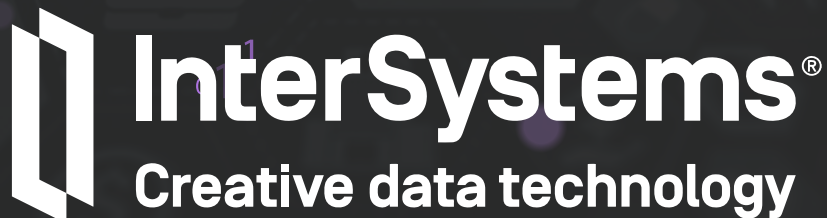




INTEROPERABILITY AND POPULATION HEALTH TREND REPORT

1 DATA STRATEGIES FOR HEALTHIER POPULATIONS

SPONSORED BY



Digital Health Analytics (DHA) is a global market intelligence and survey research hub for digital health technology. Provided by the College of Healthcare Information Management Executives (CHIME), DHA was created in 2022 as the gateway for provider organizations and companies to better understand how digital technology supports leaders in transforming health and care and delivering data insights that help them make the greatest business impact possible.

The Digital Health Most Wired Survey and Interoperability and Population Health

In the tumultuous landscape within which healthcare operates, the annual CHIME Digital Health Most Wired (DHMW) survey is a significant “north star” that healthcare organizations (HCOs) have relied upon for years. Widely known for the annual Most Wired recognition awards, the DHMW survey provides healthcare leaders a comprehensive profile of digital health usage in U.S. HCOs and a reliable resource by which to benchmark their own digital health progression.

With participation from approximately 40% of U.S. hospitals, the array of HCOs included in the 2023 DHMW survey can be characterized as representative of the known US Health System landscape. As such, the survey serves as a critical resource in helping researchers identify major themes and shifts in the HCO marketplace. In the 2023 DHMW survey findings the overarching theme can be characterized as **“the acceleration of data usage”**.

While the early days of digital health were shaped by Meaningful Use, HCOs have largely moved on from simple data capture and storage to leveraging that data to improve clinical and operational outcomes. “Acceleration of data usage” as a theme was evident in all eight sections of the survey but is especially pertinent to the Interoperability and Population Health section. Success in a value-based care environment requires HCOs to leverage patient data quickly and accurately to positively impact the health of select population groups. This can only be accomplished when the data is undergirded by strong interoperability capabilities.

Table of Contents

- 4 Scope of Data Exchange
- 6 Population Health Targeting
- 9 Conclusion

InterSystems: An Interoperability and Population Health Leader

To help make sense of the Interoperability and Population Health findings in the 2023 DHMW survey, CHIME sat down with leaders from InterSystems, an industry-leading provider of next generation data solutions for enterprise digital transformations. Using the 2023 DHMW survey as a starting point, we profile findings from the survey regarding the data exchange capabilities of HCOs as well as the varied technologies HCOs leverage to improve the health outcomes of select population groups before leaning on the profound insights from InterSystems leaders to provide context and clarity around the myriad of complex issues HCO leaders must navigate in their data exchange and data targeting efforts.

Emerging from this effort, we find that for HCOs to **accelerate data usage**, HCO leaders need to have a robust idea of what success looks like for their Population Health projects and to communicate that effectively to their various stakeholders.

Interoperability and Population Health

Interoperability is the ability of two or more systems to exchange health information and use the information once it is received. True interoperability requires connectivity for health information sharing, utility for healthcare stakeholders/partners, strong adoption of interoperability-enabled use cases, proof of interoperability-enabled outcomes and broad adoption of interoperable tools across all organizations and users. Interoperability is a continued area of critical focus for the healthcare industry as it is foundational to efforts to positively impact the health status and health outcomes of the individuals who comprise communities and population cohorts. For this reason, Population Health is paired with Interoperability in the CHIME DHMW survey.

In the context of CHIME's 2023 DHMW survey, an HCO's Interoperability and Population Health score is based on the following factors;

1. Scope of Data Exchange
2. Population Health targeting
 - a. Disease registries
 - b. Chronic Care
 - c. General population.

The Interoperability and Population Health section of the DHMW survey accounts for **~14%** of the overall DHMW total score, thus playing a notable role in defining an HCO's digital health standing within DHMW's maturity recognition framework. Commenting on the weighting assigned to this section in the DHMW survey, Lorren Pettit, CHIME's Vice President of Digital Health Analytics (DHA) said, "Through the integration of data from disparate healthcare providers, interoperability facilitates population health analytics to identify trends, assess health outcomes and develop targeted interventions for specific patient groups or communities. To achieve these ends, HCOs must have a sophisticated command of digital health technologies and processes."

