The Key to Sustainable Bundle Payment Participation?
Planning for the Unexpected

Susan Nedza, MD MBA FACEP
Senior Vice President, Clinical Outcomes Management
MPA Healthcare Solutions

Adjunct Assistant Professor, Emergency Medicine
Feinberg School of Medicine, Northwestern University

April 4, 2017
About MPA Healthcare Solutions

MPA Healthcare Solutions is an analytic health care consultancy that provides clients with insight into clinical performance; aids them in the evaluation, implementation, and operation of alternative payment models; and supports strategic decision-making throughout the continuum of care.
Why focus on unscheduled care?

Acute care is common

1/3rd of all patient encounters
(Health Aff, 2010)

EDs admitted over 80% of unscheduled hospital admissions

65% increase from 2000 to 2009
(Med Care, 2013)

Large portion of US health spending is attributed to acute care

Emergency Medicine services account for 6% of Medicare Part B spending, $2.3 billion per year
(NEJM, 2015)

Large portion of US health spending is attributed to acute care
Volume to value: rethinking the roll of the emergency department in alternative payment models

- Revenue generation
- Front door to the hospital
- High resource utilization
- Isolated decision making unit
- Cost center
- Path back to the community
- Standardized care models for unscheduled care
- Integrated decision making unit
- FFS payment from health insurer (Medicare, Medicaid, private payer, uninsured)
- Value-based payments from risk-bearing entity

FFS payment from health insurer (Medicare, Medicaid, private payer, uninsured)
Unscheduled acute care happens in the Emergency Department and elsewhere...
An acknowledgement of Dr. Dennis O’Leary
The ED as canary in a coal mine

Initial results of CMMI Bundled Care Payment Initiative (BCPI) - Joint Replacement

- Shortened length of stay
- Move from SNF to home health*
- Cost of device is a driver of overall episode costs
- Savings driven off discounted rate based upon prior services
- Statistically significant increase in ED visits
It is 3am, do you know where your bundle-eligible patient is?
Or here?

Or here?
Or here?
Or here?

What is a freestanding emergency center?

A freestanding emergency center is structurally separate.
An APM Example

Emergency Care within a Bundled Payment Model
Conventional approach to unscheduled care: avoid it and reduce costs

- Reduce avoidable ED visits
- Decrease avoidable emergency care costs
- Reduce avoidable hospitalizations
- Prevent admits to (ICU)
The ED and managing risk in AAPMs

- Clinical Risk
- Financial Risk
- Utility Risk
- Medical Liability Risk
- Reputational Risk
- Regulatory Risk
The continuum of risk is dynamic in an AAPM. This includes the risk of needing unscheduled care.
Integrating the ED: a collaborative model

Data Analysis

- Understand pre-procedure utilization of ED
- Identify ED Utilization Patterns within 7 days of discharge
- Identify ED Utilization Patterns within 30 days of discharge
- Identify ED Utilization patterns within 90 days of discharge

Collaborators

- Primary Care/Emergency Medicine/EMS
- Surgeon/Hospitalist Emergency Medicine
- SNFist/Primary Care/Emergency Medicine
- Primary Care/Emergency Medicine
Emergency Department visits following joint replacement surgery in an era of mandatory bundled payments
Analysis of a Medicare joint replacement population*

Retrospective case study using CMS MEDPAR† and Outpatient research identifiable (RIF) data for the state of Texas, 2011-2012

Total Joint Replacement
- Cases qualified when index claim was coded as MS-DRG 469-470
- Enrolled in Fee for Service (FFS) Medicare for 30 days prior to index claim and 90 days afterward

Patients
- Medicare FFS Beneficiaries
- Medicare primary payer
- No ESRD

* The population represents a subset of potential covered beneficiaries in CJR.
† MEDPAR file combines Inpatient and SNF claims.

