



Scottsdale Institute

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# Illuminating Informatics:

## Exploring Health System Programs' Optimal Future State

SCOTTSDALE INSTITUTE RESEARCH REPORT



April 2024

 | KIRBYPARTNERS

# Executive Summary

A high degree of competence and confidence in information technology is now a strategic differentiator for major hospital and healthcare systems. The person at the forefront of the health system's IT function, the Chief Informatics Officer, is a clinically prepared, tech-savvy leader recruited to translate clinical effectiveness knowledge into operational workflows. At the same time, they have to navigate exciting and complex advancements in artificial intelligence (AI) and machine learning (ML), predictive and prescriptive modeling, and clinical innovation and research.

To learn more about the current state of healthcare informatics, SI collaborated with Kirby Partners to develop an online survey of the field. We have quantitative results from 24 SI Member organizations and qualitative interviews with informatics leaders at five of them.

## Here are some of the top line findings:

- Most SI Member organizations surveyed highly value informatics work. Almost three-quarters (74%) "agree or strongly agree" that their organization views informatics as adding substantial value.
- Fewer than a quarter of respondents (22%) report their organization is "leading the way" in informatics. Another 37% classify themselves as "fast followers," 29% are "mainstream" and 22% are "slow adopters." Notably, no organizations feel they are "lagging" in informatics.
- Regarding informatics' strategic priorities, 40% report their program focuses on care delivery transformation. Another 40% are working on "optimization" (i.e., using data to improve processes and outcomes from a clinical and operational perspective). Just 20% of programs are in a foundational state, focusing on EHR implementation and adoption.
- In 58% of organizations, respondents perceive that significant barriers inhibit informatics success.
- In some organizations informatics initiatives are starved for funds. Lack of resources was cited as a "serious" problem by 44% of organizations. Other commonly cited problems include competing IT priorities and increasing work volume.
- Eight in 10 respondents (80%) report that the scope of their responsibilities has increased significantly in the last two years.
- Informatics leaders like their jobs. Eight in ten (80%) strongly agree or agree they're "highly satisfied in their professional role."
- In most organizations (62%), the highest-ranking informatics leader reports to the CIO.
- Most informatics leaders feel the CIO reporting relationship is less than optimal; 46% of respondents think a dual reporting relationship to IT and medical leadership is preferable.
- The informatics budget is part of the IT budget for about half of organizations (52%); just 16% have a designated informatics budget.
- Almost two-thirds (64%) have a Chief Medical Informatics Officer as their most senior informatics leader. Half of the organizations have a Chief Nursing Informatics Officer.
- Board certification in informatics is standard for senior informatics leaders (63%). Formal informatics training is less widespread (21%).
- Thirty-eight percent (38%) of informatics leaders spend no time on clinical care.

## Introduction

Every hour of every day, mountains of raw data are generated by hospitals, physicians' practices and the vast array of healthcare professionals that support their operations. The data itself is meaningless; it has to be analyzed and interpreted to generate insights that executives to front-line caregivers can act on.

This is no small task. It requires legions of specialists in information technology (IT), data analytics, coders, software engineers and trainers, all possessing multifaceted technical and critical thinking skill sets. In order for insights to be actionable, they have to be understood across the entire healthcare enterprise, at every business unit at the granular level, and at every level of interaction with a potential patient.

Leading this army of knowledge workers is the Chief Informatics Officer, one of the most critical roles in any large healthcare organization. The pool of clinically prepared, technology-adept people with the education, experience and persuasiveness to command this division is not large. Successful informatics executives are hard to find, and organizations enter into a war for talent when they have to recruit.

Now comes artificial intelligence (AI), adding a new level of complication – but also opportunity – to the healthcare informatics portfolio. How will AI transform clinical decision-making and health system operations?

Will we relive the Wild West of the early days of the internet? What are the regulatory and governance implications of introducing AI into the internal and external workings of a large healthcare system? One thing we know: The Member organizations of the Scottsdale Institute (SI) – for better or worse! – will be at the forefront of this cyclone of innovation.

