MEDASSURANT™

# The Role of Data in Population Health Research

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# Agenda

- About MedAssurant
- The Problem:  Understanding the Population to be Managed
- Solving the Problem: Optimizing PHM Analytics
- Examples and Results
- Summary

# About MedAssurant


**Founded:** 1998

**Headquarters:** Bowie, Maryland

**Employees:** ~2,100

**Area of Operation**: All 50 States, P.R., & D.C., covering more than 99% of counties in the U.S.

**Clients:** Nearly 200 Managed Care Organizations touching millions of members, over 300,000 practitioners, and over 150,000 medical facilities

**Mission**: Providing highly data-driven healthcare solutions to drive meaningful and measurable improvements in clinical and quality outcomes, care management, and financial performance within the healthcare community.

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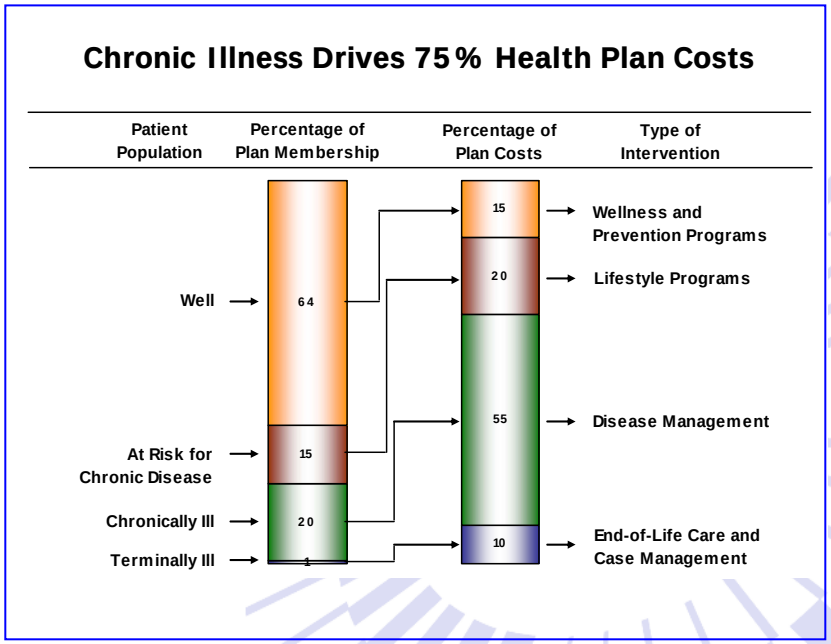
# The Problem: Understanding the Population to be Managed

Today, individuals with, or at risk for, chronic illness comprise about 1/3rd of health plan membership—but account for 3/4th of health plan costs. This is not because there is a lack of effective interventions for these members. It is because health plans have not been able to adequately identify patients and deliver the right interventions to the right patients, in the right way. This is the "promise of population health management." It is also the essential challenge.

Effective population health management requires that an organization:

- Identify patients who are at risk for preventable adverse outcomes
- Deliver appropriate, evidence-based, interventions to those patients:
  - Directly, and
  - With and through their physicians
- Match the intensity of intervention to the opportunity for impact
- Execute effectively and efficiently




Sources: Boston Consulting Group, "Realizing the Promise of Disease Management", February 2006

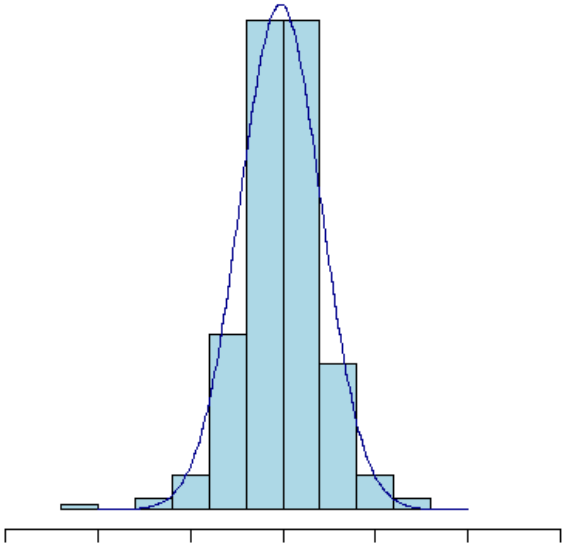
# The Problem: Understanding the Population to be Managed

