Understanding local population change from routine data sources

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Challenge

- ONS estimates
  - Do not go low enough
    - SOA level remain experimental
  - Not timely enough
    - Based on single points in time and nationally derived adjustments
    - Heard earlier about planned improvements
  - Not reflect the diversity of the population
    - Age and gender
    - Not ethnicity and place of birth…

Challenge

No one single source of population data exists that can answer the question of "who lives where?"

Approach

- Need to be able to understand our population:
  - How it is changing?
  - Where is the change greatest?
  - Which age groups are changing quickest?
  - How will the changing population affect current and future plans?

What are we looking for

- Systems that are regularly updated
- Contain ethnicity, country of birth, residential and other demographic information
- Importantly must have enough information to enable linkage or triangulation of results

Potential sources

- Registration systems
  - ONS Births and Deaths
  - Child health systems
  - School census
  - GP registrations
  - Worker registration schemes
- Management systems
  - Council, Health, Community Safety…

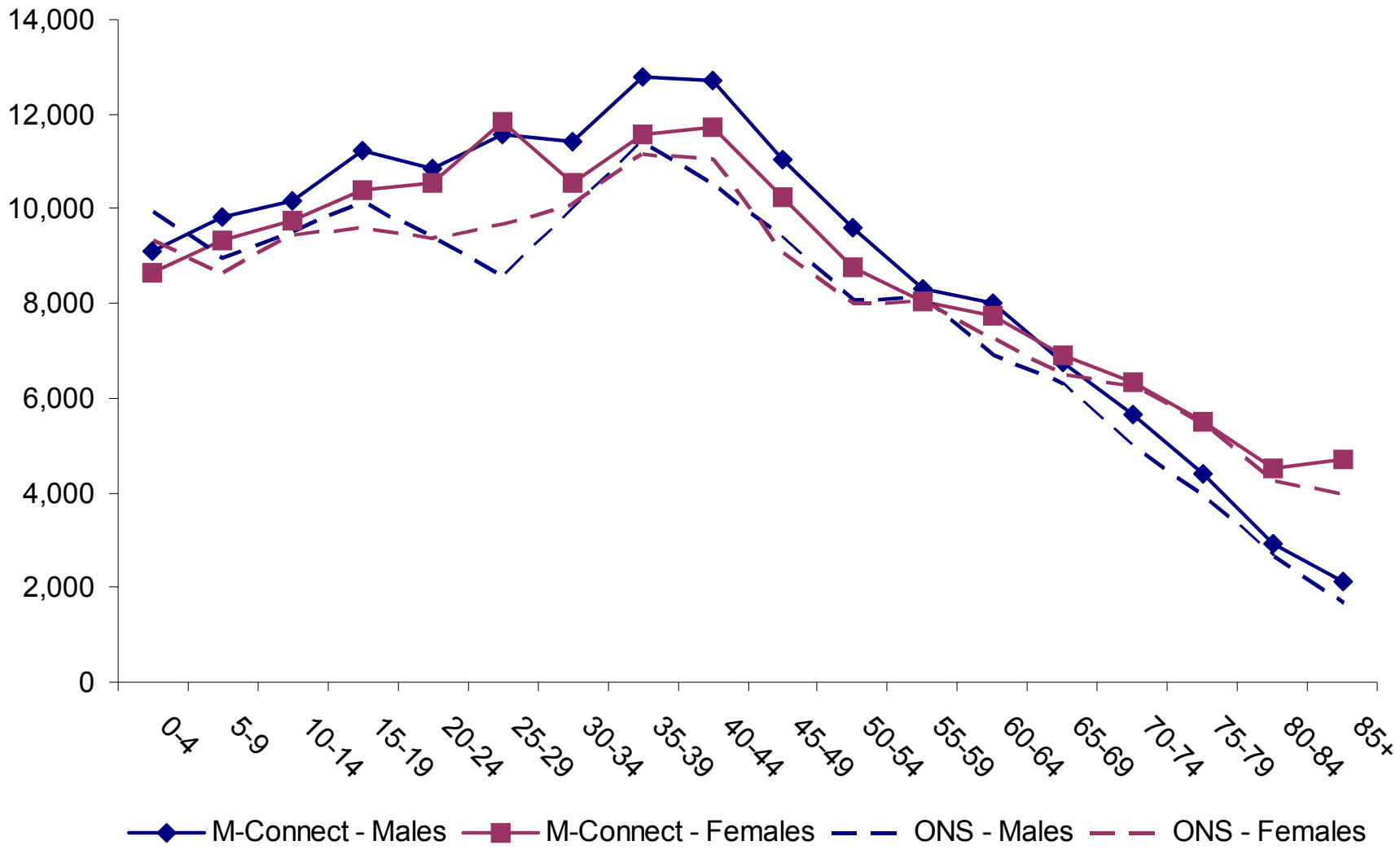
Local Authority sources

- School census
  - Name, address, ethnicity, Unique Pupil Identifier
- Administrative systems
  - Housing
  - Council Tax Benefits
  - …

