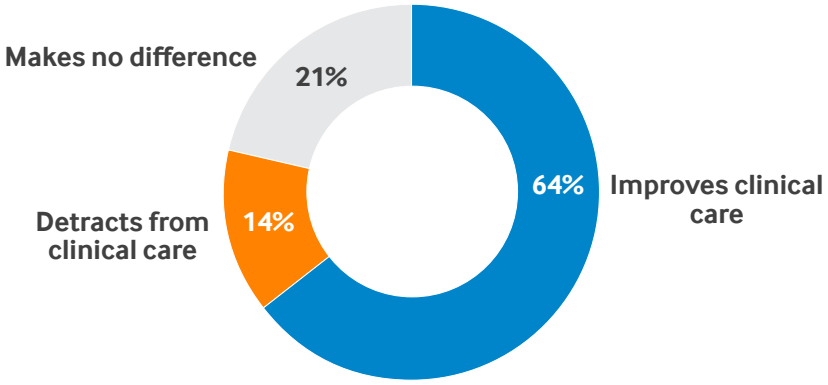
> *We gather a great deal of data, but only simple outcomes are measured, and no action is taken to specifically improve outcomes except in the most general sense.*

Two-thirds of Council members think data analytics help improve clinical care. A few believe analytics detract from care delivery. More executives (75%) than clinical leaders (68%) and clinicians (52%) indicate the current emphasis on data and analytics leads to clinical care improvements. On the other hand, more clinicians (20%) than clinical leaders (12%) and executives (10%) say analytics detracts from clinical care. One clinician considers analytics a detractor "because it is often irrelevant to what patients value." To one clinical leader, analytics "improves clinical care if done well and measuring correct things that actually have an impact on the patients. However, it detracts from care if just checking the boxes to be saying that you checked the box, but no actual benefit to the patients and more work for the physicians and nurses."

Data Analytics Improves Clinical Care

Does the current emphasis on data and analytics in health care improve clinical care or detract from it?



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> *Analytics "improves clinical care if done well and measuring correct things that actually have an impact on the patients. However, it detracts from care if just checking the boxes to be saying that you checked the box."*

Verbatim Comments from Survey Respondents

Does the current emphasis on data and analytics in health care improve clinical care or detract from it? How and why?
Respondents who say it detracts:

"Data analytics do not seem to be available to frontline physicians and individual patients."

— Clinician at a midsized nonprofit teaching hospital in the West

"It has infinite potential to improve care and in some cases this potential is realized. Unfortunately, the way it is mostly used often interferes or detracts from quality of healthcare, patient and clinician experience."

— Department Chair at a government organization in the Midwest

"Senior execs look for data to give answers to business questions not clinical ones."

— Director of a small nonprofit payer in the South

"Entire clinical staff is doing computer work 60-70% of the time. It is a means unto itself. Patient care is just a far, far secondary evil."

— Clinician at a midsized for-profit community hospital in the Midwest

"Data collected is not always the root cause and effect of care provided. Data is not recognized as pertinent to the frontline staff."

— Vice President of Medical Affairs at a small nonprofit community hospital in the Northeast

"Many providers still look at the data gathering as a time-consuming action. This is more obvious in our senior Providers. I think more experience will allow streamlining data collection and application to relieve much of this concern."

— Executive at a midsized nonprofit clinic in the West

"Time and effort for what feels like an unfunded mandate and duplication of effort."

— Clinician at a large nonprofit teaching hospital in the South

"We cannot sustain improvement. This is likely because attention on one measure draws attention away from another. It overvalues things that can be measured, defining quality health care as when those process measures are meeting benchmarks."

— Chief Medical Officer at a small nonprofit clinic in the West

"Most of the process measures that organizations focus on are disease-specific, not whole-person specific. As we move towards value-based care it is important that leadership in an organization focus on measures that break down silos of care in health systems. To make the jump into value-based care, organizations have to be willing to think about quality in terms of its patient population (i.e., per 1000 patient lives). This is a difficult thing to do."

— Director of a small nonprofit health system in the Northeast

Respondents who say it improves:

"Has significantly improved patient satisfaction and safety issues. Outcomes have improved in a subset of services."