Kathleen Aller, Head of InterSystem's Global Healthcare Market Strategy, echoed the significant interplay between Interoperability and Population Health. "The premise behind the industry shift to value-based care is that by actively managing the health of a covered population, you can lower utilization of services and the overall cost of care," she said. "Most population health management initiatives are directed at chronic conditions, which require care from a large number of providers. Interoperability is essential to creating a comprehensive picture of that care. And since research shows that around 80% of health status is related to factors other than care itself, successful population health management requires data and insights from a wide variety of information sources beyond the EHR and traditional care settings, to include social determinants of health (SDOH) data."

Michael Rosenblum, an InterSystem's Clinical Executive, added, "Pop health is all about identifying the population, and interoperability is the foundation for pop health."

1 Scope of Data Exchange

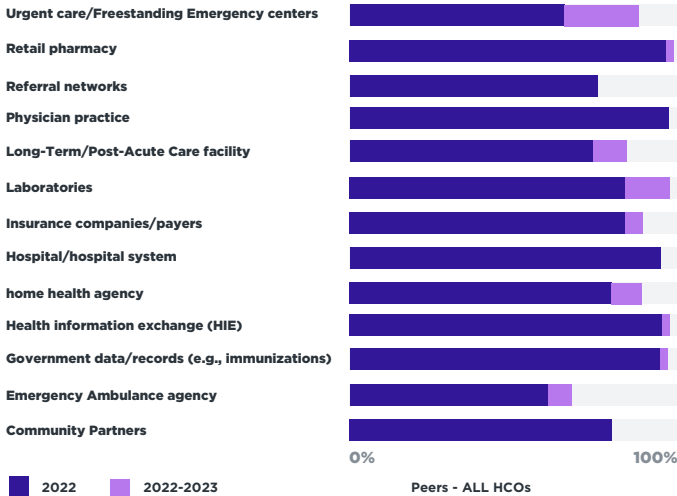
The first category considered in the Interoperability and Population Health section of the DHMW survey addresses the scope of data exchange within and between HCOs. Three questions were used to assess an HCO's interoperability capabilities.

1. Types of provider organizations HCOs can send/receive discrete data to/from

Question 46

Which of the following types of healthcare entities external to your organization can your organization's EHR successfully...

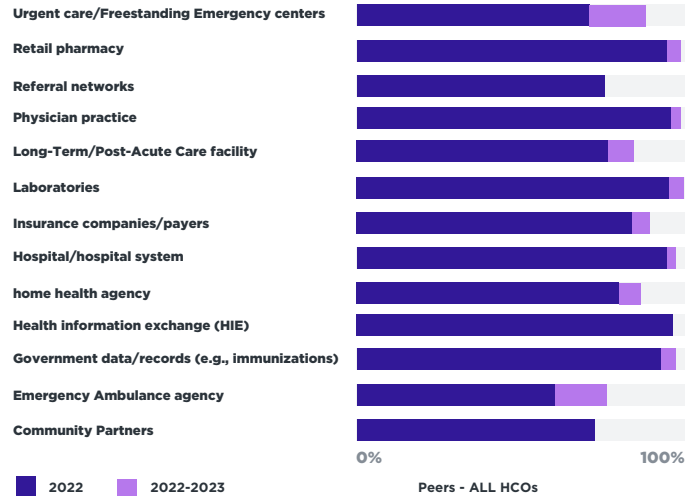
Q46. *send* discrete patient data electronically to



Question 47

Which of the following types of healthcare entities external to your organization can your organization's EHR successfully...

Q47. *receive* discrete electronic patient data from



Reflecting on the year-over-year changes in the type of provider organizations HCOs can send/receive discrete data to/from, Pettit cautioned that the DHMW survey only explores the array of external provider types HCOs can exchange data with. "It does not address the efficiency of the data exchange such as the percentage of the time the data actually is exchanged and readily available within workflows," he explained. "That said, there appears to be a universal core of provider types with which HCOs exchange data and that interoperability advances with this group are fairly stable and probably fairly sophisticated. Outside of this group, there is a notable increase in data exchange capabilities with Freestanding and Urgent Care entities, suggesting there is a trend toward exchanging data with peripheral providers who can have a sizeable impact on an HCO's patient volume and who are part of the overall value-based care network."