There is a tendency to view populations as homogeneous—or as distributed along a "bell shaped curve" with respect to some specific characteristic. The truth is more complicated: populations are comprised of many discrete subpopulations, each distinctive in important ways. There is not a single "bell shaped curve," but a set of curves that describe distributions across a broad set of dimensions—each important to understanding and addressing the needs of the individuals in the larger population.

Examples of distributed characteristics that are relevant to population health:

- Demographic characteristics (age, gender)
- Severity of illness
- Comorbidities
- Socio-economic status
- Knowledge of and attitudes about illness

**There are many subpopulations that comprise the population of interest**



# The Premise

A more granular, data-driven and patient-specific approach to chronic care and population health management provides a more meaningful and impactful outcome on clinical and financial performance.

**Mrs. Jones is not so simply**

A diabetic who is:

- severe,
- mild, or
- unknown in her status

**Mrs. Jones is in fact quite uniquely**

A type II diabetic with:

- known peripheral neuropathy,
- known vascular disease,
- a LLE trans-metatarsal amputation,
- moderate chronic renal insufficiency,
- intolerance to ACE inhibitors,
- poor specialty follow up compliance,
- a rising Hgb-A1c despite increases in her
- medication dosing and controlled lipids,
- a propensity to fill duplicate prescriptions
- from different practitioners, and
- concurrent medical history including breast
- cancer and mild heart failure

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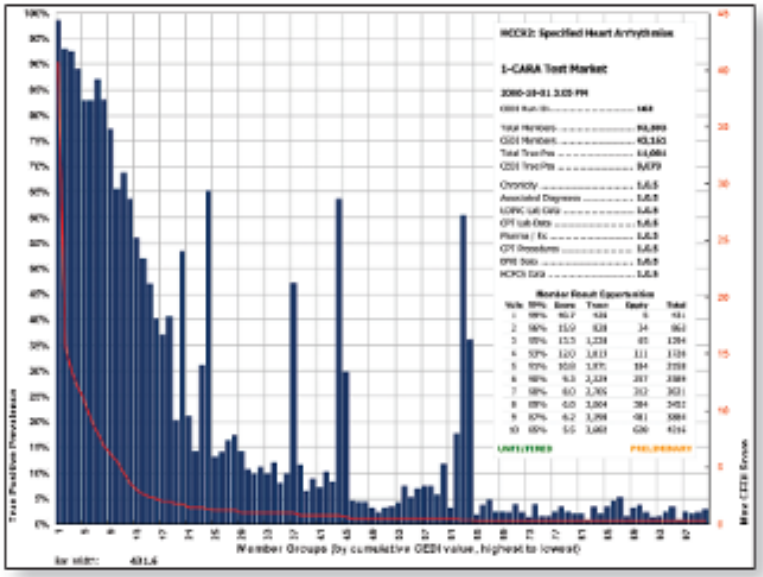
# Solving the Problem: Optimizing PHM Analytics

Developing the deep understanding of the (sub-) populations that comprise the population to be managed is accomplished through analysis. There are two distinct factors that must be managed to maximize the value of population health analytics:

- The breadth, depth, and completeness of data relevant to the analysis
- The level of methodologic sophistication applied to that data



# The Analytical Challenge

The challenge that faces population health researchers is the problem of maximizing the relevance of the data to be used for population health research, subject to a budget constraint. That problem can be seen clearly in the graphic below:

