Population Health and Potentially Preventable Events

3M 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 and workforce demographics, and increased consumer attention are forcing healthcare providers to improve the value of care and achieve better patient outcomes and satisfaction—all for a lower 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, hospitals and care systems are focusing on the Institute for Healthcare Improvement’s (IHI’s) Triple Aim: Population health, experience of care, and per capita cost.*

According to IHI, a good set of outcome measures can facilitate the Triple Aim. 3M solutions for potentially preventable events (3M PPEs) offer a set of outcome measures to monitor the progress of population health projects. 3M 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.

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

A quick but closer look at each of these PPE types follows.
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 (LTCF). They result from the process of care and treatment, rather than from a natural progression of underlying disease, and could reasonably be prevented according to accepted standards of care.

3M 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.
PPAs are admissions to a hospital or long-term care facility (LTCF) that could reasonably be prevented if care and treatment was provided according to accepted standards of care.

PPAs involve ambulatory-sensitive conditions for which adequate patient monitoring and follow-up can often avoid 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.
PPVs are emergency department 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 Ancillary Services (PPSs)

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.
## Summary of potentially preventable events

<table>
<thead>
<tr>
<th>Potentially Preventable . . .</th>
<th>Description</th>
<th>Result from or caused by</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications</td>
<td>PPCs: Harmful events or negative outcomes after admission</td>
<td>Process of care and treatment</td>
<td>Accidental laceration during surgery; hospital-acquired pneumonia</td>
</tr>
<tr>
<td>Readmissions</td>
<td>PPRs: Return hospitalizations</td>
<td>Actions or omissions during hospital stay or lack of post-discharge follow-up</td>
<td>Readmission for a surgical wound infection; unfilled prescription</td>
</tr>
<tr>
<td>Admissions</td>
<td>PPAs: Hospital admissions</td>
<td>Inadequate access to care or poor coordination of ambulatory care</td>
<td>Hospitalization for asthma that could be controlled with medication</td>
</tr>
<tr>
<td>ED visits</td>
<td>PPVs: Emergency department visits</td>
<td>Inadequate access to care or poor coordination of ambulatory care</td>
<td>ED treatment for an asthma patient with shortness of breath</td>
</tr>
<tr>
<td>Ancillary services</td>
<td>PPSs: Lab tests, imaging or pharmaceuticals</td>
<td>Not useful to diagnosis and treatment</td>
<td>An MRI for mild low back pain</td>
</tr>
</tbody>
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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 potentially preventable events 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 the situations that can turn into potentially preventable events.
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 easily 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**.
Risk adjusting: The process

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

**Calculate** expected PPE rates across all providers

**Identify** the subset of patients at risk for adverse health events

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

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

Although the risk adjustment method differs between the various types of PPEs, the risk-adjusting process (outlined on the left) 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.
3M solutions for PPEs use 3M-proprietary methodologies that enhance the workflow for coding, abstracting, and clinical documentation improvement.

Better still, these 3M methodologies can also be used in batch applications to process and output data for analysis and reporting in other health information systems.

3M coding and clinical documentation improvement solutions

3M PPC functionality can be added to the 3M™ Coding and Reimbursement System to alert coders to potential in-hospital complications during the coding process. The 3M software flags the record if a PPE may exist and provides the coder with a report identifying potential complications, based mainly on secondary diagnoses that are not present on admission.

Modules of the 3M™ 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, DRG, and other parameters.
3M PPE solutions for retrospective analysis and reporting

3M 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” (3M™ Core Grouping Software or 3M™ Grouper Plus Content Services), the 3M PPE solutions include:

- 3M™ Potentially Preventable Complications (PPC) Grouping Software
- 3M™ Potentially Preventable Readmissions (PPR) Grouping Software
- 3M™ Population-focused Preventables Software (initial admissions, ED visits, and ancillary services)

3M Consulting Services focused on PPEs and quality

3M Consulting Services helps organizations succeed in public health initiatives with 3M™ Quality Services that identify the root cause of quality issues—beginning with the documentation—so organizations can create a long-term solution for improved quality measures and outcomes. These services cover all-cause readmissions (ACRs), hospital-acquired complications (HACs), PPRs, PPCs, patient safety indicators (PSIs), proper patient placement (P3), present on admission (POA) indicators, severity of illness (SOI) and risk of mortality (ROM). 3M Consulting Services also offers an extensive program designed to help clients understand and implement the 3M™ APR DRG methodology.
3M PPE solutions measure where, how and how well health care is delivered by accounting for how sick patients are—not just diagnosis and procedures.

3M 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 3M 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 3M™ APR DRG Classification System. Since their introduction in the early 1990s, 3M APR DRGs have become the healthcare industry's leading methodology for addressing severity of illness and risk of mortality 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 3M™ Clinical Risk Groups (CRGs). 3M CRGs are a clinically-based classification system that provides comprehensive, clinically specific classification for a full range of populations, including low income, elderly, commercial, and those with disabilities.
The healthcare industry has many ways to measure complications, readmissions, utilization rates, and patient safety.