Rosenblum noted these findings raise questions about what HCOs mean when they say they have an interoperable system, and what an interoperable system looks like. "Healthcare organizations have different perspectives on interoperability," he said, noting the EHR is an important component to interoperability, but not the entire solution.

"At InterSystems, we see two categories of HCOs: those that have invested in integration - connecting all internal systems, and those who have invested in comprehensive interoperability — delivering a foundational, longitudinal, health record for all patients across the enterprise." Rosenblum continued. "True interoperability ensures that the right data is available at the right time, to the right person. It implies that both sending and receiving system understand the data in the same way, and that information-sharing respects patient consent, privacy, security, and regulatory requirements. That kind of sophistication was beyond the reach of some provider types until recently."

Aller suggested several industry issues may be contributing to the trends observed in the survey. "One is continued industry consolidation through both partnerships and acquisitions that expand the reach of HCOs. Another is the entry into the healthcare arena of new players from retail pharmacy, e-tail, and big box retail chains. These tend to value data as a business asset, and are looking to move beyond the wide, but shallow health record sets that come from their own healthcare operations. For them, interoperability to build deep, longitudinal records is a business imperative to help create a seamless healthcare consumer journey."

On the increased data exchange activities with Emergency and Urgent Care entities, Aller offered a few factors which might account for these findings. “To some extent, this is part of the general trend mentioned above, but there are some additional factors. One is that best practice care for time-sensitive conditions requires starting treatment within minutes or hours. Connecting emergency services to the larger health systems enhances real-time responses and improves not only clinical outcomes but also financial ones, as expensive complications are avoided. Another closely related factor is that coordination of care, especially follow-up from emergency encounters, is increasingly measured and incented, for example, with expectations that Admission/Discharge/Transfer events will trigger notifications to primary care providers. Finally, with emergency services frequently overused, having comprehensive longitudinal records available for strategic planning purposes is increasingly essential for organizational health and well-being.”

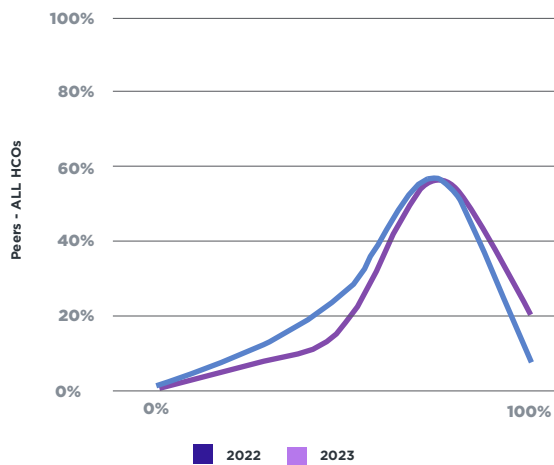
Rosenblum agreed, noting the outpatient urgent care business sector is booming. “ERs are expensive; urgent care centers are less so. There’s been a huge strategic scramble to consolidate urgent care centers in order to manage costs, which may account for these findings.”

2. Percentage of transitions of care/referrals sent from the EHR/HIE

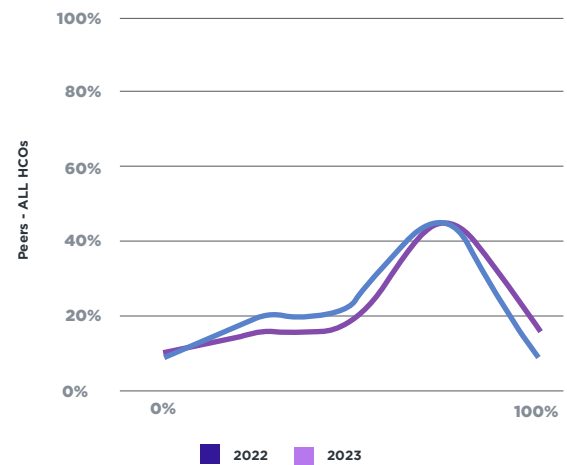
Question 48

For transitions of care and referrals involving automated electronic processes, please indicate the percentage of cases in which your organization provides a summary care record...

