

# Welcome to Milliman's Health Webinar

- The briefing will begin in a few minutes.

13<sup>th</sup> October 2020



# Virtual Meeting Best Practices

- Mute: As an attendee, you will be on mute automatically for the duration of the webinar.
- Video: Only presenters will be on video. Video is turned off for attendees.
- Q&A: Use the chat function within the meeting for questions.

## Agenda

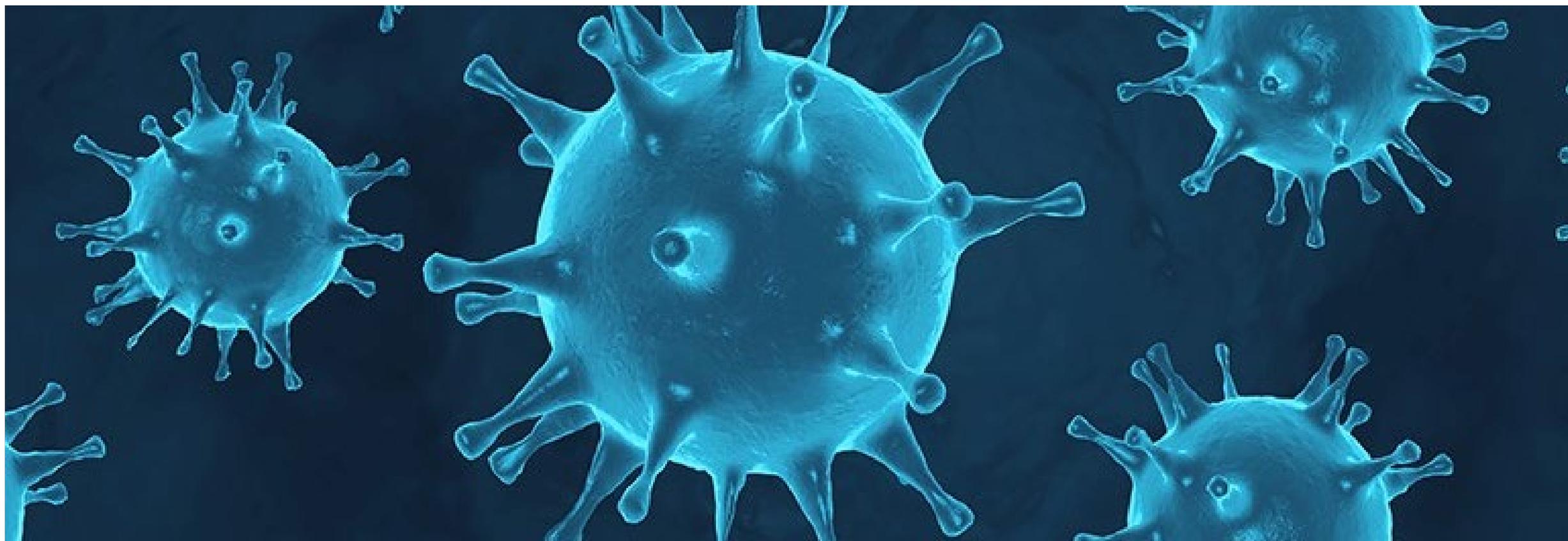
Time	Topic	Presenter
12:00pm – 12:02pm	Welcome	Sinéad Clarke
12:02pm – 12.20pm	COVID-19 Update	Kevin Manning
12.20pm – 12.35pm	Data Analytics: Payer Value Chain	Joanne Buckle
12.35pm – 13.00pm	Data Analytics: Case Studies	Lalit Baveja & Alison Counihan
13.00pm – 13.15pm	Q&A session	Sinéad Clarke

# COVID-19 Update

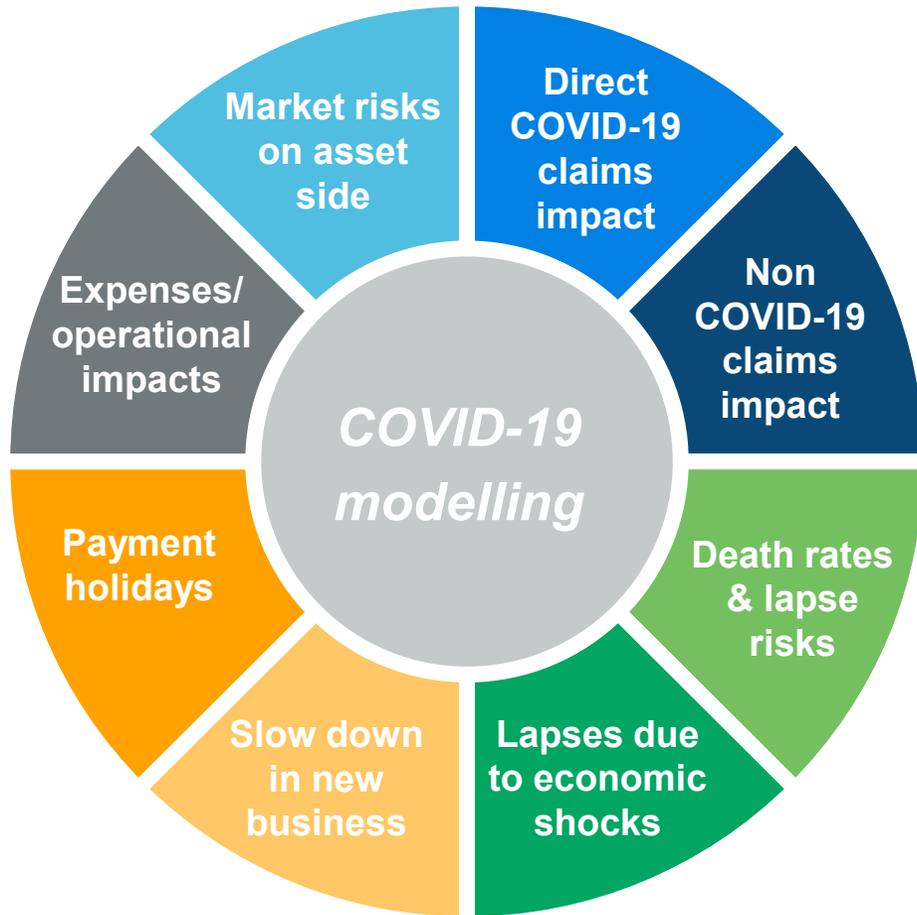
Irish and international experience

Kevin Manning

13 OCTOBER 2020



# COVID-19 considerations for insurers

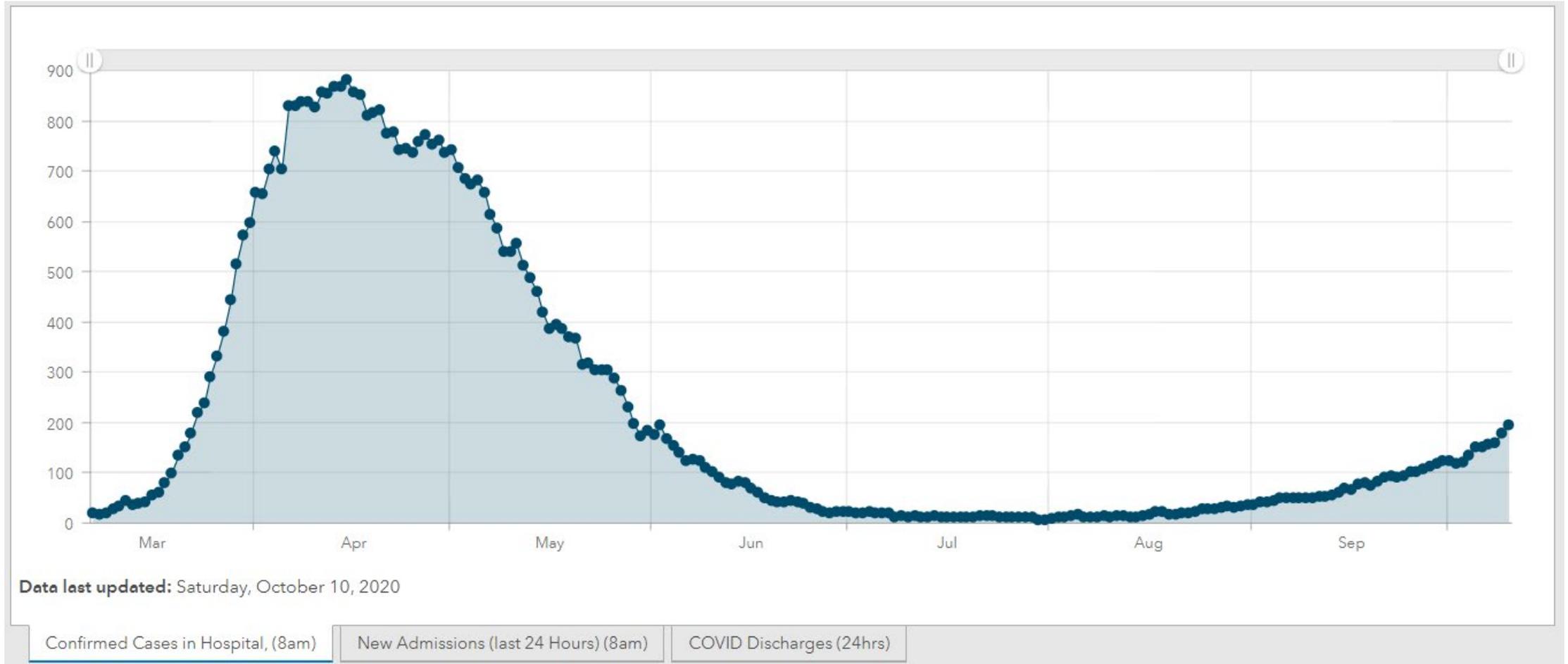


## Caveats

- Rapidly changing environment and huge uncertainty when you try to model the future
- Time horizon – need to consider 2020, 2021 and longer term
- International comparability challenging
  - Different health systems
  - Different COVID-19 incidence
  - Different governmental responses

# Direct COVID-19 Impacts

COVID-19 inpatient hospital admissions



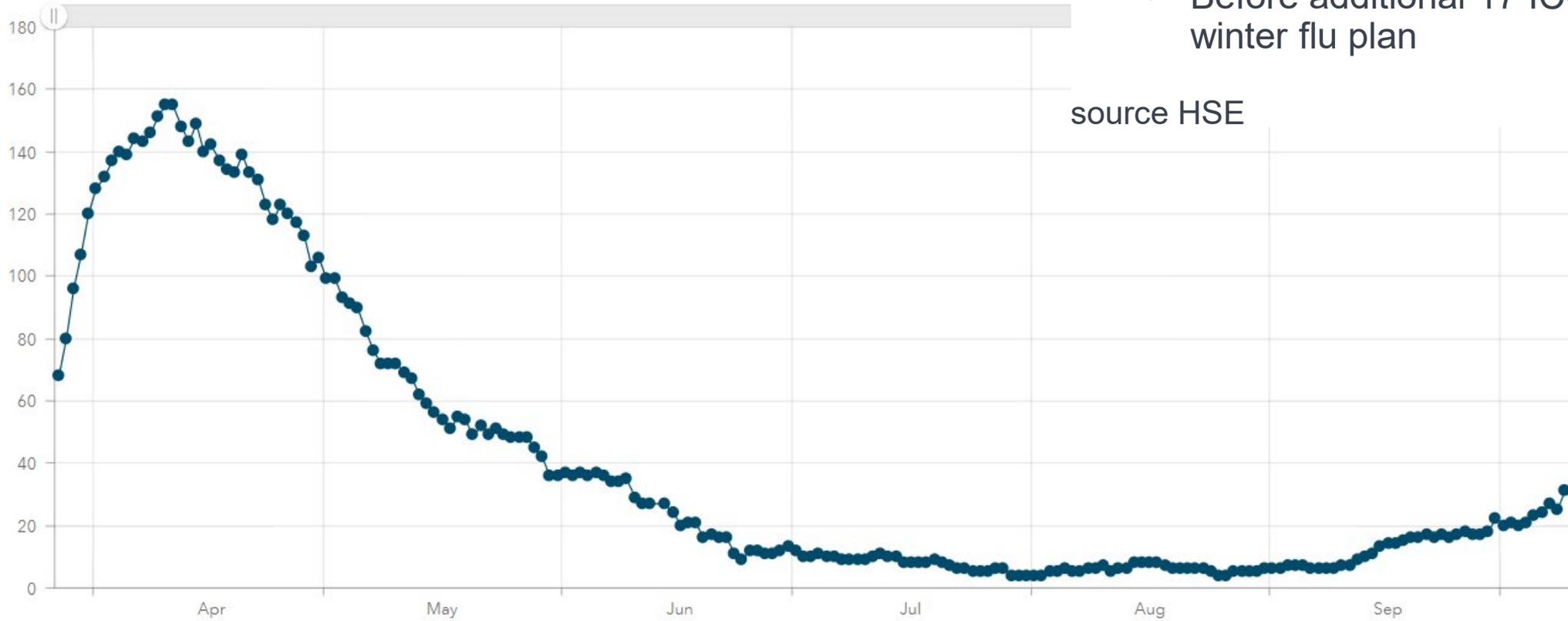
Source: <https://covid19ireland-geohive.hub.arcgis.com/>