Emergent vs. elective populations are different

<table>
<thead>
<tr>
<th>Total Hip Replacement (Emergent)</th>
<th>Total Hip Replacement (Elective)</th>
<th>Total Knee Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N Patients</strong></td>
<td><strong>Gender</strong></td>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>8,635</td>
<td>74.3% Female</td>
<td>65.7% Female</td>
</tr>
<tr>
<td>10,799</td>
<td>62.7% Female</td>
<td></td>
</tr>
<tr>
<td>31,404</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Age**

- <65
- 65-74
- 75-84
- >84

- <65
- 65-74
- 75-84
- >84

- <65
- 65-74
- 75-84
- >84
Results: frequency and timing of 90-day post-discharge ED visits

Total Hip Replacement (Emergent)
- Total eligible patients: 8,635
- Patients discharged live*: 8,475
- Patients with an ED visit: 2,408 (28.4%)
- Total ED visits: 3,438

* 160 patients (1.9%) died during inpatient stay

10.5% of visits occurred in the first 7 days

Total Hip Replacement (Elective)
- Total eligible patients: 10,799
- Patients discharged live*: 10,786
- Patients with an ED visit: 1,714 (15.9%)
- Total ED visits: 2,370

* 13 patients (0.1%) died during inpatient stay

17.7% of visits occurred in the first 7 days

Total Knee Replacement
- Total eligible patients: 31,404
- Patients discharged live*: 31,387
- Patients with an ED visit: 5,177 (16.5%)
- Total ED visits: 6,939

* 17 patients (0.01%) died during inpatient stay

19.6% of visits occurred in the first 7 days

Integrating the ED: pre-procedure ED care

Data Analysis
- Understand pre-procedure utilization of ED

Intervention Strategy
- Recognition of chronic conditions that require management

Address pre-procedure clinical and financial risk
- Utilization rate
- Diagnosis
- Conditions likely to be destabilized due to specific procedure
- Demographics
Number of ED visits by hip replacement patients **30 days prior** to index hospitalization, by ED discharge diagnosis group

Number of hip replacement episodes: **277,697**

Number of ED visits, -30 days pre-procedure: **7,901**

Source: MPA analysis of CMS LDS data (2012-2014)
Integrating the ED: evaluation of risk of early decompensation

Data Analysis

- Understand pre-surgical utilization of ED
- Identify ED utilization patterns within 7 days of discharge

Intervention Strategy

- Management of chronic conditions
- Acute care that requires clinical intervention or better discharge planning

Address clinical and medical liability risk

- Appropriateness of discharge timing based upon comorbidities and complications
- Appropriate discharge disposition
- Likelihood of ED visit

Address utility risk

- Patient access for unscheduled care
- Expectations for availability of surgeons
Number of ED visits by hip replacement patients 1-7 days postdischarge, by ED discharge diagnosis group

- Number of hip replacement episodes: 277,697
- Number of ED visits 1-7 days postdischarge: 8,236

Source: MPA analysis of CMS LDS data (2012-2014)
## Variation in discharge diagnoses for ED visits in the first 7 days

<table>
<thead>
<tr>
<th></th>
<th>ICD-9 Discharge Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elective Hip Replacement</strong></td>
<td>486: Pneumonia- organism NOS</td>
</tr>
<tr>
<td></td>
<td>99642: Dislocate prosthetic jt</td>
</tr>
<tr>
<td></td>
<td>0389 : septicemia nos</td>
</tr>
<tr>
<td></td>
<td>V5481: Aftercare following joint replacmnt</td>
</tr>
<tr>
<td></td>
<td>99812: Hematoma proc cx</td>
</tr>
<tr>
<td><strong>Hip Replacement with Fracture</strong></td>
<td>99642: Dislocate prosthetic jt</td>
</tr>
<tr>
<td></td>
<td>2859 : Anemia NOS</td>
</tr>
<tr>
<td></td>
<td>78060: Fever NOS</td>
</tr>
<tr>
<td></td>
<td>5990 : Urin tract infection NOS</td>
</tr>
<tr>
<td></td>
<td>5070 : Food/vomit pneumonitis</td>
</tr>
<tr>
<td><strong>Knee Replacement</strong></td>
<td>2859 : Anemia NOS</td>
</tr>
<tr>
<td></td>
<td>7802 : Syncope and collapse</td>
</tr>
<tr>
<td></td>
<td>7295 : Pain in limb</td>
</tr>
<tr>
<td></td>
<td>7823 : Edema</td>
</tr>
<tr>
<td></td>
<td>99812: Hematoma proc cx</td>
</tr>
</tbody>
</table>

*Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)*
Manage leakage: ED visits at other hospitals*