Directly from your EHR



From an HIE



On the increased percentages of providers automating transitions of care and referrals via the EHR and HIE, Rosenblum stated there are two inferences which could be drawn from this data. “One is that there are still too few electronic follow ups to care, which hinders care coordination and makes unplanned readmissions more likely. The second is that HIEs are still an under-utilized resource. While many US regions are moving toward a health data utility model — recognizing that public health and Medicaid programs need comprehensive data to optimize care — too few have a comprehensive strategy to build a shared information infrastructure. Every HCO should have a comprehensive external data strategy to leverage national networks, state networks, vendor sponsored networks, and internal networks. Connecting to affiliates, payers, disease networks, and other hospital systems helps provider better patient care and insights.”

3 Population Health Targeting

The Population Health questions in the Interoperability and Population Health section of the DHMW survey cover three areas where HCOs have historically leveraged digital health solutions to positively impact the health of targeted populations: Disease registries, chronic care patients, and general population interventions.

Disease Registries

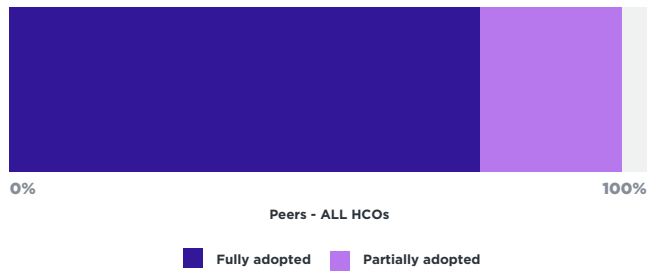
A disease registry is a database that contains information about people diagnosed with a specific type of disease. They are most frequently used to help researchers and public health agencies track the clinical care and outcomes of a defined patient population. Registry data contributes to understanding many aspects of the disease including prevalence in specific geographies, patient characteristics and how they differ in sub-populations, mortality risks, as well as the disease risk factors.

The DHMW survey includes two questions specific to disease registries:

1. Adoption of electronic disease registries

Question 49

How would you characterize your organization's adoption of an electronic disease registry(s) to identify and manage gaps in care across a population?



The findings reveal that most HCOs have fully adopted the use of disease registries and, in most cases, the captured data is available to be used by clinicians at the point of care. Drilling deeper into the data, disease registry use varies by the size of the HCO, where the usage of disease registries in smaller HCOs is not as pervasive as it is in larger HCOs.

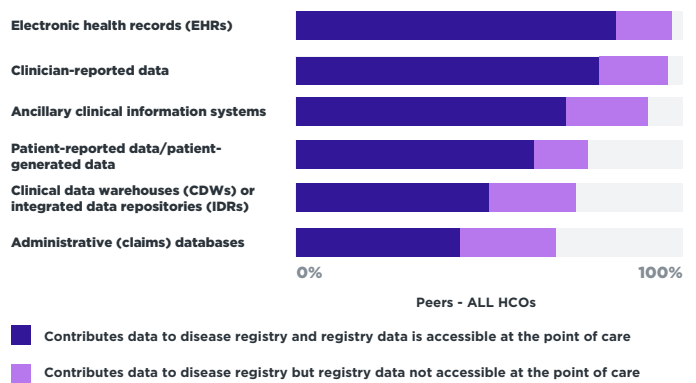
Patient registries may be designed to meet a specific clinical research question, but attention within the United States in recent years has focused on developing registries that can serve as central components of a learning health system. Within this type of system, registries can support population health management, clinical decision making, quality improvement, and clinical research. However, these registries must be connected to other registries, EHRs, and other data sources in order to meet these goals within a learning health system, suggesting interoperability plays a significant role in helping HCOs become a learning health system.

Picking up on this point, Aller noted that learning health systems aggregate the information and experience gathered from health and wellness activities to derive insights and continuously improve prevention and care processes. “The richer the information set and the more easily accessible it is to both researchers and caregivers, the greater the learning opportunity,” she said. “Traditionally, disease registries have relied heavily on chart abstraction and manual data entry to populate data sets; as organizations mature in their interoperability capabilities, much of this burden can be automated, including data gathering from patients.”

2. Data sources feeding into the HCO's disease registries

Question 50

How would you describe your organization's use of the following data sources in contributing data electronically to disease registries?



