

# The “Six A’s” for Population Health Mangement



**Orion Health White Paper**  
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## Summary

Healthcare organisations globally are investing significant resources in re-architecting their care delivery infrastructures to enable them to adapt successfully to new, value-based delivery models. This is driven by a need to reduce the increasing costs of healthcare while improving healthcare outcomes. To achieve this, healthcare organisations are looking for ways to proactively manage the health of populations to prevent the onset of avoidable chronic conditions, and to better manage those already suffering from chronic disease. This is broadly termed a shift to population health management, with proactive management of the health of a given population, typically through care that is coordinated across the community through a number of linked healthcare organisations.

One of the most complex and critical aspects of building the foundation for successful population health management is developing an IT infrastructure that will enable clinicians and administrators to access and share the clinical and financial information they need, and allow them to streamline and automate their processes to ensure the most efficient clinical and administrative workflows.

As organisations seek to integrate data and workflows across community practices, acute care, long-term, behavioural health and rehab facilities, the technical and organisational challenges can become daunting. Fortunately, today we can draw on the experience of a number of entities that have adopted integration and care coordination technologies for guidance on the road to becoming a successful provider of healthcare in a world focused on preventative care and more effective healthcare.

The specifics can vary from community to community, and country to country, but some core aspirations consistently emerge for most organisations remunerated (whether partially or completely) on value-based metrics. These include the need to:

- Track and document all patient interactions in real-time
- Collect all patient data across the continuum of care
- Facilitate coordination and collaboration across an individual's circle of care
- Proactively identify at-risk patients and deliver comprehensive intervention and ongoing care
- Prompt caregivers with trusted, actionable information when they need it
- Continuously gather and learn from data so that they are constantly improving the quality and efficiency of care, while decreasing unnecessary duplication and costs
- Clearly, the IT infrastructure is a key enabler for organisations seeking to embrace the vision for population health management.

## The move to Population Health Management

There are three key elements that require consideration when considering a shift from the status quo to a more efficient, outcomes-based healthcare system.

- **EHR Insufficiency**  
Every healthcare organisation understands that the electronic health record (EHR) will be an essential component of their population health management initiatives - both for gathering critical data and for delivering actionable information to the point of care. Some - perhaps swayed by vendor hyperbole - fail to recognise that while necessary, even the most sophisticated enterprise-class EHR is insufficient for conducting effective population health

management on its own. EHRs are not designed to effectively gather, aggregate and normalise data from multiple sources, nor are they typically as strong on data analytics as they need to be.

- **The need for a complete, longitudinal patient record**

Healthcare providers need the actionable insights that an effective population management system can provide, but for those insights to be practical and useful for the hospital or clinic, they must be in context. Accessing a full longitudinal record with historic claims, lab data and medication history gives healthcare providers the holistic view they need to evaluate the patient and act on recommendations.

The advent and broad adoption of EHR systems has been one of the most essential building blocks for current healthcare systems. However, a single EHR rarely contains comprehensive information on the patient, especially when it comes to what happens beyond the encounter, such as care plan compliance and treatment outside of the home system. Patients can have critical information residing in multiple EHRs at their primary doctor's clinic and local hospital, as well as paper records, and the lack of a single, longitudinal record can be a significant obstacle to efficiently providing optimal care.

- **Include the whole population**

Much of the literature and vendor information available on value-based care focuses on the ability to identify at-risk populations and individuals, and to close gaps in care for patients with specific disease states or co-morbidity combinations such as diabetes and metabolic syndrome. Realising that they "can't see the wood for the trees" is increasingly heard from population health managers who find that by zeroing in primarily on the sickest

patients, they can miss opportunities to identify population level health trends, prevention intervention windows and issues specific to certain communities.

- **Claims data is essential**

Health insurance claims data provides important insight into historic care, care provided by other healthcare organisations, test data and medication compliance to round out the longitudinal record.

While the EHR knows the patient was seen in one hospital's emergency department twice over the past month, the health insurance claims data (or in the case of New Zealand, ACC information) can show that this patient in fact had two other emergency department visits in the same time period at different healthcare organisations. This type of data becomes critical as healthcare organisations seek to get more sophisticated in their use of analytics to identify optimal care paths and proactively manage patients.

## The "Six As"

Consequently, Orion Health has devised what it believes are the six key stages in the journey to successful population health management – the six "As", as outlined below:

1. **Acquisition**

For most aspiring population health management organisations or networks, key data resides in a wide range of internal and external source systems. Multiple EHRs and other clinical systems within the organisation format, store and share data in many different ways. That complexity is multiplied as they start to bring in data from an even greater variety of EHR and practice management systems in use by community practices as well as the long-term care, rehab

and home health systems that fill out the continuum of care. As noted above, health insurance claims data is also a critical component of gathering a comprehensive universe of patient data.

