Doing More with Less
Paediatric Cardiac Surgery after the Financial Crisis

Martin Elliott
37th Gresham Professor of Physic
Professor of Cardiothoracic Surgery at UCL
Consultant Paediatric Cardiothoracic Surgeon
&
co-Medical Director
The Great Ormond Street Hospital for Children
“Making a speech about economics is a lot like pissing down your leg. It seems hot to you, but it never does to anyone else.”

president lyndon johnson
to
j kenneth galbraith on ‘economics’
Why talk about economics?

1. the financial crisis and subsequent austerity

2. Devi Shetty’s challenge to me
“What moral right have you got to charge $50,000 for an operation I can do for less than $3000?"

Devi Shetty
Narayana Healthcare, Bangalore
How can we do More for Less?
Tetralogy of Fallot

@ProfMJElliott
martin.elliott@gosh.nhs.uk
In the normal circulation, blood passes through the lungs to collect oxygen (as described on page 6). In babies with Tetralogy of Fallot, the narrowing in the pulmonary valve and the thickened muscle below it mean that less blood can flow through to the lungs. This means that the level of oxygen in the blood is low.

What is Tetralogy of Fallot?

Tetralogy of Fallot is a serious heart abnormality. There are two main problems. (See the illustration on the next page.)

- The pulmonary valve is narrow (pulmonary stenosis) and the muscle below it is thickened.
- There is a large hole – called a ventricular septal defect or VSD – between the two main pumping chambers of the heart (the right and left ventricles).
Tetralogy of Fallot, indicative pathway

pathway of care

£200 £400 £?£400 £30,000 £400£400£400£400 £30,000 £400£400£400£400 £65,000

generic fetal scan
cardiac fetal scan
cardiac scan
shunt

local
local or regional
good local or regional unit
specialist centre
local or regional
specialist centre
local or regional

@ProfMJ Elliott
martin.elliott@gosh.nhs.uk
Tetralogy of Fallot is a congenital heart disease that requires surgical repair without which survival through childhood is extremely rare. The aim of this paper is to use data from the mandatory follow-up of patients with Tetralogy of Fallot to model the health-related costs and outcomes over the first 55 years of life. A decision analytical model was developed to establish costs and outcomes for patients up to 55 years after birth with the primary data source - a cohort of Fallot patients 1964–2009 - our own Adult Congenital Heart Disease (ACHD) centres that follow up Tetralogy of Fallot patients and Great Ormond Street Hospital (GOSH), London, United Kingdom (UK) medical records was used to establish the cost and effectiveness of current interventions. Data from a Czech ACHD centre were used as a second comparator.

The authors have declared that no competing interests exist.
curve to determine the probability that surgical repair of Tetralogy of Fallot is cost effective for a hypothetical willingness to pay for each additional QALY gained for values of between £0 and £20,000. Results are based on 10,000 simulations. We provided results for undiscounted and discounted models. The discount rate was randomly varied between 0% and 6% in line with NICE guidance [12].

Results

Costs

A summary of the average resource use per patient is reported in Table 1. The average cost per patient of the admission including repair of Tetralogy of Fallot was £26,938 (SE = £4,140). In 2010 GOSH had a market forces factor of 1.18 [16]. After applying the market forces factor, the average UK cost for a repair was calculated as £22,829. The mean full life time cost per patient, with no discount rate, is £65,310 (95% CI £64,981–£65,729) and £56,559 discounted (95% CI £56,159–£56,960).

Mortality and Quality of Life

Figure 2 provides a summary of the proportion of patients in each health state over time for the two models. The utility score for patients under 18 with a repair was 0.83 (SE = 0.031) and 0.72 (SE = 0.037) for adult patients. Patients with a repair had an average total of 35 QALYs with an average total of 3 QALYs for patients with no repair.

