

Data-Driven Population Health Strategy

How electronic health information, clinical decision support, and care-team workflows can support population health and address social determinants of health

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EXECUTIVE OVERVIEW

This white paper examines how electronic tracking of health outcomes can inform population health management, with particular attention to social determinants of health (SDoH). It explores the relationship between policy, electronic health information, clinical decision support, and care-team workflow.

Population Health in Context

Jack Friedman (CEO, Providence Health Plan) summarized his definition of Population Health by saying, “Population health is the acknowledgement that the goal of all health system stakeholders is to do the most good for the most people at the least amount of cost. It requires a primary care centered model that incentivizes all providers to measure their clinical performance at the population level, and it requires interface between public and private institutions along with local community engagement. Population longevity and broad values around quality of life are the ultimate measures of success and performance.” Simply put, population health is defined as the health outcomes of a group of individuals, including the distribution of such outcomes within the group. These groups may be defined by factors which segment a population of like persons, for example, geography, health or condition status, age ranges, or employment. (Pizzi, 2015).

For this paper, I will explore how electronically tracking specific outcomes affects population health, specifically in terms of social determinants of health (SDoH).

FOCUS

Electronic tracking of health outcomes can help organizations identify population-level needs, understand SDoH-related barriers, and inform improvement efforts.

Population Health, Policy, and Healthcare Reform

Looking at Mr. Friedman’s idea of population health requiring the interface between public and private institutions to do the most good for the most people at the least amount of cost, may speak to the idea of healthcare reform and health policy. Reform and policy making is made by entities such as government bodies, trade associations, academic institutions, and think tanks. This may be due in part to influences to the population health groups affected by SDoH; meaning, those whose health are directly impacted by non-medical factors which influence a persons or groups health outcomes (such as the region a person lives and access to healthcare, their socio economic status (SES), their education, etc). In this arena, reform is often necessary as not all segments of the population have the same access to care (Sherrell, 2021).

In the United States, when thinking of reform, often we think of large-scale adoptions or change, such as the Medicare and Medicaid Act of 1965 or the Affordable Care Act of 2010 (McLaughlin, 2015). Reform also takes place at a regional scale. An example of healthcare reform targeting SDoH can be seen with Illinois House Bill (HB) 158 which was signed into law in April 2021 (known as the Illinois Health Care and Human Services Reform Act). This reform bill targets health inequities and seeks to limit factors which may impact an individual or communities’ access to health care (e.g., hospital closures, crime/violence, delays in approvals and applications, high healthcare premiums, or lack of training) (Kirsininkas and Troncoso, 2021). House Bill 158 has many parts but may be categorized into three functional areas. One, expanding healthcare access and equity, specifically to communities of color. Two, improving healthcare for women, children, and patients affected by mental health or substance abuse. And finally, three, it seeks to improve the overall quality of care for all Illinois residents and reduce costs (Illinois.gov., 2021). A public health issue specifically targeted in this bill speaks to violence, as the law calls for the Illinois Department of Human Services to identify communities with high violence and fund economic development to curb crime and violence, which may prevent access to healthcare (Jones, 2021).

Electronic Tracking, Outcomes, and Social Determinants of Health

Let’s use IL HB-518 as an example of how tracking data can lend to improved health outcomes and how using the data can improve the quality of care for health populations. Measures in the bill outline provisions meant to end inequities based on race, income, and SES factors (Kirsininkas and Troncoso, 2021). These measures in Bill 158 may help patients overcome the barriers preventing patients from accessing healthcare, and reduce overall costs, thus making healthcare more affordable and available. These areas are all data points which can be studied, and process improvement implemented based on findings (Bresnick, 2019).

In the case of IL HB-518, funding was apportioned to identify and help poorer neighborhoods. When regions were characterized as being a healthcare dessert and underserved during the COVID-19 pandemic, actions were taken to provide the vaccine rollout to those areas as a priority. In doing so, the state was able to identify and provide vaccines to those working in the public and unable to stay at home. Identified communities were provided education about the vaccine and those populations were encouraged to partake in the vaccine process. As vaccines were administered, electronic tracking happened through the Illinois Department of Public Health Vax Verify health registry. This registry enabled the state to monitor COVID-19 outbreaks and know approximately how vaccinated the populations were (Moore, 2021). This process of identifying and electronically tracking data by community and region has been replicated with monkeypox outbreaks; communities affected most were prioritized for vaccine rollouts and doses administered tracked via Vax Verify to measure immunization and the rate of infection in Illinois communities to slow the spread of the virus (Ramos and Perlman, 2022).

