Owning it: by the people for the people, are value based care systems possible?

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Inputs
- Ingredients
  - Mixing bowl
  - Recipe book

Processes
- Following the recipe
- Adding ingredients
- Mixing

Outputs
- Birthday Cake

Outcomes
- Happy child
  - Cake tastes good
  - No food poisoning

Care Pathway
- Early diagnosis
- Case finding
- Clinical guidelines
- Provider infrastructure

Blood Pathway
- Blood pressure check
- Blood sugar test
- X-Ray
- Weight
- Assessments

Blood Results
- Scan results
- Weight
- Measurement
- Examination results

Outcomes Based Healthcare, adapted from Alliance (Scotland): We’ve Got to Talk about Outcomes, June 2013
Population segmentation to improve patient outcomes

Who? Population segmentation
What? Selecting outcomes
How? Data
Outcome specifications
Measurement
Next steps
Population segmentation to improve patient outcomes

Who?

Population segmentation

What?

Selecting outcomes

Data

Outcome specifications

Measurement

How?

Next steps
Bridges to Health Segmentation Model

1. Healthy
2. Maternal and infant health
3. Acutely ill
4. LTCs
5. Serious disability
6. Short period of decline before dying
7. Limited reserve and exacerbations
8. Frailty +/- dementia

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Population segmentation

Whole Population

Healthy and Acute
- Currently predominantly healthy
- Maternal health
- Infant health
- Child health
- Acutely ill

Maternity and Child Health

Acute
- Cancer
- Circulatory
- Epilepsy
- Mental health
- Musculoskeletal
- Respiratory

Long Term Conditions

Disability
- Physical disability
- Learning disability

LTCs, Disability and Organ Failure
- End stages of life
- Often cancer

Short Period of Decline and Dying

Organ Failure
- Neurological
- Organ failure

End of Life

Frailty and Dementia
- Dementia
- Mild frailty
- Moderate frailty
- Severe frailty
(eFrailty Index)

Insights from segmentation
Population segmentation - example CCG 500,000 people

1 Healthy
260,000

3 LTC
170,000

- End of Life
  - 5,000
- Disability
  - 5,000
- Organ failure
  - 50,000

8 Frailty and/or dementia
50,000

How many people are in each segment?

These are the approximate sizes of each segment, based on a modelled population of 500,000.

The episodic care segments are not represented here due to frequent movement into and out of these groups.

* Modelled data based on comparable populations
How old are people in each segment?

- **1. Healthy**
- **4. Long term conditions**
- **5. Disability**
- **6. Short period of decline before dying**
- **7. Organ Failure**
- **8. Frailty and/or dementia**

*Modelled data based on comparable populations*
What proportion of people typically sit in more than one segment?

- Multiple segments: 65,000; 13%
- Single segment: 435,000; 87%

* Modelled data based on comparable populations
Who sits in more than one segment?

* Modelled data based on comparable populations
Population segmentation

How much do people in each segment go to hospital?

**HEALTHY**
- Events: 260,000
- Ratio: 1.0

**LONG TERM CONDITIONS**
- Events: 481,000
- Ratio: 2.8

**DISABILITY END OF LIFE ORGAN FAILURE**
- Events: 13,000
- Ratio: 2.6
- Events: 35,000
- Ratio: 7.0
- Events: 71,000
- Ratio: 7.1

**FRAILTY AND/OR DEMENTIA**
- Events: 290,000
- Ratio: 5.8

The number of events per person differs greatly by segment.

Includes outpatients, A&E, day cases, elective and non-elective inpatients.
Population segmentation

How much is this costing?

The proportion of the population

The proportion of the acute spend

The spend for some segments is much bigger relative to the number of people
Outcomes development process overview

Who?  
Population segmentation

What?  
Selecting outcomes

How?  
Data
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Measurement
Next steps
How can you measure outcomes?

