3M Science. Applied to Life.™

3M Health Information Systems

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:**

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

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

What are potentially preventable events (PPEs)?

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)

On the following pages, we will take a closer look at each of these PPE types and summarize their characteristics in *figure 1*.

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.

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.
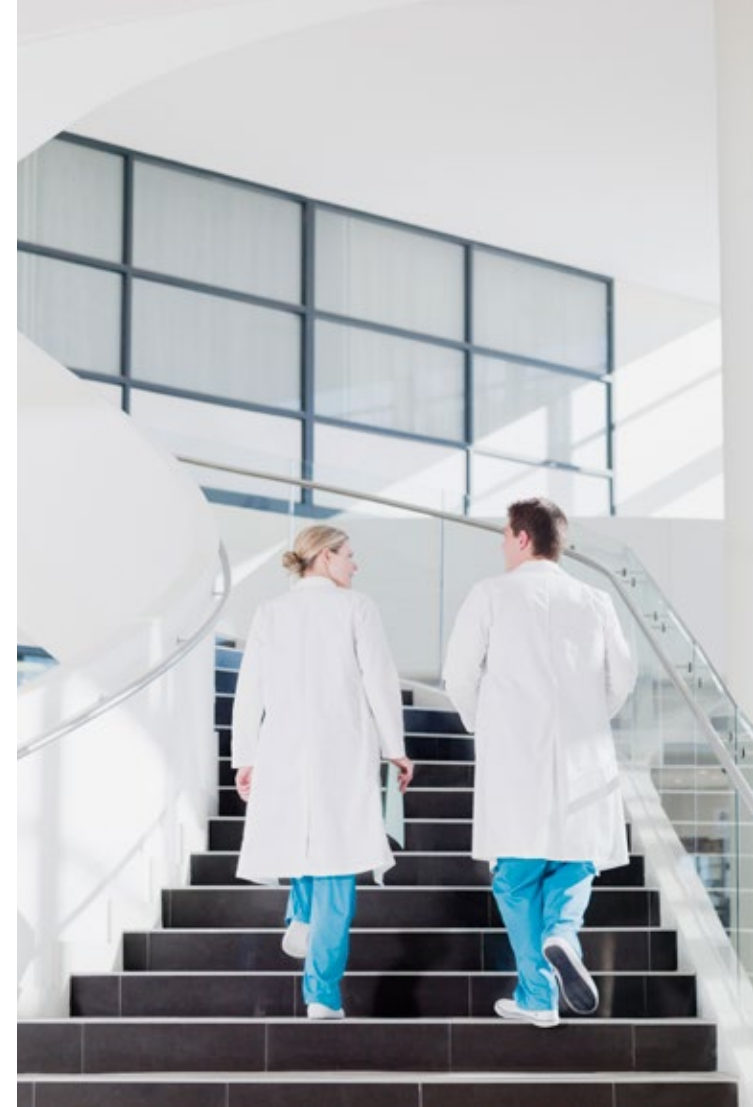
Potentially Preventable Admissions (PPAs)

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 **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.

Figure 1. Summary of potentially preventable events

Potentially Preventable . . .		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	Emergency department visits	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 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.

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

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

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 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

Although the risk adjustment method differs between the various types of PPEs, the risk-adjusting process (outlined on the right) 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.

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

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Calculate expected PPE rates across all providers

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Identify the subset of patients at risk for adverse health events