Incremental Cost per QALY Gained

The mean cost per QALY gained over 10,000 simulations was £2027 without discounting (£3168 discounted). All simulations fall into the north-east quadrant of the cost-effectiveness plane, in that all simulations result in more QALYs but also cost more (figure 3). Based on a willingness to pay of £20,000 per QALY gained there is a 100% chance that open repair of Tetralogy of Fallot is cost effective compared to doing nothing (figure 4).

Figure 5 shows the proportions of overall costs attributable to the surgery, inpatient stays in intensive care and high dependency units, outpatient appointments and investigations.

Discussion

This model provides information on the first 55 years costs of the common congenital heart problem Tetralogy of Fallot and compares it to the additional gain in QALYs. The first 55 years cost of a Fallot patient to the NHS is approximately £65,310. This cost is outweighed by the additional years of life gained in reasonably full health. Ungerleider et al [17] published estimates of hospital costs of repairing Tetralogy of Fallot, including an evaluation of the alternatives of primary repair versus repair after preliminary palliative procedures. However we believe this is the first time a full cost effectiveness evaluation has been attempted in the field of childhood heart disease.

Limitations

Surgery for Tetralogy of Fallot only emerged in the 1960's, hence the postoperative ''natural history'' beyond age 55 is unknown; Fallot patients' underlying biology makes it conceivable
Quality-Adjusted Life Year (QALY)

- based on the number of years that would be added to life by the intervention
- each year of perfect health is assigned value of 1.0, down to 0.0 for being dead
- if quality of life is reduced, so is the value to a number <1.0
Quality-Adjusted Life Year (QALY)

- Half a year lived in perfect health ≈ 0.5 QALYs (0.5y x 1 utility)
- 1 year lived with a utility of 0.5 also = 0.5 QALYs (1.0y x 0.5 utility)
- Utility can be estimated using quality of life scores
The data used included the cost of the operation, length of stay, ward type and any major postoperative complications.

Resource Usage: between Open Heart Repair and 10 Years of Age

Data from the same patients repaired since 2000 and who have not already required a PVR were used to estimate the current costs of postoperative surveillance, largely outpatient visits and investigations up to age 10. Interventions, whether catheter-based or surgical but which did not constitute a PVR were aggregated and the counts used as multipliers for these events.

Resource Usage: Age 10–20 and Subsequent Decades

Clinical events (primarily out-patient visits and investigations) from age 10–20 of all twenty-one surviving operated patients born in 1990 were aggregated and rendered as an annual estimate of the clinical event rate for patients aged 10–20. We assumed that the rate of clinic visits and investigations would remain at rates similar to those at ages 10–20 for subsequent decades. Re-interventions short of PVR were aggregated as before.

Cost of PVR

Data from the same 30/214 patients repaired since 2000 were used to estimate multipliers for the current costs for PVR. Data used related to length of stay and major postoperative interventions.

Based on the above cohorts we calculated the average resource use from birth until first repair, per decade and per PVR for patients who have a second repair. Per decade costs were divided by 10 to obtain a weighted cost per patient per year. All costs were in British Pounds (£) and 2010/2011 values. Unit costs for interventions and investigations other than first repair, PVR and Extracorporeal Membrane Oxygenation (ECMO) were derived from reference costs 2010/2011 [10].

The cost of the open repair was obtained from the GOSH patient level costing system for 30/214 Tetralogy of Fallot patients. This was divided by the 2010 GOSH market forces factor to obtain a UK average cost of repair. It was assumed that a PVR operation itself would have the same cost as the primary repair operation, although additional costs for length of stay and additional procedures were handled separately.

The cost of ECMO was obtained from Brown et al, and was estimated at £10,539 per day over 6 days for a total cost per ECMO of £75,126, accounting for inflation [11].

Quality of Life

From the complete consecutive list, 50 survivors (10 from each surgical decade 1960’s to 2000’s) were chosen at random to receive a Quality of Life questionnaire; these patients (age 4–55) were assumed to be representative of survivors generally. In the absence of a generic quality of life instrument applicable across child and adult populations, the PEDSQL was administered to those age 1–18 and WHOQOL Bref to the adults.

