

Gerrymandering Population Health

By Barry P. Chaiken, MD, MPH

The 2016 election yielded 13 Republican and five Democratic congressmen representing the state of Pennsylvania. Although Republican congressional candidates won about 50% of the state-wide vote, they currently hold 72% of the available House seats. In a country of “one man, one vote,” how were the Republicans able to secure a higher number of elected representatives even though they overall received fewer votes? The answer is gerrymandering, an American practice that has spanned more than two centuries and continues in earnest to this day.

The more we know about a targeted population, the better organizations will be able to effectively impact their health.

In 1788, Patrick Henry, one of our country’s special patriots, led an unsuccessful effort to draw an election district to prevent James Madison from winning Virginia’s 5th congressional district and sitting in the U.S. House of Representatives. Later, on March 26, 1812, the *Boston Gazette* wrote about the redrawing of state Senate election districts by then-Governor Eldridge Gerry in an effort to benefit his Democratic-Republican Party colleagues. The word “gerrymander” comes from the pairing of Gerry’s name with the shape of one of the contorted districts north of Boston that resembled a salamander. This gerrymandering of the Massachusetts Senate proved so successful that although the Federalist party won both the election for governor

and a majority of the Massachusetts House, they failed to win the Senate, then controlled by the Democratic-Republicans (“Gerrymandering in the United States,” 2017).

Today, both Democrats and Republicans take advantage of the opportunity to draw election districts that maximize the chance of winning a maximum number of seats in state and federal elections. During the current U.S. Supreme Court session, the justices will hear a challenge out of Wisconsin to the practice of gerrymandering and explore statistical remedies that work to reduce

the most extreme cases that may violate voting rights (Cohn & Bui, 2017). If gerrymandering has been an ongoing practice for so long, why is it considered by some to be such a major problem now?

The answer is simple: big data analytics. Historically, politicians drew districts using simple algorithms that leveraged voting records to predict future voting patterns. Today, in addition to voting records, politicians access consumer information, real estate records, and other data sets used by the most successful consumer marketing companies. This wealth of data allows politicians to predict, with extreme confidence, the voting patterns of individual homes, thereby allowing election districts to be drawn to a high level of specificity. Without high-powered analytics and

sophisticated data models, gerrymandered districts could not produce the skewed results we see today.

Lessons from our politicians

The sophisticated analytics that allow for the gerrymandering of election districts also offer a model that can be applied in the delivery of population health services.

Today’s typical population health model evolved from previous efforts to deliver disease management services to specific subpopulations of patients with chronic diseases. Payer organizations chose relatively common diseases that research showed could be impacted by such interventions. The most popular efforts focused on highly prevalent conditions such as diabetes, asthma, and hypertension. Organizations used diagnosis codes from claims data to identify patients to enroll in the programs. Sophisticated efforts applied predictive modeling to the claims information to pinpoint which patients not only suffered from the target diseases, but also had the highest probability of benefiting from the disease management program’s interventions.

Overall, though, these disease management programs failed to deliver the expected results. Efforts to identify patients who could truly benefit from the disease management programs lacked specificity, thereby engaging some patients who could not benefit while failing to engage others who could. Although clinicians understood what interventions strongly impacted the chronic diseases, it proved challenging to efficiently deliver those interventions.

Payer organizations struggled to align clinicians with their disease

management efforts, as these providers had other interests and incentives. The fragmentation of care across multiple providers also posed a significant challenge. In the end, the impact on chronic disease and the cost of care fell short of initial expectations. Most payer organizations either eliminated or severely reduced their disease management efforts, recognizing a positive return on investment would not materialize.

Resurrection as population health

Although the interest in disease management declined throughout the past decade, the effort to improve cohorts of patients through targeted active intervention remained a strong focus of payer and provider organizations. If chronic disease patients could be quickly identified and effectively managed through targeted interventions that kept them well and prevented the utilization of services, significant savings could accrue to the payer organization at financial risk or the provider organization sharing risk.

New technologies such as smartphone apps offer a valuable tool to interact with and manage patients, but the original problem remains: How do we accurately identify patients that could most benefit from enrollment and management within a chronic disease intervention program?

Techniques used by politicians working to ensure their political party's dominance offer several approaches that may prove valuable to population health projects. Expanding beyond the traditional disease management model requires organizations to embrace the use of patient information that goes beyond claims information. The breadth of consumer information collected today continues to grow exponentially, offering companies and their marketers valuable insights into consumer behavior. Companies use this insight to strengthen their messaging, advertising, and sales efforts, and so too must population health initiatives if they want to succeed at accurately identifying patients



who can most likely benefit from disease intervention initiatives.

Consumer data sets offer a rich trove of information on patient tendencies that may significantly impact the effectiveness of specific types of interventions. While some patients may best be reached by phone, others may prefer text messages or email. Socio-economic data may indicate cost barriers to treatment for some patients. The more we know about a targeted population, the better organizations will be able to effectively impact their health. With divergent sets of data that more finely describe populations, both companies and politicians can more effectively use this data to achieve their overall goals.

For organizations engaged in population health programs to more effectively impact populations, they must learn from these other industries and apply a broad set of population data to more accurately target and customize their programs for the individual patients enrolled. Expanding the use of broadly based data sets and embracing highly

complex analytics can be invaluable in the effort to deliver population health services. |

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