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

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

3M solutions for reducing PPEs

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.**
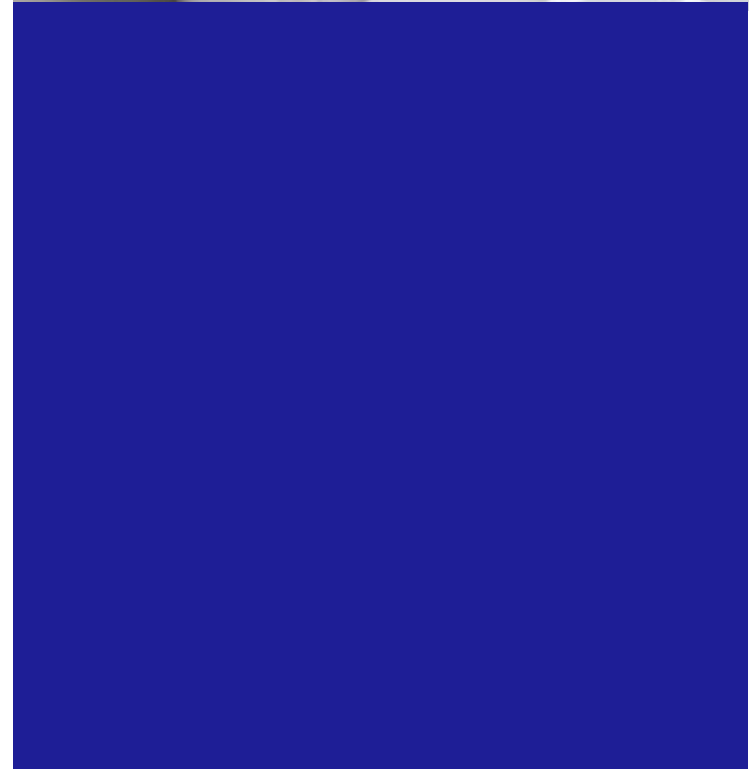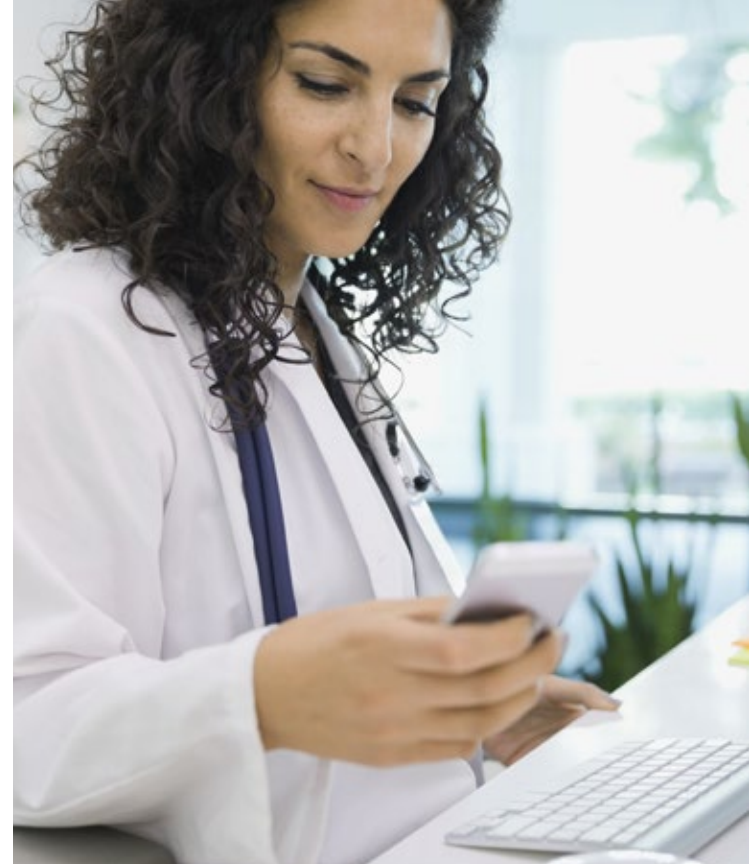
3M PPE solutions at work: Case studies

Hospital Executive Council: PPCs support a 48 percent 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 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.

*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

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 percent (from 58.5 to 30.4 per 1,000 discharges)

- Rates for two high-volume PPCs addressed by intervention **decreased:**
    - Pneumonia: 52 percent
    - UTIs: 14 percent

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

The RARE campaign: Minnesota hospitals target 20 percent fewer readmissions

Over an 18-month period ending in January 2014, the **Minnesota RARE campaign*** (**R**educing **A**voidable **R**eadmissions **E**ffectively) 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

Task	Output
• Generate PPR metrics and stratify patients by diagnosis, severity of illness, discharge status and age	• Create interactive dashboards showing benchmarks, actual performance and trends • Guide process improvement projects
• Compare PPR rates with inpatient functional health scores, lab values and complication rates	• Detect patterns in historical readmissions • Generate a predictive risk score for each patient treated at the hospital and tailor a care plan
• Evaluate transitions of care from the hospital to an outpatient and/or community setting	• Develop interventions: transitions of care conferences, automatic scheduling of follow-up appointments, standardized discharge instructions and clear recommendations for outpatient providers

Colorado Accountable Care Collaborative: 3M™ PPEs are key performance indicators

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).