To get a sense of where we are right now and draw some informed hypotheses about where the clinical informatics profession is heading, SI collaborated with Kirby Partners to explore the state of healthcare informatics within today's large, integrated health systems. As one of SI's key knowledge partners, Kirby Partners has for 35 years been a leader in the healthcare executive search space, specializing in IT professionals. For this project, SI launched an online survey that collected responses from 24 SI Member organizations, and subsequently conducted qualitative interviews with a subset of informatics leaders from five organizations.

## Research Methodology

**Together, SI and Kirby Partners determined the following research objectives:**

- 1** Learn the role of informatics in Member organizations, including current challenges
- 2** Understand how Members' informatics departments are currently structured, including which informatics roles they have and their reporting relationships
- 3** Explore the optimal future state of informatics programs

The research, conducted between November 2023 and March 2024, included:

- Completed on-line surveys by informatics executives from 24 SI Member organizations
- In-depth, one-on-one interviews with informatics leaders from five health systems

### Participants included:

- Ascension
- Baptist Health (KY)
- BayCare Health System
- Bellin & Gundersen Health System
- Carilion Clinic
- Cedars-Sinai
- CommonSpirit Health
- Hospital Sisters Health System
- Intermountain Health
- Loma Linda University Health
- MultiCare
- NorthShore Edward-Elmhurst Health (now Endeavor Health)
- Northwestern Medicine
- Sentara Health
- Sharp HealthCare
- UCLA Health
- University of Chicago Medicine
- University of Utah Health
- UW Health (WI)

*(Some respondents remained anonymous)*

# Key Findings

## The Current State of Informatics

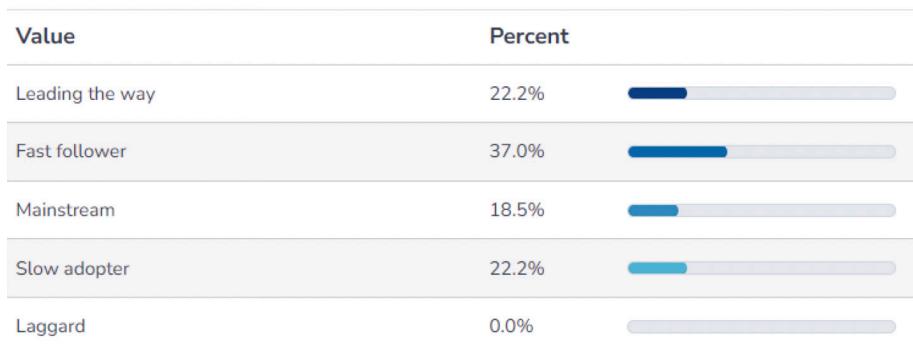
When asked to categorize the current state of their informatics program, 22% of SI Members said their organization is “leading the way.” These systems are experimenting with AI and partnering with vendors to develop solutions addressing organizational pain points.

Some organizations categorize themselves as “fast followers” (37%) or “mainstream” (19%). While these organizations have buy-in for informatics, they are working on workflow enhancement instead of innovative technologies.

The remaining 22% of organizations classify themselves as “slow adopters,” where informatics initiatives focus on the EHR rather than innovation. Notably, no respondents categorize themselves as “lagging” in informatics. (Figure 1)

**FIGURE 1**

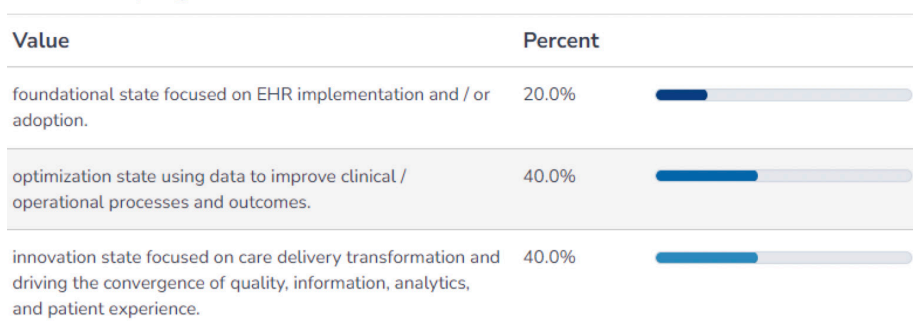
**Q:** How would you characterize your organization’s current informatics program?