Figure 3. Cost-effectiveness plane – cost per Fallot patient over 55 years graphed against the QALY gained compared to natural progression ~10,000 simulations.
doi:10.1371/journal.pone.0059734.g003

The cost per QALY is £2000 to £3000.
How is all this paid for?
In Scotland they... (Wales) Amendment Regulations 2006.

In addition, NHS Trusts... in 11.7 billion in 2010/11 prices, or 3.5% of GDP.

The National Health Service (Dental... 2010/11 prices (bottom line).

Figures on income from private patients take into account the income raised... amounted to £614.3m in England in 2009/10.

Table 4: NHS net expenditure, £m and per head, UK countries, 2006/07 to 2010/11

<table>
<thead>
<tr>
<th>Year</th>
<th>England</th>
<th>Wales</th>
<th>Scotland</th>
<th>N. Ireland</th>
<th>England</th>
<th>Wales</th>
<th>Scotland</th>
<th>N. Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/07</td>
<td>76,926</td>
<td>5,000</td>
<td>9,035</td>
<td>2,961</td>
<td>1,515</td>
<td>1,688</td>
<td>1,766</td>
<td>1,700</td>
</tr>
<tr>
<td>2007/08</td>
<td>83,335</td>
<td>5,273</td>
<td>9,727</td>
<td>3,055</td>
<td>1,631</td>
<td>1,772</td>
<td>1,891</td>
<td>1,736</td>
</tr>
<tr>
<td>2008/09</td>
<td>90,035</td>
<td>6,650</td>
<td>10,120</td>
<td>3,280</td>
<td>1,730</td>
<td>1,880</td>
<td>1,986</td>
<td>1,859</td>
</tr>
<tr>
<td>2009/10</td>
<td>97,272</td>
<td>5,917</td>
<td>10,593</td>
<td>3,443</td>
<td>1,877</td>
<td>1,973</td>
<td>2,040</td>
<td>1,924</td>
</tr>
<tr>
<td>2010/11</td>
<td>99,249</td>
<td>6,065</td>
<td>10,821</td>
<td>3,790</td>
<td>1,900</td>
<td>2,017</td>
<td>2,072</td>
<td>2,106</td>
</tr>
</tbody>
</table>

Note: Figures for England may not be consistent with those in Table 2 because they are calculated on a different basis (HMT rather than Resource Accounting basis).


CIVITAS: Institute for the Study of Civil Society

The impact of the NHS market
An overview of the literature
The National Health Service in England and Wales, 1948

NHS Structure and Cash Flow

Minister of Health

Ministry of Health

Board of Health for Wales

Local Health Authorities (146)

Regional Hospital Boards (14)

Boards of Governors (36)

Hospital Management Committees (377)

Executive Councils (140)

Health Centres

Ambulance Service

Health Visitors, Home Nurses, Domiciliary Midwives

Hospitals and Specialists

Teaching Hospitals

General Medical Service

General Dental Service

General Pharmaceutical Service

Supplementary Ophthalmic Service

Maternity and Child Welfare

Home Helps

Care and After Care

Vaccination and Immunization


@ProfMJElliot

martin.elliott@gosh.nhs.uk
Figure 3  The National Health Service in England, 1974

Planning and reorganization

- Secretary of State for Social Services
- Department of Health and Social Security
- Regional Health Authorities (14)
- Boards of Governors of London Postgraduate Hospitals
- Area Health Authorities (90)
- Family Practitioner Committees (90)
- District Management Teams (205)
- Hospital, Specialist, and Community Health Services
- Faculty Practitioner Services

