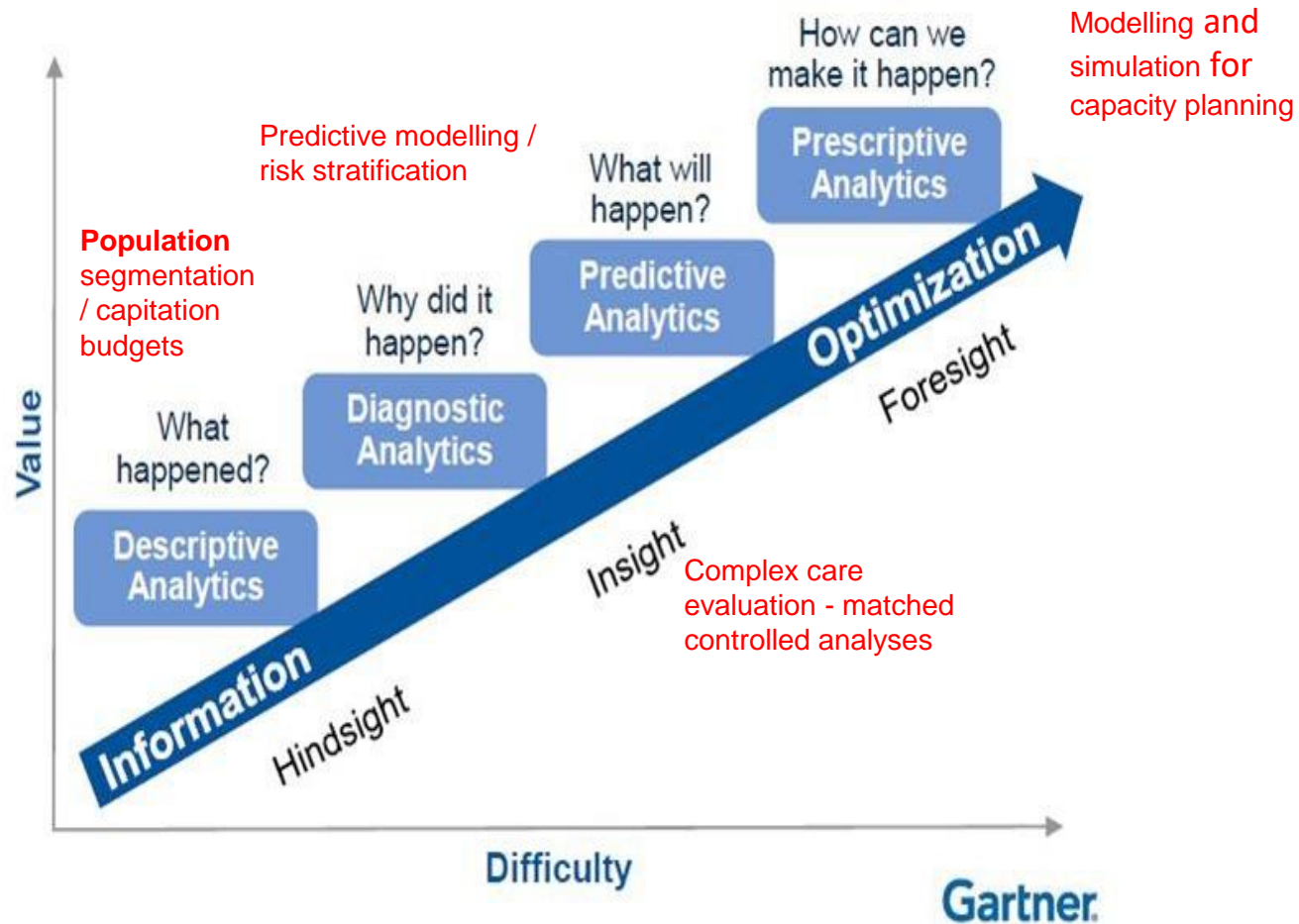


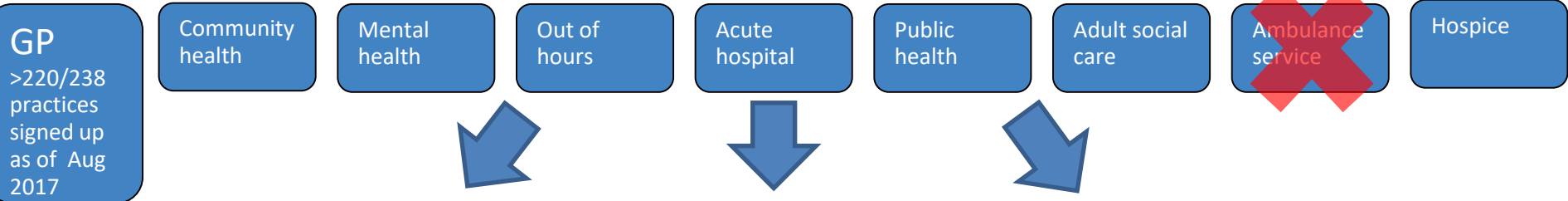
# Kent Integrated Dataset (KID)

Use of linked data for applied analytics to support service planning

# Moving towards a JSNA 'plus' – framing the right questions



# What datasets make up the KID?



**HISBI data warehouse (Trusted Third Party Data Processor)**

**KID minimum dataset:** data on activity, cost, service/treatment received, staffing, commissioning and providing organisation, patient diagnosis, demographics and location.

{ Datasets linked on a common patient identifier (NHS number) and pseudonymised derived from **Patient Master Index (Household level data is linked via pseudonymised UPRN)** }

**KENT INTEGRATED DATASET**  
Accessed securely by  
Kent County Council Public Health



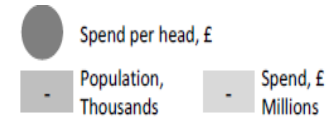
**Arrangements are in progress to link to data covering other services, including:**

- Health and social care services: Children’s social care, child and adolescent mental health, improving access to psychological therapies, and non-SUS-reported acute care.
- Non-health and social care services: District council, HM Prisons, Fire and Rescue, Probation, and Education.

# Population segmentation

Initial focus has been on developing a Local Care model for older people with complex needs

2015/16 population size, total spend and spend per head by condition and age band