— Clinician at a large nonprofit teaching hospital in the West

"Because we are at a place where US healthcare can no longer afford to have healthcare executives, consultants, and clinician leaders lead efforts in explaining data, especially outcome data. All stakeholders across the healthcare continuum should work off the same numbers, and transparency should be best policy. We see this working for population health, so why not for the entire US healthcare system?"

— Department chair at a large nonprofit government organization in the Northeast

"It helps to eliminate unfounded bias in care which exists due to legacy beliefs and practices of long-established providers."

— Vice President of a large nonprofit health system in the Midwest

"MDs are hungry to understand own practice so ready users. On the flip side when the data they get is c**p then they lose trust in organization's ability to provide useful info."

— Clinician at a nonprofit research facility in the Northeast

"Healthcare is an emotional endeavor by its nature. We provide healthcare with emotions. It's hard, however, to improve healthcare with emotional thinking. Has to be data driven."

— Associate department chief at a large nonprofit health system in the South

"Hard to make decisions without data. The hard part is making actionable data available to the people doing the frontline work."

— Director of a large nonprofit teaching hospital in the West

"We physicians profess to hate 'report cards,' if presented in the right way by physician leaders, always 'move the numbers' in the right direction."

— Clinician at a midsized nonprofit health system in the Midwest

"We have had a 70% reduction in patient harms in the past 4 years related to focused improvement initiatives."

— Vice President of Medical Affairs at a large for-profit community hospital in the West

"Data analytics in isolation is nearly worthless. It is effective if done in concert with operational changes to organizations. For instance, clinical informatics (well developed in most organizations thanks to EHR adoption) can serve as an effector arm for data analytics. The informaticists know workflow while the analysts understands the data. Together, the synergy can transform an organization."

— Executive at a large nonprofit health system in the Northeast

Respondents who say it makes no difference:

"It probably improves care but it also increases provider burnout which worsens care."

— Clinician at a large nonprofit teaching hospital in the Northeast

"We don't use the information to its maximum effect currently. We have some infrastructure around this but sometimes the data isn't accessible."

— Vice President of Medical Affairs at a large nonprofit health system in the West

"Effective use of clinical data remains difficult and is in early days."

— Vice President of large for-profit community hospital in the South

"My impression is that any data, perhaps all of it, does not reach the rank and file caregivers in our institution. Management and clinical care try to flow together, but these two ships often pass in the night. We have a physician's organization (business office for our medical staff), but I would not recognize the CEO if we passed in the corridor."

— Clinician at a midsized nonprofit teaching hospital in the Northeast

"I am torn. The data is only as good as the documentation and the coding. I am not sure we are improving care as much as we trying to improve our documentation and coding so our risk adjustment is better."

— Department chief at a midsized nonprofit hospital in the Northeast

"It both improves and detracts depending on how it is used. We sometimes get caught up in over-measuring, which can be confusing and detract from care because it is time consuming and doesn't usefully inform decision making. Alternatively, we have some great sources of data but variability in how much people are willing to pay attention to them."

— Director of a large nonprofit health system in the Northeast

"What goes on in exam room, stays in the exam room!"

— Clinician at a large nonprofit health system in the Midwest

"I do not believe the information we drive is getting to population health. We do not have the platform yet to best understand other, important outcomes, such as mortality, readmission. Thus we are largely left with studying proxies such as HGA1C, etc."

— Chief Medical Officer of a small for-profit physician organization in the South

"We don't have the right information, just lots of data."

— Director of a large nonprofit physician organization in the South

Methodology

- The Care Redesign: Data, Analytics, and Outcomes survey was conducted by NEJM Catalyst, powered by the NEJM Catalyst Insights Council.
- The NEJM Catalyst Insights Council is a qualified group of U.S. executives, clinical leaders, and clinicians at organizations directly involved in health care delivery, who bring an expert perspective and set of experiences to the conversation about health care transformation. They are change agents who are both influential and knowledgeable.
- In October 2018, an online survey was sent to the NEJM Catalyst Insights Council.
- A total of 566 completed surveys are included in the analysis. The margin of error for a base of 566 is +/- 4.1% at the 95% confidence interval.

