Session 17 PD, Two Systems, One Goal – U.S. and UK Approaches to Healthcare Quality Improvement and Cost Containment

Presenters:
David Dobberfuhl, FSA, MAAA
Lindsay Marie Kotecki, FSA, MAAA
Chris Pallot
Two systems, one goal
US and UK approaches
to healthcare quality improvement and cost containment

Lindsay Kotecki, FSA MAAA
David Dobberfuhl, FSA, MAAA
Chris Pallot, MSc, BA (Hons), Dip HSM, Dip M
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Two systems, one goal

Agenda

- History and overview of the US healthcare system
- US challenges and initiatives
- History and overview of the UK healthcare system
- UK challenges and initiatives
- Comparison of US and UK systems
- What can we learn from each other?
- What can actuaries do to help?
“Nobody knew that healthcare could be so complicated.”

—Donald Trump, February 27, 2017
History of healthcare in the US

1930s
Big push for national health reform not successful. Major breakthrough in private voluntary insurance with Blue Cross, and later Blue Shield plans.

1940s-1960s
Wage freezes during the war led to the growth of employer health insurance. Enactment of Medicare and Medicaid.

1970s-1990s
Rapidly rising healthcare inflation leads to the expansion of managed care. Then the managed care backlash.

2010
The Patient Protection and Affordable Care Act passed. Initial changes implemented.

2016-2017
New President Donald Trump promises to repeal and replace the ACA.

1990s
Rapidly rising healthcare inflation leads to the expansion of managed care. Then the managed care backlash.

Early 2000s

2014
Many of the ACA’s main provisions implemented. New Healthcare Exchanges go live.
### United States healthcare system overview

<table>
<thead>
<tr>
<th>Public (government)</th>
<th>Private (commercial)</th>
<th>Public and private</th>
<th>Uninsureds</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Medicare</td>
<td>• Employer group</td>
<td>• Medicare Advantage</td>
<td>• Insurance is unaffordable</td>
</tr>
<tr>
<td>• Medicaid</td>
<td>• Individual</td>
<td>• Managed Medicaid</td>
<td>• Insurance is not accessible</td>
</tr>
<tr>
<td>• Military</td>
<td></td>
<td>• Private market subsidies</td>
<td>• Insurance is not perceived to be needed.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>• CHIP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Correctional populations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Indian health service</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Uninsureds**

- Insurance is unaffordable
- Insurance is not accessible
- Insurance is not perceived to be needed.

- Medicare: $646,243
- Medicaid: $545,132
- CHIP: $14,620
- Commercial: $1,072,056
- Out of Pocket: $338,150
- Other: $247,244
- Research and Investment: $154,732
- Public Health Activity: $80,926
- Department of Defense: $41,786
- Department of Veterans Affairs: $64,688

*Dollars in millions*
US healthcare challenges
US healthcare challenges

- Significant healthcare costs
- Rise in the prevalence of chronic conditions and other curable diseases
- Misaligned incentives
- Cost/benefit of new medical technology and treatments (e.g., prescription drugs)
- Overutilization of services (discretionary services)
- Lack of transparency
- Growing number of elderly people
- Politics
- Constant change leading to instability and predictability problems
- Fraud and abuse
US healthcare challenges
Significant and rising healthcare costs

Annual healthcare expenditures per capita\(^1\)


\(\$0\) \(\$146\) \(\$4,857\) \(\$6,855\) \(\$8,404\) \(\$9,990\)

\(13.3\%\) GDP \(5.0\%\) GDP \(15.5\%\) GDP \(17.4\%\) GDP \(17.8\%\) GDP \(17.4\%\) GDP

US healthcare challenges

Significant and rising healthcare costs

Exhibit 1. Health Care Spending as a Percentage of GDP, 1980–2013

Exhibit 2. Health Care Spending, 2013

Citation: D. Squires and C. Anderson, U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries, The Commonwealth Fund, October 2015.
US healthcare challenges
Affordability

- Healthcare insurance in the United States is mandatory, but voluntary
- 1 out of every 10 people were uninsured in 2015 (28.5 million people)*
- 46% of uninsured adults say that the cost of coverage is prohibitive
- 20% of uninsured adults say that they went without needed medical care due to cost.