Age	Mostly healthy	Chronic conditions (1-3)		Cancer		Neurological disorders		Dementia		Serious and enduring mental illness		Chronic conditions (4+)		Learning disability	
0-15	426	942		9,849		3,805						2,767		3,378	
	257.2   109.4	28.5   26.8	0.2   1.6	1.5   5.8					0.1   0.2			0.5   1.6			
16-69	349	985		2,362		3,796		11,772		15,565		2,764		26,855	
	501.9   175.2	404.1   398.0	14.1   33.4	12.6   48.0	0.4   4.9	5.1   78.8	92.8   256.5	5.3   143.5							
70+	1,901	1,782		2,420		4,262		7,681		24,943		4,576		42,310	
	21.8   41.4	79.1   141.0	8.5   20.6	4.1   17.6	3.6   27.8	0.5   12.3	84.8   388.2	0.4   15.7							

Notes: KID data covers 55% of population and 32% of spend for scope area. Populations have been scaled to account for population registered to practices not flowing data into the KID. Spend has been scaled to match CCG data returns to account for data not included in the KID (e.g. non-PbR acute activity). Children's social care, CAMHS, prescribing costs and continuing care costs are not included. People registered to GP surgeries which flow into KID but had no activity in 2015/16 have been added to "mostly healthy" segments. KID data quality issues cause some people with long term conditions (incl. physical disability and SEMI) to be categorised erroneously as 'mostly healthy', artificially raising those segments' spend and populations.

Source: Kent Integrated Dataset; Carnall Farrar analysis; latest version as of 31/03/2017

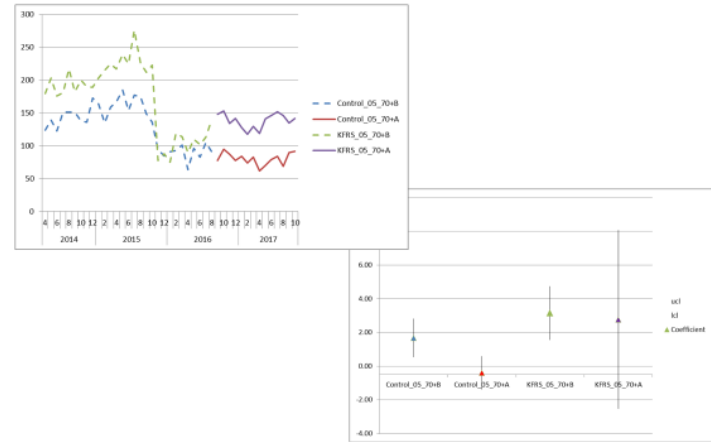
# Introduction\_1

The research question underpinning this work is:

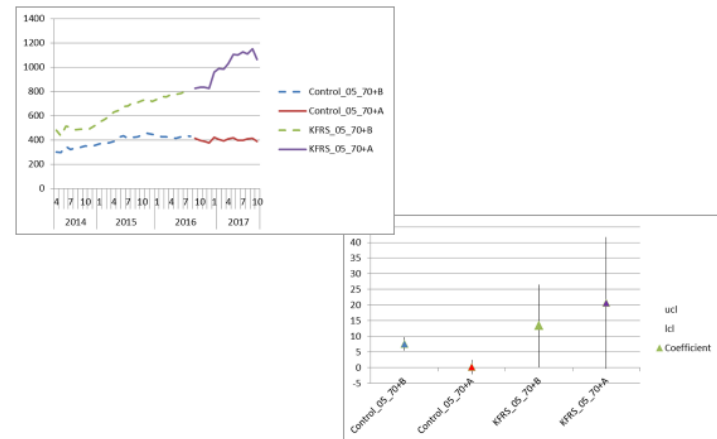
'Does the Kent Fire and Rescue Safe and Well Visit programme impact on adult health or social care utilisation'

Note: care sectors refer to A&E attendances, OOH activity, GP consultations and Social Care Contacts.

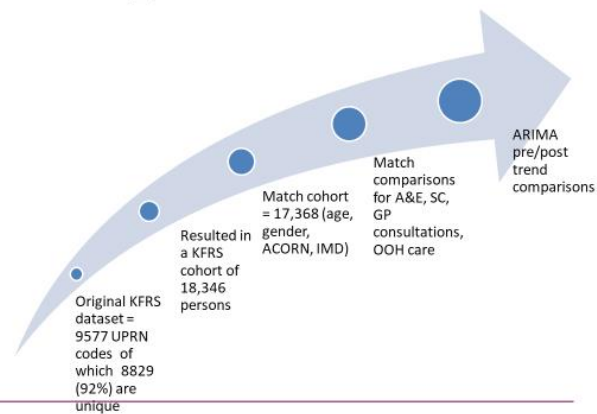
# Results\_A&E attendances



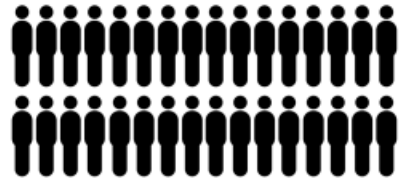
# Results\_Social Care



# Method\_3



# Type 2 (poorly pensioners) in Kent



**34,724**  
individuals

Gravesham  
**1,695**  
individuals

**15,572**  
households\*



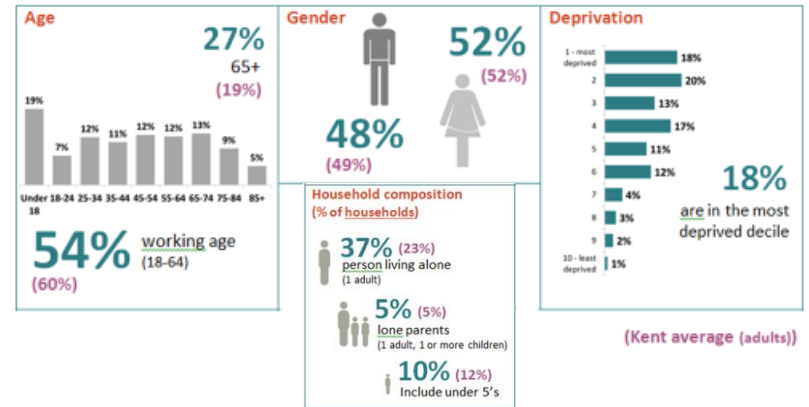
Gravesham  
**711**  
households

Source: Kent Integrated Dataset (KID), December 2017.