Types of outcome measures

- **Patient Reported Outcome Measures**
  - Surveys

- **Person Generated Data**
  - Smartphones
  - Wearables

**Personal Outcomes**

**What matters to me**

**Clinical and Social Outcomes**

- Hospital
- Primary Care
- Ambulatory Care
- Social Care

**National Data**
## Clinical and Social Outcome Measures (CSOMs)

<table>
<thead>
<tr>
<th>Healthy (whole population)</th>
<th>Long Term Conditions, Disability and Organ Failure</th>
<th>Frailty and/or Dementia</th>
<th>Prioritised Personal Outcomes (across all population segments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>alcohol consumption</td>
<td>premature deaths in serious mental illness</td>
<td>time spent at home</td>
<td>↑ I feel more independent</td>
</tr>
<tr>
<td>↑ physical activity</td>
<td>smoking in LTCs</td>
<td>↓ pressure ulcers</td>
<td>↑ I feel proactive and confident in managing my health</td>
</tr>
<tr>
<td>↓ obesity</td>
<td>↓ obesity in LTCs</td>
<td>↓ serious falls</td>
<td>↑ I feel I have an active and full life</td>
</tr>
<tr>
<td>↓ smoking</td>
<td>↓ emergency hospital admissions</td>
<td>↓ inpatient delirium</td>
<td>↑ I spend time with friends and family, not being alone</td>
</tr>
<tr>
<td>↓ emergency admission for acute conditions that should not usually require admission</td>
<td>↓ organ failure exacerbations requiring emergency admission</td>
<td>↓ UTIs, severe constipation and incontinence</td>
<td>↑ I feel in control, involved, listened to</td>
</tr>
<tr>
<td></td>
<td>↓ days disrupted by care</td>
<td>↓ dementia prevalence gap</td>
<td>↑ I feel well (mentally)</td>
</tr>
<tr>
<td>People at the End of Life</td>
<td>↑ strokes in diabetes/circulatory conditions</td>
<td>↑ emergency readmissions and returns to A&amp;E</td>
<td>↑ I am treated with dignity and respect</td>
</tr>
<tr>
<td>↑ people dying in preferred place of death</td>
<td>↓ diabetes complications</td>
<td>↑ 30 and 120 day recovery from fragility fractures</td>
<td>↑ I feel supported and reassured</td>
</tr>
<tr>
<td>↑ people identified on the Palliative Care Register</td>
<td>↑ early diagnosis of cancer</td>
<td></td>
<td>↑ I feel safe and secure</td>
</tr>
<tr>
<td>↓ emergency hospital care during last weeks of life</td>
<td></td>
<td></td>
<td>↑ I do not feel anxious / depressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑ I am pain-free / ↑ I feel my symptoms are under control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑ I have good nutrition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑ I can manage the functions of daily living</td>
</tr>
</tbody>
</table>

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**Stockport Together**

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Outcomes development process overview

- **Who?**
  - Population segmentation
- **What?**
  - Selecting outcomes
- **How?**
  - Data
  - Outcome specifications
  - Measurement
  - Next steps
Data maturity for outcomes measurement

National aggregate data
- e.g. NHSOF, CCG OIS

National acute patient-level data
- SUS/ HES

Complete linked patient-level data
- Linked SUS/HES and primary care data

Flexibility

Complexity

Quality and accuracy
## Clinical Outcomes Measurement Options

<table>
<thead>
<tr>
<th></th>
<th>Option 1 Outcomes Frameworks &amp; Audits (e.g. NHS Outcomes Framework)</th>
<th>Option 2 National Datasets (e.g. SUS or HES)</th>
<th>Option 3 Linked Datasets, including primary care data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reporting Time</strong></td>
<td>Annual</td>
<td>Monthly</td>
<td>Monthly</td>
</tr>
<tr>
<td><strong>Time to Access</strong></td>
<td>1-2 years or more!</td>
<td>At least 6 weeks</td>
<td>1 - 6 weeks</td>
</tr>
<tr>
<td><strong>Flexibility of Reporting (e.g. by segment, frailty)</strong></td>
<td>+</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Linking Available</strong></td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Data Quality/Accuracy</strong></td>
<td>+</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td><strong>OBH Set-up/Development Time</strong></td>
<td>+</td>
<td>++</td>
<td>+++</td>
</tr>
</tbody>
</table>
OBH data approach

