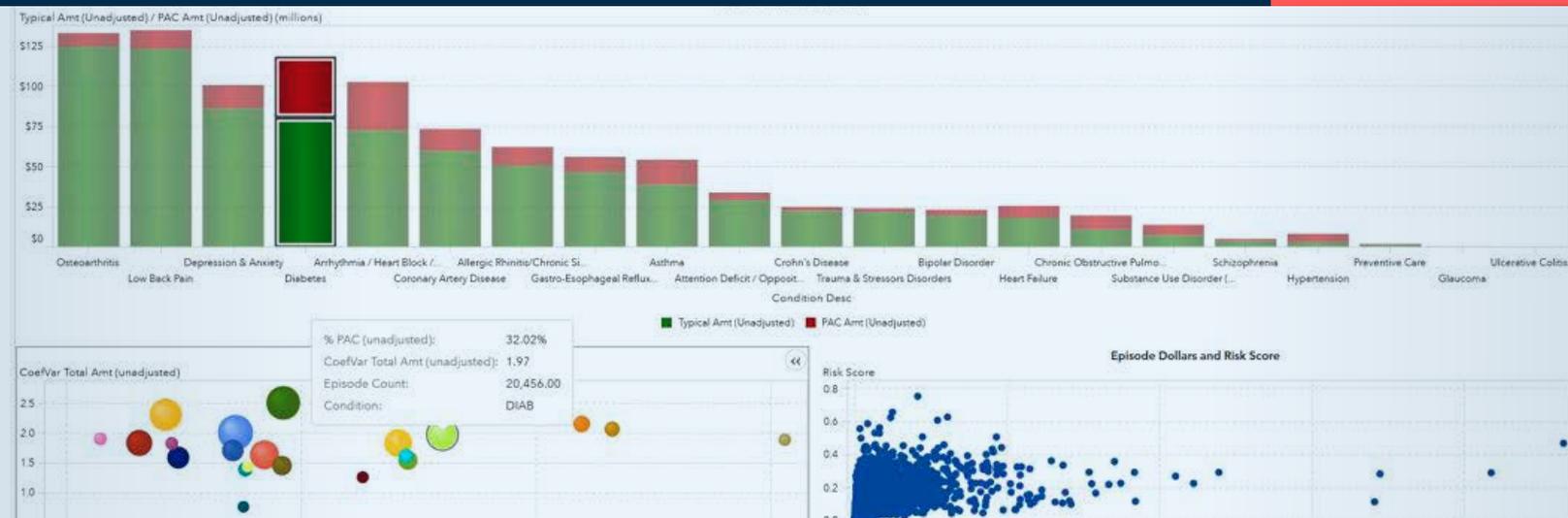


SAS® Health: Episode Builder



Key Benefits

SAS Health: Episode Builder enables you to:

- **Flexibly define episodes of care.** Construct and analyze claims as episodes of care using transparent clinical definitions of your choice and automatically detect associations for a holistic patient view.
- **Measure care value.** Services, and their care costs, are categorized as being value-added or potentially avoidable. Expected and risk-adjusted costs are automatically calculated and can then be used as quality/efficiency measures or payment metrics. Other quality metrics, such as length of stay and readmissions, are also captured.
- **Create physician accountability for patient care.** Assign episodes to providers based on user-selected rules. Apply risk-based calculations to compare provider performance based on relative patient severity or to set reimbursement targets.

Overview

As health care incentives spotlight value, providers and payers are struggling to define care delivery as it relates to value. Several factors contribute to patient care complexity: better patient outcomes, new reimbursement models, increased focus on risk management and accountability, and a more accurate understanding of costs. But the complexity can be better understood in the context of episodes of care when you know what services are provided at a patient level and in aggregation. SAS Health: Episode Builder enables you to:

- Analyze and optimize care pathways in terms of cost and quality.
- Know what to modify to reduce unwarranted admissions and readmissions.
- Decrease length of stays.
- Improve cost-effective prescribing.
- Reduce variation in care and treat patients holistically.

Going far beyond traditional claims grouping, SAS enables you to flexibly construct clinical episodes, identify variations and opportunities for improvement, and assess your financial risk in value-based reimbursement agreements. All while understanding your patients in more detail from multiple data sources.

Why SAS®?

