Unwarranted variation in health care for children & young people

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“Warranted” variation
Unwarranted variation

“Variation that cannot be explained by patient illness or preference”

Prof. J Wennberg,
Dartmouth Atlas of Variation
Stages of accepting reality (from Wennberg, 2011)

- Stage 1: “The data are wrong”
Atlas of Variation in the Health of Children and Young People
Annex of the Annual Report of the Chief Medical Officer 2012
(Special Report – Our Children Deserve Better; Prevention Pays)
Reducing unwarranted variation to increase value and improve quality
(October 2013)
Elective paediatric tonsillectomy rate: 2007-10 vs 2012/13

Rate of elective tonsillectomy in children per population aged 0-17 years by PCT / CCG

2007/8-2009/10: 3.1-fold variation
Range: 125-424/10,000

2012/13
3.5-fold variation
Range: 120-421/10,000
Stages of accepting reality  (from Wennberg, 2011)

• Stage 1: “The data are wrong”

• Stage 2: “The data are right, but there’s no problem”
A&E Attendance in 0-19 years

Rate of accident and emergency attendance in children and young people aged 0-19 years, by CCG 2012/13

Threefold variation
Recurrent paediatric admissions for mental health problems

Rate of children and young people aged 0-18 years with ≥3 hospital admissions per year for mental health problems, by CCG 2012/13

Over fivefold variation
Stages of accepting reality (from Wennberg, 2011)

- Stage 1: “The data are wrong”
- Stage 2: “The data are right, but there’s no problem”
- Stage 3: “The data are right; it is a problem; but it’s not my problem”
“Our patients are different”
Paediatric gastrointestinal endoscopy rate

Admission rate for children for upper and/or lower gastrointestinal endoscopy per population aged 0-17 years by PCT 2007/8 - 2009/10

Nearly threefold variation
Paediatric gastrointestinal endoscopy rate

Admission rate for children for upper and/or lower gastrointestinal endoscopy per population aged 0-17 years by CCG 2009/10 - 2011/12

Directly standardised by age 2009/10–2011/12

Domain 2: Enhancing quality of life for people with long-term conditions

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“Our patients are more deprived”
Bronchiolitis: Emergency admission rate

Rate of admissions for bronchiolitis in children per population aged under 2 years by PCT 2007/8 - 2009/10

Sixfold variation
Bronchiolitis admissions at extremes of socioeconomic status

Figure 20.2: Rate of admissions for bronchiolitis in children per 100,000 population aged under 2 years 2007/08–2009/10 among the 10 least-deprived and the 10 most-deprived PCTs (IMD 2010)
Bronchiolitis admission rate vs Area deprivation
2012/13

DSR per 100,000 population for Local Authorities

\[ y = 17.506x + 1688.5 \]

\[ R^2 = 0.03289 \]
“We are above average”
HbA1c within target range (<58mmol/mol) (0-24yrs)

Percentage of CYP 0-24yrs with whose previous HbA1c level was <58mmol/mol (7.5%), 2012/13

Sevenfold variation

2013/14: 51%
Germany & Austria: 34%
2013/14 - 18.4%
England & Wales: 15.7%
Stages of accepting reality (from Wennberg, 2011)

- Stage 1: “The data are wrong”
- Stage 2: “The data are right, but there’s no problem”
- Stage 3: “The data are right; it is a problem; but it’s not my problem”
- Stage 4: “I accept responsibility for improvement”
“The truth will set you free. But first, it will make you miserable.”

James A Garfield (1831-1881), 20th US President
Unwarranted variation in health care

Effective care

Preference-sensitive Care

Supply-Sensitive Care
Effective, High value care

- Unequivocal evidence for intervention
- Universal agreement on “right” outcome

<table>
<thead>
<tr>
<th>“Right” rate≈100%</th>
<th>“Right” rate ≈ 0%</th>
</tr>
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<tbody>
<tr>
<td>Childhood immunisations</td>
<td>Diabetic Ketoacidosis (in known diabetics)</td>
</tr>
<tr>
<td>Access to universal screening</td>
<td>Hospital admission for constipation</td>
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Routine vaccination rates

Percentage of immunisation completion for routine 5-in-1 (DTaP/IPV/Hib) vaccinations at 2 years by LA 2012/13

1.2% – 10.1% unvaccinated: eightfold variation
Preference-sensitive care

Optimal treatment course uncertain:

- Equivocal evidence for intervention
- Thresholds for intervention subjective
- Balance of risk/benefit