US healthcare challenges

Incentives

- Fee for service reimbursement provides incentives for overutilization
- A significant portion of healthcare in the US is a for-profit business
- Healthcare is personal – no limit to the amount spent on improving a patient’s health.
“If we relied on the current medical market to deal with polio, we would never have a polio vaccine. Instead we would have iron lungs in seven colors with iPhone apps”

—Dr. Elizabeth Rosenthal, on her book An American Sickness: How healthcare became big business and how you can take it back.
US healthcare challenges
Government funding

- The 2015 Medicare Trustee estimate is that the Medicare’s Hospital Insurance (HI) trust fund will be exhausted by 2030.
- Payment rates for Medicare and Medicaid are often lower than the commercial market for the same service.
- Many providers limit the number of Medicaid patients they will accept in order to balance their panel across coverage sources.
- Politically charged issue
# US healthcare challenges

## Government funding

Percent of non-pediatric primary care physicians accepting new/current patients, by insurance type, 2015

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Accepts new patients with given insurance type</th>
<th>Accepts given insurance type, but not currently taking new patients with that insurance type</th>
<th>Does not accept patients with given insurance type</th>
<th>Not applicable, No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare</td>
<td>72%</td>
<td>21%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Private Insurance</td>
<td>80%*</td>
<td>14%*</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Medicaid</td>
<td>45%*</td>
<td>22%</td>
<td>32%*</td>
<td></td>
</tr>
</tbody>
</table>

**Medicare acceptance:** 93%

**Private insurance acceptance:** 94%

**Medicaid acceptance:** 67**%

NOTE: Analysis excludes pediatricians. (+) The overall percent of primary care physicians accepting Medicaid increases to 71% when pediatricians are included in analysis. (*) indicates statistically significant difference at the 95% confidence level from Medicare. Percentages may not sum to 100 due to rounding.

SOURCE: The Kaiser Family Foundation/ Commonwealth Fund 2015 National Survey of Primary Care Providers
US healthcare challenges

Transparency

- The cost of a health care service varies widely depending on a variety of factors, including:
  - Patient source of insurance coverage
  - Place of service
  - Provider billed charges
  - Payer/provider contracts
  - Member cost sharing provisions

- Healthcare costs aren’t always well aligned with the true cost to the provider of performing a service OR the clinical value of that service to the patient.
If you could price shop healthcare, would you choose the cheapest option?
“Price is what you pay. Value is what you get.”

—Warren Buffet
## US healthcare challenges  
Population health outcomes

### Exhibit 9. Select Population Health Outcomes and Risk Factors

<table>
<thead>
<tr>
<th>Country</th>
<th>Life exp. at birth, 2013&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Infant mortality, per 1,000 live births, 2013&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Percent of pop. age 65+ with two or more chronic conditions, 2014&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Obesity rate (BMI $\geq 30$), 2013&lt;sup&gt;ac&lt;/sup&gt;</th>
<th>Percent of pop. age 15+ who are daily smokers, 2013&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Percent of pop. age 65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>82.2</td>
<td>3.6</td>
<td>54</td>
<td>28.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12.8</td>
<td>14.4</td>
</tr>
<tr>
<td>Canada</td>
<td>81.5&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>56</td>
<td>25.8</td>
<td>14.9</td>
<td>15.2</td>
</tr>
<tr>
<td>Denmark</td>
<td>80.4</td>
<td>3.5</td>
<td>--</td>
<td>14.2</td>
<td>17.0</td>
<td>17.8</td>
</tr>
<tr>
<td>France</td>
<td>82.3</td>
<td>3.6</td>
<td>43</td>
<td>14.5&lt;sup&gt;d&lt;/sup&gt;</td>
<td>24.1&lt;sup&gt;d&lt;/sup&gt;</td>
<td>17.7</td>
</tr>
<tr>
<td>Germany</td>
<td>80.9</td>
<td>3.3</td>
<td>59</td>
<td>28.9</td>
<td>19.0</td>
<td>11.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Total health care spending per capita&lt;sup&gt;e&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>$3,364</td>
</tr>
<tr>
<td>United States&lt;sup&gt;e&lt;/sup&gt;</td>
<td>$9,086</td>
</tr>
<tr>
<td>OECD median</td>
<td>$3,661</td>
</tr>
</tbody>
</table>

