solventum

Health Information Systems

Population health and potentially preventable events

Solventum solutions for population health, patient safety and cost-effective care

Challenge:

Shifting the financial risk

The healthcare industry seems to change with every legislative session.

New regulations, a stormy economic climate, changing patient demographics, and increased consumer attention put pressure on healthcare providers to improve the value of care and achieve better patient outcomes and satisfaction while also lowering cost.

Regardless of their business models, healthcare providers today are adapting to industry dynamics according to their capabilities and resources. Through specialization, integration with a care system, health plan partnerships or experiments with new payment designs, many hospitals and care systems are focusing on the **Institute for Healthcare Improvement's (IHI's) Triple Aim:**

- Improve the patient experience of care (including quality and satisfaction)
- Improve the health of populations
- Reduce the per capita cost of health care*

*To learn more about IHI and the Triple Aim, visit www.ihi.org

According to IHI, a good set of outcome measures can facilitate the Triple Aim. Solventum solutions for potentially preventable events (Solventum PPEs) offer a set of outcome measures to monitor the progress of population health projects. Solventum PPEs are consistent with Triple Aim objectives because they measure population and patient health outcomes, safety, efficiency, utilization rates and the costs associated with avoidable care.

What are potentially preventable events (PPEs)?

PPEs are unnecessary, costly and often harmful health services that could be avoided through more effective care and care coordination.

They run the gamut from potentially unnecessary hospital admissions and readmissions, trips to the emergency department (ED), laboratory tests, imaging and even medications.

PPEs typically include:

- Potentially preventable complications (PPCs)
- Potentially preventable readmissions (PPRs)
- Potentially preventable admissions (PPAs)
- Potentially preventable emergency department visits (PPVs)
- Potentially preventable ancillary services (PPSs)

PPEs represent services that increase cost and indicate less-than-optimal care.

To improve efficiency and quality in population health and generate greater value, identify and avoid PPEs.

Potentially preventable complications (PPCs)

PPCs are harmful events or negative outcomes that occur after a patient is admitted to a hospital or long-term care facility. They result from the process of care and treatment, as opposed to a natural progression of underlying disease. PPCs could reasonably be prevented according to accepted standards of care.

Solventum has identified more than 60 PPC types, including Medicare hospital-acquired conditions (HACs), Medicaid healthcare-acquired conditions (HCACs) and other patient safety indicators (PSIs).

Potentially preventable readmissions (PPRs)

PPRs are return hospitalizations that may result from deficiencies in care or treatment provided during a previous hospital stay. PPRs can also result from inadequate post-hospital discharge follow-up. They do not include unrelated events that occur post discharge.

PPRs may result from actions taken or omitted during the initial hospital stay, such as incomplete treatment or poor care of the underlying problem. A PPR may also reflect poor coordination of services at the time of discharge and afterwards, such as incomplete discharge planning or inadequate access to care after discharge.

Potentially preventable admissions (PPAs)

PPAs are admissions to a hospital or long-term care facility that could reasonably be prevented if care and treatment were provided according to accepted standards of care.

PPAs involve ambulatory-sensitive conditions for which adequate patient monitoring and follow-up can often prevent the need for hospitalization. High rates of PPAs generally represent a failure of the ambulatory care provided to the patient.

It's worth noting that the number of PPAs is more comprehensive than the Agency for Healthcare Research and Quality (AHRQ) list of ambulatory care-sensitive conditions. The PPA list continues to expand with advances in our understanding of how coordinated care can reduce subsequent hospitalizations.

When risk-adjusted PPA rates are compared across providers, excessive admission rates will emerge within a wider range of conditions. Finally, more PPAs will be identified and tracked as preventive services are implemented and healthcare entities with full responsibility for coordination are created.

Potentially preventable emergency department visits (PPVs)

PPVs are ED visits for conditions that could otherwise be treated by a care provider in a non-emergency setting.

PPVs resemble PPAs in that they involve ambulatory-sensitive conditions that could be treated effectively with adequate patient monitoring and follow-up, rather than requiring emergency medical attention. In general, high rates of PPVs represent a lack of adequate or effective ambulatory care for the patient, including follow-up.

Potentially preventable readmissions (PPRs)

PPSs are ancillary services provided or ordered by primary care physicians or specialists to supplement or support the evaluation or treatment of a patient.