Regarding informatics strategic priorities, 40% of respondents report that their program is “innovative” and focused on care delivery transformation. Another 40% are focused on “optimization,” using data to improve processes and outcomes from a clinical and operational perspective. Just 20% of programs are in a foundational state, focused on EHR implementation and adoption. (Figure 2)

**FIGURE 2**

**Q:** Which of these statements best describes your organization’s current informatics program? Our informatics program is in a...



*“What I’ve seen in leading organizations is the evolution of their informatics team to incorporate and develop a diverse team with a wide variety of skill sets. As healthcare has evolved, informaticists may have unique work experiences from the vendor space, consulting, tech, startups, or from the bedside. When you bring that collective diversity together on one team, the breadth and depth of the team can better support and impact the entire healthcare organization. We are also seeing the infusion of those with informatics experience into other areas in healthcare organizations.”*

– **Becky Fox, MSN, RN-BC, Chief Clinical Information Officer, Intermountain Health**

### The Hard Stuff

Overall, most SI Member organizations value informatics work. Almost three-quarters (74%) of organizations “agree or strongly agree” that their organization views informatics as highly valuable. But notably, 24% of organizations are neutral on whether informatics is valued, and 12% feel it’s not valued. Yet job satisfaction is high among survey respondents: Eight in ten (80%) strongly agree or agree they’re “highly satisfied in their professional role.” (Figure 3)

That said, informatics presents notable challenges; some aspects are harder than others. For example, in 58% of organizations, informatics leaders find significant barriers inhibiting their work. (Figure 3)

The vast majority of respondents (92%) feel their financial resources for informatics are insufficient, or at least a “minor problem.” For 44% of organizations it’s a “serious problem.” Other commonly cited problems included competing IT priorities and an increasing volume of work. (Figure 4)

Another challenge is demonstrating a return on investment for informatics. A total of 72% of respondents said it was a “moderate” or “severe” problem.

Eight in 10 (80%) report that the scope of their responsibilities has increased significantly in the last two years. AI is already significantly impacting informatics’ demand and workload. Users appear to have a heavy interest in “implementing” AI; however, the obligation to vet AI solutions and determine their impact on workflows also falls heavily on informatics leaders.

Additionally, such leaders predict the demand for “expensive” AI solutions will grow, making resource constraints more pronounced. A cautiously optimistic viewpoint is warranted, they suggest, as is the due diligence to ensure AI is leveraged appropriately.

To navigate these challenges, leaders emphasize the importance of proactively and regularly communicating informatics “wins,” whether via increased efficiencies, improved patient care or other value for the organization.

**FIGURE 3**

**Q:** To what extent do you agree or disagree with the following statements?

	Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Disagree
My organization perceives informatics to be highly valuable. Row %	12.0%	52.0%	24.0%	12.0%	0.0%
The scope of my responsibilities has increased significantly over the last two years. Row %	28.0%	52.0%	8.0%	4.0%	4.0%
I feel highly satisfied in my professional role. Row %	40.0%	40.0%	16.0%	4.0%	0.0%
There are significant barriers inhibiting informatics success in my organization. Row %	0.0%	58.3%	20.8%	12.5%	8.3%

Conversations with informatics leaders also highlight the need for strong governance and project prioritization to manage resources and expectations.

A relative bright spot is finding development opportunities for team members. Only 8% identify it

as a serious problem, and fully 52% said it was not a problem at all. Likewise, retaining staff and supporting remote/hybrid work are not seen as trouble spots.