# Direct COVID-19 Impacts

## COVID-19 ICU cases

- Pre-Covid ICU capacity: 225
- Temporary surge capacity: 354
- Current permanent capacity: 280
  - Before additional 17 ICU beds from winter flu plan

ICU COVID-19 Confirmed Cases



source HSE

Source: <https://covid19ireland-geohive.hub.arcgis.com/>

# Indirect impacts of COVID-19 on insurer claims costs

Considerations for modelling future trends, international insights

## Common themes from discussions with international colleagues

- Considerable levels of deferral of care
  - Deferred or Foregone?
- Bounce-back evident but current levels below normal
- Considerable variation by specialty
- 2021 position heavily dependent on potential course of the virus – vaccine, second wave
- Uncertainty over longer term impacts

<https://www.commonwealthfund.org/>

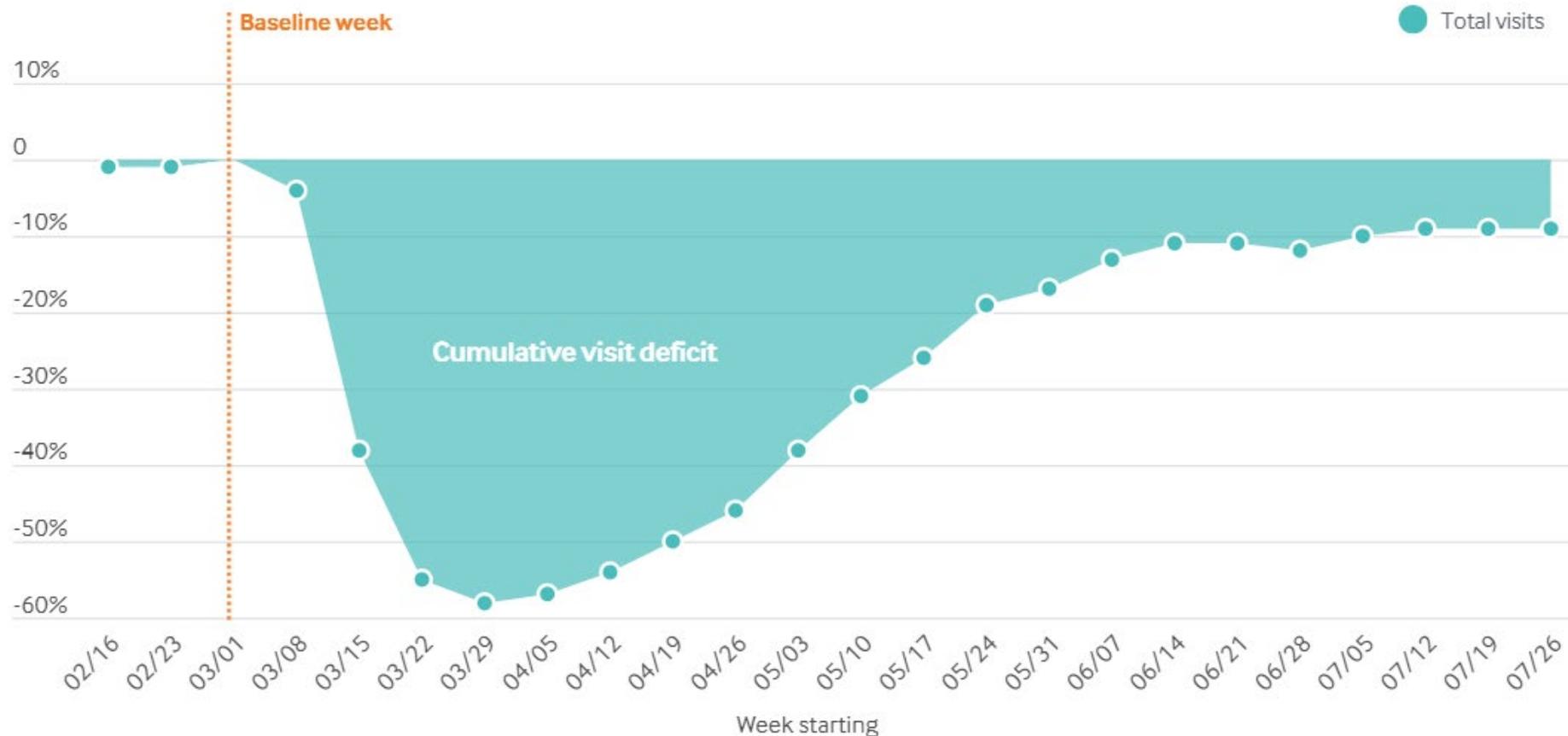
<https://www.stratadecision.com/>

<https://www.milliman.com/en/health/coronavirus-covid-19>

# Indirect COVID-19 Impacts

Outpatient visits – relative to baseline week (March 1-7)

Percent change in visits from baseline

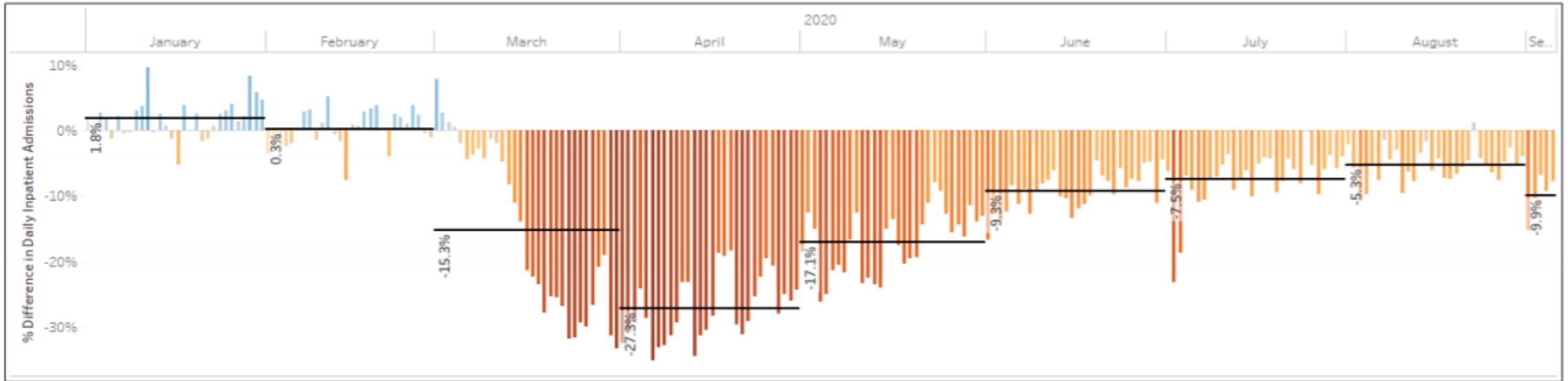


Source: <https://www.commonwealthfund.org/publications/2020/aug/impact-covid-19-pandemic-outpatient-visits-changing-patterns-care-newest>

# Indirect COVID-19 Impacts

Inpatient admissions

## Inpatient Admissions Daily Rate of Change: January and February Above Normal Before Nationally, Rates Plummeted as COVID-19 Surged

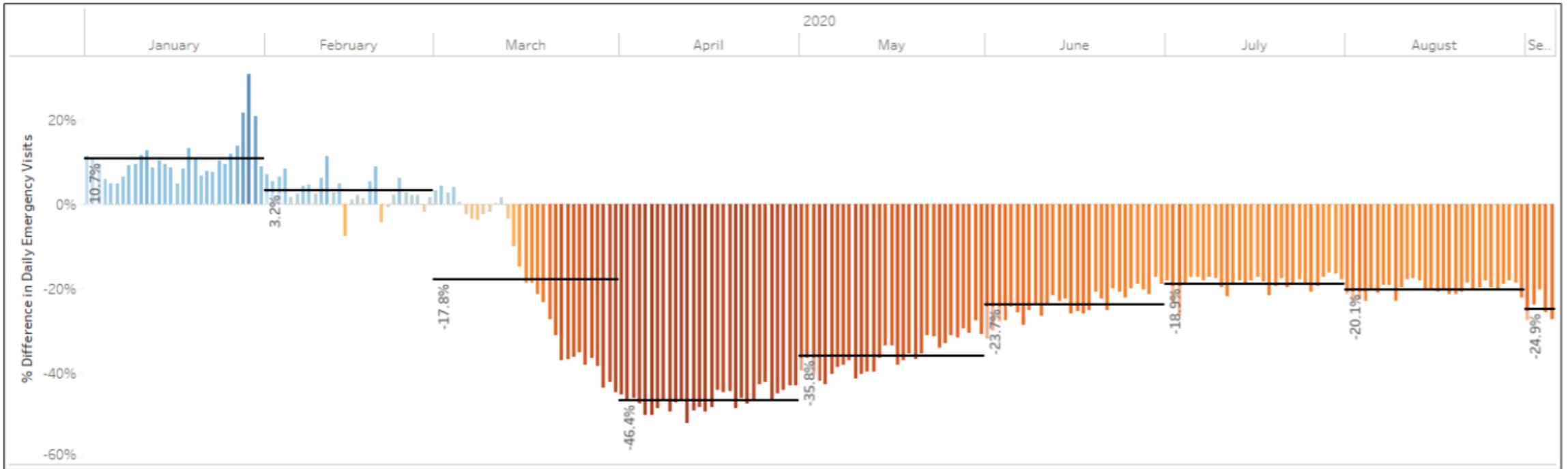


Source: [https://www.stratadecision.com/wp-content/uploads/2020/09/6-Month-Summary\\_National-Patient-and-Procedure-Volume-Tracker-and-Report\\_FINAL.pdf](https://www.stratadecision.com/wp-content/uploads/2020/09/6-Month-Summary_National-Patient-and-Procedure-Volume-Tracker-and-Report_FINAL.pdf)