These services include diagnostic tests, laboratory tests, therapy services, radiology services and pharmaceuticals that may be redundant or are not reasonably necessary for providing care or treatment.

Figure 1:
Summary of PPEs

Type		Description	Result from or caused by	Examples
Complications	PPCs	Harmful events or negative outcomes after admission	Process of care and treatment	Accidental laceration during surgery; hospital-acquired pneumonia
Readmissions	PPRs	Return hospitalizations	Actions or omissions during hospital stay or lack of post-discharge follow-up	Readmission for a surgical wound infection; unfilled prescription
Admissions	PPAs	Hospital admissions	Inadequate access to care or poor coordination of ambulatory care	Hospitalization for asthma that could be controlled with medication
ED visits	PPVs	ED	Inadequate access to care or poor coordination of ambulatory care	ED treatment for an asthma patient with shortness of breath
Ancillary services	PPSs	Lab tests, imaging or pharmaceuticals	Not useful for diagnosis and treatment	An MRI for mild low back pain

Identifying patients at risk for a PPE

As the name suggests, PPEs are generally preventable. However, negative outcomes will never be totally eliminated, even with optimal care. There will always be a residual rate of PPEs for even the best-performing providers.

For example, not all ED visits can be avoided by increasing primary care.

Likewise, a procedure such as a bypass graft may not be avoidable in the first year of care, but may be preventable by year three in a patient-centered practice.

And patients with metastatic malignancies, serious multiple trauma or extensive burns have complex care requirements that make it difficult to assess what is preventable or avoidable.

To identify patients at risk, start by defining events that can potentially be impacted by better primary care, coordination across providers and other interventions.

Those are situations that could turn into PPEs.

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Adjusting for severity of illness and risk of mortality

Because of the frequency and intensity of the services they receive, chronically ill patients stand to benefit the most from better coordination of care.

However, these patients also tend to see many different clinicians and require more services that could be labeled as PPEs, such as laboratory tests, imaging, medications, ED visits and repeated hospitalizations.

How do you know whether an illness or condition is due to the patient's underlying clinical condition or shortcomings in the delivery of care?

By applying **risk adjustment**.

Risk adjustment explains the differences in clinical outcomes attributable to the patient, the provider and the nature of the services.

Risk adjustment helps make reporting and payment data **fair and comparable.**

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Risk adjusting:

The process

Although the risk adjustment method differs between the various types of PPEs, the risk-adjusting process is basically the same.

When organizations **calculate and compare** actual versus expected PPE rates, they can **identify** both their "hot spots" and best practices by service line, provider or facility.

Outliers may represent excessive PPEs or lower-than-expected rates, but knowing where and why they occur is the first step in **designing interventions**.

To address population health, consistent risk-adjusted data about PPEs must be available to stakeholders — primary care providers, case workers, hospital staff, specialists and other professionals — so they can **collaborate** on what care to deliver and how best to deliver it.

1

For a whole population, classify patients into risk-adjusted groups

2

Calculate expected PPE rates across all providers

3

Identify the subset of patients at risk for adverse health events

4

Adjust the expected PPE rate to account for at-risk patients

5

Compare the risk-adjusted rate of PPEs to the actual rate

Solventum solutions for reducing PPEs

Solventum solutions for PPEs use Solventum-proprietary methodologies that enhance the workflow for coding, abstracting and clinical documentation improvement(CDI).

Better still, these Solventum methodologies can also be used in batch applications to process and output data for analysis and reporting in other health information systems.

Solventum coding and CDI solutions

Solventum PPC functionality can be added to the Solventum™ Coding and Reimbursement System to alert coders to potential in-hospital complications during the coding process. Solventum CRS flags the record if a PPE exists and provides the coder with a report identifying potential complications, based mainly on secondary diagnoses that are not present on admission.

Modules of the Solventum™ 360 Encompass™ System also contain powerful functionality to identify and report on both complications and readmissions automatically during the coding process. Tracking features allow users to review discharges at risk by service line, diagnosis related group (DRG) and other parameters.

Solventum PPE solutions for retrospective analysis and reporting

Solventum PPE solutions can analyze large batches of claims data, generating output that is integrated into other information systems for claims processing, patient financial services, quality management, reporting, care coordination and more.