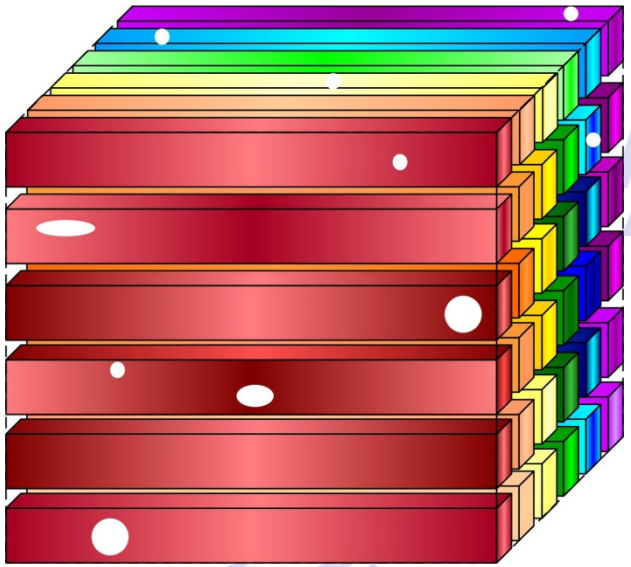
- More sophisticated methods permit better insight into the needs of individual patients
- But eventually that insight is limited by gaps in administrative datasets
- Medical record data (including data from Health Risk Assessments) offer unique insight into individual patients
- But the cost of acquiring that rich patient data is generally prohibitive

| Methodologic Complexity | Richness/Depth/Completeness of Data | |
|---|---|---|
| | Low | High |
| High | More valuable insight. Highly scalable from a cost perspective but very rapid fall off at the "insight frontier." | Most valuable insight. How can this be achieved? |
| Low | Very limited insight at lowest cost | More valuable insight. Highly scalable at the "insight frontier" but "affordability cliff." |

# The Data Problem

The challenge of using administrative data is that there are “holes” in it—because these data are incomplete, lagged, and often not well quality controlled. The central issue for population health research is working around the holes in the data—through inference—or filling those holes cost-effectively.

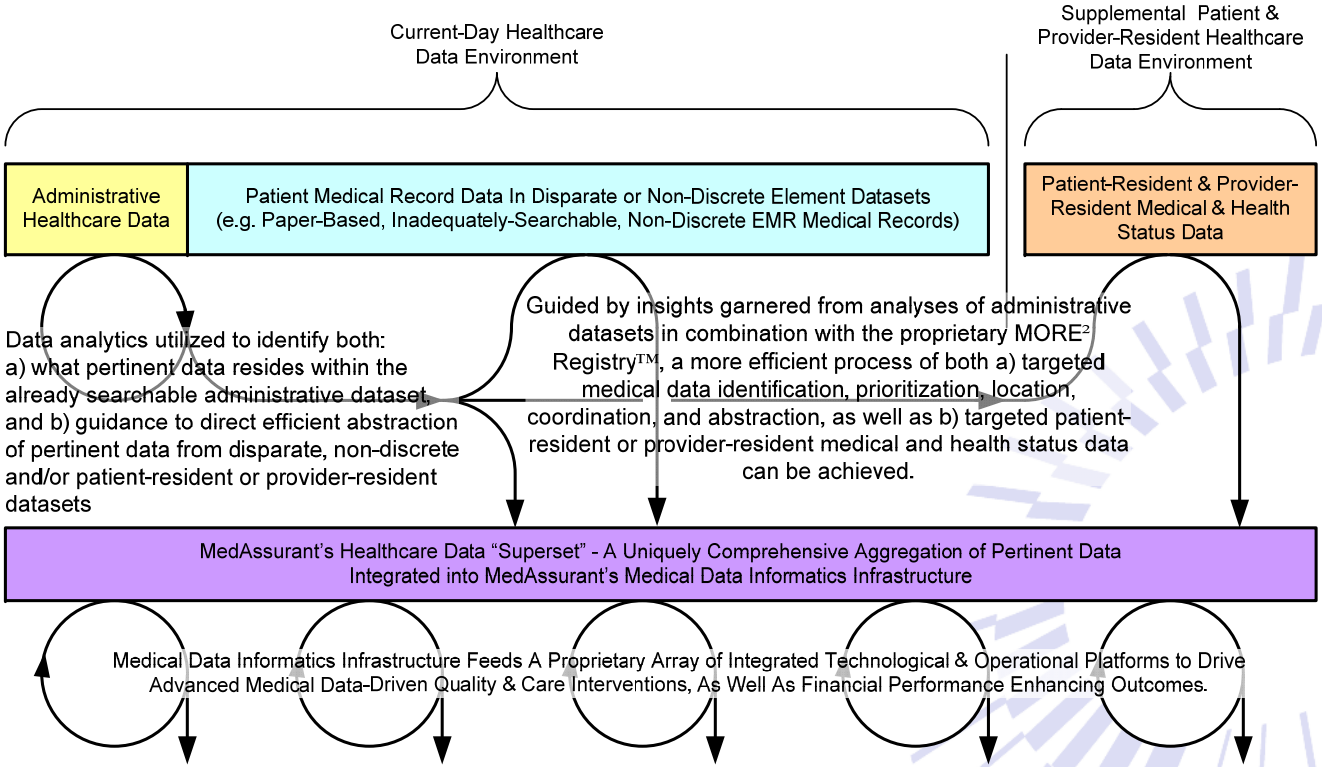
While administrative datasets are an important source of information for PHM, they lack detail - for example, vital signs, symptom reports, operative notes, patient lifestyle concerns - that are critical to understanding what PHM interventions are most important, and what interventions are most likely to succeed in a particular patient.