\*Households have been identified via UPRNs (Unique Property Reference Numbers), with all individuals recorded within the KID PMI data at a single property treated as a household.

Project WarmHome, January 2018

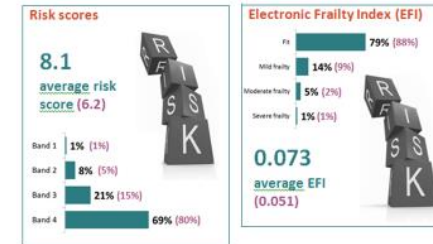
# Type 2 (poorly pensioners): Demographics



Source: Kent Integrated Dataset (KID), December 2017. Analysis is based on 31,510 Kent residents living xxx households in postcodes classified as the 'poorly pensioners' Acorn Wellbeing type, and who are registered with a GP providing data to the KID. Not all Kent GPs flow data into the KID; this analysis is based on records from 213 Kent & Medway GPs and presents information as recorded by GP systems.


Project WarmHome, January 2018

# Type 2 (poorly pensioners): Risk Scores



Project WarmHome, January 2018

### Acute activity




In 2016/17) an average of:

- 0.4 A&E attendances (0.3)
- 0.2 emergency admissions (0.1)
- 0.2 planned admissions (0.1)
- 1.5 outpatient appointments (1.1)

### GP activity

In two years (2015/16-2016/17) an average of:

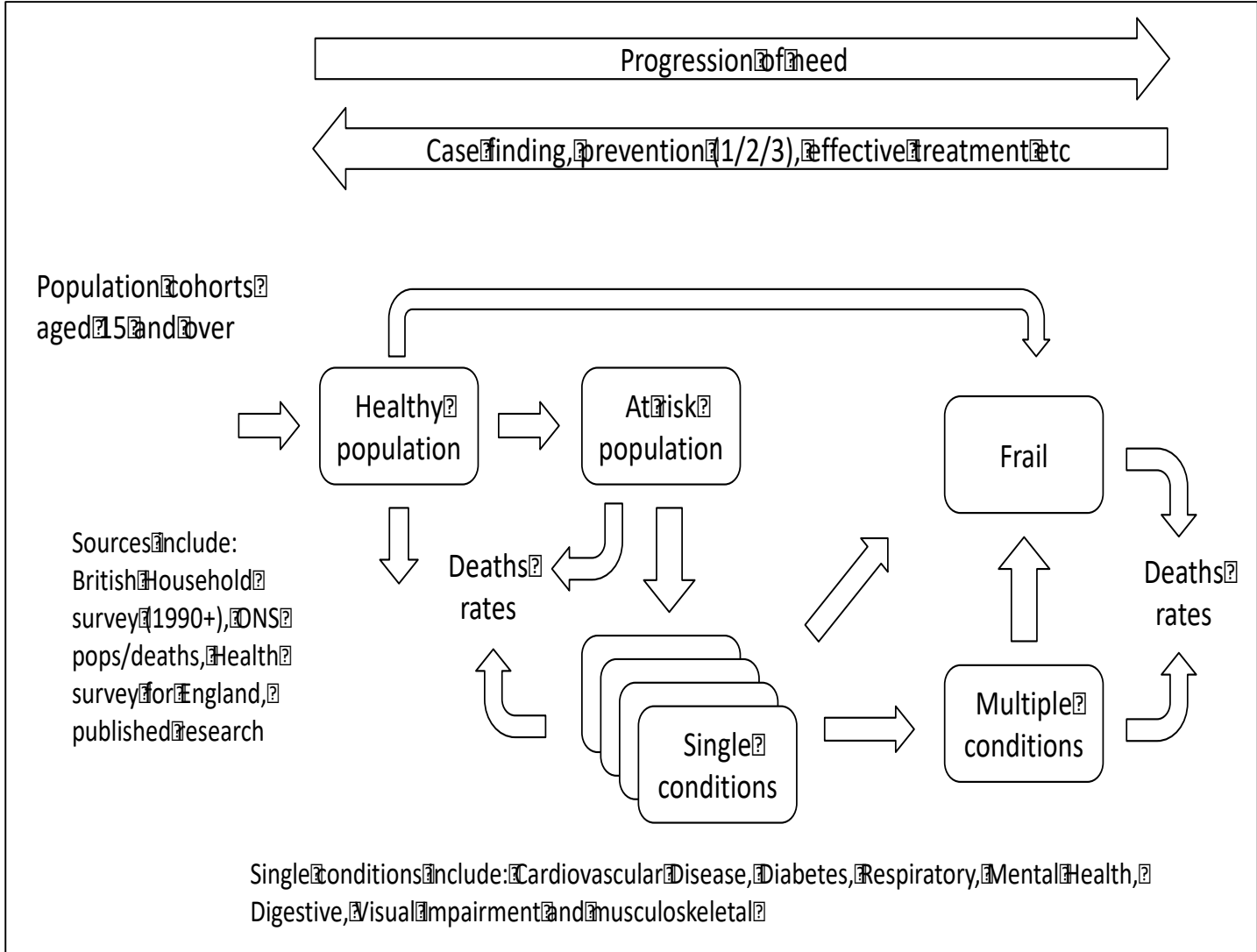
**5.3 consultations** (3.7)