Launched from one of the PC- or web-based “batch applications” (Solventum™ Core Grouping Software or Solventum™ Grouper Plus Content Services), Solventum PPE solutions include:

- Solventum™ Potentially Preventable Complications (PPCs) Classification System
- Solventum™ Potentially Preventable Readmissions (PPRs) Classification System
- Solventum™ Population-focused Preventables (PFPs) Classification System (initial admissions, ED visits and ancillary services)

3M consulting services: Focused on PPEs and quality

Solventum consulting services helps organizations succeed in public health initiatives with Solventum™ Quality Services that identify the root cause of quality issues beginning with documentation so organizations can create a long-term solution for improved quality measures and outcomes. These services cover plan all-cause readmissions (PCRs), HACs, PPRs, PPCs, PSIs, proper patient placement (P3), present on admission (POA) indicators, severity of illness (SOI) and risk of mortality (ROM). Solventum consulting services also offer an extensive program designed to help customers understand and implement the Solventum™ Enhanced Ambulatory Patient Groups (EAPGs) Classification System.

Solventum PPE solutions at work: Case studies

Hospital Executive Council: Solventum PPCs support 48% reduction in complications

Over four years, the **Hospital Executive Council (HEC)** in Syracuse, New York, worked with area hospitals to gather data and report on PPC rates. HEC decided to use Solventum PPCs to purse its: *Improve healthcare efficiency and outcomes in Central New York*.*

HEC discovered patients who developed PPCs were three to four times more costly to treat than patients without a PPC but with the same diagnosis and SOI. At the largest acute care provider in Syracuse, **St. Joseph's Hospital Health Center**, the staff knew they could significantly improve cost-effective care if they could identify the patients, care practices and other factors associated with higher PPC rates.

St. Joseph's program managers addressed inpatient complications by using Solventum PPCs to measure the baseline, track progress and correlate with clinical practice. With Solventum PPCs, they could share the information with hospital staff to guide clinical management and communicate and manage outcomes data so that different providers understood the information.

*Lagoe, R. and Bick, J. (2013) Reducing hospital inpatient complications: A four year experience. *Advances in Bioscience and Biotechnology,* 4, 118-125. doi: 10.4236/abb.2013.41A017. Online article: http://bit.ly/U6GjaU

HEC:

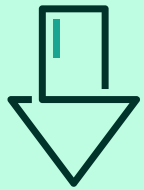
Real results from Solventum PPCs

Between January 2008 and March 2012

The rate of St. Joseph's patients who experienced a PPC declined by 48% (from 58.5 to 30.4 per 1,000 discharges)

Rates for two high-volume PPCs addressed by intervention decreased by:

- 52% for pneumonia
- 14% for urinary tract infections (UTIs)



Rates for some PPCs that were not specifically targeted (such as pulmonary edema and respiratory failure) also declined

Colorado Accountable Care Collaborative: Solventum PPEs as key performance indicators

Solventum PPE solutions have also proven useful in managing accountable care. The **Colorado Accountable Care Collaborative (ACC)*** enrolls a significant portion of the state's Medicaid population. Managed at a regional level, ACC measures quality and cost of care using Solventum PFPs (for PPAs, PPSs and PPVs) and Solventum PPRs as key performance indicators (KPIs).

Program-wide benefits resulted from the collaboration between regional care collaborative organizations and primary care medical providers, supported by population-level and patient-level data from the **Statewide Data and Analytics Contractor** (SDAC), which took raw eligibility and claims data to create a data warehouse that is refreshed monthly.

Analytics are shared through an online portal. Users have secure, rolebased access to information at the level of the patient, patient subgroups/cohorts, provider and region. They can identify high-needs clients for better care management. Because data is risk-adjusted, users can compare their performance against an expected value or benchmark by three key metrics: Hospital readmissions within 30 days of discharge (PPRs), ED visits (PPVs) and high-cost imaging services (PPSs).