**FIGURE 4**

**Q:** For your organization, how much of a problem are these items regarding informatics initiatives, if at all?

	Serious problem	Moderate problem	Minor problem	Not at all a problem	Don't know / not sure
Financial resources					
Row %	44.0%	32.0%	16.0%	8.0%	0.0%
Organizational structure					
Row %	8.0%	36.0%	44.0%	12.0%	0.0%
Staff retention					
Row %	4.0%	24.0%	28.0%	40.0%	4.0%
Increasing volume of work					
Row %	32.0%	44.0%	16.0%	4.0%	4.0%
Ability to demonstrate ROI of informatics work					
Row %	16.0%	56.0%	20.0%	8.0%	0.0%
Finding development opportunities for team members					
Row %	8.0%	12.0%	28.0%	52.0%	0.0%
Attracting new talent					
Row %	8.0%	36.0%	32.0%	24.0%	0.0%
Competing IT priorities					
Row %	36.0%	44.0%	16.0%	4.0%	0.0%
Executive / administrator support for informatics					
Row %	4.0%	48.0%	32.0%	16.0%	0.0%
Clinical staff resistance to change					
Row %	20.0%	24.0%	52.0%	4.0%	0.0%
Supporting remote / hybrid work					
Row %	0.0%	12.0%	28.0%	56.0%	4.0%

*“There are always more things to do than the available bandwidth, finances, and/or time needed to complete them all. That is the biggest challenge. Prioritization, reprioritization when needed, and evaluating how agile we can be in that whole process is key.”*

– **Becky Fox**

### Informatics' Reporting Relationships and Budget

Organizations typically place their informatics function within the IT department. In most organizations (62%), the highest-ranking informatics leader reports solely to the CIO.

A few organizations (14%) have informatics rolling up to the chief clinical, nursing or medical executive (e.g., to their CMO). Likewise, some organizations (14%) have informatics rolling up within IT and to clinical executive management in a dual reporting relationship. (Figure 5)

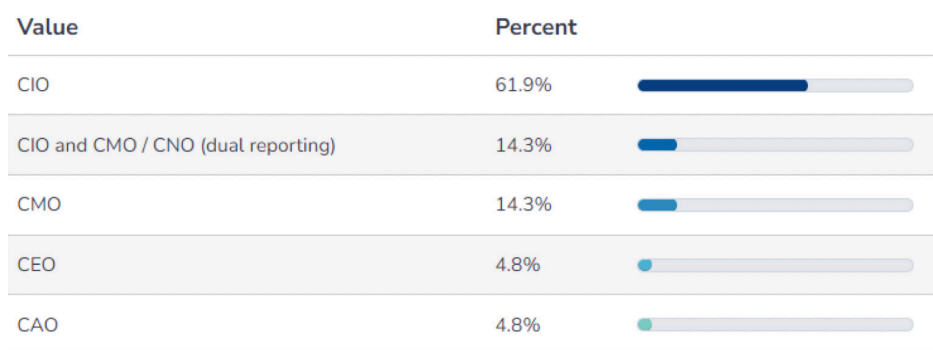
Notably, when asked about the optimal reporting relationship for informatics, only 18% felt that reporting solely to the CIO was ideal. Instead, 46% of respondents felt a dual reporting relationship to the CMO and CIO was preferable. (Figure 6)

Despite this sentiment, informatics leaders stress that having effective relationships and partnerships matters more than reporting structure.

Finally, just 16% of organizations report having a designated informatics budget. About half (52%) of organizations' informatics budgets fall within the enterprise IT budget. (Figure 7)