# Solving the Population Health Analytics Problem

That challenge can be overcome by applying advanced analytics to (relatively lower) cost administrative datasets—to target and then extract missing/high value clinical detail from more costly sources.



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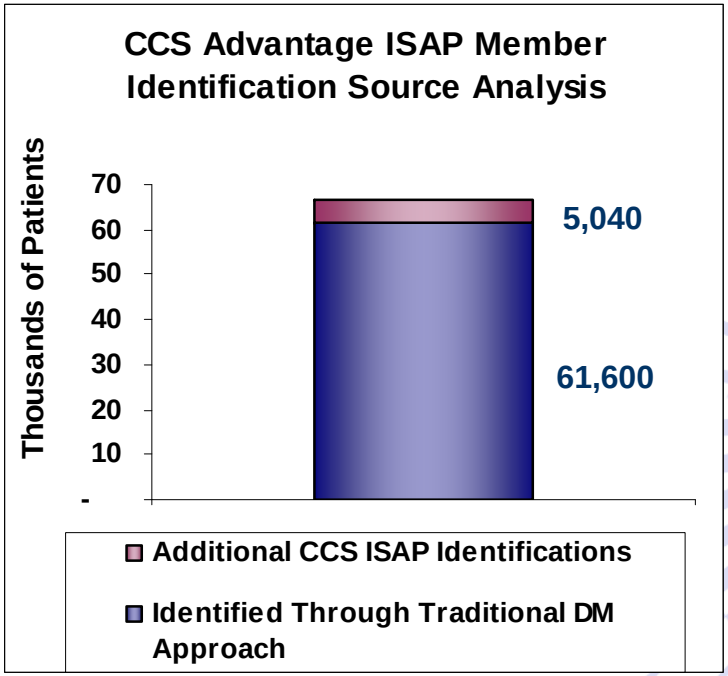
# "Superset Enhanced" Analytics Permit More Complete Identification of Patients for Population Health Management

