Imperial College Health Partners

Lunch & Learn
13th December 2018

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What’s our story?

• Rooted in a strategic and partnership approach to system transformation;
• Underpinned by systems thinking and system dynamics modelling;
• A relational paradigm runs through our work and has stimulated the development of new tools;
• Strong population health component to conceptualising and understanding system transformation;
• Committed to forging new ways to work across the horizontal thread between population health needs, service transformation and workforce transformation.
Examples of our working partnerships…

• Kent County Council to use their linked data to inform strategic population health and service transformation modelling projects;
• Health Education England funded programmes to develop an integrated approach to strategic workforce planning at STP/ICS level;
• NAPC (Primary Care Home) programme to support workforce transformation;
• CQC and LGA in exploring the contribution and relational pre-conditions for effective partnership work and system transformation.
How does this work itself out...

• We’re going to skim the surface...
The modelling bit
Understanding the nature of the questions we ask

Our question: Requiring analytics

What type of question
- Out of scope
- Descriptive
- Diagnostic
- Predictive
- Prospective

What type of analytics?
- Descriptive
- Diagnostic
- Predictive
- Prospective

Level of complexity
- Simple
- Complicated
- Wicked & messy

Strategic or operational?
- Discrete Event Simulation
- Agent based modelling
- System Dynamics

Hybrid approaches

Home run?
Suitability of SD

System Dynamics modelling is the ‘tool of choice’ when:

- The scope of an issue is ‘strategic’ rather than operational or tactical;
- The importance of variability or tracking individuals within a system is low;
- The number of entities is large;
- When control over the system is exerted through rates rather than queues;
- When timescales are relatively long;
- When the purpose is to inform policy making and to gain understanding about a system.

What does successful look like?

Evidence about what makes a successful simulation project (including but not exclusively System Dynamics) has identified the following 5 elements:

1. High levels of communication and interaction between the client and the modeler throughout the project.
2. Modeler skills, competence and understanding of the client context.
3. Responsiveness and flexibility in delivering on the project.
4. Involvement and engagement with the client and relevant stakeholders.
5. The customer of client organisation should be committed, supportive and engaged in the modelling work throughout.

Ref: Key Performance indicators fir successful simulation projects. JOR (2017) 68, 747-765
Population health modelling
An approach that is reflected in the care function cube

Each segment of the cube requires a workforce that is molded to cohort needs, care functions being delivered and the setting, whilst at the same time:

- Population health needs are changing;
- Services are being re-modeled;
- The settings where care is delivered are evolving.

Needs → Intervention → Context

Severely frail
Multiple /complex needs
Single condition
Healthy

Hospital
Local facility
Long term care
At home
Population health needs as a system

- Population cohorts aged 15 and over
  - Healthy population
  - At risk population
  - Frail
  - Multiple conditions
  - Single conditions

Sources include:
- British Household survey (1990+), ONS pops/deaths
- Health survey for England, published research

Single conditions include: Cardiovascular Disease, Diabetes, Respiratory, Mental Health, Digestive, Visual Impairment and musculoskeletal

Progression of need

Case finding, prevention (1/2/3), effective treatment etc

Deaths rates
Initialising the cohort model

An individual at a point in time

- Severe frailty
  - Yes
  - No

- One of: SMI, Complex LD or Neurological condition
  - Yes
  - No

- Other long term condition(s)*
  - More than one
  - One
  - No

Risk factors

- Very frail
- Risk factors
- Multiple/complex needs
- Risk factors
- Single conditions
- Risk factors
- Healthy

Risk factors

* Including CHD, CKD, COPD, Dementia, Epilepsy, Heart Failure, Hypertension.
Example – progression to frailty...

Risk...

At risk of progression

Case finding

Progression

High or very high frailty

MDT case management

Deaths

Deaths

Deaths

Deaths

Deaths

Deaths

Deaths

Deaths

Note: figures for 2018, source: Surrey Downs whole population cohort model
Insights – cohorts at risk of progression

Highest impact will come from focusing on cohorts with high numbers and high rates of progression, i.e. moderate frailty & complex/multiple needs....
Workforce transformation
The workforce transformation story

- **SWiPe** is a framework for strategic workforce planning that relies on a population health led approach and a strong alignment to service transformation;
- Developed over the past 4-5 years and applied at all levels of system planning from STP/ICS to Primary Care Networks and across workstreams.
Application – the General Practice workforce simulator

What strategies should we employ to achieve the requisite workforce for General Practice in the future and how does that translate into recruitment, retention and workforce development plans?

It answers this question using a whole-practice, skill-level perspective, whilst also retaining the ability to monitor progress toward specific targets for wte GP capacity.
What does the simulator do?

• It uses wte workforce data from NHS Digital (adjusted for missing practices) for September 2017 for a specific CCG;
• It ‘shapes’ that data into skill levels and 5yr age bands to initialise a system dynamics model;
• It requires a user input that describes the wte requirements at each skill level at a specified date in the future;
• It simulates the required replacement or additional workforce at each skill level and in each year to 2031, including the requirements set in the previous step;
• It enables the end user to explore the impact of different policies on achieving the future wte requirements including, for example, the balance between recruitment and upskilling, the recruitment of GPs from overseas and retention strategies.
1. **Home:** set your WTE targets by skill level (and the split between GPs v’s ANP/ACP) & view high level outputs for WTE capacity changes...

2. **GP strategies:** explore the impact of different ways to achieve the required change in GP WTE...

3. **Wider workforce:** decide on any improvements in the retention of the wider workforce and on preferences toward upskilling...