# Indirect COVID-19 Impacts

ER visits

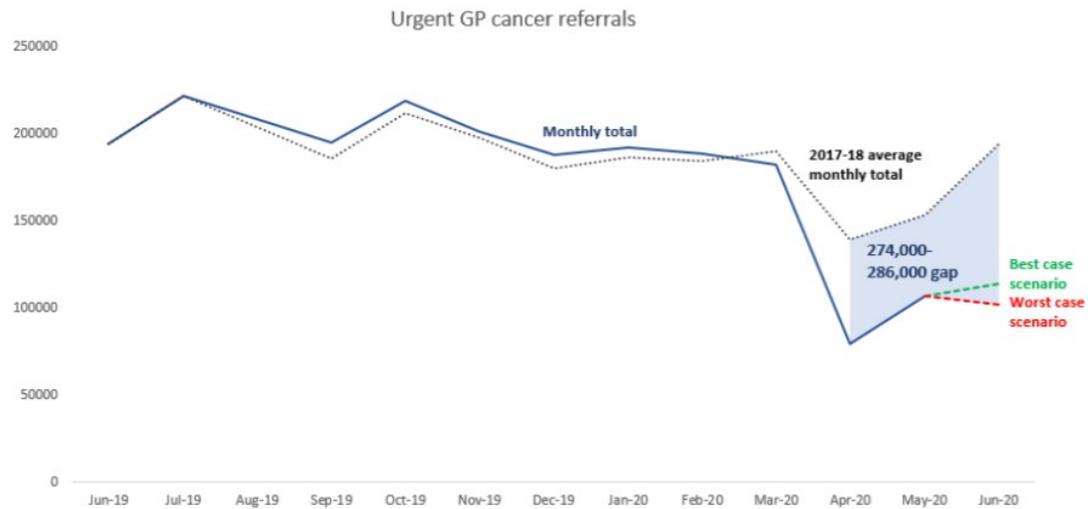
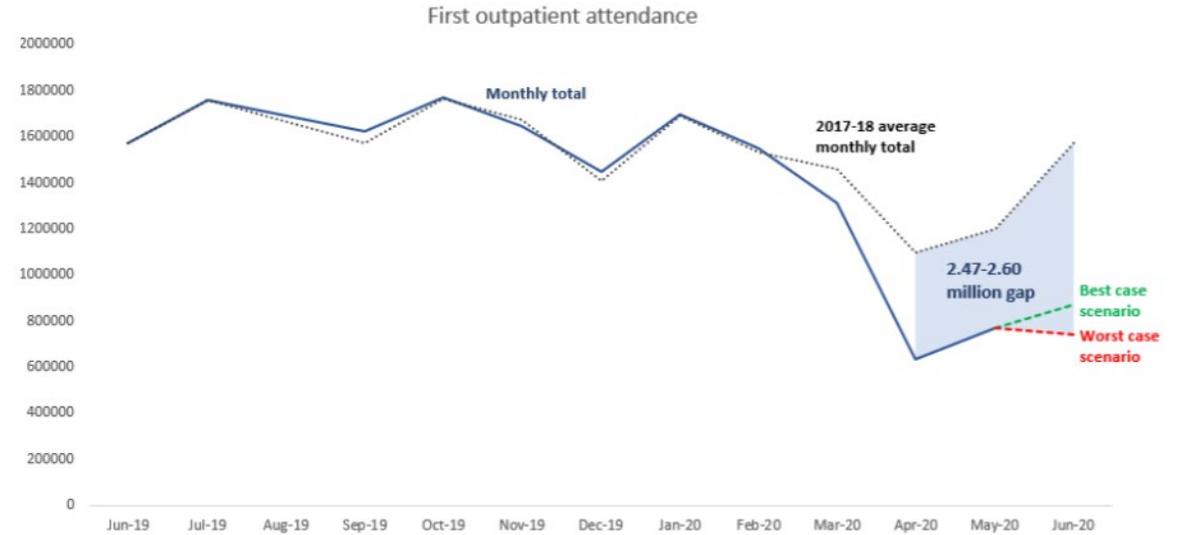
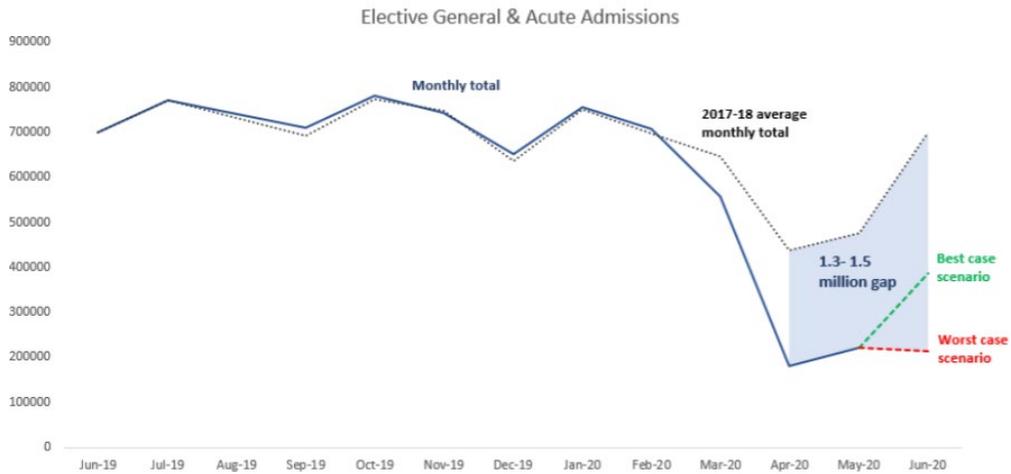
## Daily Emergency Visits Rate of Change: Nationally



Source: [https://www.stratadecision.com/wp-content/uploads/2020/09/6-Month-Summary\\_National-Patient-and-Procedure-Volume-Tracker-and-Report\\_FINAL.pdf](https://www.stratadecision.com/wp-content/uploads/2020/09/6-Month-Summary_National-Patient-and-Procedure-Volume-Tracker-and-Report_FINAL.pdf)

# Indirect COVID-19 Impacts

UK research



# Key challenges for health insurers

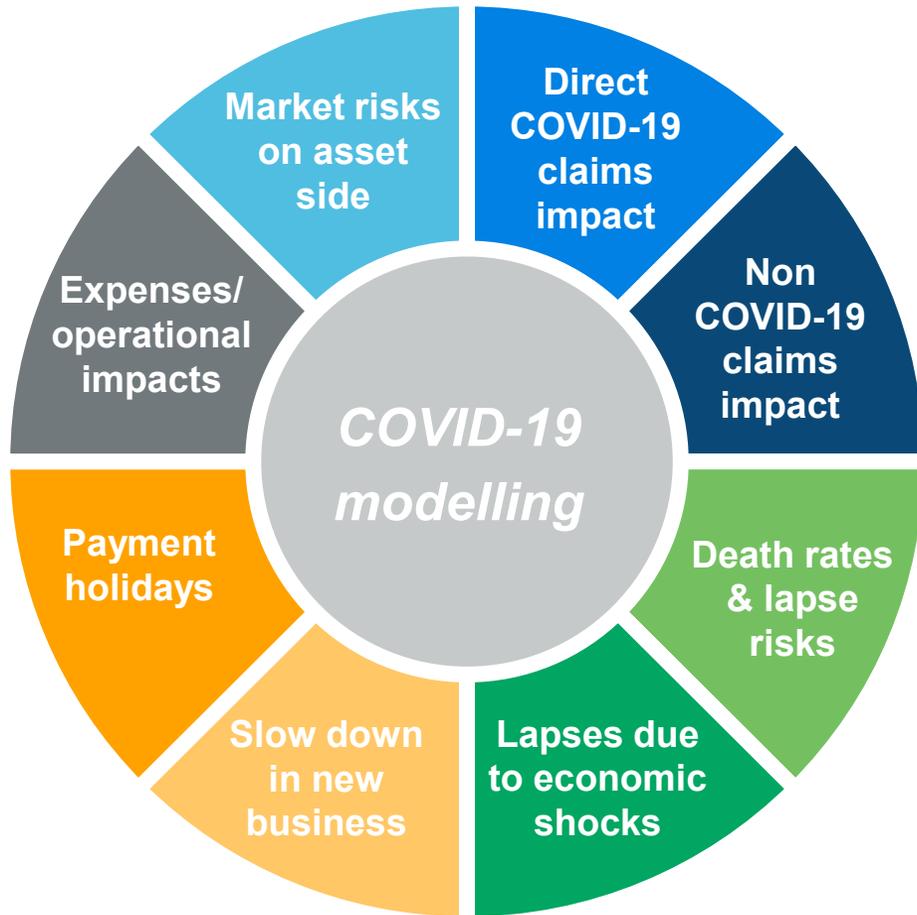
- Pent-up demand?
- Longer term impacts on health?
- Impacts for private hospitals?
- What to assume about the path of the virus?

DOCTORS

## Where Have All the Heart Attacks Gone?

Except for treating Covid-19, many hospitals seem to be eerily quiet.

# COVID-19 considerations for insurers



## Caveats

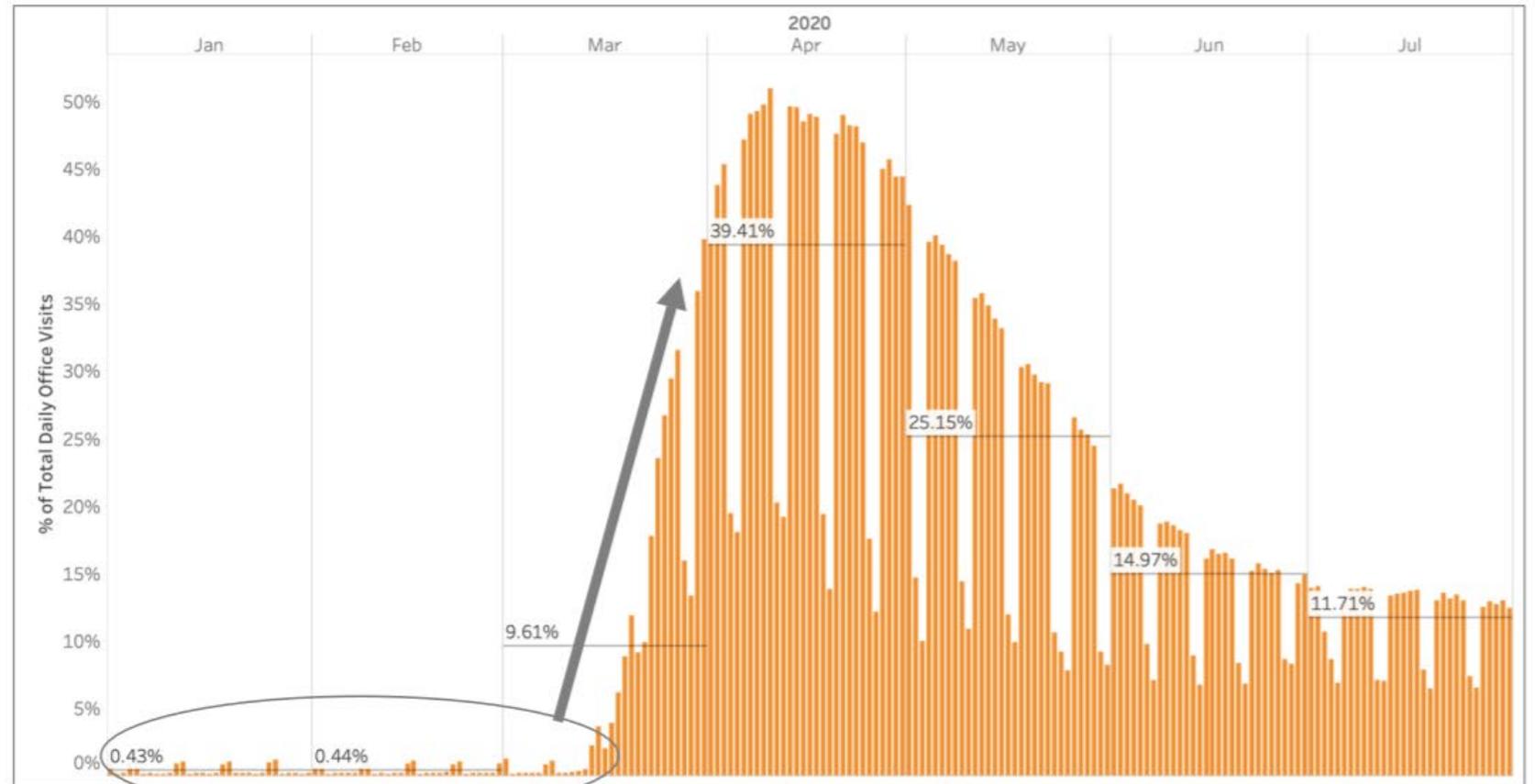
- Rapidly changing environment and huge uncertainty when you try to model the future
- Time horizon – need to consider 2020, 2021 and longer term
- International comparability challenging
  - Different health systems
  - Different COVID-19 incidence
  - Different governmental responses

# Indirect COVID-19 Impacts

Telehealth impact

## Office Visit Telehealth Utilization

- Telehealth soared and filled a void during the pandemic and was utilized for almost 50% of office visits at the peak
- However, telehealth office visits have come back down to 11% reflecting the hands-on nature of healthcare