*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/1qRZfqn

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

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

- 15 percent lower rate of hospital readmissions and 25 percent lower rate of high-cost imaging services

- 22 percent 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 percent) and diabetes (9 percent)

- 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
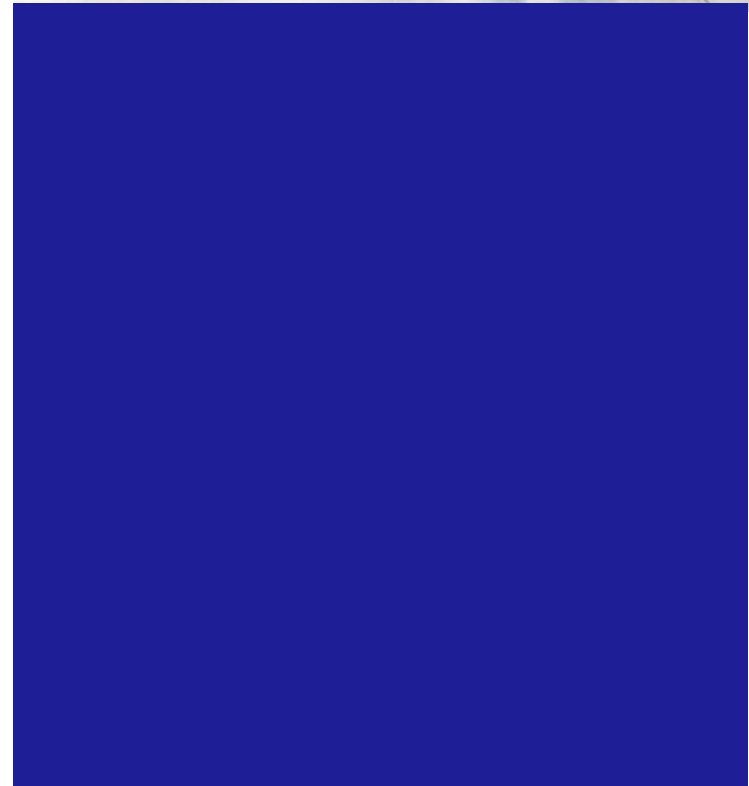
The 3M advantage

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.

3M: Recognized expertise in risk adjustment

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.
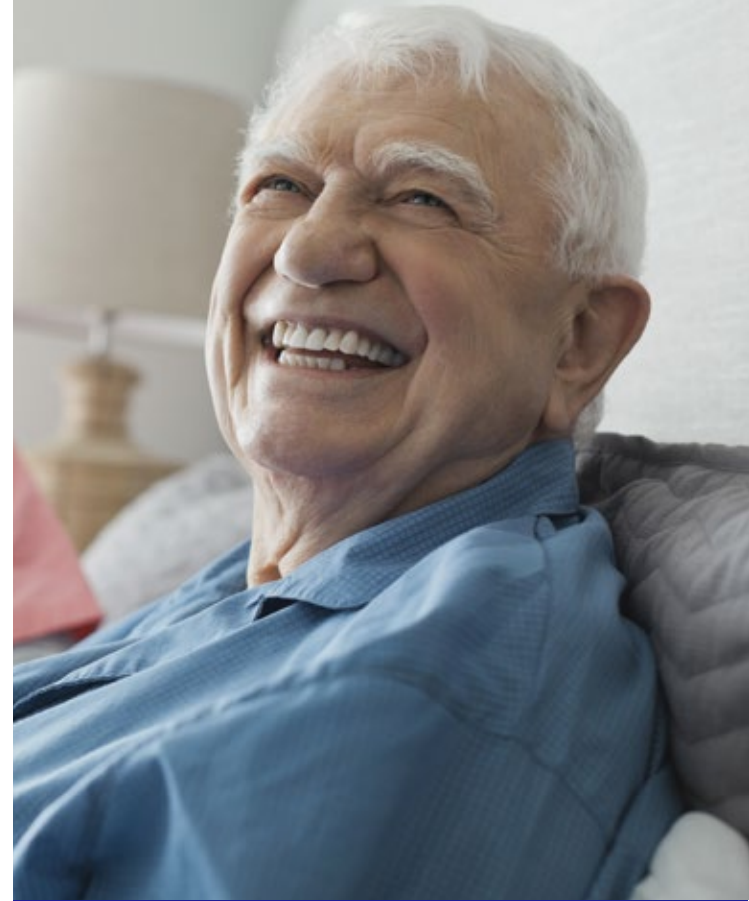
Conclusion: Achieving the Triple Aim with 3M™ PPEs

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 address and help achieve 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 can help manage 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

For more information on how 3M software and services can assist your organization, contact your 3M sales representative, call us toll-free at 800-367-2447, or visit us online at www.3m.com/his.

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