Chronic Care Patients

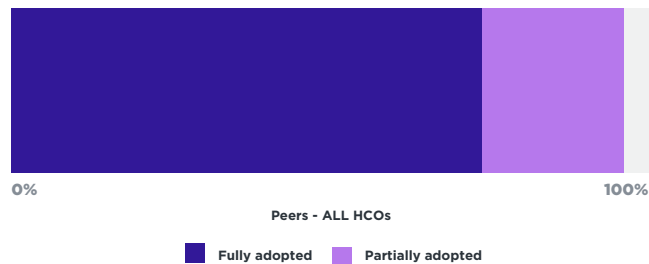
The health needs of chronic care patients represent another population group HCOs have specifically leveraged technology to address. In the DHMW survey, the importance of incorporating chronic care supportive efforts is understood on multiple levels to include the industry shift to value-based care where population health management initiatives are directed at chronic conditions, as well as the general aging of the US population.

The DHMW survey includes two questions surrounding an HCO's digital health support of chronic care patients. The first makes it clear that nearly all respondents have at least partially adopted one or more technology tools to manage patients with chronic conditions.

Adoption of technology designed to track management of chronic-care patients

Question 51

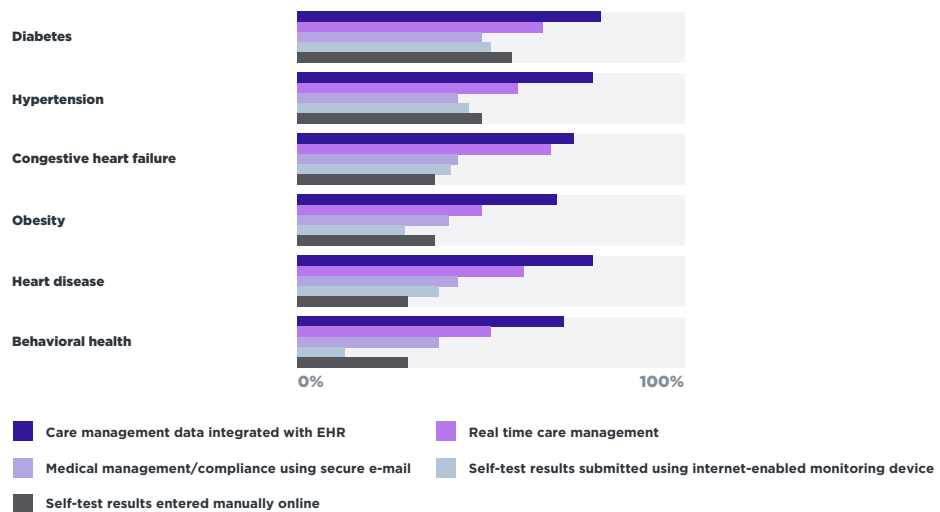
How would you characterize the adoption of technology in your organization to track the management of your chronic-care patients?



The second explores the use of varied chronic-care/disease management services by type of condition.

Question 52

For each of the following conditions, which electronic-based chronic and/or care disease management services do you provide to patients “outside the walls” of your facility? *Include only fully implemented programs (not pilots) for relevant patient population.*



“Like disease registries, almost all HCOs are positioned to address the needs of chronic care patients and they use a multiplicity of technological interventions in the delivery of services to chronic care patients residing in the community,” Petit summarized. “That said, it’s encouraging to see the high percentage of organization’s ensuring care management data is integrated with the organization’s EHR.”

Recognizing the importance of moving patient care outside the walls of a hospital, Aller noted that HCOs “have to incorporate remote monitoring and patient generated data into clinical workflows, which means being able to grapple with everchanging telehealth and device data types.” She added that while doing this, they must at the same time “deliver data, coaching, and services to patients in their homes and workplaces in intuitive formats that take into account patient literacy and digital access. Many patients have multiple chronic conditions. The survey responses indicate that HCOs have adopted different technology solutions for different conditions. The next step in digital maturity will be unifying these disparate approaches to guide patients holistically.”

General Population Interventions

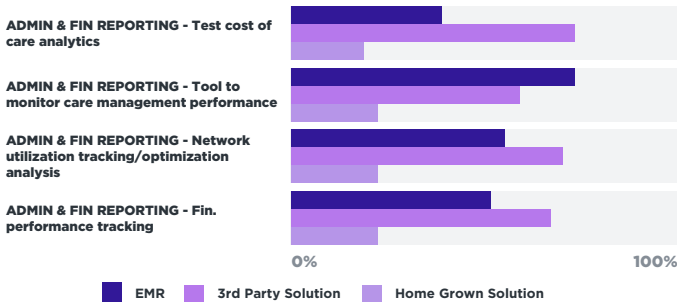
The final group of questions in the Interoperability and Population Health section focused on general population health interventions. In this section, two sets of questions were used to assess a survey participant’s efforts in this area:

1. Types of technologies (EMR; 3rd Party Solutions; Home Grown Solutions) used to address varied population health activities

Question 53

Which technologies does your organization use in addressing the following population health activities?