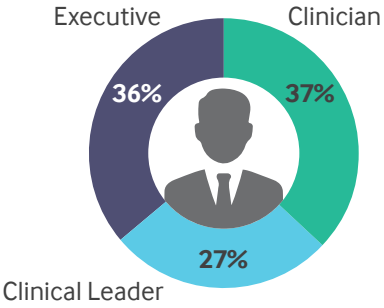
NEJM Catalyst Insights Council

We'd like to acknowledge the NEJM Catalyst Insights Council. Insights Council members participate in monthly surveys with specific topics on health care delivery. These results are published as NEJM Catalyst Insights Reports, such as this one, including summary findings, key takeaways from NEJM Catalyst leaders, expert analysis, and commentary.

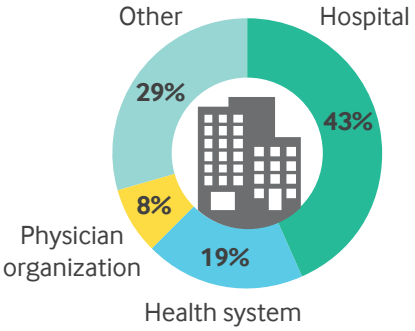
It is through the Insights Council's participation and commitment to the transformation of health care delivery that we are able to provide actionable data that can help move the industry forward. To join your peers in the conversation, visit join.catalyst.nejm.org/insights-council.

Respondent Profile

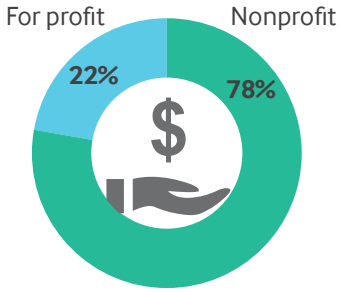
Audience Segment



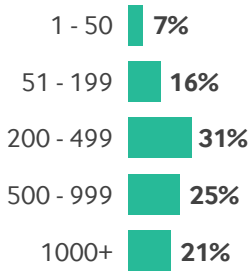
Organization Setting



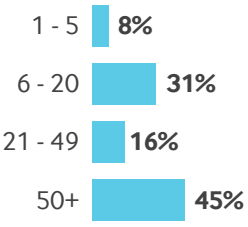
Type of Organization



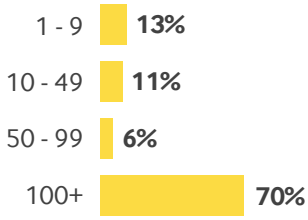
Number of Beds
(Among hospitals)



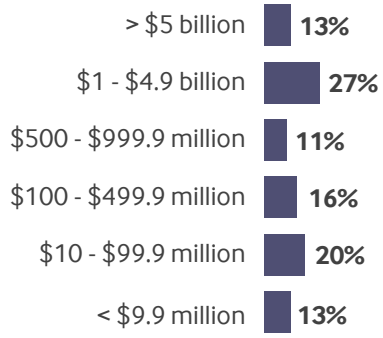
Number of Sites
(Among health systems)



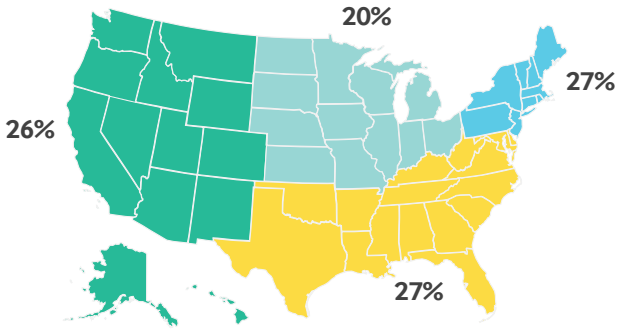
Number of Physicians
(Among physician organizations)



Net Patient Revenue



Region



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781.893.3800 | CATALYST@NEJM.ORG
860 WINTER STREET, WALTHAM, MA 02451-1413 USA | catalyst.nejm.org

About Us

NEJM Catalyst brings health care executives, clinical leaders, and clinicians together to share innovative ideas and practical applications for enhancing the value of health care delivery. From a network of top thought leaders, experts, and advisors, our digital publication, quarterly events, and qualified Insights Council provide real-life examples and actionable solutions to help organizations address urgent challenges affecting health care.

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