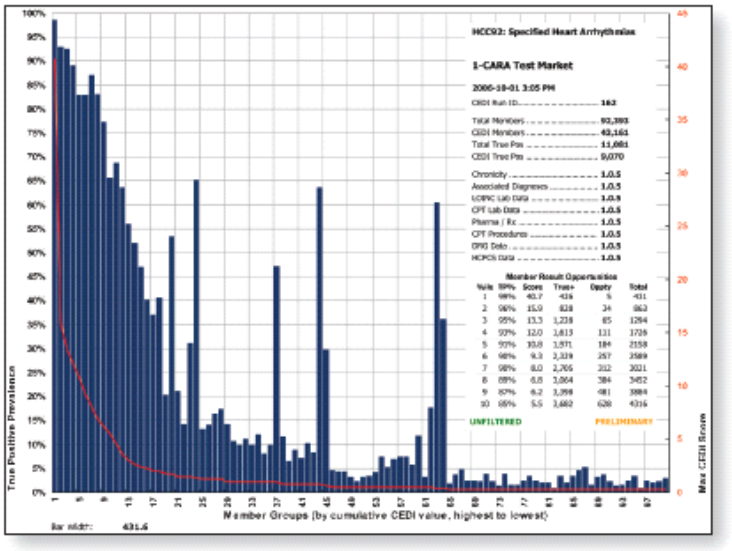
In an examination of 110,000 Medicare Advantage patients (with complex medical cases involving diabetes, heart failure, and coronary artery disease), MedAssurant's granular, patient-specific approach to patient disease and comorbidity analysis improved the identification of sub-acute and non-traditional presenters within the population by 8.1% (above those identifications established by previous disease management vendors, NCQA disease identification parameters, and/or CMS disease risk stratification identification criteria).



# "Superset Enhanced" Analytics Permit More Precise Stratification of Patients for Population Health Management

Detailed, patient-level data on these patients permitted stratification into literally thousands of groups—each different with respect to priorities, and strategies, for intervention. The promise of population health management is "managing populations one patient at a time." Realizing that promise means stratifying patients based on granular information about what makes each one unique.




| Disease Stratification | Sub - Stratification | Intervention Plan | Intervention Task |
|---|---|---|---|
| Stratification 1: Uncomplicated Diabetes - (well-controlled) | Non-insulin-requiring | 2.1.7 | Mail Patient Care Plan (Diabetes) |
| Stratification 1: Uncomplicated Diabetes - (well-controlled) | Non-insulin-requiring | 1.2.1 | Mail Patient Letter (Influenza Vaccination) |
| Stratification 1: Uncomplicated Diabetes - (well-controlled) | Non-insulin-requiring | 1.2.2 | Mail Patient Letter (Pneumococcal Vaccination) |
| Stratification 2: Uncomplicated Diabetes (uncontrolled) | Insulin-requiring | 2.1.2 | Provide Glucometer |
| Stratification 3: Complicated Diabetes, non-high risk for foot ulcer (well-controlled) | Insulin-requiring | 1.5.1 | Transmit Provider Letter (Hospitalization Notice) |
| Stratification 4: Complicated Diabetes, non-high-risk for foot ulcer (uncontrolled) | Insulin-requiring | 1.5.2 | Perform Medical Event Follow-up Call |
| Stratification 5: Complicated Diabetes, high-risk for foot ulcer (well-controlled) | Non-insulin-requiring | 2.1.1 | Mail Diabetes Overview |
| Stratification 6: Complicated Diabetes, high-risk for foot ulcer (uncontrolled) | Non-insulin-requiring | 1.5.1 | Transmit Provider Letter (Hospitalization Notice) |

# "Superset Enhanced" Analytics Permit More Effective Intervention with Patients for Population Health Management

Highly tuned stratification permits specific, targeted, and patient-centered intervention. The population health/disease management literature has clearly proven that nothing else has an impact: targeting interventions for those at "the center of the curve" misses the opportunity to realize improvements in population health and in cost-effectiveness.

**Effective use of enhanced analytics has led to**

- 20+% improvements in key quality (e.g. HEDIS™) outcomes
- 15-20% reductions in rates of complications
- 15-20% reductions in "inpatient events" as defined (and certified) by the DMPC
- ~10% reduction in total cost of care for managed populations
- Significant impact on member retention
- Demonstrated ROI in excess of 2:1

# Summary

The challenge in managing the health of populations is to understand the individuals that comprise a “population.”

That understanding requires the cost-effective use of all data relevant to each patient.

Analytic strategies are available to target and acquire high value data that are missing from administrative datasets.

Leveraging those strategies has been shown to support population health management programs that offer extraordinary value.

# For More Information

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