The Internal Market

- Late 1980s, precipitated by an access crisis in paediatric cardiac surgery
- Thatcherite belief in the market (decreased costs, improved efficiency, quality innovation and responsiveness)
- The purchaser:provider split
NHS structure…in the noughties

annual price (?) and volume negotiations

payment by results
### The patients

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mrs Smith</th>
<th>Mr Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elective caesarean during a 7 day spell in April</strong></td>
<td></td>
<td>Emergency admission for fragility hip fracture in April</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Mrs Smith</th>
<th>Mr Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD-10 codes are <strong>O300 (twin pregnancy)</strong> and <strong>Z37.2 (twin both live born)</strong></td>
<td></td>
<td>ICD-10 codes are <strong>S7200 (fractured neck of femur)</strong> and <strong>W19.0 (unspecified fall at home)</strong></td>
</tr>
<tr>
<td>OPCS-4 code is <strong>R17.2 (elective lower uterine segment caesarean delivery)</strong></td>
<td></td>
<td>OPCS-4 codes are <strong>W37.1 (primary total prosthetic replacement of hip joint using cement)</strong> and <strong>Z94.3 (left)</strong></td>
</tr>
</tbody>
</table>
The Internal Market

• only modest improvements over time, and difficult to associate them with the market reforms

• shift of power from hospitals to primary care and from providers to purchasers
failure to deliver benefits

- refusal to create a ‘real’ market
- weak incentives to engage participants and break patterns
- lack of stable policy environment to inspire commitment
ABSTRACT

The United States health care system is the most expensive in the world, but comparative analyses consistently show the U.S. underperforms relative to other countries on most dimensions of performance. Among the 11 nations studied in this report—Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States—the U.S. ranks last, as it did in prior editions of Mirror, Mirror. The United Kingdom ranks first, followed closely by Switzerland. Since the data in this study were collected, the U.S. has made significant strides adopting health information technology and undertaking payment and delivery system reforms spurred by the Affordable Care Act. Continued implementation of the law could further encourage more affordable access and more efficient organization and delivery of health care, and allow investment in preventive and population health measures that could improve the performance of the U.S. health care system.

Support for this research was provided by The Commonwealth Fund. The views presented here are those of the authors and not necessarily those of The Commonwealth Fund or its directors, officers, or staff. To learn more about new publications when they become available, visit the Fund's website and register to receive email alerts. Commonwealth Fund pub. no. 1755.
MIRROR, MIRROR ON THE WALL
How the Performance of the U.S. Health Care System Compares Internationally, 2014 Update

INTRODUCTION
Over the past decade, leaders in the United States have begun to recognize that the nation's health care system is far more costly than any other system in the world (Exhibit 1) and does not produce demonstrably better results. The claim that the United States has "the best health care system in the world" is clearly not true. To reduce cost and improve outcomes, the U.S. must adopt and adapt lessons from effective health care systems both at home and around the world.

International health outcome measures that are comparable across nations are limited, but cross-national surveys of patients and their physicians provide another method to compare health care system performance. Focusing on access to care, costs, and quality, these surveys allow assessments of important dimensions of health system performance. When such surveys include a common set of questions, they can overcome differences among national data systems and definitions that often frustrate cross-national comparisons.

Since 1998, The Commonwealth Fund has supported annual international surveys about patients' and health professionals' experiences with their health care systems. Patients are clearly a key source of information about access and affordability—with surveys enabling comparisons of their experiences. Yet, survey results do have limitations. In addition to lacking clinical data on effectiveness of care and including data from a limited number of countries, the surveys focus on only part of

EXHIBIT 1. INTERNATIONAL COMPARISON OF SPENDING ON HEALTH, 1980–2011

Average spending on health per capita ($US PPP)

Total expenditures on health as percent of GDP

Note: $US PPP = purchasing power parity.
The United States health care system is the most expensive in the world, but this report and prior editions consistently show the U.S. underperforms relative to other countries on most dimensions of performance.