Note: Data from January 1, 2019 to July 31, 2020



# For more information:

<https://ie.milliman.com/en-gb/coronavirus-covid-19>

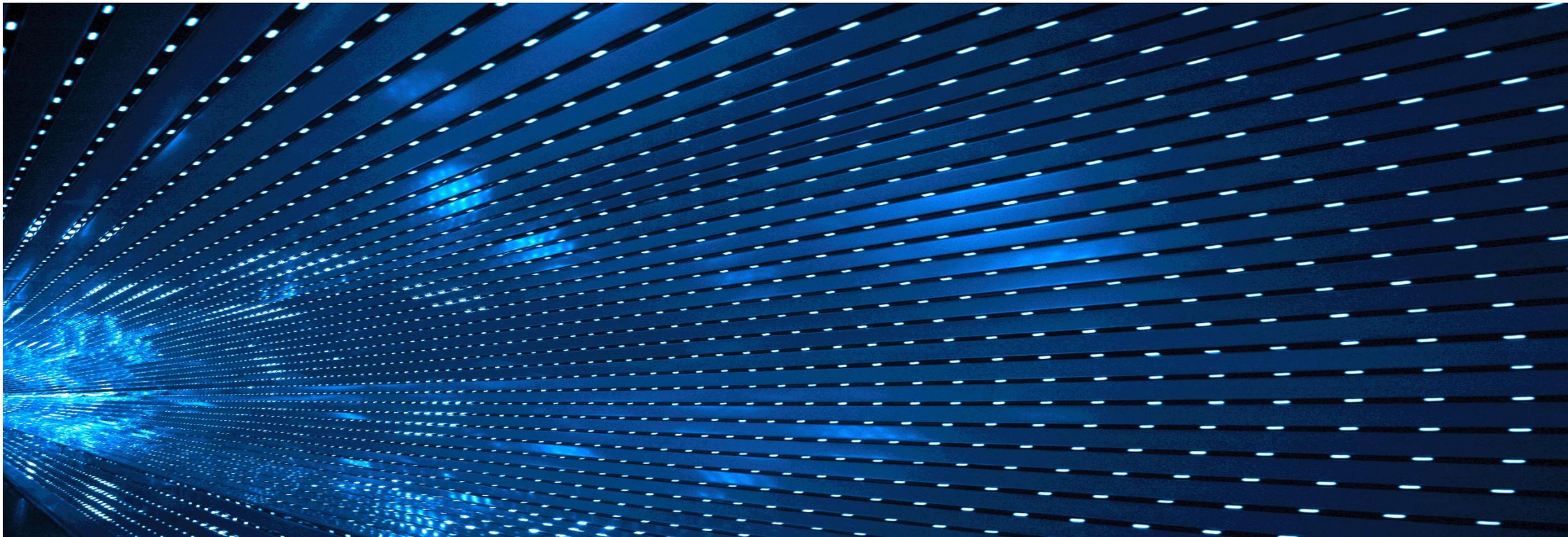
**Kevin Manning**

kevinv.manning@milliman.com

# Data Analytics in Healthcare

Joanne Buckle, Lalit Baveja, Alison Counihan

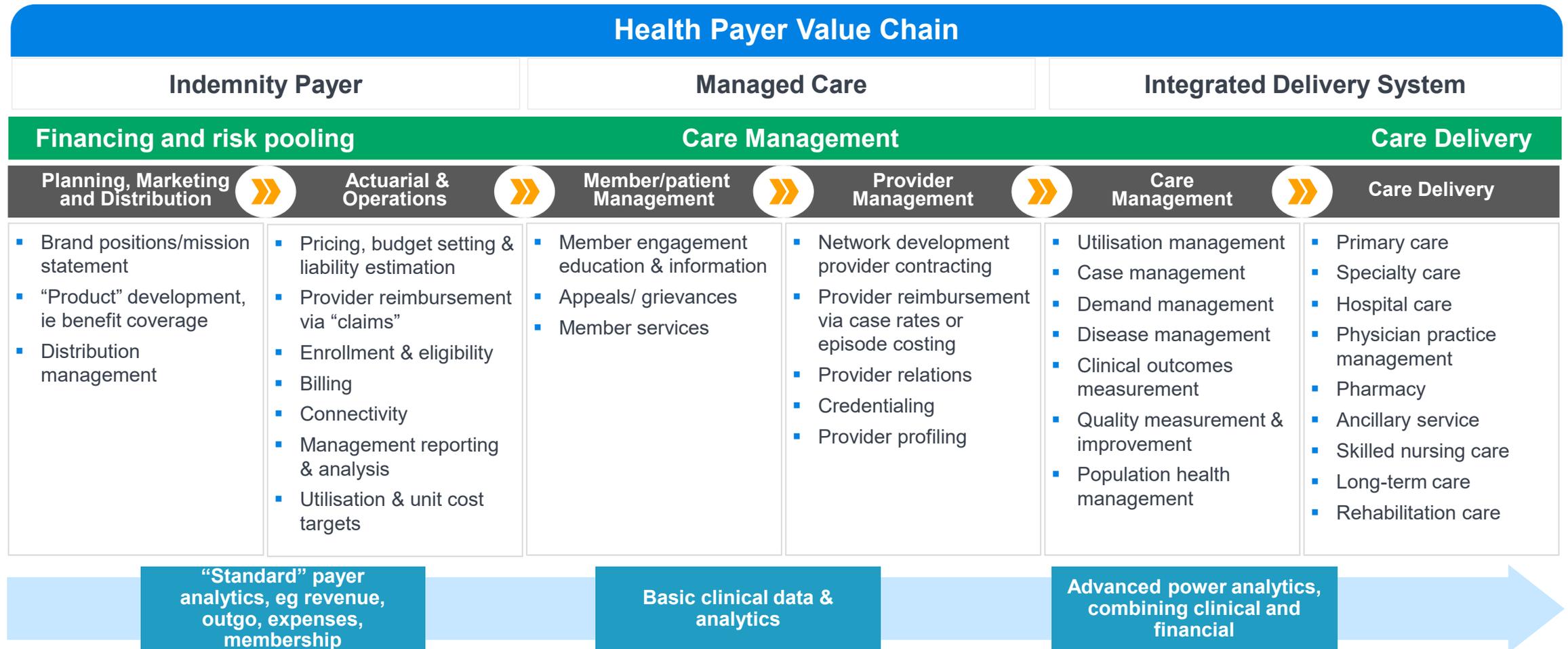
13 OCTOBER 2020



# Health Payer Value Chain

Joanne Buckle

# Health payer value chain & supporting analytical framework



# Understanding low value care: The IOM\* framework

Category	Sources	Estimate of Excess Costs	% of Waste in the US	% of Total in US	Analytics Case study
<b>Unnecessary Services</b>	<ul style="list-style-type: none"> <li>Overuse beyond evidence-established levels</li> <li>Discretionary use beyond benchmarks</li> <li>Unnecessary choice of higher-cost services</li> </ul>	\$210 billion	27%	9.15%	
<b>Inefficiently Delivered Services</b>	<ul style="list-style-type: none"> <li>Mistakes, errors, preventable complications</li> <li>Care fragmentation</li> <li>Unnecessary use of higher-cost providers</li> <li>Operational inefficiencies at care delivery sites</li> </ul>	\$130 billion	17%	5.66%	
<b>Excess Admin Costs</b>	<ul style="list-style-type: none"> <li>Payer paperwork costs beyond benchmarks</li> <li>Payers' administrative inefficiencies</li> <li>Inefficiencies due to care documentation requirements</li> </ul>	\$190 billion	25%	8.28%	
<b>Provider prices that are too high</b>	<ul style="list-style-type: none"> <li>Service prices beyond competitive benchmarks</li> <li>Product prices beyond competitive benchmarks</li> </ul>	\$105 billion	14%	4.58%	
<b>Missed Prevention Opportunities</b>	<ul style="list-style-type: none"> <li>Primary prevention</li> <li>Secondary prevention</li> <li>Tertiary prevention</li> </ul>	\$55 billion	7%	2.40%	
<b>Fraud</b>	<ul style="list-style-type: none"> <li>All sources – payers, clinicians, patients</li> </ul>	\$75 billion	10%	3.27%	
<b>Total</b>		<b>\$765 billion</b>		<b>33.33%</b>	

SOURCE: "Best Care at Lower Cost: The Path to Continuously Learning Health Care in America." Institute of Medicine (2013)

\*Now called the National Academy of Medicine.

# Data Analytics: Case Studies

Lalit Baveja

Alison Counihan

# Case study 1

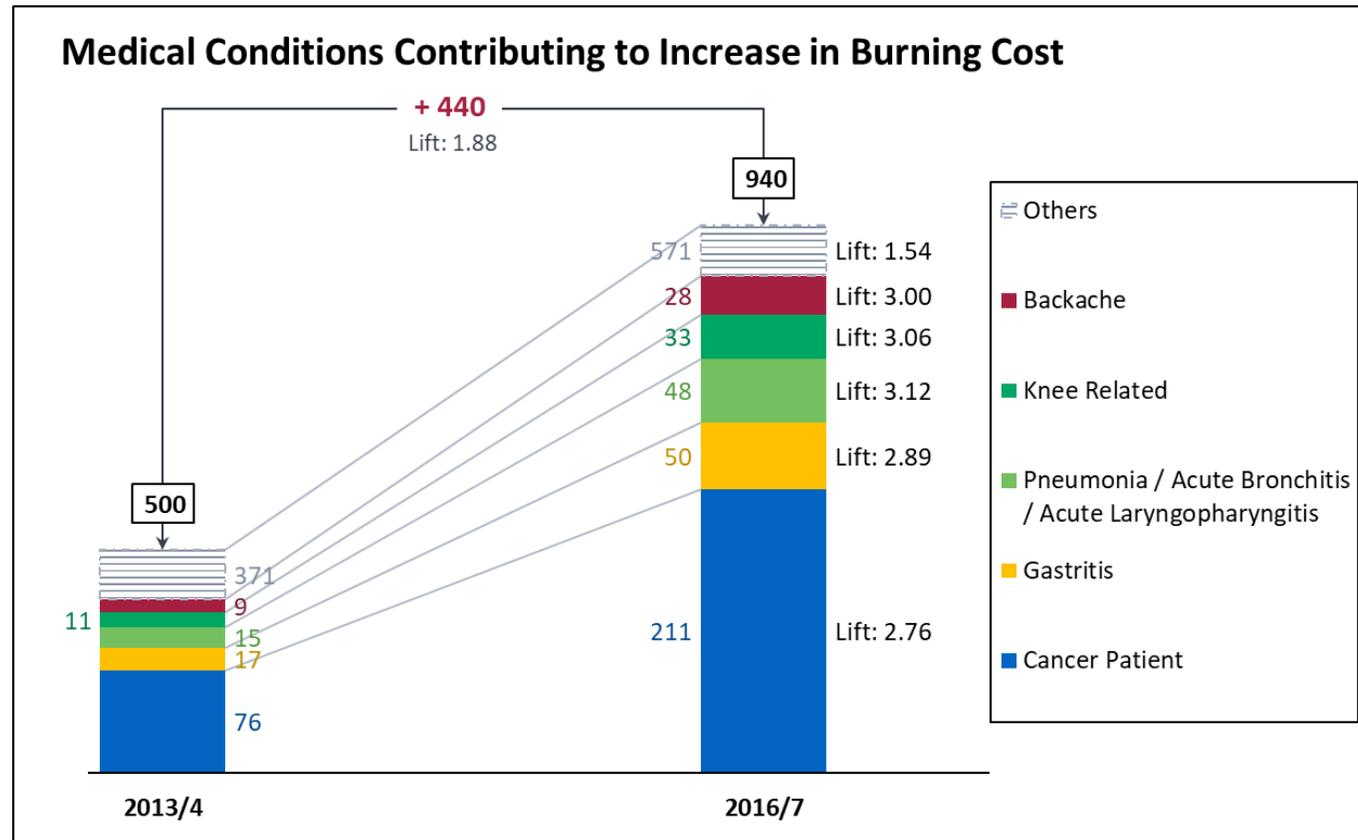
Insightful analysis with limited data information

# Identify ways to improve profitability

Situation	Challenge	Action
<p><b>Doubling of claim costs</b> in the last four years!</p> <p>What is driving this?</p> <p>Can this trend be slowed down?</p>	<p>Limited opportunity for ongoing <b>premium pricing increases</b></p> <p><b>Strong provider community</b> difficult to negotiate</p> <p><b>Limited digital data capture</b> or price/ cost information leading to manual processes</p> <p>Multiple <b>supply side changes</b> in private sector – growth in private sector providers</p>	<p>We performed an actuarial/clinical study focused on:</p> <p>Analytics using basic clinical and financial data sets:</p> <ul style="list-style-type: none"><li>• Diagnosis information (<b>ICD10 codes</b> for clinical grouping)</li><li>• Surgery / procedure information (<b>procedure codes</b> for intervention grouping)</li><li>• <b>Dates</b> of services</li><li>• Financial information</li></ul> <p>Review of <b>provider / physician practices</b> for those common conditions:</p> <ul style="list-style-type: none"><li>• <b>utilisation</b></li><li>• <b>interventions</b></li><li>• <b>efficiency</b></li></ul>



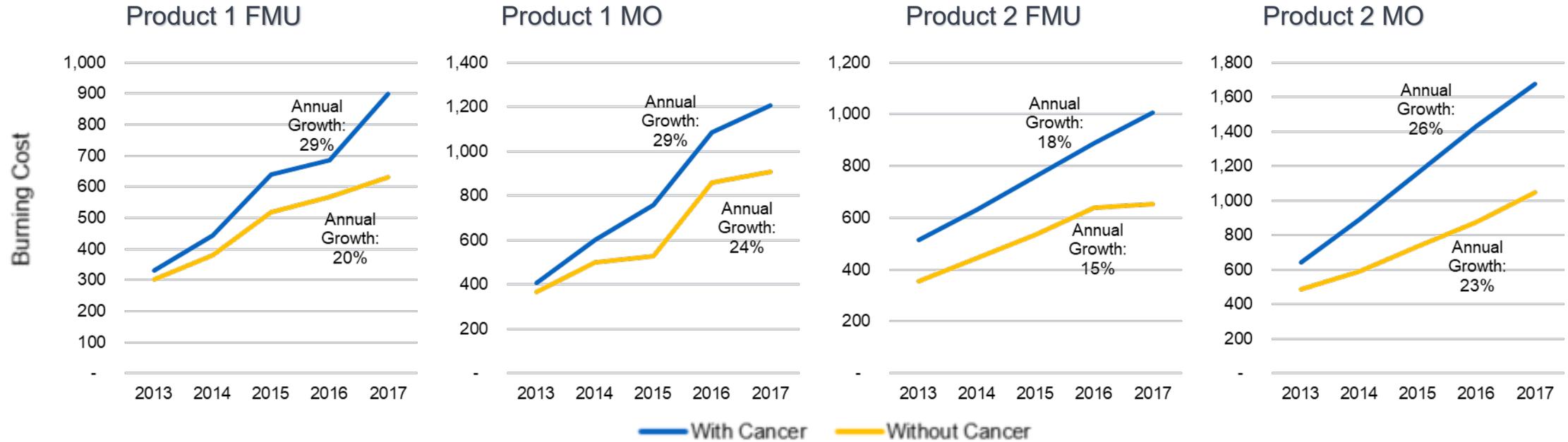
# Overview of medical conditions contribution to BC



- The overall **increase in BC** from 2013/14 to 2016/7 is around 26% p.a., i.e. approximately **1.88x increase** or BC Lift.
- A significant portion of this could be due to **increasing policy duration or age** / other population variables.
- We focussed on specific **medical conditions that have exhibited extraordinarily BC Lift**.