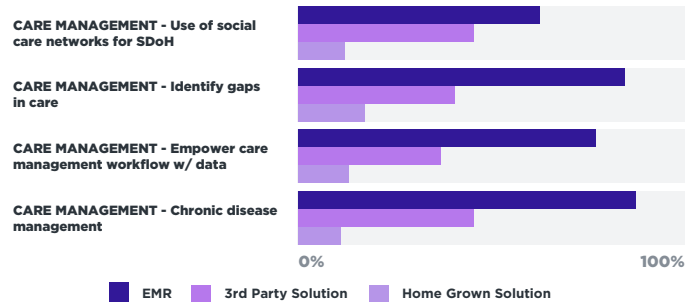
Administration & Financial Reporting



Question 53

Which technologies does your organization use in addressing the following population health activities?

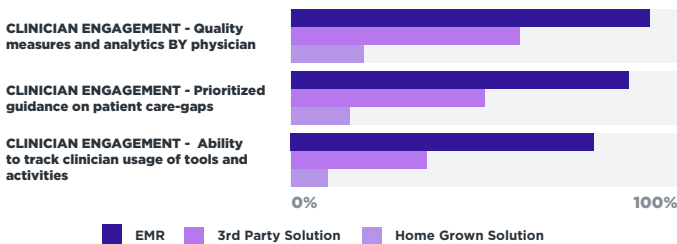
Care Management



Question 53

Which technologies does your organization use in addressing the following population health activities?

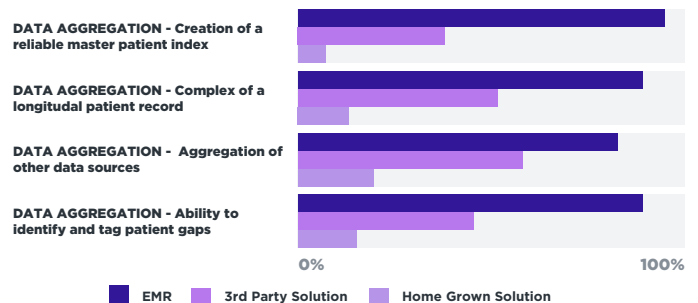
Clinician Engagement



Question 53

Which technologies does your organization use in addressing the following population health activities?

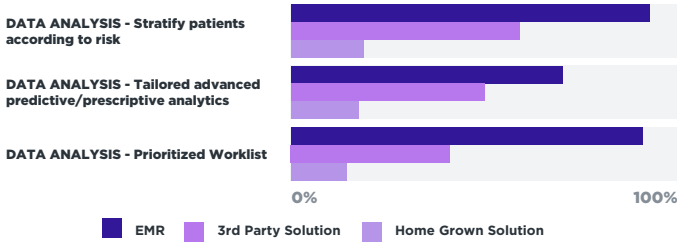
Data Aggregation



Question 53

Which technologies does your organization use in addressing the following population health activities?

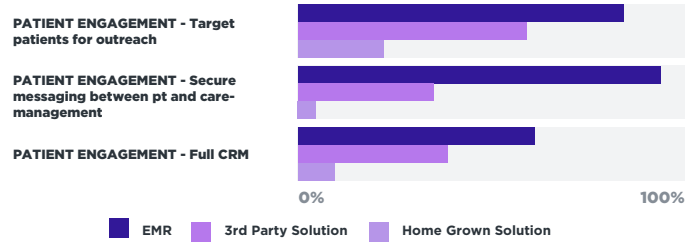
Data Analysis



Question 53

Which technologies does your organization use in addressing the following population health activities?