<sup>a</sup> Source: OECD Health Data 2015.  
<sup>b</sup> Includes: hypertension or high blood pressure, heart disease, diabetes, lung problems, mental health problems, cancer, and joint pain/arthrosis. Source: Commonwealth Fund International Health Policy Survey of Older Adults, 2014.  
<sup>c</sup> DEN. FR. NETH. NOR. SWE, and SWITZ based on self-reported data; all other countries based on measured data.  
<sup>d</sup> 2012.  
<sup>e</sup> 2011.

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Citation: D. Squires and C. Anderson, U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries, The Commonwealth Fund, October 2015.
US healthcare – diamond in the rough

- Fast and prompt medical attention
- Access to specialists
- Comfortable environment
- Patient choices
- Innovative research and treatments
- Leading survival rates for heart attack, cancer, and stroke
US healthcare – the search for solutions
US healthcare – the search for solutions
Improving access and affordability

The ACA introduced…

- Guaranteed issue
- Individual mandate
- Premium subsidies
- Cost sharing subsidies
- Medicaid expansion
- Risk stabilization programs
US healthcare – the search for solutions
Improving access and affordability

The ACA introduced…

The AHCA would…

- Guaranteed issue *Keep it*
- Individual mandate *Replace it with a continuous coverage requirement*
- Premium subsidies *Modify them*
- Cost sharing subsidies *Get rid of them*
- Medicaid expansion *Phase it out*
- Risk stabilization programs *Keep risk adjustment, add Patient and State Stability Fund*
US healthcare – the search for solutions
Improving access and affordability

Uninsured rate among the non-elderly population 1995-2015

Start of ACA reforms

Source: CDC/NCHS, National Health Interview Survey, reported in
http://www.cdc.gov/nchs/health_policy/trends_hc_1968_2011.htm#table01 and
US healthcare – the search for solutions
Improving quality and reducing costs

- Traditional fee-for-service
- Fee-for-service linked to quality
- Alternative payment models built on FFS structure
- Population-based alternative payment models
US healthcare – the search for solutions
Technology

- Electronic health records
- Health information technology
- Enhanced data analytics
- Enhanced healthcare education
- Remote monitoring
- New drugs and therapies
- Improvements to traditional treatments
- Personalized medicine
US healthcare – the search for solutions

Trade offs

- Solving one problem often leads to another
  - Improving access puts upward pressure on spending
  - Reducing spending/improving affordability puts pressure on the scope of services covered
  - Incentives and choices encourage selection and place upward pressure on premium rates
  - The benefits of new technology may not always be worth the cost
  - The cost of complexity

- But, even a Rubik’s cube is solvable
Chris Pallot
Director of Strategy & Partnerships
Northampton General Hospital NHS Trust

chris.pallot@ngh.nhs.uk
The NHS

- Established on 5 July 1948
- Founded by the post-war Labour government
- Funded through general taxation
- Free at the point of delivery
- Since then, charges for prescriptions and some dental treatment commenced
- Primary care physician and all hospital treatment is free
Northampton General Hospital

- Founded in 1744
- On present site since 1793
- 700 beds
- Serves population of 400,000 (880,000 for specialist services)
- 4,897 staff
- Income £290m (c$385m) in 2016/17
Funding the NHS

• Prices per procedure are set nationally, no negotiation, deflated by c1% annually

• The NHS is funded to a level agreed by Parliament based on a number of factors, the most important being:
  - Finance available through general taxation
  - Pledges made by the political party in power

• Overall finance is not allocated based on lives “insured”, demographic assessments or health needs analysis at a national level

• Some health communities claim they have a “distance from capitation” issue, a funding mismatch for their population
Funding has Increased

How the NHS budget has grown
Health spending in the UK (£bn in 2016-17 prices)

Source: IFS
Political Factors

How spending on health has slowed down
Average annual increase in government spending on health