4. **Annual outputs:** view and extract annual WTE targets to achieve the model outputs for each skill level and for recruitment v’s upskilling...
This CCG has set a goal for the wte workforce by skill level, as shown in the middle column opposite, with the target year for achieving this set for 2022 except for the Autonomous skill level, where the target is 2020;

From an initial 57/18/25 split for GP partners, salaried and ANP contributions to the Autonomous skill level workforce, the CCG has set a future spilt at 50/20/30.

The model simulates the outputs for GP wte opposite:
Step 2 – GP strategies

The CCG then decides on three strategies to increase the GP workforce:

1. That 5 GPs from overseas will be recruited in three consecutive years from 2018 to 2020.
2. That there will be a gradual increase in the number of Registrars being trained and retained locally, rising gradually from 1 or 2 new Registrars a year initially up to 5 in the medium term.
3. That there will be a 10% improvement in retention.
Step 3 – model outputs

What will progress in growing our GP wte look like?

What does our recruitment and workforce development requirements look like each year?

Where will new GPs from from (local, out of CCG or international)?

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<th>GP wte key figures:</th>
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<td>GP wte 2020</td>
<td>128</td>
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<td>GP wte 2031</td>
<td>136</td>
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Model output: workforce actions

The model outputs below provide an FTE pa for each skill level that will either need to be upskilled or recruited now to the local system, based on the primary scenario adopted and associated assumptions.
System transformation
Population health and demand drivers

- Proactive/MDT working in GP clusters
- Pre-hospital urgent care
- Non-elective admissions, including changes in length of stay

Local care functions – impacting on the urgent care system

- Case finding
- Community Frailty Assessment
- Integrated Reactive Care
- Access to General Practice
- See & Treat
- Clinical Assessment Service
- Urgent Treatment Centres
- ‘Home to assess’ pathways including admissions avoidance & early discharge
- ‘Home to assess’ pathways including admissions avoidance & early discharge

Model outputs can be translated into capacity, workforce and indicative costs for care functions to achieve the desired shift in care
Local analysis plus input from an initial group of stakeholders to:

- Arrive at a consensus about the demand drivers for the four PODs;
- Develop a range of implementation profiles for each of the different care functions or service transformation plans grouped to map onto one or more of proactive case finding; integrated reactive care; pre-hospital urgent care; integrated discharge; or planned care solutions;
- Agree assumptions about impact, with scope for testing and scenario building.

These are captured in a separate document that can be updated as new intelligence of evidence emerges.
It’s not all about the wiring...

The model interface provides the environment in which to explore the requirements in local care (the example below covers the pre-hospital urgent care pathway) & the impact on POD activity (e.g. A&E)...

The impact of local care, were the ‘opportunity fully realised, on POD activity...
Benefits

• The local care system dynamics modelling project led to:
  − An improved understanding of underlying population health needs as a driver for increased demand;
  − The development of a consistent language and set of assumptions about the potential impact from developing local care; and
  − The implications for the acute care system from the development of local care.

• Its limitations included:
  − Whilst the model addressed whole-population health needs the key care functions included were focussed on the needs of those with high or very high frailty;
  − A relatively short timescale for impact, i.e. constrained to the timescales for the STP to 2021;
  − Limited attention to the preventative and wider factors influencing health and having a potential contribution to make.
Recognising the importance of relationships
Relational value (R^v) is something that:

1. Exists **between** individuals, groups or organisation – it is distinct from, though dependant on the parties to the relationship, and is therefore a feature of the system as a whole, not the constituent parts.

2. Supports or hinders the achievement of the **purpose** for which the relationship has come into existence.

3. Is evidenced through a set of **behaviours** that are consistent with the suggested **attributes** of relational value.....
CQC Local System reviews

- Co-creation of a bespoke audit or ‘scorecard’;
- 35 statements, to be rated on a 6 point scale;
- Anonymous;
- Some demographic intelligence;
- Opportunity for free text comments;
- Completed using an online tool disseminated locally by stakeholders;
- Analysed by CQC.
 Outputs

• More than 2500 responses across 20 systems;
• Findings suggested some key lines of enquiry for site visits;
• ‘Rang true’ with what was found on the ground;
• Gave a language and a legitimacy to conversations that may otherwise have been seen as ‘soft’ impressions.
The contribution of place-based thinking
Thinking about place – the thick and the wide!

**Thin** = Neighbourhood or locality teams.....

**Thick** = General Practice + in-reach/out-reach teams, specialists supporting people at home etc.....

**Wide** = + independent and voluntary sector, charities etc.
The nature of place

• Each place will have:
  ✓ A level of **health and wellbeing** that can be expressed in absolute and aspirational terms using the outputs from the cohort analysis (retrospective) and modelling tools (prospective), described using high level population cohorts;
  ✓ A ‘natural’ resource often described as ‘**community assets**’ that strengthen individual and community resilience and therefore reduce the risk of poor health as well as providing a buffer against inappropriate use of statutory sector services,
  ✓ Rates of **access to services** such as primary care, social care, hospital or specialist services identified in local data and/or estimated from national survey data modified for local socio-demographic profiles.
The Place cylinder...

What makes a place for a particular population group?

- Family and carers
- General Practice, Community Health & Social Care workforce
- Independent, voluntary and charitable sector workforce
- Socio-demographic factors defining the type of place, e.g. using Mosaic descriptors
- Employment or other activities
- Environment
- Rurality

Complemented by an understanding of community asset base.

Some of the workforce, or other resource, may be physically located or organised at a ‘higher’ geographical level, but remain ‘place-oriented’
We envisage the development of a dynamic set of measurement and causal links for population health and wellbeing at a place level that reflects, and integrates:

2. The context from which these needs are expressed – community assets.
3. The workforce resource that seeks to prevent, co-ordinate and respond to needs within the statutory sector.
4. The use of area or system-wide or specialist health and care services when the above are not sufficient.
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