Pseudonymised and linked at patient-level

Integrated whole population dataset

OBH Analytics Layer

Healthy Population
- OBH Metrics
  - Reducing...
    - Obesity
    - Smoking
    - Alcohol consumption
  - Improving...
    - Employment
    - Housing

People with LTCs or Disabilities
- OBH Metrics
  - Reducing...
    - Premature mortality
    - Complications of LTCs
  - Improving...
    - Quality of Life
    - Self-Management

People Living with Frailty and/or Dementia
- OBH Metrics
  - Reducing...
    - Falls
    - Fragility fractures
    - Delirium in care
  - Improving...
    - Independence
    - Isolation

People at the End of Life
- OBH Metrics
  - Reducing...
    - Emergency admissions near death
  - Increasing...
    - Deaths in preferred place
    - Time spent at home
Allocating people to the correct population segment

- Turning 65
- Being diagnosed
- Moving into the area
- Already in the segment
- LTC segment for a single year
- Still in the segment
- LTC resolving
- Moving out of the area
- Dying
Population segmentation to improve patient outcomes

Who?  What?  How?

Population segmentation  Selecting outcomes  Data  Outcome specifications  Measurement  Next steps
## Technical specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Rationale</th>
<th>Population segment</th>
<th>Numerator description</th>
<th>Denominator description</th>
<th>Numerator data source</th>
<th>Denominator data source</th>
<th>Calculation</th>
<th>Type of measure</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPwFt1. Reduce serious falls in older people with frailty and/or dementia</td>
<td>Measures the incidence of falls, either presenting to hospital, or occurring in an admission, in older people with frailty and/or dementia.</td>
<td>General Rationale for the Outcome (see OBH Reference Guide for Outcome Longlist for detailed references): Having a fall can lead to injury, mobility issues and mortality. However, even when it does not lead to a physical injury, the fall itself often directly results in the loss of confidence. 17% of those over the age of 80 say that having a fall has made them worried about leaving the house. Fear of falling means that 5% of people aged 75 years and over won’t leave the house by themselves. Therefore it is important to measure falls, even those that do not suffer a physical injury as a result, as the resulting loss of confidence, fear and independence have an impact on people’s quality of life.</td>
<td>One in three people over the age of 65 will fall each year. Older people are more vulnerable to falls, which is a major cause of disability and the leading cause of mortality due to injury in older people aged over 75 in the United Kingdom. In 2014, 3,996 deaths were reported in England and Wales as a result of having a fall, equating to 10 people every day. Falls are the largest cause of emergency admissions among older people, accounting for about 40% of ambulance calls among people over 65 years old.</td>
<td>Numerator Description: Total number of admissions (by any method) with a primary or secondary diagnosis of a fall, for people in the population segment (as defined).</td>
<td>Numerator Data Source/s: Primary care data from all Stockport GP practices and SUS data from NHSO.</td>
<td>Denominator Description: Total number of people in the population segment (as defined), aged 65 and over.</td>
<td>Denominator Data Source/s: Primary care data from all Stockport GP practices and SUS data from NHSO.</td>
<td>Calculation used to derive the Outcome Value: (Numerator value / Denominator value) x 100,000</td>
<td>Incidence rate (per 100,000)</td>
</tr>
</tbody>
</table>
Population segmentation to improve patient outcomes

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Measurement
Population segmentation to improve patient outcomes

**Who?**
- Population segmentation

**What?**
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- Data
- Outcome specifications

**How?**
- Measurement
- Next steps
Next steps

- Set available budget
- Decide on:
  - Outcome weightings
  - Payment bands
  - Target values
- Monitor progress
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