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The potential of individual-level linked social care data for research and analytics

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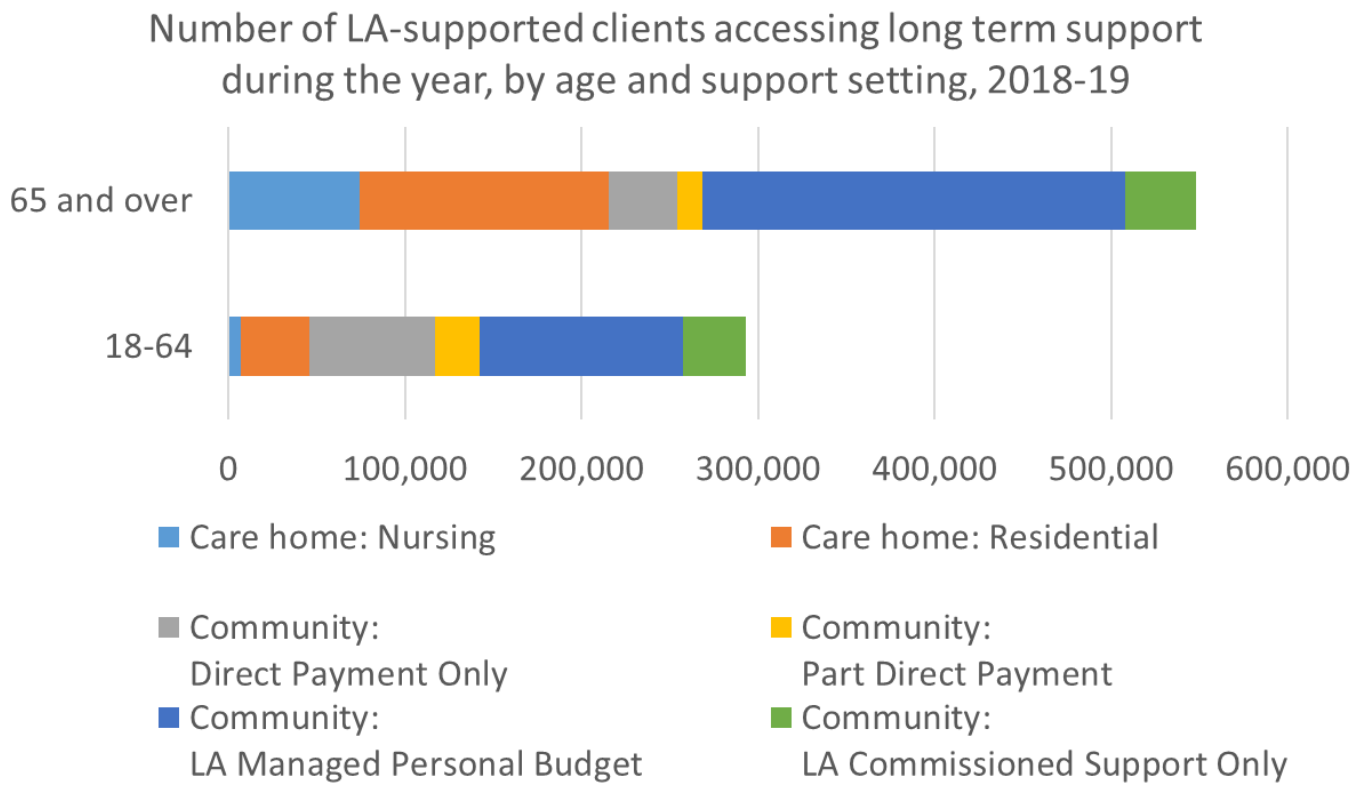
What social care data are held?

- Who holds social care data?
  - Local authorities (LAs)
  - Providers
  - Regulator (CQC)
  - Government and agencies
    - NHS Digital – collates data
- Data holdings:
  - Service use data – care homes, home care, DPs etc.
    - LA-supported
    - Self-pay
  - Finance – expenditure, charges
  - Assessment (some) – details of the client's needs



Source: NHS Digital, https://digital.nhs.uk/data-and-information/publications/statistical/adult-social-care-activity-and-finance-report/2018-19 (table 34)