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Total episodes</th>
<th>Episodes with ED visits</th>
<th>Total ED visits</th>
<th>ED visits to a different facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective Hip Replacement</td>
<td>218</td>
<td>54 (24.8%)</td>
<td>81</td>
<td>27 (33.3%)</td>
</tr>
<tr>
<td>Hip Replacement with Fracture</td>
<td>205</td>
<td>67 (32.7%)</td>
<td>106</td>
<td>24 (22.6%)</td>
</tr>
<tr>
<td>Knee Replacement</td>
<td>376</td>
<td>76 (20.2%)</td>
<td>102</td>
<td>29 (28.4%)</td>
</tr>
</tbody>
</table>

* Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)
Integrating the ED: improvement opportunity

Data Analysis
- Understand pre-procedure utilization of ED
- Identify ED utilization patterns within 7 days of discharge
- Identify ED utilization patterns within 30 days of discharge

Intervention Strategy
- Management of chronic conditions
- Acute care that requires clinical intervention or better discharge planning
- Identify procedure-specific visits and develop protocols for efficient, effective management

Address financial, utility and clinical risk
- Identify variation in discharge dispositions
- Apply risk-tools to identify best disposition
- Agree on use of advanced imaging
- Integrate with outpatient providers
## Variation in discharge diagnoses for ED visits in the first 30 days

<table>
<thead>
<tr>
<th>ICD-9 Discharge Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective Hip Replacement</td>
</tr>
<tr>
<td>71945: Joint pain-pelvis</td>
</tr>
<tr>
<td>7823 : Edema</td>
</tr>
<tr>
<td>99642: Urin tract infection</td>
</tr>
<tr>
<td>5990 : Urin tract infection NOS</td>
</tr>
<tr>
<td>72981: Swelling of limb</td>
</tr>
<tr>
<td>Hip Replacement with Fracture</td>
</tr>
<tr>
<td>5990 : Urin tract infection NOS</td>
</tr>
<tr>
<td>99642: Urin tract infection</td>
</tr>
<tr>
<td>92401: Contusion of hip</td>
</tr>
<tr>
<td>71945: Joint pain-pelvis</td>
</tr>
<tr>
<td>99859: Oth postop infection</td>
</tr>
<tr>
<td>Knee Replacement</td>
</tr>
<tr>
<td>71946: Joint pain-l/leg</td>
</tr>
<tr>
<td>7295 : Pain in limb</td>
</tr>
<tr>
<td>6826 : Cellulitis of leg</td>
</tr>
<tr>
<td>56400: Unspecified constipation</td>
</tr>
<tr>
<td>33818: Acute postop pain NEC</td>
</tr>
</tbody>
</table>

*Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)*
# Results: variation in selected ED discharge disposition

<table>
<thead>
<tr>
<th>Total Hip Replacement</th>
<th>Total Knee Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>% ED claims</strong></td>
<td><strong>% ED claims</strong></td>
</tr>
<tr>
<td><strong>0%</strong></td>
<td><strong>0%</strong></td>
</tr>
<tr>
<td><strong>10%</strong></td>
<td><strong>10%</strong></td>
</tr>
<tr>
<td><strong>20%</strong></td>
<td><strong>20%</strong></td>
</tr>
<tr>
<td><strong>30%</strong></td>
<td><strong>30%</strong></td>
</tr>
<tr>
<td><strong>40%</strong></td>
<td><strong>40%</strong></td>
</tr>
<tr>
<td><strong>50%</strong></td>
<td><strong>50%</strong></td>
</tr>
<tr>
<td><strong>60%</strong></td>
<td><strong>60%</strong></td>
</tr>
<tr>
<td>Discharged home</td>
<td>Discharged home</td>
</tr>
<tr>
<td>43.5%</td>
<td>59.1%</td>
</tr>
<tr>
<td>Admitted</td>
<td>Admitted</td>
</tr>
<tr>
<td>45.1%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Observation stay</td>
<td>Observation stay</td>
</tr>
<tr>
<td>5.8%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Transferred</td>
<td>Transferred</td>
</tr>
<tr>
<td>3.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Discharged to SNF</td>
<td>Discharged to SNF</td>
</tr>
<tr>
<td>1.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Died</td>
<td>Died</td>
</tr>
<tr>
<td>1.0%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

The postdischarge world is like a black hole...You need to look at weak signals of past activity to gain insight into adverse outcomes.