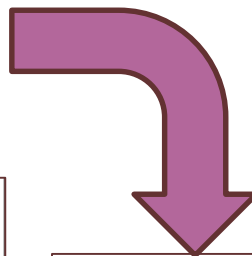
\*As recorded by GPs

# Modelling and simulation for forward planning

Adult cohort model



# The model interface and scenario generator



Changes in population health needs in response to prevention strategies  
 → impact on service utilization rates

## Whole system cohort modelling Kent



Run Reset

Switch smoking trends



0.5% annual increase in never smoked.

Switch Obesity reversal

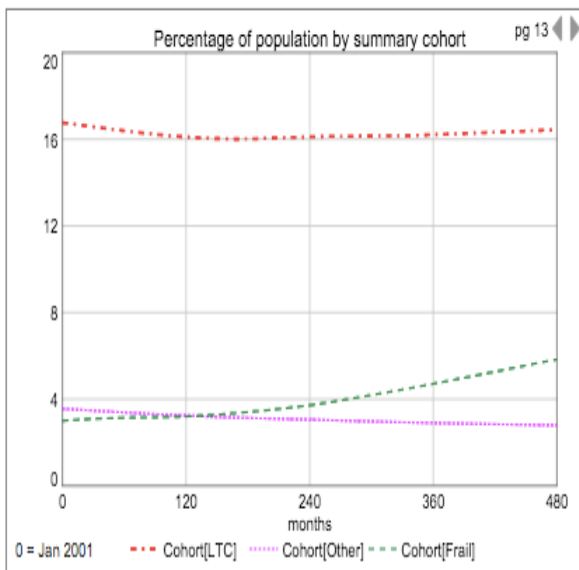


Reverses the 0.3% annual increase in obesity

Healthcare impacts

Baseline assumption: Incidence

Baseline assumption: Risk factors



## Health and care impacts



Run Reset

Switch smoking cessation



Percent increase in smoking quitters



Switch hypertension primary prevention



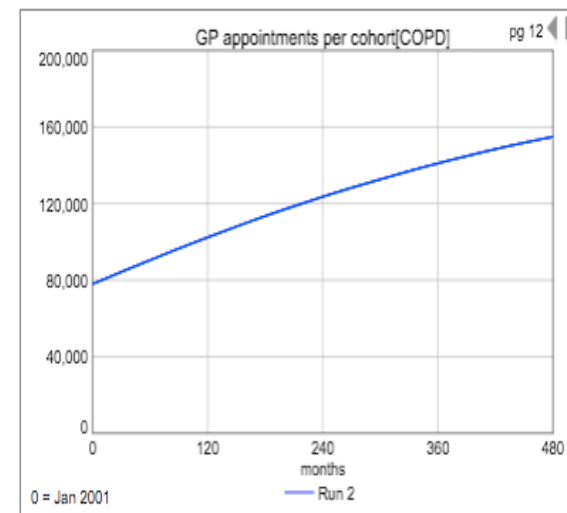
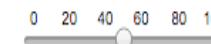
Percent additional Hypertension primary prevention drug treatment