Among the 11 nations studied in this report—Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States—the U.S. ranks last, as it did in the 2010, 2007, 2006, and 2004 editions of Mirror, Mirror. Most troubling, the U.S. fails to achieve better health outcomes than the other countries, and as shown in the earlier editions, the U.S. is last or near last on dimensions of access, efficiency, and equity. In this edition of Mirror, Mirror, the United Kingdom ranks first, followed closely by Switzerland (Exhibit ES-1).

Expanding from the seven countries included in 2010, the 2014 edition includes data from 11 countries. It incorporates patients' and physicians' survey results on care experiences and ratings on various dimensions of care. It includes information from the most recent three Commonwealth Fund international surveys of patients and primary care physicians about medical practices and views of their countries' health systems (2011–2013). It also includes information on health care outcomes featured in The Commonwealth Fund’s most recent (2011) national health system scorecard, and from the World Health Organization (WHO) and the Organization for Economic Cooperation and Development (OECD).

### EXHIBIT ES-1. OVERALL RANKING

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall</th>
<th>Quality Care</th>
<th>Effective Care</th>
<th>Safe Care</th>
<th>Coordinated Care</th>
<th>Patient-Centered Care</th>
<th>Access</th>
<th>Cost-Related Problem</th>
<th>Timeliness of Care</th>
<th>Efficiency</th>
<th>Equity</th>
<th>Healthy Lives</th>
<th>Healthy Expenditures/Capita, 2011**</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUS</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>$3,800</td>
</tr>
<tr>
<td>CAN</td>
<td>10</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>11</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>$4,522</td>
</tr>
<tr>
<td>FRA</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>$4,118</td>
</tr>
<tr>
<td>GER</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>$4,495</td>
</tr>
<tr>
<td>NETH</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>$5,099</td>
</tr>
<tr>
<td>NZ</td>
<td>7</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>$3,182</td>
</tr>
<tr>
<td>NOR</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>11</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>$3,925</td>
</tr>
<tr>
<td>SWE</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$5,669</td>
</tr>
<tr>
<td>SWIZ</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>$3,405</td>
</tr>
<tr>
<td>UK</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$8,508</td>
</tr>
</tbody>
</table>

Notes: * Includes ties. ** Expenditures shown in $US PPP (purchasing power parity); Australian $ data are from 2010.


@ProfMJ Elliott
martin.elliott@gosh.nhs.uk
So I make this commitment to the NHS and all who work in it: no more pointless reorganisations.

*David Cameron, Tory Party Conference Speech, 2006*

**no more "top-down reorganisations" of the NHS**

*Andrew Lansley, Conservative Party press release, 11 July 2007*

**The coalition went on to launch**

**the biggest top-down reorganisation of the service in its history**
The National Health Service in England and Wales, 1948

most things
look better when
you put them
in a circle

banksy
so big, ‘you could probably see it from space’
Sir David Nicholson, 2010
How the money flows from April 2013

Public Health England

Department of Health

NHS England and area teams (27)

Local authorities (152)

Clinical commissioning groups (221)

£2.7 billion

£1.8 billion*

£66 billion

£25 billion

Public health

Community services

Mental health

District general hospital services

Specialist services

Primary care

* screening/immunisation programmes delivered in primary care

@ProfMJ Elliott

martin.elliott@gosh.nhs.uk
Figure 1 The main relationships between health bodies in London

http://www.mirror.co.uk/news/ampp3d/nhs-under-tories---more-5114990
a very complicated landscape
a million seconds 11.6 days
a billion seconds 31.7 years
a trillion seconds 31,700 years

big numbers
Debtris
U.K.
cash in context (around 2009)
the national debt is the total the country owes

the deficit is the gap between govt income and expenditure
The UK National Debt as % of GDP

http://www.tradingeconomics.com/united-kingdom/government-debt-to-gdp
UK National Debt over time

www.economicshelp.org

@ProfMJElliot
martin.elliott@gosh.nhs.uk
austerity

Taxes ↑ 15%

Spending ↓ 85%

@ProfMJ Elliott
martin.elliott@gosh.nhs.uk
UK Government net borrowing - % of GDP