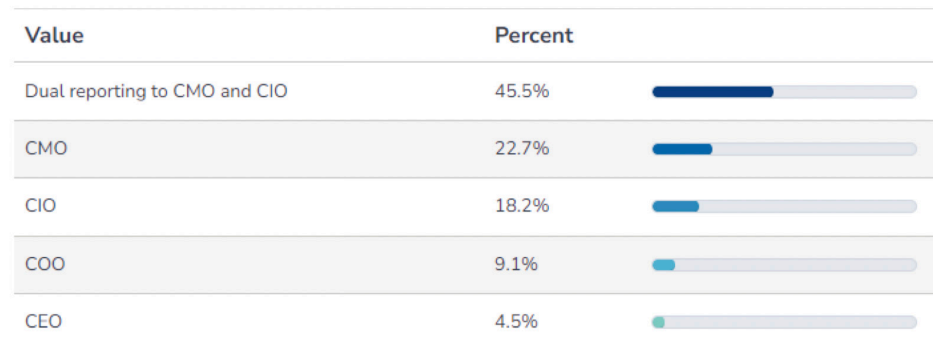
**FIGURE 5**

**Q:** To whom does your highest-ranking informatics position report?



**FIGURE 6**

**Q:** What is the optimal reporting relationship for the highest-ranking informatics position in an organization?



*"Every year, we generate a list of our top 10 informatics accomplishments for the year. There'll be some things on our top 10 list that people say, 'Oh, I didn't know we were doing that.' Granted, a lot of these are senior executive leaders. I always try to put an ROI on projects."*

**- Joe Evans, MD, Vice President & Chief Health Information Officer, Sentara Health**

*"We have an executive AI council, and we're kind of leading the way around a lot of AI work from a variety of different areas. But from the CMIO side, I just kicked off an AI physician advisory council, and I am co-chairing that, and bringing together all our AI researchers and clinicians who are using AI tools from various specialties. That's something that I don't think a CMIO would've been so engaged in before just this last year. I'm also working closely with our data intelligence team and our data scientists. AI has exploded, touching all areas of a CMIO's work."*

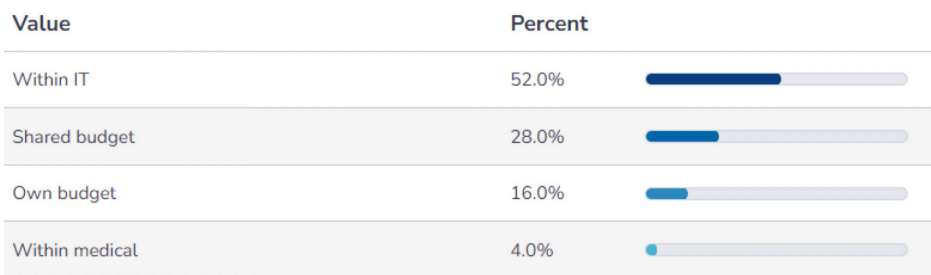
**- Shaun Miller, MD, MBA, Chief Medical Information Officer, Cedars-Sinai**

*"On the clinical side, let's say somebody wants to bring in a new clinical application, or new clinical system. We have an entire mechanism for looking at it, comparing other vendors in that space, getting budgetary approvals and then getting it onto the project list. It's an extensive list going out years right now, because we have to plan for all of these contingencies and for all the work we're doing. It's complicated from a governance point of view, but it is structured. It is probably better structured here than at other institutions, where things can get hotly political in choosing these solutions. I think it's less so here. That's to our advantage."*

**- Alan Weiss, MD, Chief Medical Information Officer, Vice President, BayCare Health System**

### FIGURE 7

**Q:** Where does the budget for informatics fall in your organization?



### Informatics Leadership and Teams

Among senior informatics leaders, board certification in informatics is somewhat standard (63%). Formal informatics training is less widespread (21%). (Figure 8)

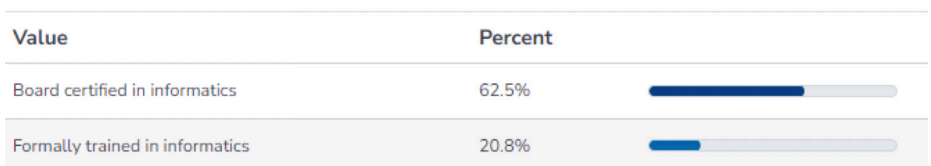
In almost two-thirds (64%) of systems, the most senior informatics leader uses the title of Chief Medical Informatics Officer. (Figure 9)

Informatics programs for nursing seem to be less mature than informatics programs for physicians. Only half of our surveyed organizations have a Chief Nursing Informatics Officer as part of their informatics teams (Figure 10). Many organizations we spoke with express the intent to continue expanding their nursing informatics capabilities.