APPLIED EXAMPLE

Electronic registries can support population-level monitoring by connecting community or regional data with immunization and outbreak information.

Clinical Decision Support and Data-Informed Care

Decision making can be difficult, especially in life and death situations often faced by healthcare professionals. Clinical decision-making support assists healthcare professionals by providing knowledge and workflow to treat patients, prevent mistakes, increase efficiencies, and reduce costs – as well as increasing patient outcomes and quality of care (Rosario, 2021). CDS tools are often computerized and automated but may also exist as clinical guidelines or digital systems (Wasylewicz and Scheepers-Hoeks, 2018). Population segments affected by SDoH are statistically more likely to be misdiagnosed, under treated, and face disproportionate health risk factors (Butler, 2020).

CDS may positively impact population health segments affected by SDoH in two specific areas. First, populations affected by SDoH may have verify specific needs or conditions unfamiliar to all providers; electronic records and data serve as a repository of information and knowledge. Next, that repository may then be used to better treat future patients and improve the quality and pace of care, and reduce chance for revisit (Butler, 2020).

CDS improvement happens through accumulative knowledge and experience. The more documented practice (e.g., electronic health records [EHR]) available, this directly helps to increase a provider's ability to better serve all patients and provides a pathway for risk predication and targeted intervention for individuals who may fall into an affected population (Chen et al, 2020). The more input, the more precise and helpful CDS can be to healthcare professionals. Additional input may come through sources such as health information exchanges (HIE) (Sokol, 2020). HIE are systems which document and transfer health-related data points for a specific patient, such as current medications, past medical history, labs/order results, progress notes, etc. to the healthcare professionals treating that patient. (Sokin, 2020).

KEY INSIGHT

More complete electronic information can strengthen clinical decision support by supporting risk prediction and targeted intervention.

In looking at how CDS support helps to combat SDoH through improved patient care, this happens, in part, by identifying segments of the population which may be underserved and educating health care professionals to conditions specific to that population. For example, if a dermatologist has not worked with a patient of color, specific diagnostic knowledge or tools may be unfamiliar to that provider. EHR, HIE, and CDS tools and could provide options to better diagnose and treat the patient. Additionally, these tools may help the provider mitigate risks which may be present because of barriers due to race, language, or other SDoH factors (Butler, 2020).

Care-Team Workflow and Operational Impact

In healthcare, there may be redundancies, inefficiencies, and waste. Team workflows are a way to prevent those elements, and improve patient care and safety, and increase productivity and engagement.

A care team workflow is the set of tasks (grouped chronologically into process) and the group of people and resources needed to treat a patient. Team work flows are pathway to move patient from one process to another. These pathways remove redundancies, are more efficient, and have smooth handoffs between the parties involved. By using tools such as Electronic Health Records, Clinical Decision Support and Health Information Exchanges, workflow process can be guided and streamlined for efficiency for how patient care is delivered. Benefits of an efficient workflow are worker and patient safety, better engagement, employee, and patient retention, and also, more assurance for hospital reimbursement (HIPPA Journal, n.d.).

OPERATIONAL VALUE

Well-designed workflows can reduce redundancy, improve handoffs, and support patient safety, staff engagement, and operational performance.

In terms of SDoH, electronic tracking systems can assist health providers create more efficient workflows by collecting and analyzing data which assists in creating risk assessments and in predicting healthcare utilization to achieve better health outcomes. Again, workflows are improved by identify targeted needs, diagnosing and treating patients despite risks, increasing recovery times, and preventing readmittance. Workflows and tracking ideally lead to healthcare workers who are satisfied and less stressed. For the patient, the effective workflows and tracking may lead to increased engagement with their own health and better participation in their care (Chen et al, 2020).

Key Takeaways

- Population health management depends on understanding outcomes across defined groups and the non-medical factors that influence access, quality, and cost.
- Electronic tracking can make population-level patterns more visible and can support targeted public-health and care-delivery responses.
- EHR, HIE, and clinical decision support tools can help clinicians apply accumulated information to risk prediction, diagnosis, treatment, and intervention.
- Care-team workflows can use these information systems to reduce redundancy, improve handoffs, and support more coordinated care.

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