*Marsha Gold, Winnie Wang, and Julia Paradise, "Data analytics in Medicaid: Spotlight on Colorado's accountable care collaborative," Kaiser Commission on Medicaid and the Uninsured, October 2013. Available online at: http://bit.ly/47z7zqI

Colorado's ACC: Real results from Solventum PPEs

In fiscal year 2012-2013, members* enrolled in the ACC program demonstrated:

15%

lower rate of hospital readmissions

5-9%

lower rates of exacerbated chronic health conditions for hypertension (5%) and diabetes (9%)

22%

lower rate of hospital admissions among members with chronic obstructive pulmonary disease (COPD) who were enrolled in the program at least six months

25%

lower rate of high-cost imaging services

*As compared with members not enrolled in the program, especially among cohorts with targeted diseases such as COPD, hypertension and diabetes

The Solventum advantage

The healthcare industry has many ways to measure complications, readmissions, utilization rates and patient safety.

- Solventum PPE solutions provide outcomes measurements — not just process measurements — and are distinctive in several other ways:
- **Broad:** Solventum PPEs address services across the continuum of care, including inpatient, outpatient, long-term care, ancillary services and pharmacy.
- **Practical:** Solventum PPEs are calculated using readily accessible claims data.
- **Comprehensive:** Unlike measures for individual diseases or special populations, Solventum PPEs address the full spectrum of conditions requiring hospital and ambulatory care.
- **Risk-adjusted:** 3M metrics account for the health risk of patients with multiple conditions and high SOI.
- **Clinically relevant:** 3M methodologies group patients that share similar clinical characteristics, resource demands and risk, not just the same statistical score.

Solventum: Recognized expertise in risk adjustment

Solventum PPE solutions measure where, how and *how well* healthcare is delivered by accounting for how sick patients are—not just diagnosis and procedures.

Solventum risk adjustment software analyzes how comorbidities might affect costs, services and patient outcomes, so healthcare professionals can identify variations that result from care delivery rather than from the natural course of a disease.

All Solventum PPE solutions risk-adjust data by one of two distinctive ways:

- **PPCs, PPRs and post-hospital care** relate to the patient's condition at the time of hospitalization, so risk adjustment is based on the acute conditions that led to hospitalization using the Solventum™ All Patient Refined Diagnosis Related Groups (APR DRGs) Classification System. Introduced in the early 1990s, Solventum APR DRGs are widely used for addressing SOI and ROM for both individual patients and patient populations.
- **PPAs, PPVs and PPSs** are unrelated to a previous hospitalization, so risk adjustment is based on the population's chronic illness burden using the Solventum™ Clinical Risk Groups (CRGs) Classification System. Solventum CRGs provide comprehensive, clinically specific classification for a full range of populations, including low income, elderly, commercial and people with disabilities.

Conclusion: Achieving the Triple Aim with Solventum PPEs

To achieve the goals behind the Triple Aim, healthcare organizations must:

- Improve quality and patient safety
- Reduce unnecessary resource utilization
- Help prevent disease and injury
- Calculate financial and clinical risk and determine expected costs within a population — by patient, facility, service line or provider

But there is no "one-size-fits-all" approach to population health or payment reform.

Payment reforms now include a mix of medical homes, integrated delivery networks (IDNs) and accountable care organizations (ACOs) — different structures and risk-sharing arrangements to suit the healthcare needs of various populations. Each model differs in how it balances provider performance, quality measures, utilization and financial risk.

Regardless of structures and risk-sharing arrangements, healthcare delivery organizations will succeed or fail depending on their ability to:

- Avoid unnecessary services and eliminate waste
- Monitor and improve quality outcomes
- Provide transparency to care providers, patients, payers and advocate organizations

Solventum PPEs address Triple Aim goals

Solventum PPEs concretely express the amount and type of savings that are possible when payers work with providers to coordinate care and improve access to appropriate services.

They can also quantify the level of waste in a transparent manner for payers, providers and patients.

Solventum PPEs can help manage population health

As the innovator behind several methodologies for identifying and risk-adjusting PPEs, Solventum can help the healthcare industry improve population health with tools that:

- Identify and measure PPEs
- Identify and call attention to patients at risk
- Analyze adverse events affecting cost and patient safety
- Support utilization review
- Coordinate care for the most vulnerable patients

Contact Solventum today

For more information on how our products and services can assist your organization, contact your Solventum sales representative, call us at 800-367-2447, or visit us online at **Solventum.com**.

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Solventum Corporation
3M Center, Building 275
2510 Conway Avenue East
Maplewood, MN 55144