Potential analyses – issues that can be explored

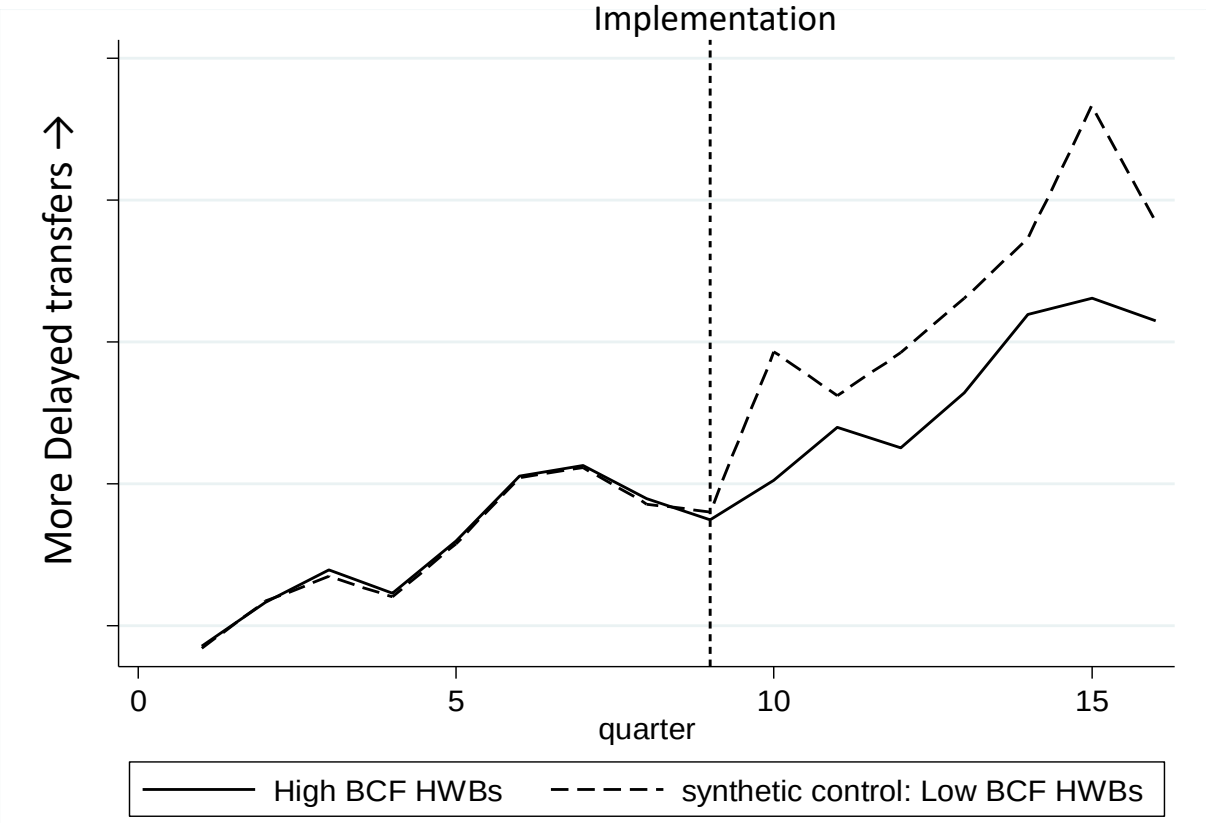
- Identifying at-risk or high-need groups
- Understanding equity issues (e.g. explaining variation in service use)
- Projections of future need/expenditure requirements
  - Accounting for change in service user population characteristics and eligibility
- Evaluation of new interventions

Evaluation – establishing the counterfactual

- Estimating the effects of a new way of working, implemented in one part of the region
  - E.g. new reablement service for people with social care needs – does it reduce delayed transfers of care (DTOC)?
- Analysis of *Individual* level *linked* data, *repeatedly* collected at regular time points… can help establish the **causal** effects of this policy
  - *Individual level* data – allows comparison between people getting the new service and those that are not
  - *Linked* data – allows effects on hospital use (LoS, DTOCs) to be assessed for social care users
  - *Repeated* observations – allows comparison of (trend in) experiences before and after implementation
- Generally not enough to either compare DTOC rates before-and-after **or** between groups… better to do both…
  - Match groups before the implementation and then track differences afterwards
  - There are various analytical methods to do this…

Synthetic control - example

- Better Care Fund – 150 HWB areas
- Comparing high BCF-spending areas with low-spending areas
- Select a set of low-spend areas that have same profile of DTOC before implementation
- Track experience after implementation
- … some diversion observed



Source: Forder et al. (2018) A system-level evaluation of the Better Care Fund: Final Report, QORU