Anonymous ED Director
Early death after discharge from emergency departments: analysis of national US insurance claims data
Ziad Obermeyer,1,2 Bronte Cohn,3 Michael Wilson,4 Anupam Jena,5 David M. Cutler6

ABSTRACT
OBJECTIVE
To measure incidence of early death after discharge from emergency departments, and explore potential sources of variation in risk by measurable aspects of hospitals and patients.

DESIGN
Retrospective cohort study.

SETTING
Claims data from the US Medicare program, covering visits to an emergency department, 2007-12.

PARTICIPANTS
Nationally representative 20% sample of Medicare fee for service beneficiaries. As the focus was on generally healthy people living in the community, patients in nursing facilities, aged ≥90, receiving palliative or hospice care, or with a diagnosis of a life limiting illnesses, either during emergency department visits (for example, myocardial infarction) or in the year before (for example, malignancy) were excluded.

MAIN OUTCOME MEASURE
Death within seven days after discharge from the emergency department, excluding patients transferred or admitted as inpatients.

RESULTS
Among discharges patients, 0.12% (9737/80 991 678) in the 20% sample or 0.16% (12 375/10 091 678) in the full sample died within seven days, or 10.9/1 000 per year nationally. Mean age at death was 8.9. Leading causes of death on discharge were acute cardiovascular disease (9.6%), some 2.3% died of narcotic overdose, largely after visits for musculoskeletal problems. Hospitals in the lowest fifth of rates of inpatient admission from the emergency department had the highest rates of early death (6.2%), 3.4 times higher than hospitals in the highest fifth (0.8%); despite the fact that hospitals with low admission rates served healthier populations, as measured by overall seven day mortality among all admissions to the emergency department. Small increases in admission rates were linked to large decreases in risk. In multivariate analysis, emergency departments that saw higher volumes of patients (odds ratio 0.86, 95% confidence interval 0.83 to 0.89) and those with higher charges for visits (0.75, 0.74 to 0.77) had significantly fewer deaths. Certain diagnoses were more common among early deaths compared with other emergency department visits: altered mental status (risk ratio 6.4, 95% confidence interval 3.8 to 10.5), dyspnea (3.1, 2.9 to 3.4), and dehydration/tachypnea (2.8, 2.9 to 3.7).

CONCLUSIONS
Every year, a substantial number of Medicare beneficiaries die soon after discharge from emergency departments, despite no diagnosis of a life limiting illnesses recorded in their claims. Further research is needed to explore whether these deaths are preventable.

Obermeyer et al. BMJ 2017;356:j239

Risk of death within 7 days of discharge
Fig 4 Risk ratios (and 95% confidence intervals) for early death for 20 most common diagnoses in emergency departments.

- Altered mental status (0.3%)
- Dyspnea (1.3%)
- Malaise/fatigue (0.7%)
- Nausea/vomiting (1.0%)
- Congestive heart failure (3.1%)
- Dehydration (1.4%)
- Chronic obstructive pulmonary disease (9.6%)
- Pneumonia (2.4%)
- Diabetes complication (1.3%)
- Abdominal pain (3.2%)
- Back pain (3.3%)
- Urinary tract infection (2.8%)
- Superficial injuries (3.7%)
- Joint pain (1.4%)
- Syncope (1.4%)
- Medical device complication (1.2%)
- Fracture of arm (1.2%)
- Muscle sprain (3.0%)
- Chest pain (4.5%)
- Cellulitis (2.4%)

Obermeyer et al. BMJ 2017;356:bmj.j239
©2017 by British Medical Journal Publishing Group
Integrating the ED: improvement opportunity

Data Analysis
- Understand pre-procedure utilization of ED
- Identify ED utilization patterns within 7 days of discharge
- Identify ED utilization patterns within 30 days of discharge
- Identify ED utilization patterns within 90 days of discharge

Intervention Strategy
- Management of chronic conditions
- Acute care that requires clinical intervention or better discharge planning
- Identify procedure specific visits and develop protocols for efficient, effective management
- Management of chronic conditions
Number of ED visits by hip replacement patients, by discharge diagnosis group and number of days pre- or post-index hospitalization

