

# Health Regression

Health regression — the deterioration of a person's health — is tightly tied to healthcare utilization and the complexity of the patient population.

The clinical setting in which a patient receives care is an important determinant of the cost of medical encounters. Some conditions, such as time-sensitive critical illnesses, require treatment in Emergency Departments (EDs) and hospitals. For more minor conditions, there is flexibility in the setting where care can be safely provided. *(Galarraga, Mutter, & Pines, 2015)*

EDs have become increasingly the primary source for acute care, treating 28% of all acute care visits in the United States. *(Galarraga, Mutter, & Pines, 2015)*

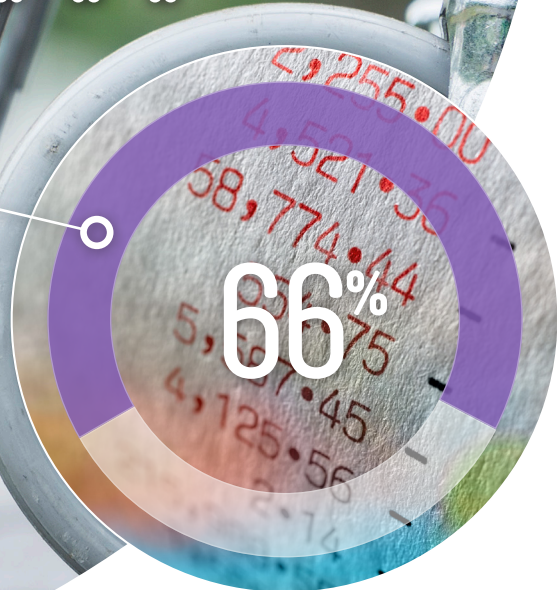
- ▶ Health care utilization can be appropriate or inappropriate, of high or low quality, expensive or inexpensive. *(CDC)*
- ▶ A variety of factors can affect resource utilization, such as patient age, care providers, medical technologies, and patient morbidity.

28%

28% of all acute care visits in the US are treated in emergency departments.

*Galarraga, Mutter, & Pines, 2015*

In 2012, the top 10% of the health care-utilizing population accounted for 66% of overall health care expenditures in the United States. *Yang, 2018*



## HIGH-UTILIZING POPULATION CHALLENGES

High utilizers are typically vulnerable populations with complex social components, high behavioral health needs, and multiple chronic conditions.

### Factors that increase health services utilization (CDC)

- ▶ Increased supply
- ▶ Growing population
- ▶ Growing elderly population
- ▶ New procedures and technologies
- ▶ Consensus documents or guidelines that recommend increases in utilization
- ▶ New disease entities
- ▶ New drugs and expanded use of existing drugs
- ▶ Increased health insurance coverage or providers changing practice in accepted payor groups
- ▶ Consumer/employee pressures for more comprehensive insurance coverage
- ▶ Changes in practice patterns
- ▶ Changes in consumer preferences and demand

**High-utilizing populations need coordinated, responsive care.** They need access to a range of behavioral health and social services. And they need an environment that promotes and supports the maintenance of health.

## STATISTICS

### Nationwide cost due to health care utilization

Data from the Healthcare Cost and Utilization Project demonstrated that potentially **preventable hospitalizations** may account for up to **\$30.8 billion** in annual health care costs. *(Galarraga, Mutter, & Pines, 2015)*

For high-need adults, average annual per-person spending on health care services and prescription medicines topped **\$21,000**, nearly three times the average for adults with multiple chronic diseases only (\$7,526), and more than four times the average for all U.S. adults (\$4,845). *(Hayes, et al., 2016)*

In 2012, the top 10% of the health care-utilizing population accounted for 66% of overall health care expenditures in the United States. *(Yang, 2018)*

Nationally, in 2010, potentially **avoidable emergency department (ED) encounters** accounted for **\$64.4 billion**, 19.6% of ED episodes, and 2.4% of national health expenditure. *(Yang, 2018)*

### Nationwide utilization

In 2014, 17.2 million hospital visits (ambulatory or inpatient) included invasive, therapeutic surgeries. Over half of these visits (57.8 percent) occurred in a hospital-owned ambulatory surgery (AS) setting, and the remaining (42.2 percent) were inpatient. *(HCUP, 2018)*

Only **29 percent** of ED visits **required emergency care and were not preventable**, according to the study. Of the remaining 71 percent of ED visits, 42 percent required immediate attention for conditions that could have been safely treated in a primary care setting, 24 percent did not require immediate attention and 5 percent required emergency care that could have been avoided with appropriate primary care. *(Becker's, 2013)*

### ED visits

*Becker's, 2013*

71%

preventable ED visits

**42%** required immediate attention for conditions that could have been safely treated in a primary care setting

**24%** did not require immediate attention

**5%** required emergency care that could have been avoided with appropriate primary care

29%

non-preventable ED visits requiring emergency care

average annual per-person spending on health care services and prescription medicines

\$20K

**\$21,000**

adults with 3+ chronic diseases and any functional limitations

\$15K

\$10K

adults with 3+ chronic diseases only **\$7,526**

\$5K

average US adult **\$4,845**

## REGULATORY IMPACT

The growth of managed care and payment mechanisms employed by insurers and other payers to control the rate of health care spending has also had a major impact on health care utilization. (CDC)

Efforts by employers to increase managed care enrollment, as well as major Medicare and Medicaid cost containment efforts such as the Prospective Payment System for hospitals and the Resource Based Relative Value Scale for physician payment, created **incentives to shift sites where services are provided.** (CDC)

Numerous other factors also influence the type and amount of health care utilization that is provided in the United States (see "Forces that Affect Overall Health Care Utilization"). (CDC)

The Agency for Healthcare Research and Quality (AHRQ) has defined a list of **ambulatory care sensitive conditions (ACSCs)**, which are conditions "for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease." (CDC)



## MACHINE PERFORMANCE

Application of the Jvion Cognitive Machine to address high utilizers and prevent avoidable admissions has delivered the following results (examples provided from one hospital system):

- ▶ 50% reduction in population costs
- ▶ \$4.8M reduction of paid claims (from \$9.4M in 2016 to \$4.7M in 2017) across ~2,500 employees
  - ▶ A reduction in the cost of top 100 costliest patients by ~\$3.2M from 2016 to 2017
  - ▶ 245 fewer ER Visits in 2017
    - ▶ 377 fewer inpatient visits in 2017



One hospital system achieved a 50% population costs reduction by using the Cognitive Machine to address high utilizers.

## INDUSTRY IMPACT

Through the use of the Jvion Cognitive Machine, Jvion's clients have been able to more effectively engage members with resources and deliver critical communications to at-risk populations. With the increased visibility into population level risks, providers have been able to expand programs and drive additional resources to areas of critical need.

Since health regression and utilization in care consists of ER visit reduction and avoidable inpatient admissions, application of the machine within one system could lead to:

- ▶ 245 fewer ER visits. Based on the average cost per ER visit at \$1,316, this would lead to a projected costs savings = \$322,420.
- ▶ 377 fewer inpatient admissions (due to care being better managed in the primary care setting. Based on the average cost per inpatient admission at \$9,700, this would lead to a projected costs savings = \$3,683,290.

\* Estimates are based on current client performance. This could increase based on organizational operationalization of the machine's outputs.

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