Switch drug therapy secondary prevention



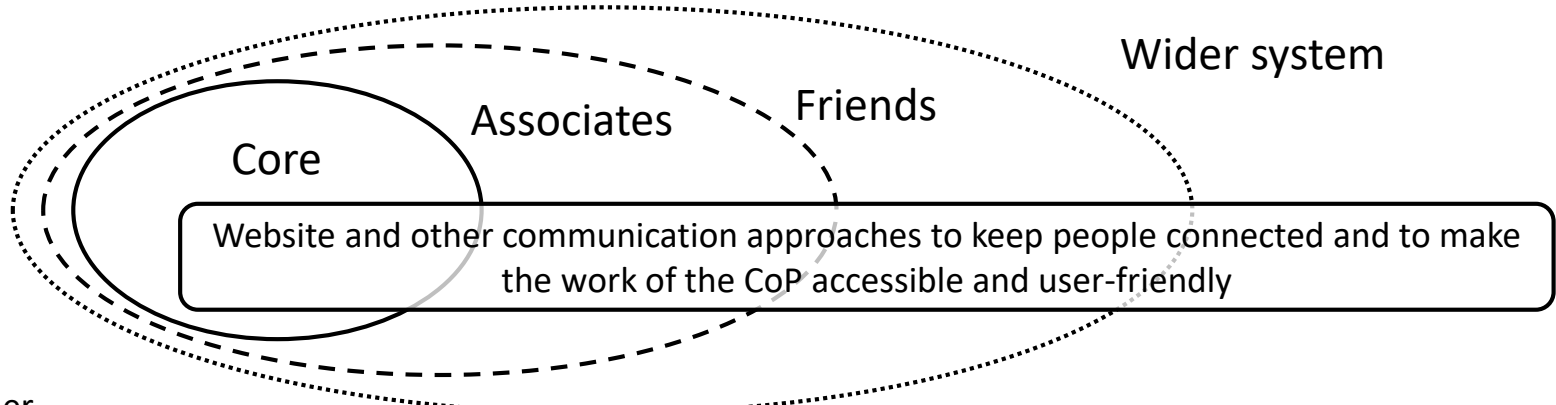
Percent reduced Hypertension untreated secondary



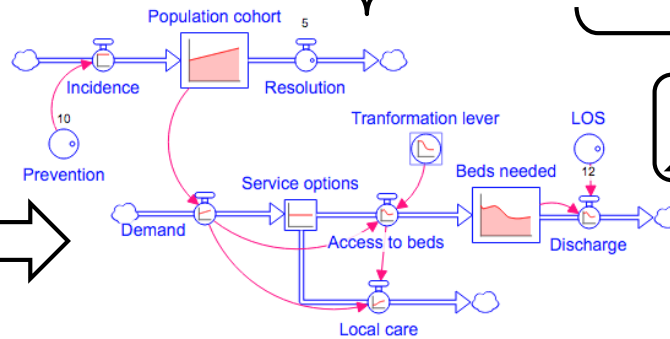
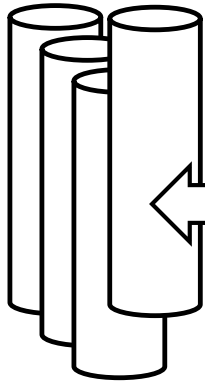
Home



# Developing a 'Community of Practice'



The KID and other relevant datasets



Expertise and coaching  
in SD modelling

STP/ACS Clinical and Strategic  
leadership groups

Shared Health and Care  
Analytics board

# Key challenges

- Limited understanding at senior level in the 'complex supply chain' for linked dataset development, importance of population health analytics
- IG labyrinth, variation in risk appetite, no clear succinct approach in linking health and non health data
- Significant data quality and completeness issues
- Disconnect between Academia and CCGs / LAs around research prioritisation affect data access

# Moving forward....key messages

- Huge amount of routine administrative data generated in health and wider public sector
- Most of them potential to be linked at person level *and* household level – *reduce ‘ecological fallacy’*
- Analytic uses are exponential
- Time is ripe for national policy to change to help rather than hinder democratization of access and link health and health data
- The right question framed → right sort of analytical approach → right sort of data / datasets → system leadership to bring the data together