[Graph showing government net borrowing as a percentage of GDP from 2001-02 to 2015-16.]

www.economicshelp.org | Source: HM Treasury - Public finances Feb 2013
OBR Forecast Today

Borrowing forecasts

£ billions

-30 0 30 60 90 120 150

2010/11 11/12 12/13 13/14 14/15 15/16 16/17 17/18 18/19 19/20

Excludes Royal Mail pension transfer, Asset Purchase Facility and public sector banks.
Source: ONS and OBR

@ProfMJElliott
martin.elliott@gosh.nhs.uk
Today’s Budget

Private Sector → Public Sector

Future fall in public spending per person
Real spending per individual (£)

2009-10
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20

Planned
Implied

Still to cut: £1,030

Source: OBR

Edition receipts
Total managed expenditure

Source: Bank of England, ONS, OBR
Other Views on Austerity are Available

@ProfMJElliott
martin.elliott@gosh.nhs.uk
Richard Douglas, Department of Health director general of policy, strategy, and finance, has reportedly said that the drive to find further efficiency savings in the NHS will continue after 2015, with the total savings rising from £20bn (€24.6bn; $31bn) to a possible £50bn by 2019-20. His comments are a startling admission of the long term impact on public services of the global financial crisis and ensuing recession.

Appleby, J
A Productivity Challenge too far?

BMJ 2012;344:e2416 doi: 10.1136/bmj.e2416 (Published 19 June 2012)
We now look in more detail at the high-level cost and demand drivers and some of the options for managing them.

What are the key cost and demand drivers?

An analysis carried out by The King's Fund (Wanless et al. 2007) summarised the factors and assumptions underlying the 2002 review's NHS funding projections. Table 1 below takes the cost estimates for each factor and applies them to the growth in the NHS budget between 2010/11 and 2013/14 that Wanless suggested was needed if the NHS was to make 'solid progress'.

What the decomposition reveals is that a key goal of Wanless's funding recommendations was to secure improvements in the quality of health services. Wanless made assumptions that the efforts to reduce variability in service quality and raise standards across the country in a range of disease areas, primarily through the application of National Service

Figure 3 The dynamics of the productivity gap

Appleby et al 2010, Improving NHS Productivity, Kings Fund

@ProfMJElliott martin.elliott@gosh.nhs.uk
Predicted % of current income over next decade

- a hospital in the new NHS
- 1.8% tariff reduction/year

the savings we will have to make

@ProfMJ Elliott
martin.elliott@gosh.nhs.uk
Financial failure in the NHS

Figure 3 Total numbers of full-time equivalent qualified nurses, midwives and health visitors

less money
more demand
greater expectations

rising costs
A Productivity Challenge too far?

'UNDOABLE'

@ProfMJ Elliott

martin.elliott@gosh.nhs.uk
NHS Finances

6 in 10

6 in 10 trusts are relying on financial support from the Department of Health or planning to draw down their reserves.

http://qmr.kingsfund.org.uk/2015/14/overview
'Under-achievement of demand management and lack of progress tackling underlying population health, are being masked by “sticking plaster” funding solutions in the short term.'

Multi-specialist large university teaching hospital

'Much of the delivery to date has been through restrictions in pay. Limited evidence of productivity gains to this value. Foundation trusts generating real efficiencies of around 2 per cent on average.'

Mental health

'Respondent comments

'National context of anachronistic payment by results (PbR) regime, unreflective market forces factor (MFF), lack of understanding of rurality, marginal rate, lack of central understanding of the real costs of quality care and the misguided ignorance of stranded acute costs if activity is moved.'

Acute trust

'The system is broken: the tariff doesn’t work. Transformation by CCGs is non-existent. Social care has run out of cash and solutions. Better Care Fund is a three cups, one coin illusion.'