- Average across whole period
- Various governments
- Conservative government
-Labour government
-Con & Lib Dem coalition

Average for 1955-56 to 1978-79
Average for 1978-79 to 1996-97
Average for 1996-97 to 2009-10
Average for 2009-10 to 2014-15

Source: IFS
European Comparison

How the UK compares
Comparison of spending on public and private health and care as a percentage of GDP in 2014

- Sweden
- France
- Germany
- EU average
- UK
- Spain

% of GDP

Source: Nuffield Trust / Health Foundation
But the Population has Increased Faster

The UK's ageing population

% population aged 65 and over

Source: ONS
Challenges of an Increasingly Elderly Population

Comparing NHS spending on people by age
Spending for patients increases as they get older

<table>
<thead>
<tr>
<th>Age</th>
<th>Relative cost in £</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-year-old</td>
<td>1</td>
</tr>
<tr>
<td>65-year-old</td>
<td>2</td>
</tr>
<tr>
<td>85-year-old</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: IFS
Funding Ongoing Care

Where older people in England with care needs get help

- Pay for help: 12.5%
- Council help: 21%
- Family & friends: 37.5%
- No help: 30%

Source: Age UK, Laing Buisson, NHS Digital, Carers UK
Delayed Transfers of Care

Number of days hospital patients are delayed waiting for care, July 2011 - July 2016
A Target Driven NHS

- 95% of patients to be seen, treated, admitted or discharged from Accident and Emergency in 4-hours
- 85% of patients with suspected cancer to have their first definitive treatment in 62-days
- 6-week maximum for diagnostic tests and scans
- 85% of elective patients to be treated within 18-weeks of referral to include outpatients, diagnostics and surgery
Extremely Challenging Times
A&E performance in England against four-hour targets
Percentage of patients dealt with at A&E within four hours

- 2014
- 2015
- 2016

Figure for December 2016 (including a few days of data for January 2017) is based on data leaked to the BBC

Source: NHS England
Activity is Rising Beyond Prediction

Increasing demand for urgent treatment
Visits to A&E in England (in millions)

Source: IFS
Finding Solutions...

- Every health system has a limited budget and a vast array of spending options
- Patient volumes and complexity increasing
- Entire system is financially challenged
- Zero appetite for increasing tax revenues
- The NHS therefore must find solutions that drive clinical excellence whilst also ensuring value for money
National Institute for Health & Care Excellence

- Established in 1999, as the National Institute for Clinical Excellence
- Part of the Department of Health and serves the English and Welsh systems
- Initially designed to end “postcode lotteries”
- International reputation for the development of clinical guidelines
- One aspect of this is the approach to the defining cost vs benefit boundaries for new therapies
- Economic evaluations compare the cost of effectiveness of alternative strategies and compare the opportunity cost
National Institute for Health & Care Excellence

• NICE produces guidelines in four main areas:
  • The use of health technologies in the NHS (technology appraisals)
  • Clinical practice (guidelines and therapies)
  • Guidance for health workers on health promotion
  • Guidance for social care workers

• The NHS, and payers in particular are required to adhere to the guidance

• Quality Adjusted Life Years (QALY) is the primary method for quantifying the benefits of a treatment regime
What is QALY?

- QALY: number indicating size of health gain from intervention

- Length of life gained multiplied by valuation of health ‘utility’ that results from healthcare interventions

<table>
<thead>
<tr>
<th>1 (Best possible health state)</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Death)</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

--- (Worst possible health state)
How QALY’s Are Calculated

• Patient has a serious, life-threatening condition

• If she continues receiving standard treatment she will live for 1 year and her quality of life will be 0.4 (measured by health state variations)

• If she receives the new treatment she will live for 1 year 3 months (1.25 years), with a quality of life of 0.6

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Length of Life</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>1 year</td>
<td>0.4</td>
</tr>
<tr>
<td>New</td>
<td>1.25 year</td>
<td>0.6</td>
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How QALY’s Are Calculated