Do you need deeper insights into patient data? SAS Health: Episode Builder helps you know more about patients and improves their care by providing:

- **Transparent, editable episode definitions.** Only SAS provides fully transparent access to episode definitions for both you and your partners. Subject-matter experts can directly edit these definitions with no need for programming changes.
- **Measurable care value.** Know the effect a service has on a patient's episode of care. Was the care valuable preventive care, or was it in response to an acute exacerbation?
- **Quantifiable care variation.** Given a condition, such as diabetes, quantify the impact of comorbidities and care pathway variations. Use this to optimize care pathways and predict expected costs for patients, given their health histories.
- **Combined data for better analysis.** Use the power of SAS to combine data from different sources to get a full picture of the patient experience.
- **Guidance for assessing value-based payments.** Use a combination of provider attribution, expected costs and transparent definitions to establish trust for value-based payment contract negotiations.

The Solution

By analyzing health care claims data, SAS Health: Episode Builder allows health care organizations to construct and analyze claims as episodes of care. Clinical rules define which services are related to an episode (for instance, a knee replacement) and what care is unrelated (such as a service performed for another episode occurring in the same time period). Services are categorized based on their value to the patient care experience. Quality metrics – such as readmissions, rule-based provider attribution and patient severity adjustment – extend the value SAS Health: Episode Builder brings to an organization.

Based on clinical definitions best suited for your organization, SAS Health: Episode Builder allows you to gain more accurate insights for effective decision making about quality and cost of care.

Capabilities

Automatically define episodes of care

The size of claims data sets makes it impractical to manually identify patients with conditions and the cost and quality of their care. Building in-house solutions for episode definitions is time consuming (on average, more than three person-months to code, test and deploy one publicly available episode definition).

SAS Health: Episode Builder allows users to import hundreds of episode definitions at a time. Once imported, the user interface retains these definitions and enables modifications without the need to understand programming. Creating a new episode definition is also possible without programming. An episode definition consists of:

- **General info**, including the duration of the episode.
- **Signaling rules** are any rules about signaling, including location and code types required.
- **Signal codes** are a list of codes (such as procedure codes) that can signal an episode.
- **Typical codes** are included in expected care, including additional designations for codes that are considered essential (such as preventive care) or low value (based on the Choosing Wisely concepts).
- **Complication codes** are codes that reflect the treatment of complications.
- **Exclusion codes** are codes that should not be a part of the episode.

SAS looks for data about clinical services indicating that the patient has a medical condition. An episode is built based on the specific condition. Then the solution finds all services related to that episode so it can analyze the entirety of care across the episode. SAS Health: Episode Builder allocates the services to one or more episodes based on rules determining their highest relevancy.

Categorize services

There are recognized services in preventive care of chronic conditions that are known to lead to better outcomes and reduce the need to provide exacerbation and acute care. Additionally, there are programs focusing on identifying and removing low-value care from care pathways to reduce overall health care costs. SAS Health: Episode Builder takes this a step further by also identifying services associated with the treatment of potentially avoidable complications, such as infections or condition exacerbations resulting in emergency department visits or other care.

SAS Health: Episode Builder determines which services, procedures and medical events are relevant to a condition based on episode definitions applied to the patient data. SAS then allocates claim dollars to the most appropriate episodes. The solution further categorizes typical services as essential (or core) services or low value (potentially avoidable services). By categorizing services and their associated value, care value can be measured.

Build clinical associations between episodes for holistic patient views

Understanding care costs at the first level of data - where each episode is independent - is important in establishing an episode baseline. SAS understands that associating episodes, however, can lead to greater insights. There's value in understanding care costs for a pneumonia episode, but you gain more insight when you know the episode occurred 40 days after the patient was discharged from a surgical episode. This pneumonia then becomes a complication cost associated with the surgical episode once the associations are made.

The solution examines all levels of data - from the first level, where each episode is independent, to the final level, where chronic conditions can have exacerbations (such as heart attacks) or procedural episodes (such as arthritis requiring a joint replacement). In this way, insights and patterns can be analyzed but not necessarily become a driver for quality or cost.

Attribute providers to episodes to measure cost and quality

Based on the specifics of a patient's episode, it is helpful to have different methods of assigning an owning or conducting provider. For example, your organization may want to assign some episodes to a facility and others to a professional provider.

You can choose an attribution method based on the types of conditions in your data. And configure different default methods for class of condition and set rules for how any specific condition would be treated. For example, you may use a minimum number of visits threshold to determine a conducting provider as a default for chronic conditions or use a percentage of total reimbursement threshold for a more complex condition, such as congestive heart failure. You can attribute procedural episodes, such as surgeries, to the professional performing the surgery or the facility where the surgery took place.