Most informatics leaders remain dedicated to clinical care. The overall sentiment among the leaders we spoke with was that continuing to practice is critical to maintaining important relationships and credibility with clinical team members; however, a significant number (38%) of informatics leaders spend no time on clinical care. (Figure 11)

### FIGURE 8

**Q:** Which of the following best describes the background of the top informatics leader at your organization?



*"I'm a firm believer that every organization should have a CNIO. I think the CNIO and CMIO should report to the same person. Even if there's a dotted line to medical and to nursing [executive management], I think it does help with communication and issues. But I absolutely feel that who you report to is less important than getting the work done and your relationships with people."*

- Alan Weiss, MD

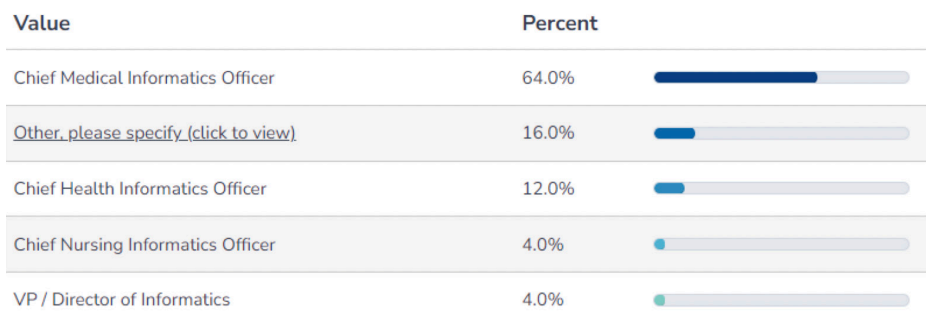
*"Everybody jumps in to get the work done. I think the reporting relationship to the CIO or CNE can both work as long as the partnerships are there. That's what's important at the end of the day: that you have those relationships with the clinical team, and they feel comfortable calling on you and involving you in projects."*

- Nicole Gitney, MS, RN, Vice President, Nursing Informatics, BayCare Health System