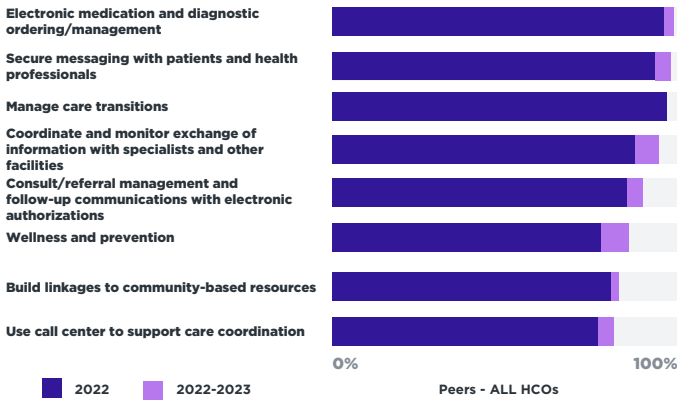
Patient Engagement



2. Care coordination activities leveraging information technology

Question 54

Which of the following care coordination activities involving your clinical partners are performed leveraging information technologies?



Looking at the many population health activities listed, the activities can essentially be collapsed into six general categories (e.g., Admin & Financial Reporting), according to Petit. “For most of these activities, HCOs rely on their EHR,” he explained. “Not surprisingly, the notable exception is Administrative & Financial Reporting activities where HCOs tend to lean on 3rd party solutions. Perhaps more surprising is the significant number of home-grown technology solutions being deployed across all activity types.”

Rosenblum and Aller reported that among InterSystems customers, all of their largest and most prestigious healthcare organizations have innovation teams engaged to identify and/or build breakthrough solutions for their

patients and clinicians. “Homegrown technology has always been a part of healthcare innovation,” Rosenblum commented. “But siloed or custom solutions that are disconnected from the greater healthcare system are difficult to scale. Successful organizations balance out-of-the-box solutions with a technology stack that supports innovative reuse and new development. The right vendor solution and relationship enables you to deliver homegrown technologies that aren’t trapped in a black box.”

4 Conclusion

Interoperability and Population Health are intrinsically tied together. Pulling data together from varied sources is critical to identifying population groups and developing interventions to positively impact their health outcomes. Data from the 2023 DHMW survey suggests U.S. HCOs are well-positioned from a technological capabilities/usage perspective to successfully address their market’s Interoperability and Population Health needs. To achieve this, HCO leaders need a technology strategy which has an unwavering focus on adoption. Implementation needs to include capturing feedback and understanding how varied stakeholders (e.g., physicians, care managers, patients, etc.) receive and optimize the information. Without engaging these stakeholders, the HCO’s proposed solution can be an enormous waste of time and money.



About CHIME

The College of Healthcare Information Management Executives (CHIME) is an executive organization dedicated to serving chief information officers (CIOs), chief medical information officers (CMIOs), chief nursing information officers (CNIOs), chief innovation officers (CIOs), chief digital officers (CDOs), and other senior healthcare IT leaders. With more than 5,000 members in 58 countries plus 2 US territories and over 190 healthcare IT business partners and professional services firms, CHIME and its three associations provide a highly interactive,

trusted environment enabling senior professional and industry leaders to collaborate, exchange best practices, address professional development needs, and advocate the effective use of information management to improve the health and care in the communities they serve. For more information, please visit chimecentral.org.



About Digital Health Analytics

Digital Health Analytics (DHA) is a global market intelligence and survey research hub for digital health technology. Provided by the College of Healthcare Information Management Executives (CHIME), DHA was created in 2022 to supercharge organizations' digital health transformation capabilities by moving from a one-snapshot-in-time, static Most Wired survey to a 365/24/7 data and analytics resource. DHA is the gateway for provider organizations

and companies to better understand how digital technology supports leaders in transforming health and care and delivering data insights that help them make the greatest business impact possible. For more information, please visit dhanalytics.org.

About InterSystems

InterSystems is the leading provider of data technology for extremely critical data in healthcare. InterSystems brings disparate data into a single reality, creating a unified vision that enables informed decisions and powerful outcomes. Its cloud-first data platforms solve scalability, interoperability, and speed problems for large organizations around the globe.

InterSystems also develops and supports unique managed services for hospital EMRs, unified care records for communities and nations, and laboratory information management systems. InterSystems is committed to excellence through its award-winning, 24/7 support in more than 80 countries. Over 1 billion healthcare records are managed using InterSystems technology around the world.

Digital Health Analytics (DHA) is a global market intelligence and survey research hub for digital health technology. Provided by the College of Healthcare Information Management Executives (CHIME), DHA was created in 2022 as the gateway for provider organizations and companies to better understand how digital technology supports leaders in transforming health and care and delivering data insights that help them make the greatest business impact possible.

