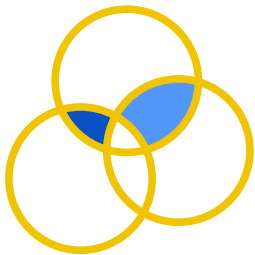
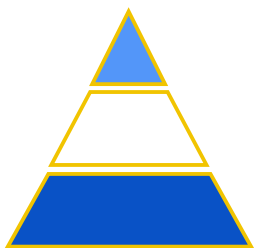


Segmentation In Population Health Analytics



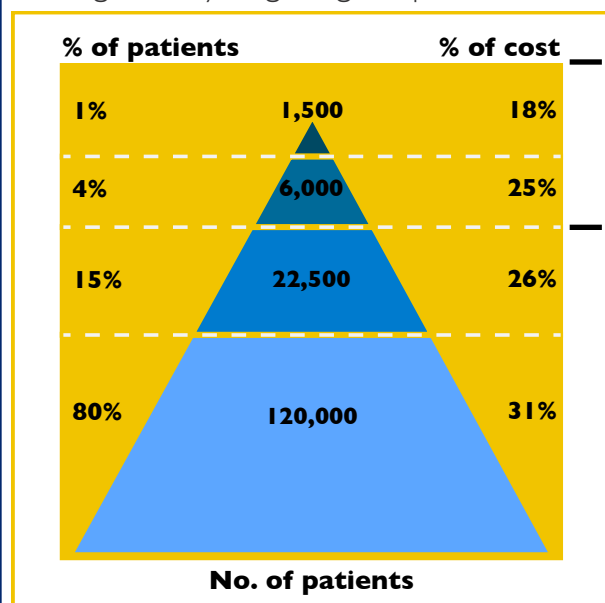
Segmentation is one of several analytical techniques that can be used to understand how disease and morbidity are distributed within a population. The purpose of segmentation is to group sub-segments of a population who share similar needs and will benefit from the same type of intervention or treatment. The resulting segmentation analysis can inform the design of care management programs that help achieve the triple aim of improved quality, better outcomes and lower cost.



Segmentation can be combined with other analytical techniques such as risk stratification. Risk stratification differs from segmentation in that it identifies people at high risk of a certain event or high health care costs. Put another way, risk stratification ranks a population based on degree of need, whereas segmentation groups people within that population based on what that need actually is. While segmentation is used to identify those with similar needs, stratification can be used to help a provider or payer prioritize care management programs and resources and focus on those high-risk patients who will most benefit from an intervention.

Application of Segmentation - A Success Story

Slough Clinical Commissioning Group (CCG), which covers a population of 143,000 in the UK, used the Johns Hopkins ACG System to conduct a population health analysis that generated several new insights of which the CCG were previously unaware. They learned that 5% of the population accounted for over 40% of costs and that multimorbidity was a key driver of both cost and risk of hospitalization, more so than age or any single high-impact chronic condition such as diabetes or heart failure.



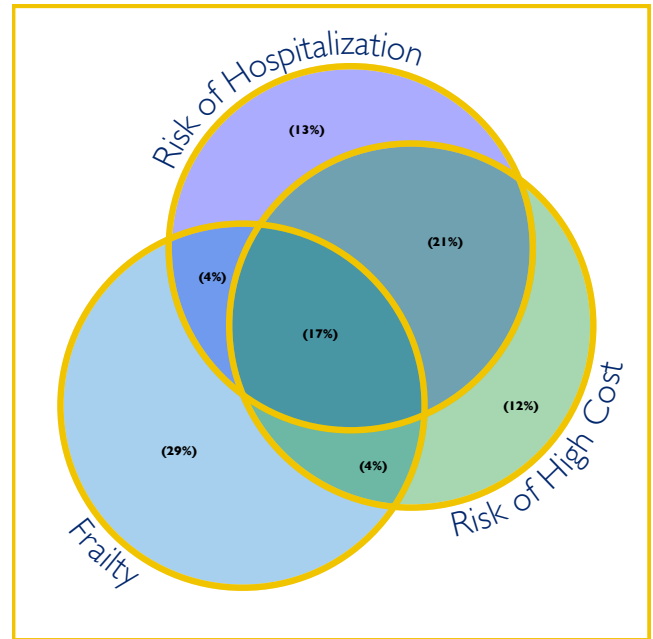
The top 5% of sickest patients account for over 40% of total costs.

The CCG also wanted to understand whether frailty was always associated with high costs in order to evaluate the effectiveness of a government-led initiative to improve care and reduce costs for people living with frailty.

A segmentation analysis was undertaken to illustrate the relationship between frailty, risk of hospitalization and risk of high cost. The insights from this analysis showed that if they only focused on severe frailty, they would miss nearly half the patients who are at risk of high cost or hospitalization.

Instead, Slough CCG further stratified the segment where frailty, hospitalization risk and risk of high cost overlapped (17% of the population) to identify a cohort of individuals who were most amenable to a new primary care program. An initial group of about 600 patients were enrolled into a tailored complex care management program. Patients saw their primary care provider every 3 weeks and received longer visits at which they addressed behaviors driving emergency department visits and were also offered advice and support to promote self-care.

After just 18 months, unplanned hospitalizations were reduced by 18% compared to the same time period in the previous year, and emergency department visits were reduced by 19%.



Unplanned Hospitalizations ↓ **18%**

Emergency Department Visits ↓ **19%**

As a result of the initial successful pilot, the Complex Care Management Program has now been rolled out to another two neighboring CCGs, covering a patient population of 450,000.

THE JOHNS HOPKINS ACG SYSTEM AS A SEGMENTATION ANALYSIS SOLUTION

The Johns Hopkins ACG System is a population health toolkit that takes into account age, sex and patterns of morbidity to predict resource utilization and cost risk. Our methodology is clinically derived, evidence-based and takes a whole person approach to analyzing risk. At the same time, the ACG System allows you to customize the tools to meet your needs, segmenting your population based on criteria that are meaningful to you.

Like Slough CCG...



Many providers and health insurance organizations struggle with patients' misuse of the emergency department. The Johns Hopkins ACG System allows you to identify patients who visited the emergency department for non-emergent and potentially avoidable reasons as well as for primary care-treatable conditions. Stratifying your high risk population and segmenting to identify sub-groups with possible misuse of the emergency department can help you to identify individuals who may benefit from additional engagement with their primary care provider and enrollment in care management programs.