Acute foundation trust

'The combined system is all well below plan and in a small deficit position overall year-to-date. The efficiency and other challenges for next year mean the system overall will have to deliver at least 50 per cent more CIP than this year to stay in breakeven - this is very unlikely to be achievable.'

Acute teaching hospital

'We’re doomed, Capt Mainwaring
“When you take over a loss-making business, you are in ‘turnaround’.
You must first **cut the costs** to stop the cash drain”

Jon Moulton, CEO Better Capital, Feb 2011
In India, a Factory Model for Hospitals Is Cutting Costs and Yielding Profits

The Henry Ford of Heart Surgery

By GEETA ANAND

BANGALORE -- Hair tucked into a surgical cap, eyes hidden behind thick-framed magnifying glasses, Devi Shetty leans over the sawed open chest of an 11-year-old boy, using bright blue thread to sew an artificial aorta onto his stopped heart.

As Dr. Shetty pulls the thread tight with scissors, an assistant reads aloud a proposed agreement for him to build a new hospital in the Cayman Islands that would primarily serve Americans in search of lower-cost medical care. The agreement is inked a few days later, pending approval of the Cayman parliament.

Dr. Shetty, who entered the limelight in the early 1990s as Mother Teresa's cardiac surgeon, offers cutting-edge medical care in India at a fraction of what it costs elsewhere in the world. His flagship heart hospital charges $2,000, on average, for open-heart surgery, compared with hospitals in the U.S. that are paid between $20,000 and $100,000, depending on the complexity of the surgery.

The approach has transformed health care in India through a simple premise that works in other industries: economies of scale. By driving huge volumes, even of procedures as sophisticated, delicate and dangerous as heart surgery, Dr. Shetty has managed to drive down the cost of health care in his nation of one billion.

His model offers insights for countries worldwide that are struggling with soaring medical costs, including the U.S. as it debates major health-care overhaul.

"Japanese companies reinvented the process of making cars. That's what we're doing in health care," Dr. Shetty says. "What health care needs is process innovation, not product innovation."

At his flagship, 1,000-bed Narayana Hrudayalaya Hospital, surgeons operate at a capacity virtually unheard of in the U.S., where the average hospital has 160 beds, according to the American Hospital Association.

Narayana's 42 cardiac surgeons performed 3,174 cardiac bypass surgeries in 2008, more than double the 1,367 the Cleveland Clinic, a U.S. leader, did in the same year. His surgeons operated on 2,777 pediatric patients, more than double the 1,026 surgeries performed at Children's Hospital Boston.

Next door to Narayana, Dr. Shetty built a 1,400-bed cancer hospital and a 300-bed eye hospital, which share the same laboratories and blood bank as the heart institute. His family-owned business group, Narayana Hrudayalaya Private Ltd., reports a 7.7% profit after taxes, or slightly above the 6.9% average for a U.S. hospital, according to American Hospital Association data.

The group is fueling its expansion plans...
HANDS THAT HELP ARE HOLIER THAN LIPS THAT PRAY.

(SAI BABA)
A Journey from 225 to 7500 beds

2000 - 06 Founded by Dr. Devi Shetty
- NH Bangalore • NH Kolkata
- Blood & Valve Bank

2007 - 09 Initial Growth Phase
- NH Jamshedpur
- MS Ramaiah NH Bangalore

2009 - 12 Foray into Other Specialty
- MSMC Bangalore • NH Dharwad • NH Kolar
- NH Hyderabad • NH Jaipur • NH Raipur
- NH Ahmedabad

2012 - 14 29 Hospitals Across 17 Cities
NH Shimoga • NH Mysore • NH Durgapur
NH Davangere • Chiranjeevi NH • St. Martha’s NH
Westbank NH • NH Kuppmal • NH Salt Lake
NH HSR Layout • NH Whitefield • NH Guwahati
Health City Cayman Islands • NH Borrasat
NH Berhampore • NH Mahuva