# Components of Trend

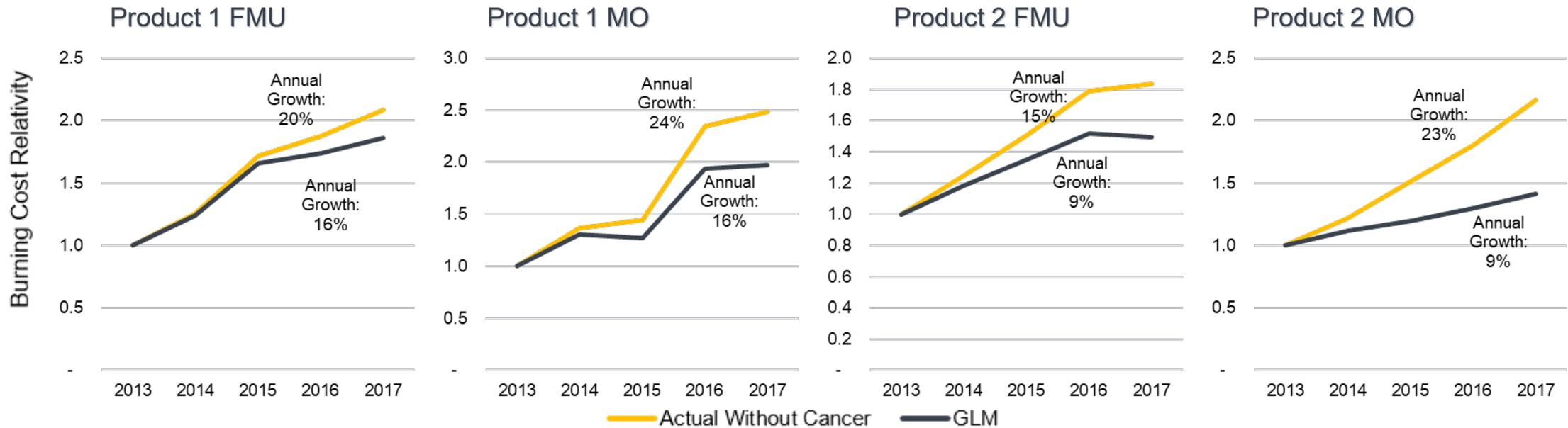
## Cancer



- Cancer is **significant driver of the high trend**, contributing 5%~9% points for Product 1 and 3% points for Product 2.

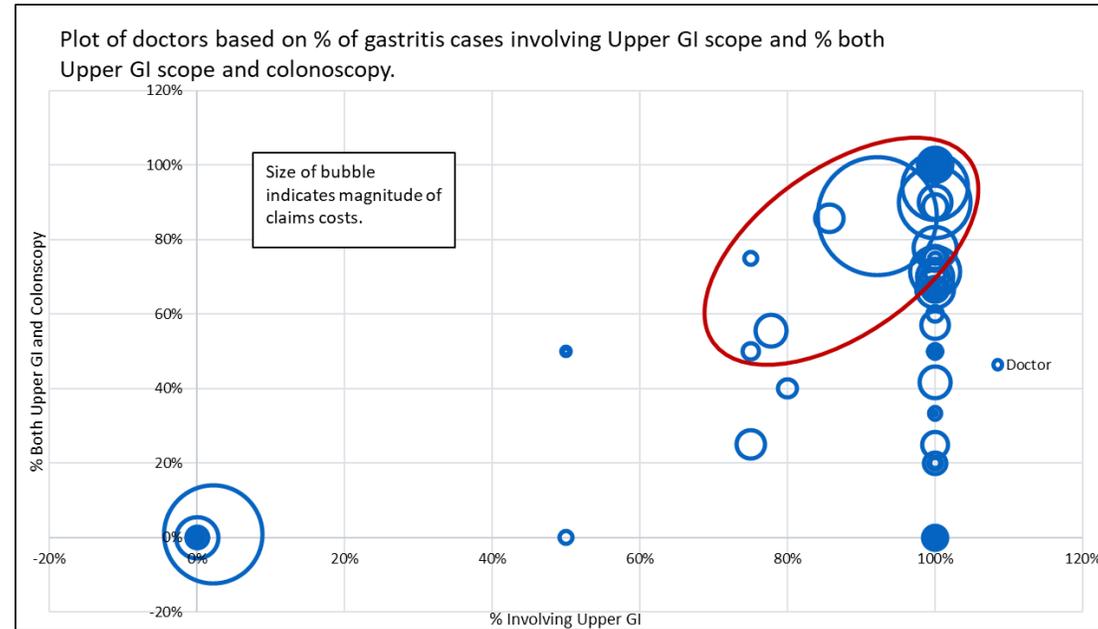
# Components of Trend

Calendar trend per GLM model after removing cancer claims and standardising for other factors



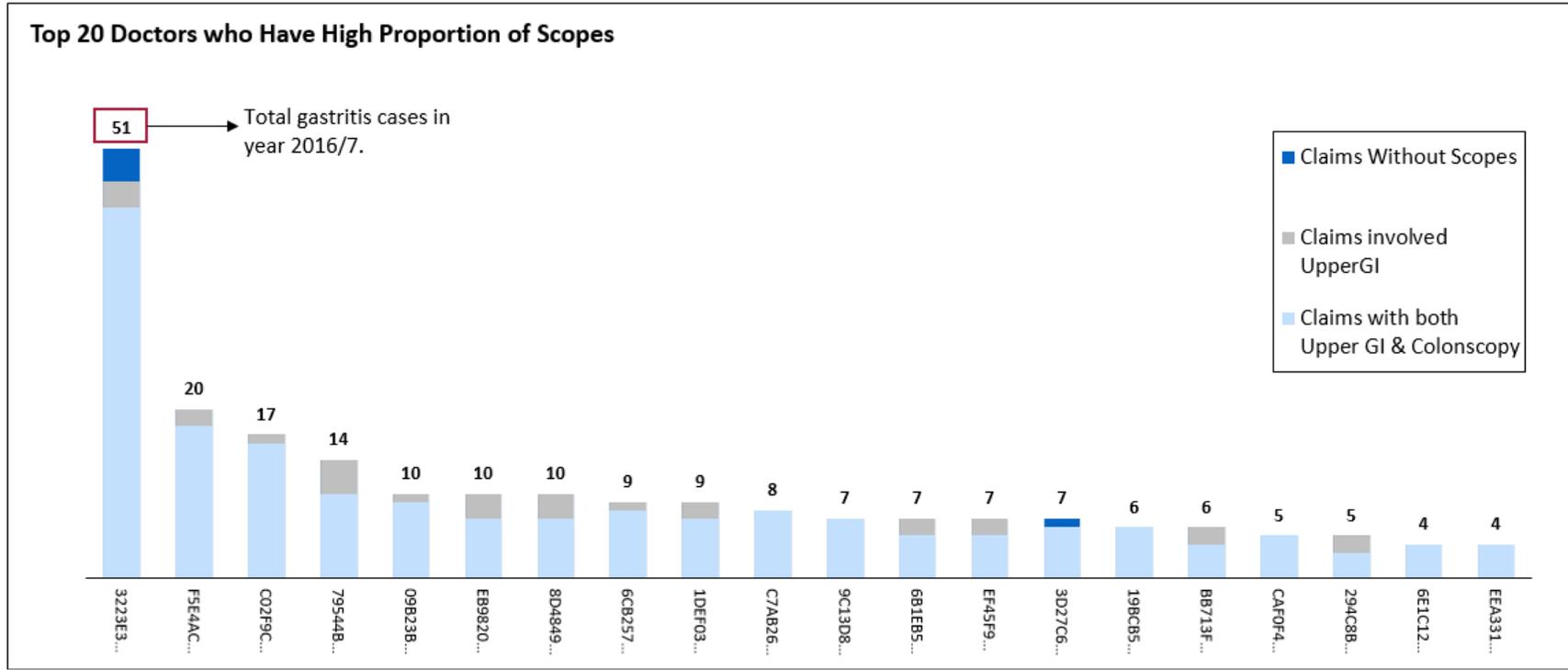
- GLM models used to **standardise the impact of age, gender, family size, nationality and policy duration**.
  - Product 1 is a new product launched in 2013; BC **increases with policy duration** and so increasing average policy duration of the portfolio has a significant impact.
  - Product 2 is a closed block portfolio and **the increasing age** of the policyholders has a significant impact. In particular, product 2 policyholders are older than for product 1, and BC increase with each year of increasing age is more significant at older ages.
  - MO policyholders are older than for FMU; the **age adjustment has a larger impact on the MO** products.

# Gastritis



- Gastritis cases currently **contributes 5% to overall burning cost** and the BC Lift is 3x.
- **56%** of gastritis cases involve an **upper GI gastroscopy**. And of these **70%** of gastroscopies are **accompanied by a colonoscopy**.
- Doctors can have quite **opposing practice patterns** in terms of whether they use Upper GI scopes as a default line of intervention, and whether they also perform a colonoscopy at the same time. Current practice of most doctors appear to be to utilise scopes.
- The doctors who perform **high volumes of both Upper GI scopes and colonoscopies practice at two specific hospitals**; both relatively **new hospitals**.

# Physician profiling for Endoscopies

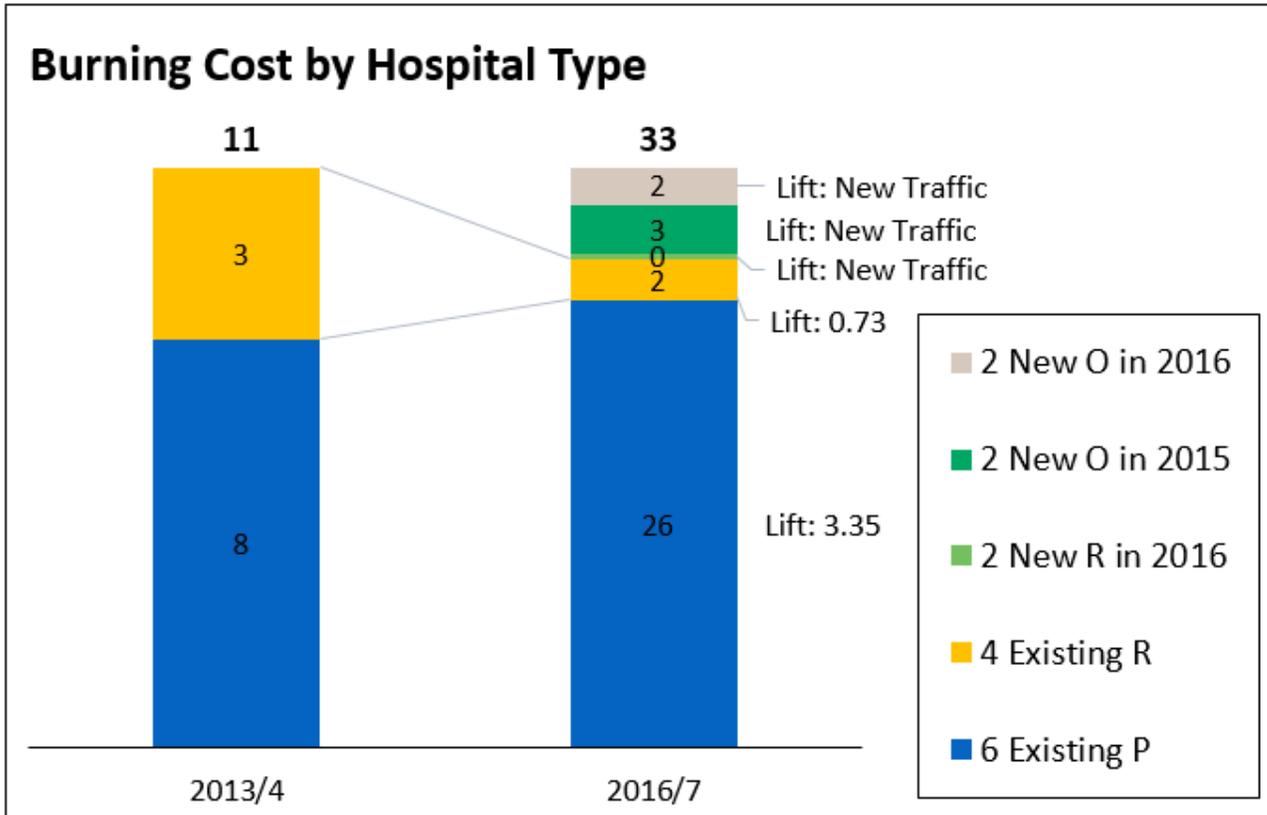


Hosp 1	34	14	13	0	0	1	1	0	5	0	0	0	0	0	0	3	0	0	0	0	71
Hosp 2	9	6	2	14	0	0	9	3	4	0	0	0	1	0	0	1	5	0	0	0	54
Hosp 3	0	0	0	0	0	0	0	0	0	3	0	7	6	7	6	1	0	0	4	3	37
Hosp 4	2	0	0	0	8	9	0	0	0	0	7	0	0	0	0	0	0	0	0	0	26
Hosp 5	0	0	0	0	2	0	0	6	0	0	0	0	0	0	0	0	0	5	0	0	13
	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3