Number of hip replacement episodes: 277,697
Number of ED visits -30 to 90 days post-procedure: 42,528

Source: MPA analysis of CMS LDS data (2012-2014)
## Variation in discharge diagnoses for ED visits in 30-89 days

<table>
<thead>
<tr>
<th>ICD-9 Discharge Diagnosis</th>
<th>Elective Hip Replacement</th>
<th>Hip Replacement with Fracture</th>
<th>Knee Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>99642: Dislocate prosthetic jt</td>
<td>5990 : Urin tract infection NOS</td>
<td>5990 : Urin tract infection NOS</td>
<td>5990 : Urin tract infection NOS</td>
</tr>
<tr>
<td>486 : Pneumonia- organism NOS</td>
<td>78659: Chest pain NEC</td>
<td>486 : Pneumonia- organism NOS</td>
<td>78659: Chest pain NEC</td>
</tr>
<tr>
<td>78650: Chest pain NOS</td>
<td>4019 : Hypertension NOS</td>
<td>8730 : Open wound of scalp</td>
<td>78650: Chest pain NOS</td>
</tr>
<tr>
<td>99642: Dislocate prosthetic jt</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** MPA analysis of CMS RIF data for the state of Texas (2011-2012)
11,819 ED visits occurred within 90 days of discharge for over 280 diagnoses.

4,773 readmissions (40.4% of visits) occurred to either the same hospital or another hospital within 90 days.

778 visits (6.6%) resulted in an observation stay:
- $605 for hip replacement
- $487 for knee replacement

For admitted patients, the average allowed ED related Part B charges following procedure were:
- $1,980 for hip replacement, and
- $1,547 for knee replacement cases.

For patients discharged home, the average allowed Part B charges following the procedure was:
- $402 for hip replacement, and
- $240 for knee replacement cases.

Study captures variations in cost based upon discharge disposition.

Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)
Emergency ground transport

Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)

<table>
<thead>
<tr>
<th></th>
<th>Emergent Hip Replacement</th>
<th>Elective Hip Replacement</th>
<th>Knee Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of episodes with ambulance claim</td>
<td>70.60%</td>
<td>40.8%</td>
<td>30.8%</td>
</tr>
<tr>
<td>N claims</td>
<td>685</td>
<td>256</td>
<td>443</td>
</tr>
<tr>
<td>Average allowed charges</td>
<td>$429, $528, $579</td>
<td>$416, $496, $584</td>
<td>$379, $471, $568</td>
</tr>
<tr>
<td>Average mileage</td>
<td>$209</td>
<td>$188</td>
<td>$150</td>
</tr>
</tbody>
</table>

Basic Life Support (BLS) vehicles are staffed with EMTs. Advanced Life Support (ALS) vehicles are staffed with paramedics and provide advanced life support assessment and services.
Non-emergency ground transport

Emergent Hip Replacement
- % of episodes with ambulance claim: 61.0%

Elective Hip Replacement
- % of episodes with ambulance claim: 27.7%

Knee Replacement
- % of episodes with ambulance claim: 14.8%

<table>
<thead>
<tr>
<th>Type</th>
<th>N claims</th>
<th>Average allowed charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergent</td>
<td>2,278</td>
<td>$388</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>$346</td>
</tr>
<tr>
<td>Knee</td>
<td>840</td>
<td>$287</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$270</td>
</tr>
</tbody>
</table>

Source: MPA analysis of CMS RIF data for the state of Texas (2011-2012)

Basic Life Support (BLS) vehicles are staffed with EMTs.
Advanced Life Support (ALS) vehicles are staffed with paramedics and provide advanced life support assessment and services.
Will your bundle strategy DOA?
Unscheduled visits will happen. What is your model for “rescue care”?
As the goal is sustainability, embrace the role the canary plays in AAPMs.
ED integration: getting started

Gain **perspective** on the challenge through review of ED data

**Proactively** identify potential cost savings related to unscheduled care and to evaluate opportunities for shared-risk with your ED providers

Implement **precision risk-management** tools that support identifying risk of unscheduled care, ED visits, and adverse outcomes

**Monitor performance** over time tracking efficiency and effectiveness of interventions
Susan Nedza, MD

SNedza@consultmpa.com