FUTURE 30,000 Beds
NH Mumbai • NH Bhubaneswar • NH Siliguri
NH Lucknow • NH Jodhpur • NH Palanpur
NH Bellary • NH Vaishno Devi
And many more…
how Shetty controls costs

- economies of Scale
  - 4700 open heart operations in one hospital each year
  - cf England, 2900 operations in 10 centres
  - cf Chicago, 750 operations in 9 centres
how Shetty controls costs

- ‘Asset-light’ business model
  - green field sites
  - low construction cost buildings (pre-fab, single storey clusters)
  - low maintenance design
- Narayana elsewhere
  - in other hospitals, but their staff, their pathways, their rules
how Shetty controls costs

- doing more each day, every day
  - early starts, late finishes
  - shift system for clinicians
  - 7 day elective work
  - patient ‘flow’ paramount
how Shetty controls costs

- **direct control of procurement**
  - forcing suppliers prices down
  - ‘leveraging’ his brand reputation
  - buys locally if possible, no need to accept US/UK/EU prices
  - standardisation of techniques
  - challenging ‘single-use’
how Shetty controls costs

- engaging the staff
- daily profit and loss data
- for the individual, the hospital and the organisation
- delivered to mobile phone
- trades on competitive instinct
“1 gram off every component”

saves 100kg overall

“we have to do 1,000 small things”
Technology

- social media instead of letters
- WhatsApp as preferred medium
- audio and video > text
- IM empowers patients
- reduced admin costs
- excellent for the illiterate
- single number feedback

INFORMATION GOVERNANCE SAYS NO
“The seemingly meaningless, incidental, bits of data that we shed are turning the concept of privacy into an archaism, despite half hearted (and doomed) regulation to protect ‘personally identifiable information’.

John Harman 2015 *Disrupting the Intelligence Community* Foreign Affairs 94(2):99-107

50% fall in interest in the term ‘privacy’ in the last decade

Google Trends

@ProfMJElliott  martin.elliott@gosh.nhs.uk
Could we do any of this here (or anywhere in the West)?
we have usually asked for more, rather than working out how to do it **better for less**
India

- huge untreated population
- no universal access
- poorly developed medical insurance
- people have to pay for care
- spiritual (access = gift from God)
- patients MUST travel

UK

- population needs met
- universal access
- NHS + private
- it’s free
- secular
- patients don’t like to travel

@ProfMJ Elliott
martin.elliott@gosh.nhs.uk
India
- case-mix, simpler
- largely single visit surgery
- free market, but effective centralisation: not enough centres
- 2 star accommodation
- not much choice

UK
- case-mix complex
- 88% single visit surgery
- regionalisation not centralisation: too many centres?
- 4 to 5 star accommodation
- ? patient choice
NHS Procurement
vinyl gloves (large) £/hundred

enormous range in prices Trusts pay

I wonder what he would say


@ProfMJElliott
martin.elliott@gosh.nhs.uk
efficiency; core principles

- focus on patients; design the care around them, not the staff
- identify value for the patient & get rid of everything else
- get it right first time: complications are expensive
- eliminate waste (inc. time)

this is a process of continuous change

@ProfMJElliott
martin.elliott@gosh.nhs.uk
efficiency at local level

• lean management, flow management
• standardisation, SOPs
• real time data, to the people on the shop floor
• devolving tasks
it can be done

methods must be in core training

Eugene Litvak
IHO Boston

Peter Willats
APT Global
“The United States needs systematic cost control, not budget gimmicks.”
what is missing is cost and value
What do you value?

we can do it for less, but will you let us?

@ProfMJ Elliott

martin.elliott@gosh.nhs.uk
“The one outcome that is never measured in the NHS is the outcome of what politicians do”

Polly Toynbee
General Election Thank you 2015
special thanks to

Devi Shetty
Peter Willats
Claire Newton
Eugene Litvak
The Kings Fund
The London Library
various contacts in the City & WHO

many others who would rather not be named