Quantify the impact of risk factors

Differences in patient costs can often be traced back to differences in patients (comorbidities) and different care pathways (subtypes). SAS Health: Episode Builder quantifies these differences at the treatment, patient and population level to provide a full picture of the cost impacts. Whether you are interested in learning the population's average episode cost impact of a comorbidity or if a provider seems to be more, or less, efficient than peers given actual and risk-adjusted costs.

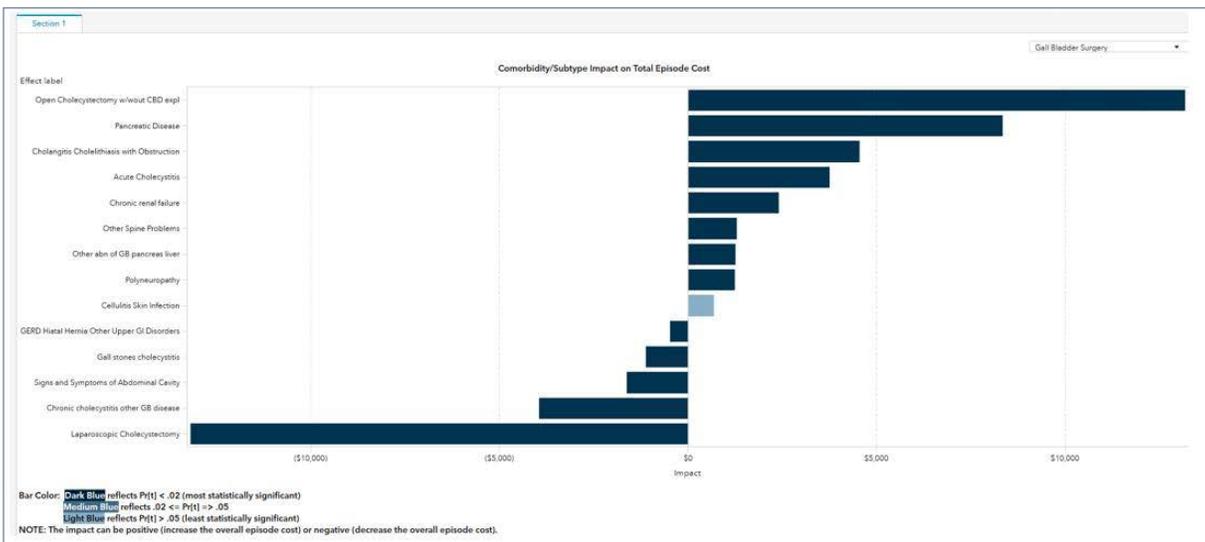


Figure 1: Quantify the impact of comorbidities and treatment differences on cost of care.

The financial impacts of these comorbidities and subtypes can be extended to compare a patient's actual episodic cost to an expected episodic cost – as adjusted by that patient's comorbidities and subtypes. SAS Health: Episode Builder provides these types of comparisons at a patient or episode level, not only at a total cost level. The analysis predicts typical and complication costs. Using this data, you can determine the efficiency of a patient's care.

By further extending the data to look at all the patients attributed to a provider, you can compare the actual and expected, typical and complication costs to determine a provider's efficiency. You can add this comparison to quality measures (such as the rate of potentially avoidable complication dollars and readmissions) to create a provider comparison to its peers. Additionally, if value-based reimbursement is a goal, this expected cost can become the basis for a bundled payment budget.

Add data sources to enhance patient subset analysis

When managing your population's health, it is important to understand at a detailed level the different characteristics of patient groups, based on various data sources. For example, it is important to understand not only the cost of treatment of a diabetes episode but also other factors within that patient subset. These factors can be individual, such as blood pressure levels or weight, or across the population, such as social vulnerability indices. Comorbidities, such as mental health, can also play a role in the analysis.

With SAS, you can create cohorts of patients by identifying individuals with certain attributes. These attributes can come from multiple data sources. For instance, you may want to add clinical information from your electronic medical record system, or patient-generated data from mobile apps or wearable devices.

SAS Health can ingest any type of data and, through a user-friendly interface, build patient subsets using these added data elements. This allows you to understand at a deeper level the attributes of patient groups to create more efficient and effective paths of care.

To learn more about SAS health solutions, please visit: sas.com/healthcare