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<td>0.6</td>
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- Standard treatment: 1 (year’s extra life) x 0.4 = 0.4 QALY
- New treatment: 1.25 (1 year, 3 months extra life) x 0.6 = 0.75 QALY
- The new treatment = 0.35 additional QALY’s
How QALY’s Are Calculated

New treatment = additional 0.35 QALYs

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Length of Life</th>
<th>Utility</th>
<th>Cost</th>
<th>QALYs gained</th>
<th>£ / QALY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>1 year</td>
<td>0.4</td>
<td>£3,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>1.25 year</td>
<td>0.6</td>
<td>£10,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Difference: £7,000 / 0.35 = £20,000

Each drug is considered on a case-by-case basis. Generally, however, if a treatment costs more than £20,000-30,000 per QALY, then it would not be considered cost effective.
Recommendations can be Contentious

“The Price of Life”
BBC Documentary
2008

https://vimeo.com/4796083
Commissioning by Standards

England – 50,500 sq miles
Alabama – 50,700 sq miles

United Kingdom – 94,000 sq miles
Wyoming – 93,000 sq miles
Prostate and Testicular Cancer Standards

- Most importantly – this is about quality not cost saving

- Implicitly however there are opportunities through centralisation of low volume, high complexity surgery

- The standards mean that many hospitals will automatically be unable to provide services

- Centres must cover 1m population for performing complex surgery for prostate cancer

- Each centre must perform a minimum of 50 radical prostatectomies/cystectomies per year

- Any surgeon performing less than 5 per year must cease
Prostate and Testicular Cancer Standards

- Team members are specified which some hospitals cannot meet.

- Options must be offered to the patient which some hospitals cannot provide – e.g. robotic prostatectomy.

- Rigorous audit and peer review processes which Trusts can fail.

- Testicular cancer centres require a minimum 2m population.
Prostate and Testicular Cancer Standards

Ref: NHS England 2014
Children's Cardiac Surgery

- New quality standards published in 2015 for hospitals providing services for congenital heart disease

- Followed a major scandal at Bristol Royal Infirmary where a number of babies died. Many would have been saved if operated on elsewhere

- Contentious programme of change that will result in a smaller number of centres performing paediatric cardiac surgery

- Public consultation from 9 February – 5 June 2017

- Huge local opposition to Unit closures, considerable political issue
Children's Cardiac Surgery

- 5-9 / 1000 children born in England will suffer from some form of CHD
- Each Surgeon must undertake 125 cases per year
- Minimum of three surgeons in the team, rising to four by 2021 delivering 24/7 care
- Call to bedside time of 30-minutes
- Paediatric Intensive Care Unit, co-located with the surgical team
- Many other clinical specialists specified, e.g. Lead Interventionalist undertaking minimum of 100 procedures per year
- Helicopter landing facility and protocols for helipad/airfield transfer
Not all Hospitals will be Compliant
The Campaign in Leicester

SAVE GLENFIELD CHILDREN’S HEARTCENTRE

FIGHT TO KEEP GLENFIELD CHILDREN’S HEARTS OPEN

2017

East Midlands Congenital Heart Centre

Providing the Best Possible Care
The campaign in Leicester

• These examples are all concerned with driving excellence in clinical quality

• Centralisation of services is an inevitable consequence

• Payers should drive this for the sake of their patients

• Cost savings will result due to economies of scale and better patient outcomes
What can we learn from each other?
UK lessons learned from US

- UK lessons to be learned
  - Developing and implementing integrated care models
  - Pooling risk and reward
  - Using data analytics to predict the usage of care
  - Actuarial analytics
What can we learn from each other?
US lessons learned from UK

- US lessons to be learned:
  - Cost/benefit analysis of treatment options
  - Focus on health promotion vs. correction
  - National quality standards/goals
  - Price transparency
What’s our role as actuaries?

- Data analytics
- Risk management
- Predictive modeling
- Strategy and problem solving
Thank you!
Provide Your Feedback and Win!

Complete your evaluation and be entered to win one of these three great prizes:

• One complimentary registration to the 2018 Health Meeting
• One complimentary room reservation in a standard room (max. 3 nights) at the Austin Hilton for the 2018 Health Meeting
• One complimentary registration to a Health Section sponsored webcast

*See Official Rules