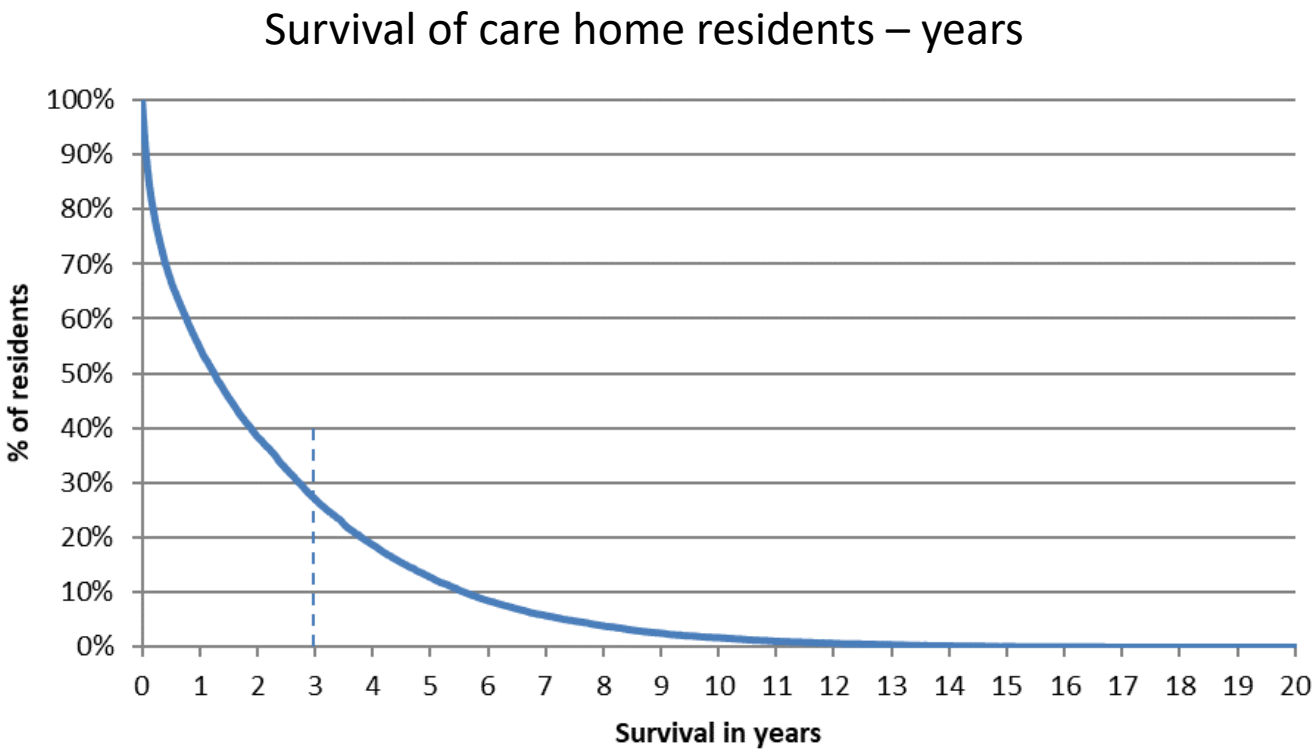
Analytical methods for evaluation

- Other methods – e.g. See Gillies et al. (2016)
  - Difference-in-difference
  - Lagged dependent variables
  - Matching
  - Instrumental variables
  - Regression discontinuity

Gillies C, Freemantle N, Grieve R, Sekhon J, Forder J. (2016) "Advancing quantitative methods for the evaluation of complex interventions." In Raine R, Fitzpatrick R, Barratt H, Bevan G, Black N, Boaden R, et al. *Challenges, solutions and future directions in the evaluation of service innovations in health care and public health*. *Health Services and Delivery Research* 4(16); 4 (16). pp. 37–54, http://dx.doi.org/10.3310/hsdr04160.

Projections of need

- Estimating the cost of stays in care homes
- Provider data – working with BUPA care homes
- Statistical methods - Survival analysis
  - Can be used to understand differences in LoS for different residents



Source: Forder, J and Fernandez, J-L (2011) Length of stay in care homes, Report commissioned by Bupa Care Services, PSSRU Discussion Paper 2769, Canterbury: PSSRU

Pros and cons with individual-level linked social care data analyses (cf. primary data studies)

- Pros:
  - Low-cost, as data collected already for multiple purposes
  - A wide range of data can be brought together
  - Analysis of a ‘real-world’ setting (not an experimental setting) - good ‘external validity’
- Cons:
  - Processing - Information Governance and ethics
    - Can be challenging (legal basis for processing)
      - Primary data studies routine use informed consent re. ethics
  - Data quality can be variable
    - Routine data can suffer input and coding errors etc.
  - Analysis limited to data being collected
    - Generally little on client and patient outcomes
    - Data might be commercially sensitive
    - Data in more challenging form – e.g. free text
  - Can only approximate the counterfactual, some bias can remain – poor ‘internal validity’

Discussion points – potential developments

- Significant potential given wide range of data (potentially) available
- Analytical methods – significantly improving in recent years
- Opportunities to combine administrative data with data collected in primary (experimental) studies