# Knee Related

Increase in burning cost



P = Private Facility

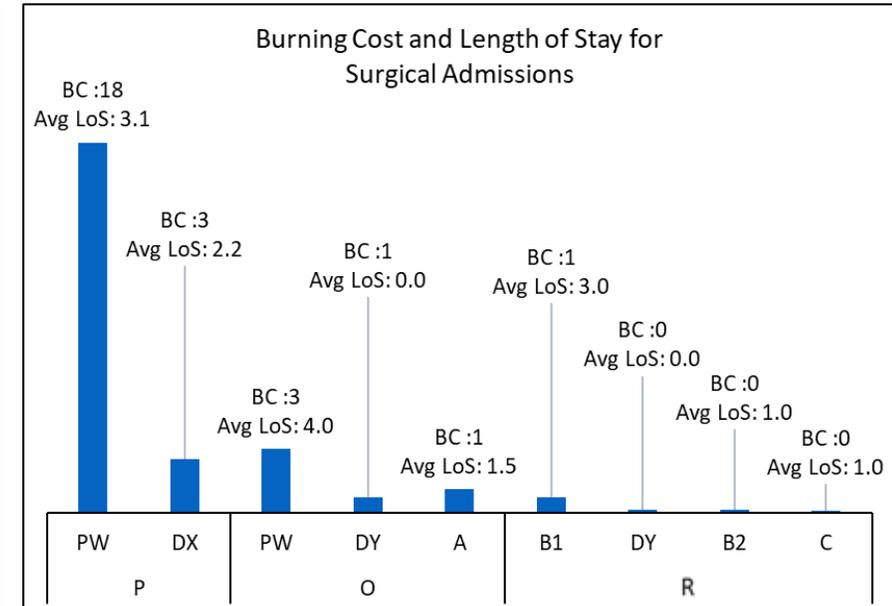
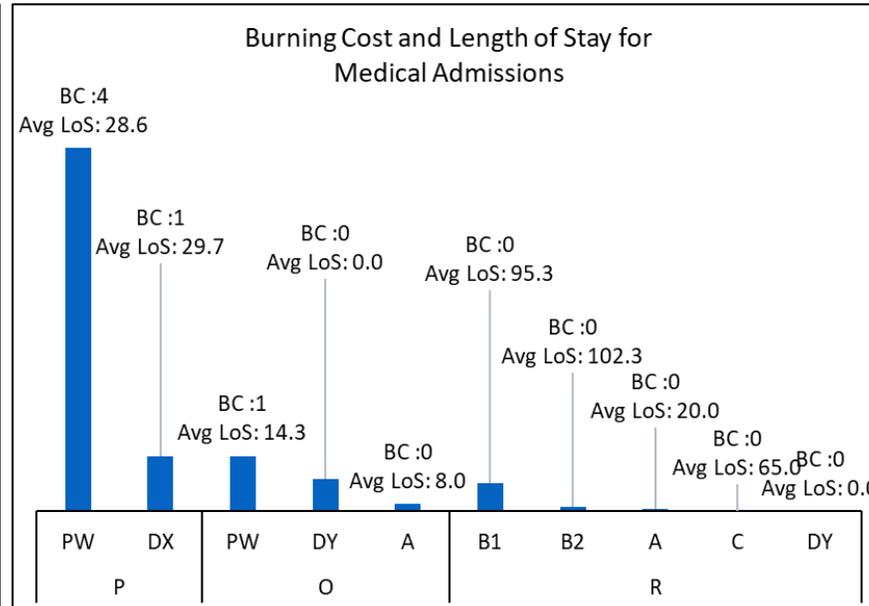
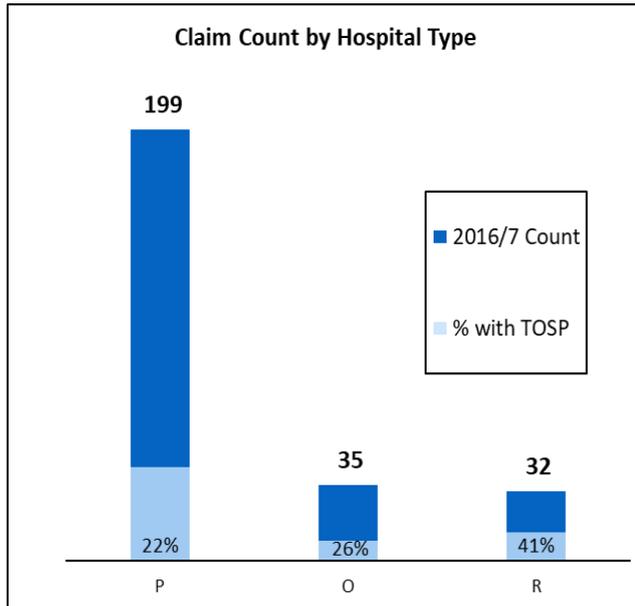
O = Other Private hospital (clinic/ day care centre)

R = Public Facility

- Currently contributes **4% to overall burning cost** and the BC has increased 3x over the last 4/5 years.
- Increased BC came from two sources:
  - Existing **private hospital** with **3.3 BC Lift**
  - Six **newly established providers**, contributing to 16% of 2016-2017 knee claims cost
  - There are a handful of **early claims each year** (claims occurring within the first policy year). 85% of these cases come from Moratorium policies (with Early Claims).
- Further analytics** warranted:
  - what extent they are they medically necessary
  - how is medically necessity defined.
  - How will this impact future BC trends.

# Knee Related

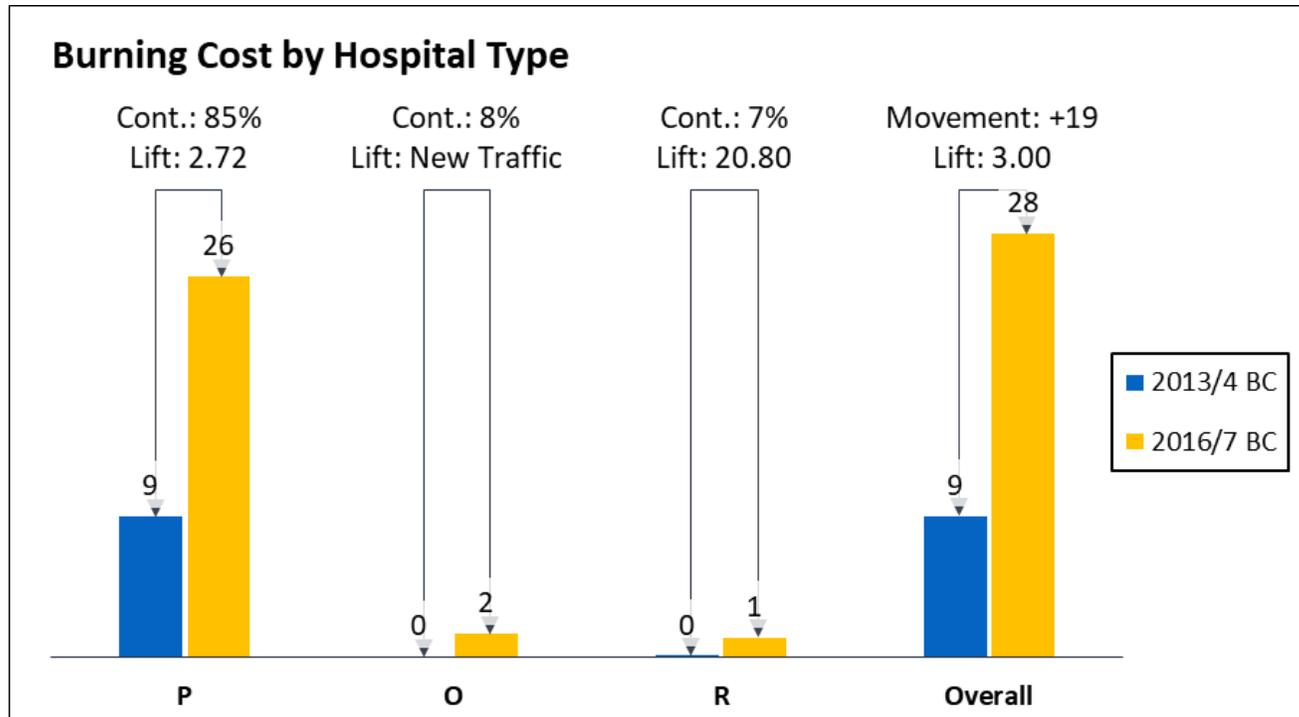
Possible savings from unnecessary admissions/excessive stay?



- Only 22%-25% of admissions at private facilities (P and O) involve a procedure. 40% of admissions at public hospitals involved a procedure.
- The lengths of stay involved are very long; it may be worth reviewing whether these stays are in acute hospital beds and whether it is an efficient use of acute hospital beds.
- There are a handful of doctors generating significant burning costs from knee related claims.

# Backache

Increase in burning cost



P = Private Facility

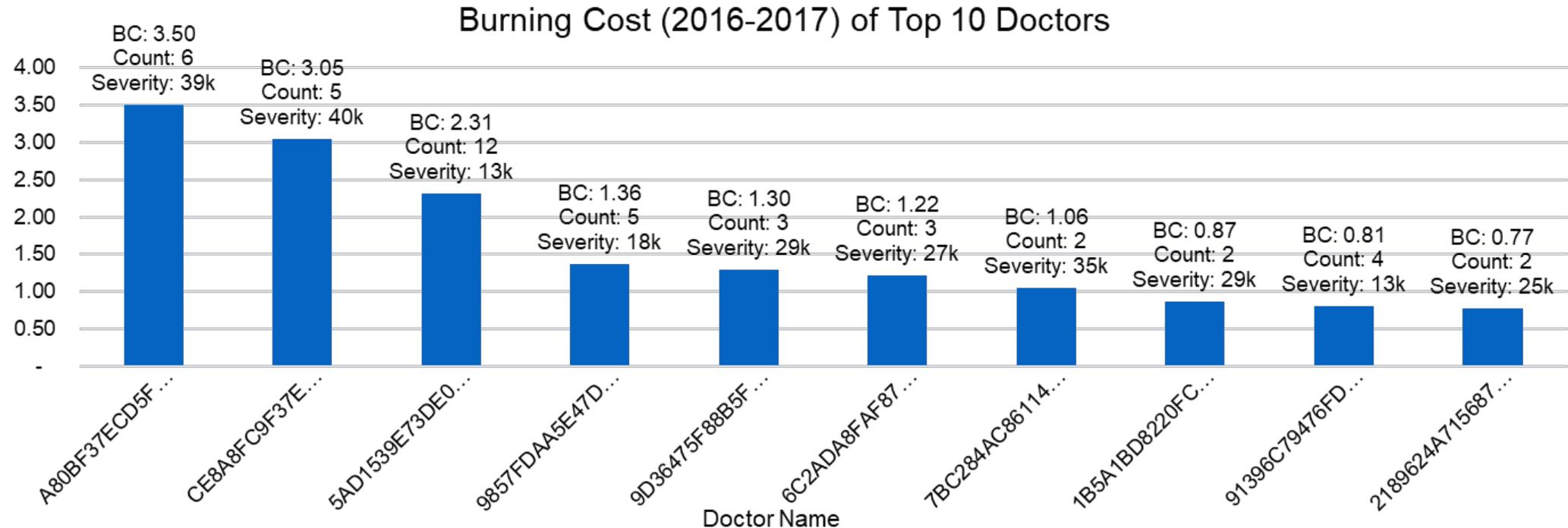
O = Other Private hospital (clinic/ day care centre)

R = Public Facility

- Currently contributes **3% to overall burning cost**, i.e. 3% of overall medical spending is directed to treating backaches.
- The BC has **increased 3x** over the last 4/5 years and can be expected to continue to increase rapidly with the aging of the policyholders and portfolio.
- **Private hospitals** are the major contributor to backache claims.
- There may be a problem with **early claims** (claims occurring within the first policy year). In 2017H1 alone, there were 22 cases, which we estimate contribute \$5 to the BC.