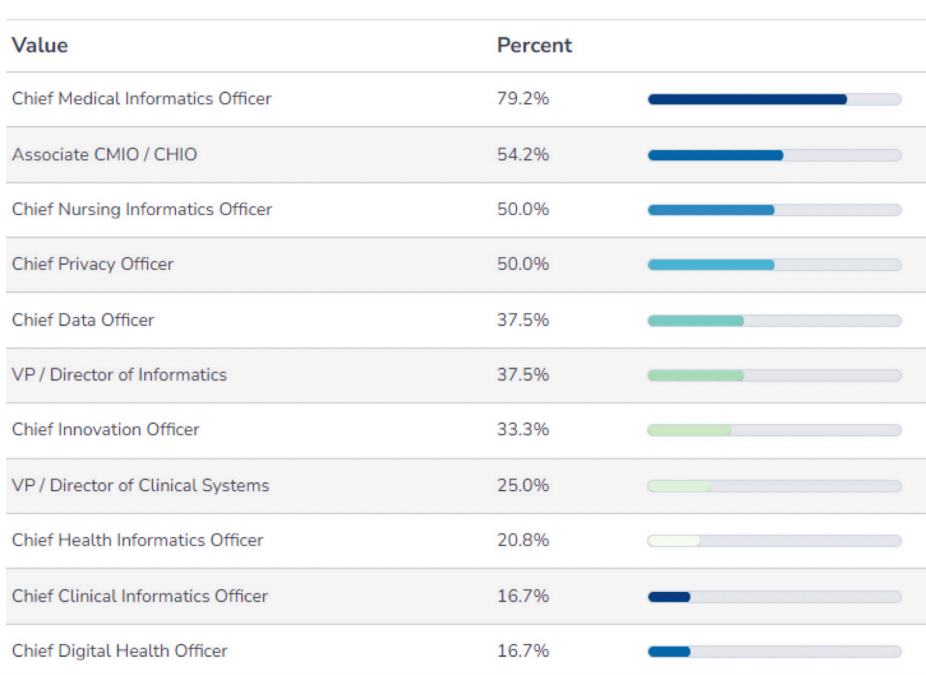
**FIGURE 9**

**Q:** Which of these is the highest-ranking informatics position in your organization?



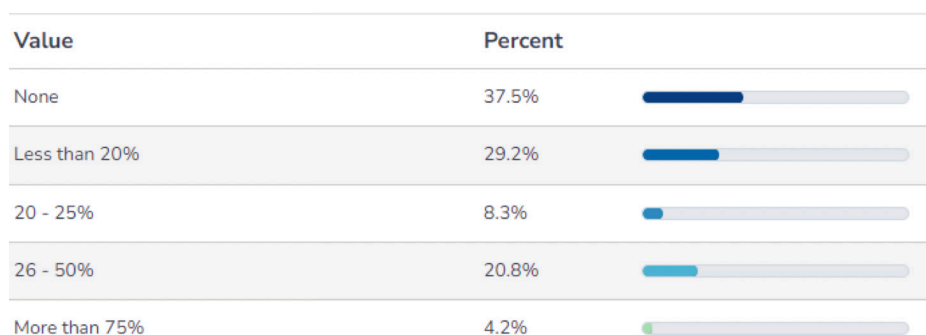
**FIGURE 10**

**Q:** Which of the following roles or equivalent does your organization have?



**FIGURE 11**

**Q:** What percentage of time do you spend on clinical care?



*“On the clinical side, many people are becoming informaticists and are still working at the bedside. Many nurses are obtaining their masters in informatics. Because the jobs in those areas are limited, many team members still work in the clinical space. They’re great resources because they understand the technical side, but they are the subject matter expert for their workflows and clinical discipline.”*

**- Nicole Gitney**

*“I am still practicing as an internist; I did my residency in internal medicine and I practice as a hospitalist. The balance of clinical and administrative work for a CMIO is often discussed. Even for an informaticist, not necessarily in a leadership role, it’s important to practice and stay clinically connected. It’s for a variety of different reasons, including maintaining your credibility among your peers and understanding the impact of your own product.”*

**- Shaun Miller, MD**

*“I think informatics works very well embedded in IT, but with the caveat that you must also be locked at the hip with your medical executive leadership. I was seeing patients up until about six months ago. In that six months’ time I’ve become the IT guy. You lose that street credibility, but having that tight partnership with them to help drive beyond implementation to adoption is crucial.”*

**- Joe Evans, MD**

## Informatics Purview

How to define informatics? It depends on the organization in question. EMR design, optimization and support fall within informatics in nearly all organizations. (Figure 12)

Also falling under the rubric of informatics are artificial intelligence (AI) tools, machine learning (ML) algorithms, governance and prioritization, clinical systems and clinical innovation support.

To a lesser extent, predictive analytics and clinician training are included (60% of organizations).

Risk and quality fall outside of informatics for most (70%) organizations. Digital patient experience and population health also tend to fall outside of informatics for more than half of organizations.

**FIGURE 12**

**Q:** Which of the following responsibilities falls to your organization's informatics department?

	Falls within informatics	Falls outside informatics
Digital patient experience Count Row %	9 36.0%	16 64.0%
AI tools / ML algorithms Count Row %	19 76.0%	4 16.0%
Predictive analytics Count Row %	15 60.0%	8 32.0%
Governance and prioritization Count Row %	19 76.0%	5 20.0%
Population health Count Row %	10 40.0%	15 60.0%
Clinician training Count Row %	15 60.0%	10 40.0%
Clinical systems implementation / upgrades Count Row %	21 84.0%	4 16.0%
EMR optimization Count Row %	22 88.0%	3 12.0%
EMR design and support Count Row %	23 92.0%	2 8.0%
Clinical outcomes measurement Count Row %	11 44.0%	14 56.0%
Risk and quality Count Row %	7 28.0%	18 72.0%
Clinical innovation support Count Row %	18 72.0%	4 16.0%

*"Informatics initially centered around providers and the CMIO role was prevalent. Subsequently, there was a shift towards nursing, given the size of the workforce. Today, informatics roles have expanded to include clinical and health informatics titles, aimed at optimizing various essential clinical functions (such as pharmacy, rehabilitation, nutrition, home health, etc.) and to ensure support across the continuum.*

*At Intermountain Health we see an expanding need for informatics to serve beyond traditional clinical aspects and help support other areas of operations. For example, we have a team specifically focused on safety so that if an event occurs, we can quickly evaluate any technical, training or workflow processes, adjust as needed and strive to create the safest environment possible.*

*We've seen informatics evolve from "How do I support a clinician?" to "How can I support the entire organization, covering the full lifecycle of the experience?"*

**- Becky Fox**

**Note:** where totals don't equal 100%, a few organizations report not having this function. These include clinical innovation support (4%), AI tools (8%) and predictive analytics (4%).