But 3M PPE solutions provide outcomes measurements—not just process measurements—and are distinctive in several other ways:

**Broad:** 3M PPEs address services across the continuum of care, including inpatient, outpatient, long-term care, ancillary services, and pharmacy.

**Practical:** 3M PPEs are calculated using readily accessible claims data.

**Comprehensive:** Unlike measures for individual diseases or special populations, 3M 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 severity of illness.

**Clinically relevant:** 3M methodologies group patients that share similar clinical characteristics, resource demands and risk, not just the same statistical score.
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 the 3M™ Potentially Preventable Complications (PPC) Grouping Software to pursue their goal: 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 severity of illness. 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 3M PPCs to measure the baseline, track progress and correlate with clinical practice. With 3M 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.

Hospital Executive Council: Real results from 3M™ 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:
  - Pneumonia: 52%
  - UTIs: 14%

- Rates for some PPCs that were not specifically targeted (such as pulmonary edema and respiratory failure) also declined
Over an 18-month period ending in January 2014, the Minnesota RARE campaign* (Reducing Avoidable Readmissions Effectively) helped hospitals and community partners prevent more than 6,000 hospital readmissions.

Although each hospital faces its own unique challenges in managing readmissions, the RARE campaign demonstrates how a collaborative reporting effort can achieve significant results. RARE involves 82 hospitals, 100 community partners, and three operating partners, including the Minnesota Hospital Association.

Together they are working to reduce readmission rates by 20 percent from the 2009 baseline, as measured by the 3M™ Potentially Preventable Readmissions (PPRs) Grouping Software.

One participating hospital system, Allina Health, saw the potential for PPR data as the starting point for a system-wide readmissions reduction program. “Focusing on readmissions is critical for achieving the Triple Aim of improved quality, improved experience, and lower costs,” notes a senior clinical analyst at Allina. “We know that readmissions are extremely costly.” Allina Health’s list of tasks and subsequent output follow below.

*For complete information on RARE, refer to their website: http://bit.ly/1jkEAKQ
RARE and Allina Health: Real results from 3M™ PPRs

<table>
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<tr>
<th>Task</th>
<th>Output</th>
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<tbody>
<tr>
<td>• Generate PPR metrics and stratify patients by diagnosis, severity</td>
<td>• Create interactive dashboards showing benchmarks, actual performance</td>
</tr>
<tr>
<td>of illness, discharge status, and age</td>
<td>and trends</td>
</tr>
<tr>
<td>• Compare PPR rates with inpatient functional health scores, lab</td>
<td>• Guide process improvement projects</td>
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<tr>
<td>values, and complication rates</td>
<td>• Detect patterns in historical readmissions</td>
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<tr>
<td>• Evaluate transitions of care from the hospital to an outpatient</td>
<td>• Generate a predictive risk score for each patient treated at the</td>
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<tr>
<td>and/or community setting</td>
<td>hospital and tailor a care plan</td>
</tr>
<tr>
<td>• Develop interventions: transitions of care conferences, automatic</td>
<td>• Develop interventions: transitions of care conferences, automatic</td>
</tr>
<tr>
<td>scheduling of follow-up appointments, standardized discharge</td>
<td>scheduling of follow-up appointments, standardized discharge</td>
</tr>
<tr>
<td>instructions and clear recommendations for outpatient providers</td>
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3M PPE solutions have also proven useful in managing accountable care. The **Colorado Accountable Care Collaborative (ACC)** enrolls over 350,000 adults and children, nearly half of the state’s Medicaid population. Managed at a regional level, AAC measures quality and cost of care using **3M™ Population-focused Preventables Software** (for PPAs, PPSs, and PPVs) and the **3M™ PPR Grouping Software** (for 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- and patient-level data from the **Statewide Data and Analytics Contractor** (SDAC), who took raw eligibility and claims data to create a data warehouse that is refreshed monthly.

Through an online portal, analytics are shared, and users have secure, role-based 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, and 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 (PPR), emergency room visits (PPV), and high-cost imaging services (PPS).

Colorado’s ACC: Real results from 3M™ PPEs

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

- 15% lower rate of hospital readmissions and 25% lower rate of high-cost imaging services
- 22% lower rate of hospital admissions among members with COPD who were enrolled in the program at least six months
- Lower rates of exacerbated chronic health conditions such as hypertension (5%) and diabetes (9%)
- One-third slower increase (0.9 percentage points) in emergency room use

*As compared with members not enrolled in the program, especially among cohorts with targeted diseases such as COPD, hypertension and diabetes
Conclusion: Achieving the Triple Aim with 3M PPEs

To achieve their 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 physician

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
PPEs are a critical component of both addressing and achieving Triple Aim goals.

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.

And they can quantify the level of waste in a transparent manner to payers, providers and consumers.

3M PPEs are key players in managing population health

As the innovator behind several methodologies for identifying and risk-adjusting PPEs, 3M 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
Call today

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