# Backache

## Doctors



- **Top five doctors contribute 40%** of the backache claims cost in 2016-2017, i.e. over 1% of overall claims.
- Average cost of backache claims from these doctors range from \$\$\$13,000 to 40,000.
- Burning cost lift going from 2013-2014 to 2016-2017 could be due to:
  - **New traffic** (from 9 doctors in 2013-2014 to 56 doctors in 2016-2017)
  - **Increase in number of backache claims** (from 15 claims in 2013-2014 to 272 claims in 2016-2017)

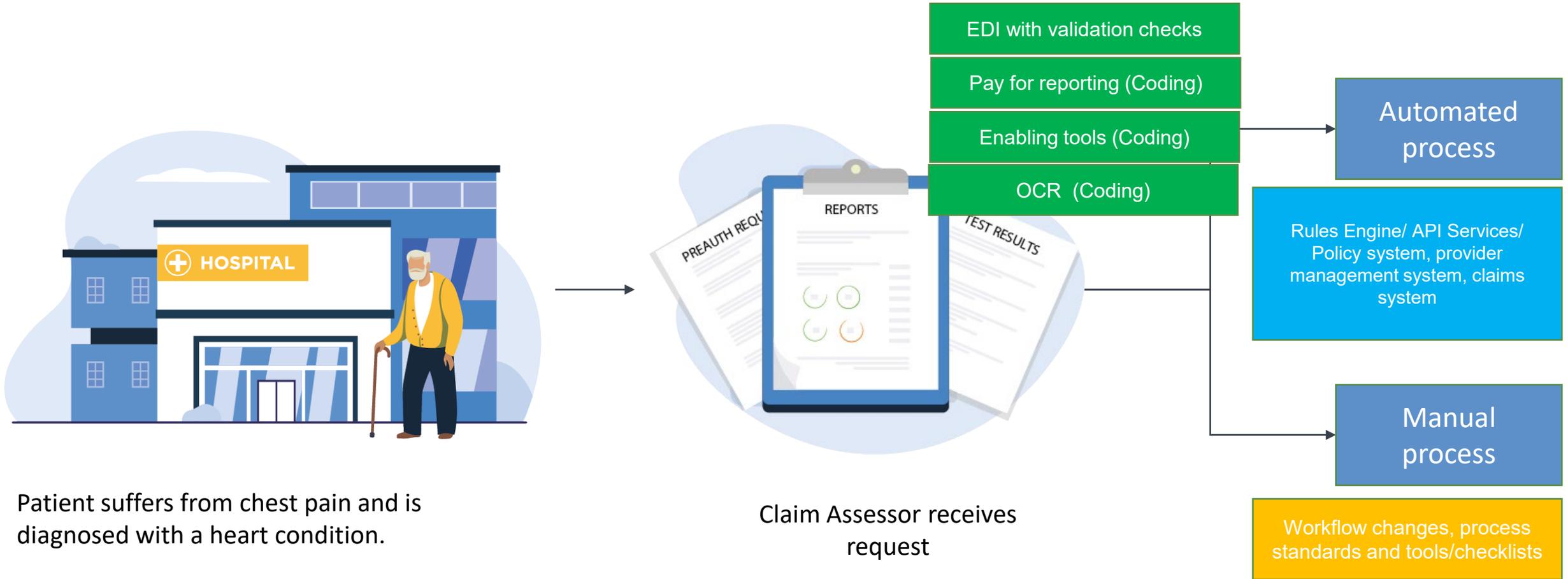
# Recommendations based on analysis

- Product design modifications to engage customer financially
- Standardise underwriting and ensure autochecks at Preauth/ claims
- Preauthorisation to steer patients to better providers
- Rigor at claims stage to identify suspect claims and monitoring
- Improve data capture, setup monitoring reports and trigger for checks
- Focussed investigations for specific conditions, providers and physicians
- Provider profiling with naming/shaming; incentives; monitoring deterrents
- Network management with medical policy in contracts

# Case study 2

A journey towards automated claims adjudication

# Claims Processing with Enablers in workflow



Patient suffers from chest pain and is diagnosed with a heart condition.

Hospital billing department sends Authorization request to Claim dept.

Claim Assessor receives request

# Automated Claims processing (1)

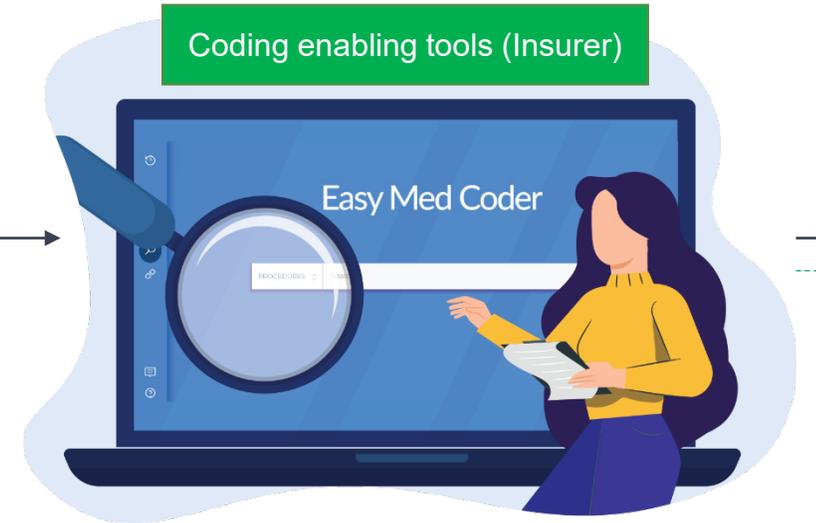


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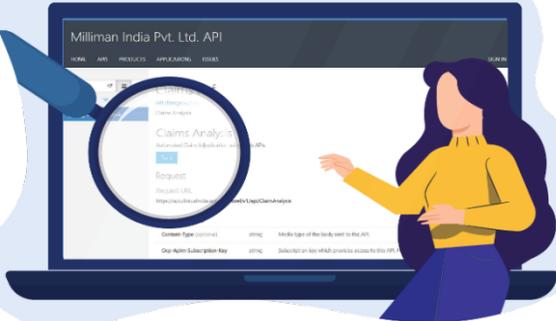


Coding tool enables quick diagnostic/procedure coding

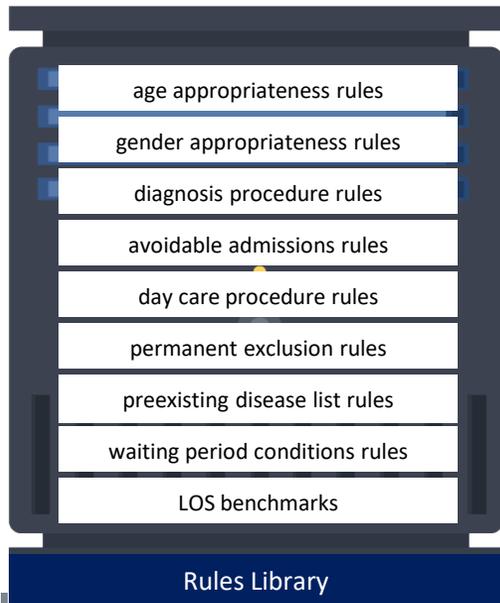
Data points captured	
Member age	
Member gender	
Product/ plan ID	
policy inception date	
diagnosis code	Ischemic heart disease = I25
procedure code	Angioplasty with stent = 027034Z

# Automated Claims processing (2)

## Auto adjudication Rules/ API Services



Claim Assessor sends API to Rules Engine on cloud, other checks from UW or provider info



Clinical, underwriting, contractual, utilization and financial rules/ edits

age appropriateness rules	PASS
waiting period conditions rules	PASS
diagnosis procedure rules	PASS
permanent exclusion rules	PASS



Auto pass

age appropriateness rules	PASS
waiting period conditions rules	PASS
diagnosis procedure rules	FAIL
permanent exclusion rules	PASS



Refer for manual intervention (clinical)

age appropriateness rules	PASS
waiting period conditions rules	PASS
diagnosis procedure rules	PASS
permanent exclusion rules	FAIL



Refer for manual intervention (non-clinical)

# Minimum Data requirements for autochecks

For inpatient hospitalisation claims adjudication.

- Member details:
  - Unique ID
  - age
  - gender
- Policy details:
  - product ID
  - inception date
- Clinical details:
  - Date of services
  - diagnosis
  - Procedure
- Provider details:
  - Provider ID
- Billed amounts

Rule type	Fields required
Plan exclusions	Plan name
	Diagnosis (ICD9 or 10)
	Procedure (CPT, ICD9PCS or ICD10PCS)
Plan waiting periods	Policy inception date
	Date of admission
	Plan name
	Diagnosis (ICD9 or 10)
Personal medical exclusions	Procedure (CPT, ICD9PCS or ICD10PCS)
	Member ID
	Claims Diagnosis
Pre-existing conditions	Personal medical exclusions codes
	Plan name
Gender appropriateness of diagnosis	Diagnosis (ICD9 or 10)
	Gender
Age appropriateness of diagnosis	D/O/B or Age
	Diagnosis(ICD9 or 10)
Is the treatment claimed appropriate for the claimed diagnosis?	Diagnosis (ICD9 or 10)
	Procedure (CPT, ICD9PCS or ICD10PCS)
Is hospital admission appropriate and is the length of admission appropriate?	Diagnosis (ICD9 or 10)
	Procedure (CPT, ICD9PCS or ICD10PCS)
	Date of Admission
Is the cost of treatment within reasonable and customary guidelines?	Date of Discharge
	Billed amount, diagnosis, procedure codes
Identify duplicate claims	Member ID, Date of admission, date of discharge, Diagnosis, procedure, billed amount, provider ID

# Overall summary of analysis

- In most payer systems, Inconsistencies in claims adjudication due to people training, experience and expertise
- Productivity pressures does challenge rigor in processing – leakage for many contractual and personal exclusions
- Relevance and opportunities of data quality not very apparent, often compliance due to regulatory requirement rather than business value
- Data focus approach can provide significant process efficiencies, effective provider and portfolio monitoring with a clinical and a wider business focus

Overall Summary of results						
Claims Profile	Count of claims	% Total claims	Sum of Paid Amount	% Total paid amount	Average of los	Average claims cost
<b>Total claim lines</b>	<b>29,669</b>	<b>100.00%</b>	<b>\$258,397,619</b>	<b>100%</b>	<b>2.4</b>	<b>\$8,709</b>
Age diagnosis conflict	2	0.0%	\$5,733	1.7%	1.3	\$2,866
Gender Diagnosis conflict	1	0.0%	\$4,879	0.0%	7.0	\$4,879
Avoidable admission conflict	155	0.5%	\$801,806	0.3%	2.5	\$5,173
Diagnosis LOS Conflict	951	3.2%	\$10,907,006	4.2%	7.8	\$11,469
Procedure LOS Conflict	843	2.8%	\$17,881,696	6.9%	5.0	\$21,212
Permanent exclusions conflict	399	1.3%	\$1,689,337	0.7%		\$4,234
Pre existing disease conflict	1,360	4.6%	\$10,800,233	4.2%		\$7,941

# Case study 3

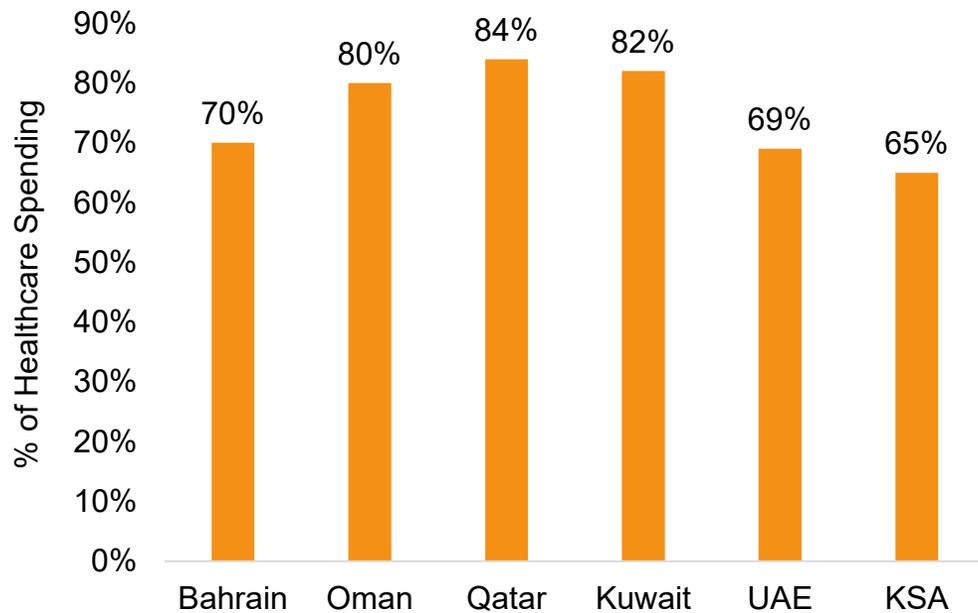
Journey to value-based payment mechanisms