The essential IT infrastructure requirements to support effective data acquisition include integration engine technology for accurate and reliable interoperability with a wide array of systems, and secure exchange and information transport to protect the privacy and security of patient information. Rhapsody Integration Engine is a foundational element of the Orion Health Open Platform and is the technology on which Orion Health's legacy is built. Rhapsody extracts and shares data from multiple sources and in multiple formats and standards. Rhapsody is listed as a Class 1 medical device with the FDA. Data acquisition is also accomplished via the Direct Trust accredited Orion Health Direct Secure Messaging, which enables the secure exchange of clinical data between providers via the Internet.

## 2. Aggregation

Each of the systems contributing data to a healthcare network has its particular characteristics and conventions for formatting and sharing data. Even common EHR and other Healthcare Information System (HIS) platforms can alter their data formats from version to version of the software. The differences get much more dramatic when you start to bring in data from labs, health plans, pharmacies and tertiary care. Normalising that data is not only an extremely complex challenge, it is one that must be engineered to deliver scrupulous quality of data. Small errors can mean big problems in individual patient care, and when you multiply that by thousands or millions of records, the impact is significant to population level metrics.

The essential IT infrastructure requirements to support effective data aggregation include enterprise master patient (eMPI) and master provider index and identity management systems, to ensure that as the data is aggregated it is always associated with all of the correct entities (patient, healthcare organisations such as hospitals or primary care practices, other healthcare facilities). Terminologies and translators are also essential to ensure an effective and accurate semantic layer that can normalise diagnoses and other critical components of the record that are expressed differently across multiple systems. The clinical data repository is also a key requirement for aggregation, serving as the fundamental source of normalised data for access, analytics and action.

Orion Health Open Platform is a hugely scalable platform built on modern architecture that collects and integrates data into data domains and structures, and then normalises and assigns it to the correct patient. Open Platform also helps organisations meet privacy and security requirements for handling protected health information. This includes identity management and enrichment tools to ensure that the information presents a single source of truth.

In addition to the core clinical domains covered by Orion Health Open Platform, additional domains are available to capture payer data feeds, including membership, medical claims and pharmacy claims.

In the future, domains are planned to capture additional information such as biometrics, genomics and consumer-sourced data.

### 3. Analytics

Mining data for views into population health, finding the actionable insights that can drive improvements to quality and efficiency, keeping up with the ongoing and ever-increasing regulatory reporting requirements – all of these issues and many more drive the need for analytics as a fundamental component of a successful integrated health network. Leveraging data-driven intelligence to improve care delivery is also something that a well-constructed IT infrastructure is uniquely able to do. With solid data acquisition and aggregation comes the ability to learn from and act on data in very powerful ways.

The essential IT infrastructure requirements for health data analytics include all of the foundational data gathering, normalisation and repository creation components outlined so far. Additionally, solid business intelligence tools that not only allow analysts as well as non-technical users to mine data for useful insights, but also automatically generate the core reports and dashboards that deliver data to the point of impact, are key. For regulatory reporting purposes, healthcare networks need analysis and reporting tools that automate the process of staying up-to-date on the latest requirements and meeting them in a timely fashion. Orion Health Analytics integrates seamlessly into the clinician's workflow enabling real-time decision support at the point of care.

Orion Health Analytics can help organisations review historical, present and future trends in the health of their communities. There is a large amount of existing data stored in a variety of disconnected data silos that, if connected and shared, would provide a better insight into the true state of healthcare and of a population's health today.

By combining the Orion Health Open Platform improved data processing capability and the Orion Health Analytics rapid development of data models, organisations are able to harness complex data from various data sources such as medical devices, genomic sequencing and consumer-generated data and use it for performance improvement.

### 4. Access

Several different types of stakeholders will need secure access to various aspects of a healthcare network's, data such as clinicians, administrators, health information management (HIM) professionals, patients, family members, health insurers and many others. Each constituency has its own unique set of priorities, permissions and levels of technical and clinical sophistication to consider, but for all of them, the access to data must be as frictionless as possible to support initial and ongoing adoption. Healthcare providers will typically be best served by giving them access to information within the EHR itself, whereas patients and family members in their circle of care will need a web-accessible secure patient portal. The essential IT infrastructure requirements to support effective data access include direct EHR integration, personal health record (PHR), multi-stakeholder portal, mobile application, secure messaging, single sign on (SSO) and workflow integration for care managers and other professionals.

Different stakeholders involved in the management of a health system require secure access to various pieces of data within Orion Health Open Platform.

Through a combination of Orion Health solutions that integrate with Open Platform, Orion Health Coordinate and Orion Health Engage, all involved in the health ecosystem are able to access the

most relevant information at the right time and place in order to complete the required tasks.

## 5. Action

Too much data and too many ways to use it can create paralysis and diffusion of resources. Putting an IT infrastructure to work in support of effective data-driven action means giving healthcare providers tools to insert actionable insights into their daily workflow, allowing them to continue to do their jobs but with the added value derived from population and individual patient data analyses.

The essential IT infrastructure requirements for putting health data into action include some of the clinical collaboration and patient communication technologies previously mentioned including secure messaging, EHR integration and multi-constituency portals. Another key technology is care coordination workflow tools that enable care managers to deploy consistent care plans based on patient and population data, and to document and communicate care plan progress with the healthcare providers and patients they support.