Examples

- Childhood allergy testing & treatment
- Elective tonsillectomy
Paediatric tonsillectomy rate by population

Rate of elective admission for tonsillectomy in children aged 0-17 years, by CCG 2012/13

Over threefold variation
Gastrointestinal endoscopy rate (0-17 years)

Admission rate for children for upper and/or lower gastrointestinal endoscopy per population aged 0-17 years by CCG
Supply-sensitive care

Activity / outcome based on supply / demand:

• Capacity drives care
• Imbalance in care pathway

Examples

• Acute admissions for ambulatory care-sensitive conditions
• Urgent care attendances
• Psychostimulant drug prescriptions for ADHD
Paediatric Epilepsy: Emergency admission rate

for children with epilepsy per population aged 0-17yrs 2007/8-2009/10

Over fourfold variation
Paediatric Asthma: Emergency admission rate

Emergency asthma admission rate for children with asthma per population aged 0-18yrs 2012/13

Nearly fivefold variation
Collaborating to tackle unwarranted variation

• Publish data regularly and publicly (and accept challenge)
Tonsillectomy rate per 10,000 children among 13 Vermont Hospital service areas (Wennberg & Gitelsohn 1973)
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Collaborating to tackle unwarranted variation

- Publish data regularly and publicly (and accept challenge)
- Data for comparison
NHS Right Care: Commissioning for Value packs
NHS Right Care: Commissioning for Value packs

Pre-school

A&E attendances (0 to 4 years)
Emergency gastroenteritis admissions (0 to 4 years)
Emergency admissions (0 to 4 years)
Elective admissions (0 to 4 years)
Myringotomy procedures (0 to 4 years)
Tonsillectomy procedures (0 to 4 years)
DTaP/IPV/Hib (primary) 1st birthday
MenC (primary) 1st birthday
PCV (primary) 1st birthday
DTaP/IPV/Hib (primary) by 2nd birthday
MenC (primary) by 2nd birthday
MMR 1st dose by 2nd birthday
Hib/MenC booster by 2nd birthday
PCV booster by 2nd birthday
MMR by 5th birthday
Hib/MenC booster by 5th birthday

Opportunity
2,070 fewer attendances
88 fewer admissions
1,288 fewer admissions
175 fewer admissions
5 fewer procedures
4 fewer procedures
27 more vaccinations
27 more vaccinations
27 more vaccinations
7 more vaccinations
26 more vaccinations
6 more vaccinations
29 more vaccinations
-
Collaborating to tackle unwarranted variation

• Publish data regularly and publicly (and accept challenge)

• Data for comparison

• Tools for improvement (guidelines; pathways, innovation & case studies)
1. Identify high priority clinical processes

1. Build an evidence-based guideline, blended into clinical flow
   - Action lists
   - Diagnostic sets

1. Demand that clinicians vary based on patient need

1. Track variations from guidance, and patient outcomes

1. Transparency & learning: Study and feedback data to clinicians

James, B. Health Affairs 2011;30:1185-91
GSTT/DGT Vanguard: Clinical Variation in Acutely Ill Children
Paediatric Asthma: Emergency admission rate

Emergency asthma admission rate for children with asthma per population aged 0-18yrs 2012/13

Nearly fivefold variation
Learning from Intermountain

1. Identify high priority clinical processes:
   • Wheeze; Gastroenteritis; 1st seizure; Asthma; Bronchiolitis

2. Build an evidence-based guideline, blended into clinical flow
   • Integrated multidisciplinary clinical “pathway on a page”

1. Track variations from guidance

2. Transparency & learning: Study and feedback data to clinicians
Wheeze in pre-school children pathway (DVH)

**Fewer medications**
- **Pre-pathway** – 81% patients received nebulised salbutamol;
- **Post-pathway** – 50% patients had received nebulised salbutamol

**More appropriate treatment:**
- **Pre-pathway** – 23% patients had appropriate use of nebulised salbutamol;
- **Post-pathway** – 71% patients had appropriate use of nebulised salbutamol

**Safer discharge:**
- **Pre-pathway** – 19% A&E reattendance rate within 7 days of discharge;
- **Post-pathway** – 0% A&E reattendance rate within 7 days of discharge

**Continuous improvement:**
- 4 iterations in 4 months ... and counting....
Collaborating to tackle unwarranted variation

• Publish data regularly and publicly (and accept challenge)

• Data for comparison

• Tools for improvement (guidelines; pathways, innovation & case studies)
  • Explicit understanding that variation is expected for system learning

• Building capability & changing culture
Thank you


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