From DRG to Pay for performance adjustors

- Provider quality management and ranking system
- Provider cost and specialty differentials
- Policy direction and priorities

# The Middle East context

Government Share of Healthcare Spending (2014)



Source: 2014 BMI data on GCC government health spending

## Universal Health Coverage:

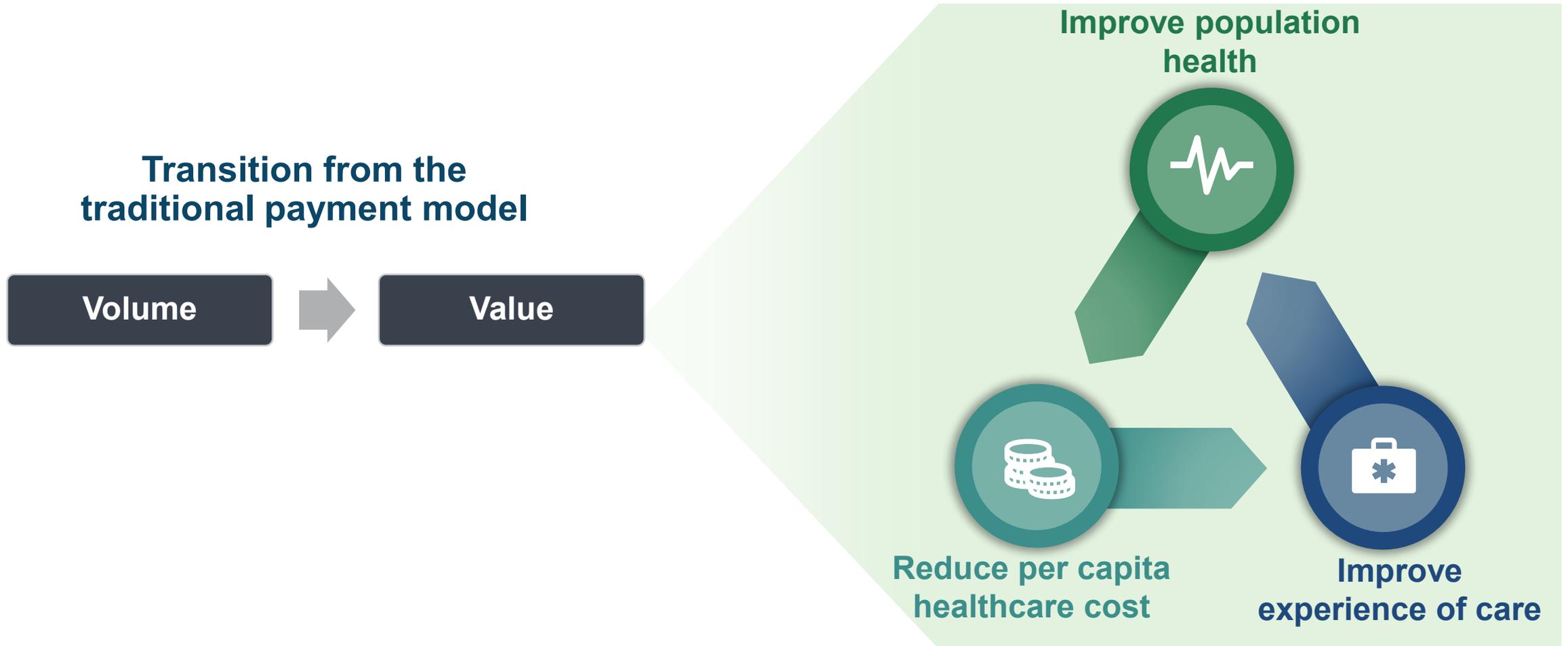
- Governments cover the cost of healthcare for citizens in full, currently depending on oil revenues to fund benefits
- Healthcare for expats is generally through Private Health insurance - may or may not be mandatory

## Falling oil revenue combined with high healthcare cost inflation:

- Governments are looking to control healthcare expenditure and improve efficiency of services

**DRG reimbursement mechanisms are at various stages of consideration/implementation across most GCC countries**

# Health system transformation to achieve value-based healthcare



# Requirements for a value-based healthcare system

**1** 

**Data and coding standards**

**Saudi Arabia**

**2** 

**Quality data available for analysis**

**3** 

**Value-based reimbursement mechanism**

**Dubai; Qatar**

**4** 

**Quality monitoring framework**

**5** 

**Provider profiling system**

**6** 

**Payment mechanism linked to provider profile and quality outcomes**

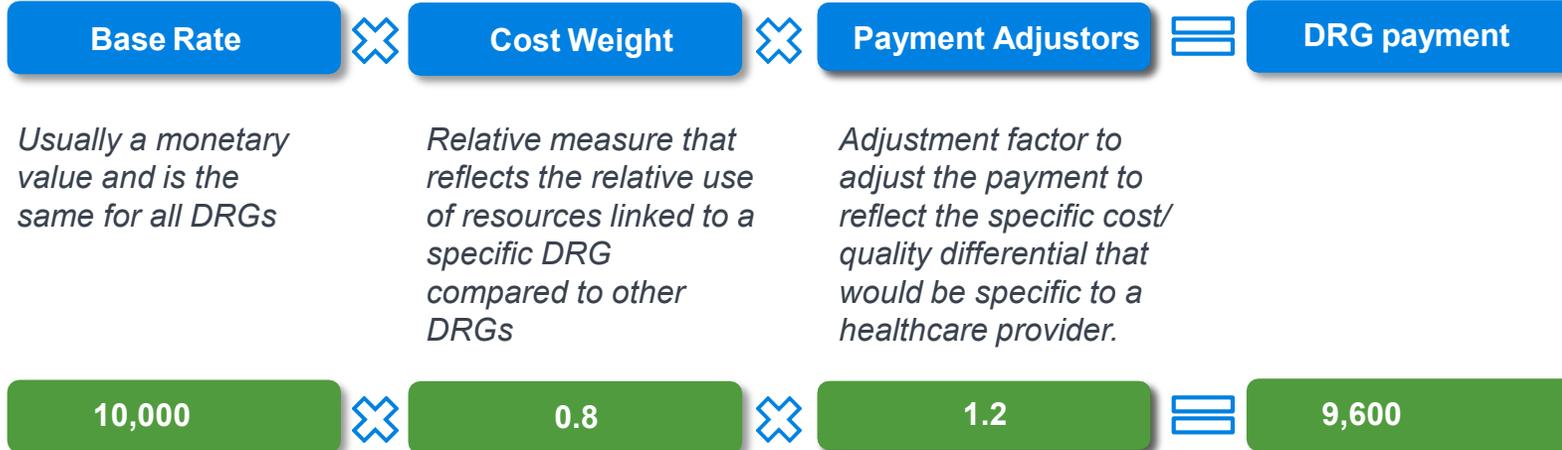
**Abu Dhabi**

# Payment Adjustors

A DRG based payment system allows for adjustors to introduce payment differentials

## Payment calculations

## Example for illustration



For reference only - Illustrative

AR-DRG	AR-DRG Description	Relative Weights
B01Z	VENTRICULAR SHUNT REV	7.01
B02A	CRANIAL PROCEDURES, MAJC	2.19
B02B	CRANIAL PROCEDURES, INTC	1.04
B02C	CRANIAL PROCEDURES, MINC	0.75
B03A	SPINAL PROCEDURES, MAJC	8.82
B03B	SPINAL PROCEDURES, INTC	4.23
B03C	SPINAL PROCEDURES, MINC	2.63
B05Z	CARPAL TUNNEL RELEASE	0.58
B07A	CRANL/PRPHL NERV&OTH PR, MAJC	3.37

Payment adjustors can be applied in several different ways

Multiplier to the DRG price

Addition to the base rate

Lump sum reimbursement independent of the DRG

# Possible reasons for applying adjustors to prices

Adjustors allow for payment differentials based on cost differentials of patients and providers or to support policy objectives

## Possible adjustors based on features of the patient:

- Paediatric patient adjustors
- Indigent population adjustor

## Possible adjustors based on features of the provider:

- Size of the facility
- Geographical location
  - By region
  - Rural vs urban
  - Remote locations
- Undersupplied services
- Critical infrastructure
- Medical education
- Level of accreditation
- Type of facility:
  - Day clinic, single specialty hospital, multi-specialty hospital

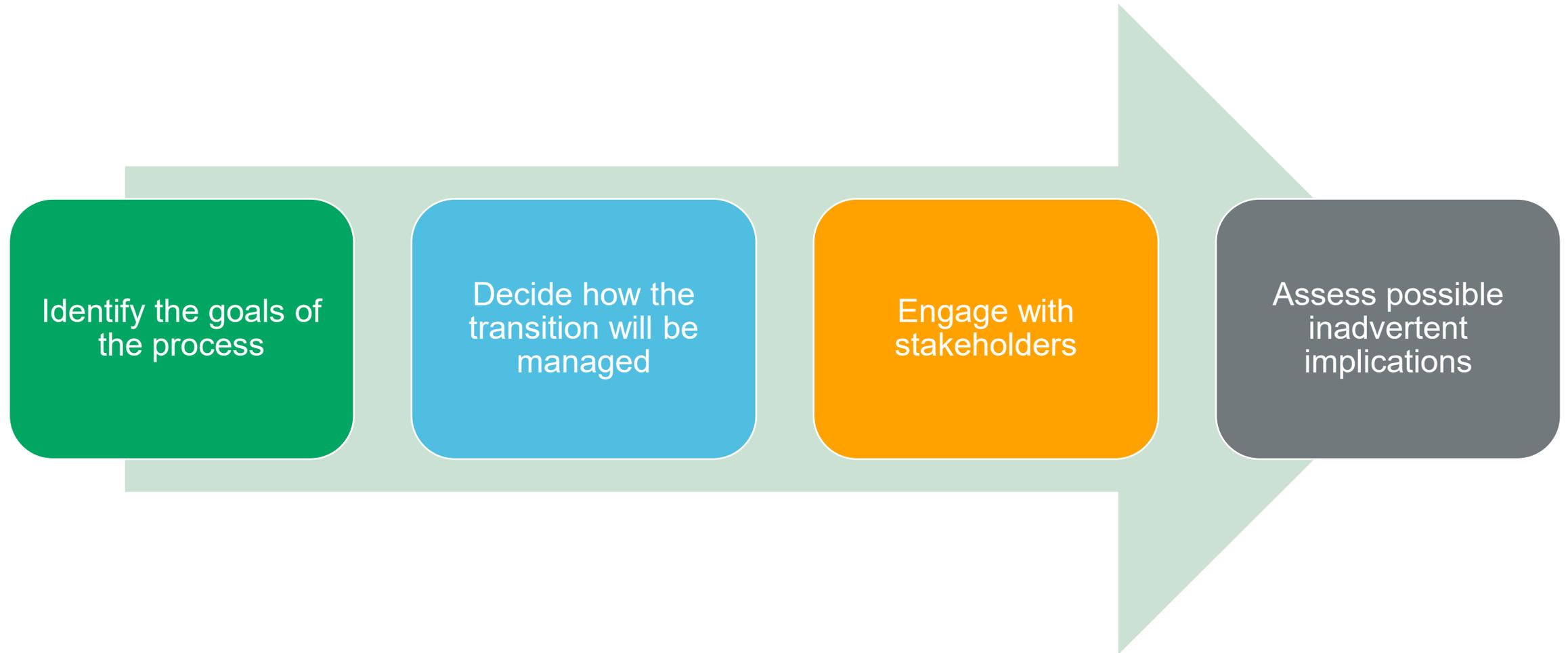
## Adjustors used as incentives or penalties

- Quality metrics
  - Clinical outcomes
  - Patient safety
  - Patient experience
  - Efficiency and cost reduction
- Penalties for adverse experience
  - Unplanned readmissions
  - Hospital acquired complications
- Electronic health records

Changes in reimbursement to drive changes in behaviour

Changes in reimbursement to reflect cost differentials

# Implementation considerations





# For more information:

<https://ie.milliman.com/en-GB/insight/six-challenges-to-successful-adoption-of-value-based-care-in-the-middle-east>

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# Q&A session