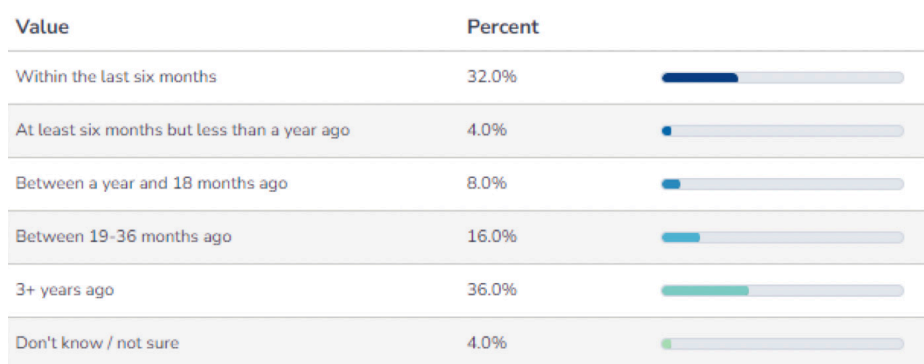
## Informatics Function Reorganization

About a third (32%) of organizations report fundamentally reorganizing their informatics function within the last six months. (Figure 13)

The most frequently cited impetus behind a reorganization is new leadership. To a lesser extent, M&A activity, cost reduction, increased organizational focus on informatics and initiatives to improve customer service are also factors.

**FIGURE 13**

**Q:** When was your informatics department or function last restructured or fundamentally reorganized?



*"I reorganized my team, because the way it was structured did not allow us to fully leverage the clinical knowledge in our team. Training was in its own separate silo. In the future, all of our clinical informaticists will have dual roles of training and supporting the sites. Pharmacy informatics is also within health informatics, and we have a pharmacy informatics residency program. The "[Epic] Community Connect" program is also under my structure. One of our largest initiatives since I joined the organization was standing up a health IT governance structure over the past few months, and we're still in the process of fine-tuning it."*

**- Bonny Chen, MD, MBA, FACEP, CPHIMS, System Vice President & Chief Health Informatics Officer, Hospital Sisters Health System**

# Conclusion

Healthcare informatics holds immense promise for improving the efficiency, effectiveness and accessibility of healthcare.

We expect to see SI Member organizations move in the direction of transformational projects. With the continued integration of AI, ML and big data analytics, Member organizations will be able to leverage informatics for more personalized treatments, predictive diagnostics and enhanced population health strategies. This more connected and proactive approach to patient care could revolutionize how we manage and deliver healthcare services.

Through our survey questions and interviews we found that most informatics chiefs report to IT, even though most of them feel a dual reporting structure to the chief medical officer and chief information officer would be preferable. We also learned that the work of informaticists is valued by their employers, and that their role is professionally satisfying. That bodes well for the long-term future of anyone aspiring to become a healthcare informatics professional.

It would be useful and constructive to pursue further surveys on the function and structure of the informatics role. By asking the same or similar questions over time, we could follow the longitudinal maturation of this professional development track. As the informatics world develops and deepens, we would expect to be able to document a return on investment that would parallel or even exceed the advancement of the full healthcare enterprise.

*"We're going to bring much more data to the table with genomics and precision health. With that type of innovation coming our way, how does the physician stay on top of everything? Clinical decision support will help enable quality care and relieve the cognitive burden, which is a big wellness factor because it is easy to get overwhelmed by all this information. The ability to be more tech-enabled, AI-enabled and provide the right information at the right time and place is going to be huge."*

- Shaun Miller, MD

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## ABOUT

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