Once the population has been stratified and cohorts of interest have been identified via Analytics, customised action plans can be put in place for each cohort or patient and care coordinated across facility lines accordingly. The Orion Health Coordinate solution makes collaboration and communication easy, with a suite of tools that track, manage, document, plan, alert, notify and remind.

## 6. Adoption

Every stakeholder needs or wants access to this critical health data, but humans tend to be deeply resistant to change, and getting everyone to use an

integrated system initially, and on an on-going basis, can be a major challenge. Adoption is as much an issue of technical prowess – making the data seamlessly easy to get to and impeccably accurate – as an emotional and behavioural one, and those two sides of the challenge are inextricably linked. It is also a bit of a “chicken and egg” challenge, because if clinicians and care coordinators fail to adopt, key information will not be used for decision-making and outcomes will suffer. Both effects are potentially devastating to the success of any integrated health network.

The essential IT infrastructure requirements to support effective integrated health systems’ adoption echo many of those relating to access: electronic health record integration, personal health record, single sign on and portal all contribute to successful adoption. Great consulting support, ideally from clinicians with a deep understanding of out patient and inpatient workflows, and a user-friendly interface are also critical to adoption. To understand the right ways to make technology work for a range of stakeholders and to navigate the choppy waters of change management requires very specific skills and experience.

As a result, to support our technology stack, Orion Health has formed a Services Consulting arm that provides teams of clinicians, analysts and change management experts who can bring effective Care Coordination, Clinical Engagement, and other programs to an organisation.

## A new era of healthcare

Outcomes-focused healthcare models require a modern open platform to connect and leverage data from multiple systems across the community. Increasingly, healthcare organisations and networks are seeking advice and IT support to put in place the infrastructure required to achieve the level of information sharing modern healthcare requires.

The guidelines and best practices outlined at a high-level in this paper can help provide a roadmap for organisations seeking to chart the course for IT infrastructure development as part of their journey to achieve better health outcomes while reducing healthcare costs. If our communities of care can get this fundamental piece right, they will set the stage and make it possible for their organisations to achieve high performance at a reduced cost and with great outcomes.

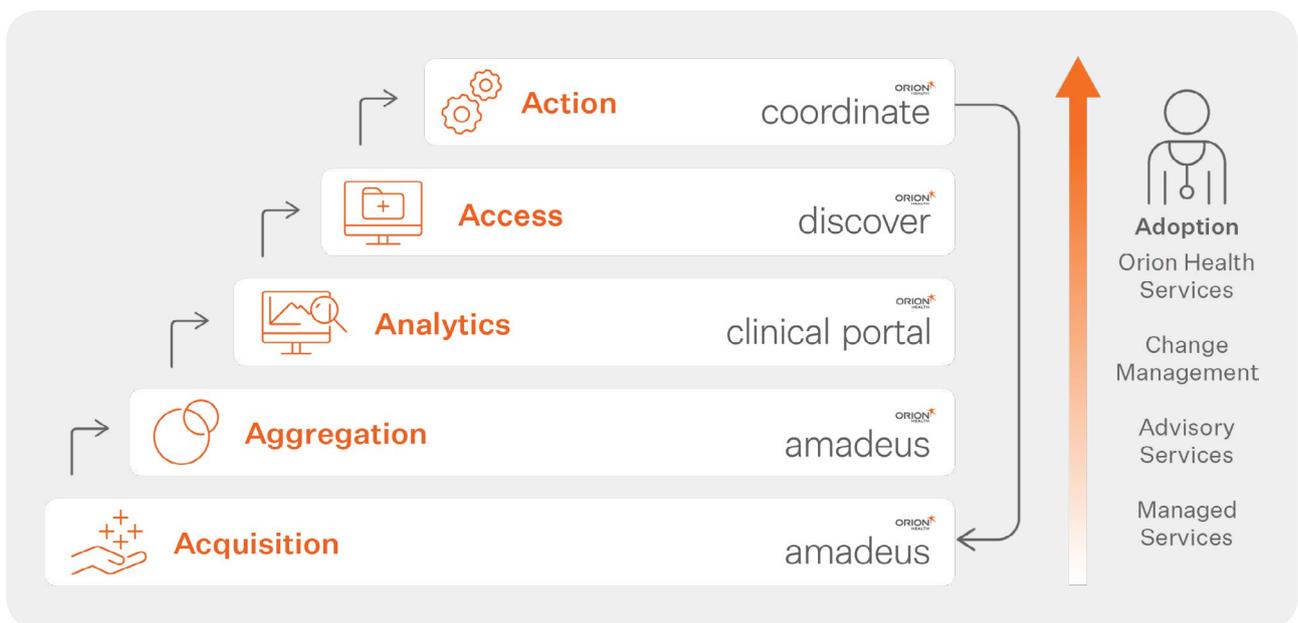


FIGURE 1: 6 As of Population Health Management



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