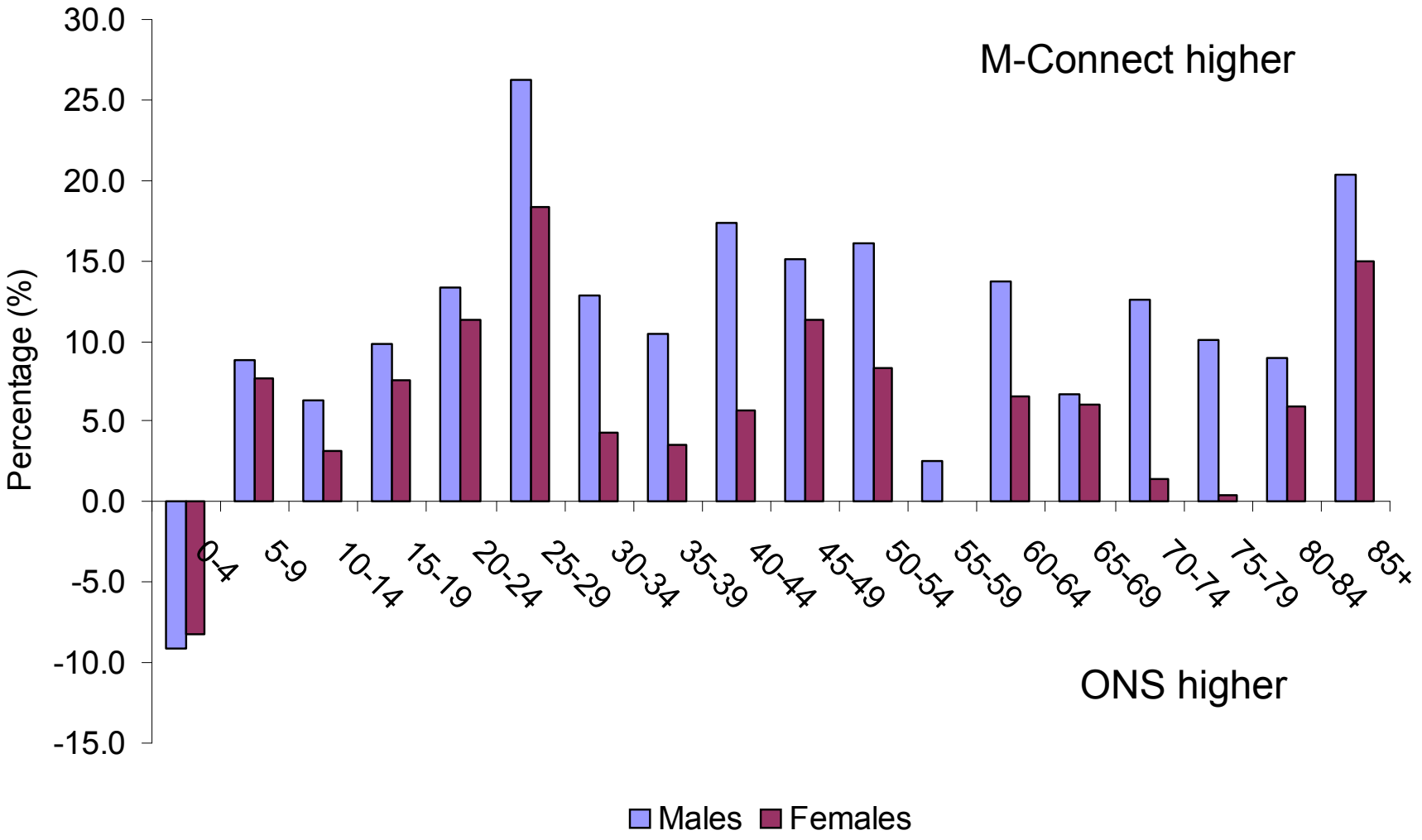
NHS demographics

- Two sources
- M-connect/Exeter
  - All patients registered with a GP in a Local Authority area
    - Name, date of registration, address, country of birth, NHS No
- NSTS
  - All patients registered or resident in a Local Authority
    - Name, address, NHS No

ONS to M-Connect



% Difference


30.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
Percentage (%)
M-Connect higher
ONS higher
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85+
Males
Females

Children

- Births
  - A single point in time
- Child health
  - Source is birth notifications
  - Longitudinal record (0-18years)
- Schools
  - Census
  - Stitched together makes longitudinal history (3-18 years)
- M-connect
  - Under-records infants

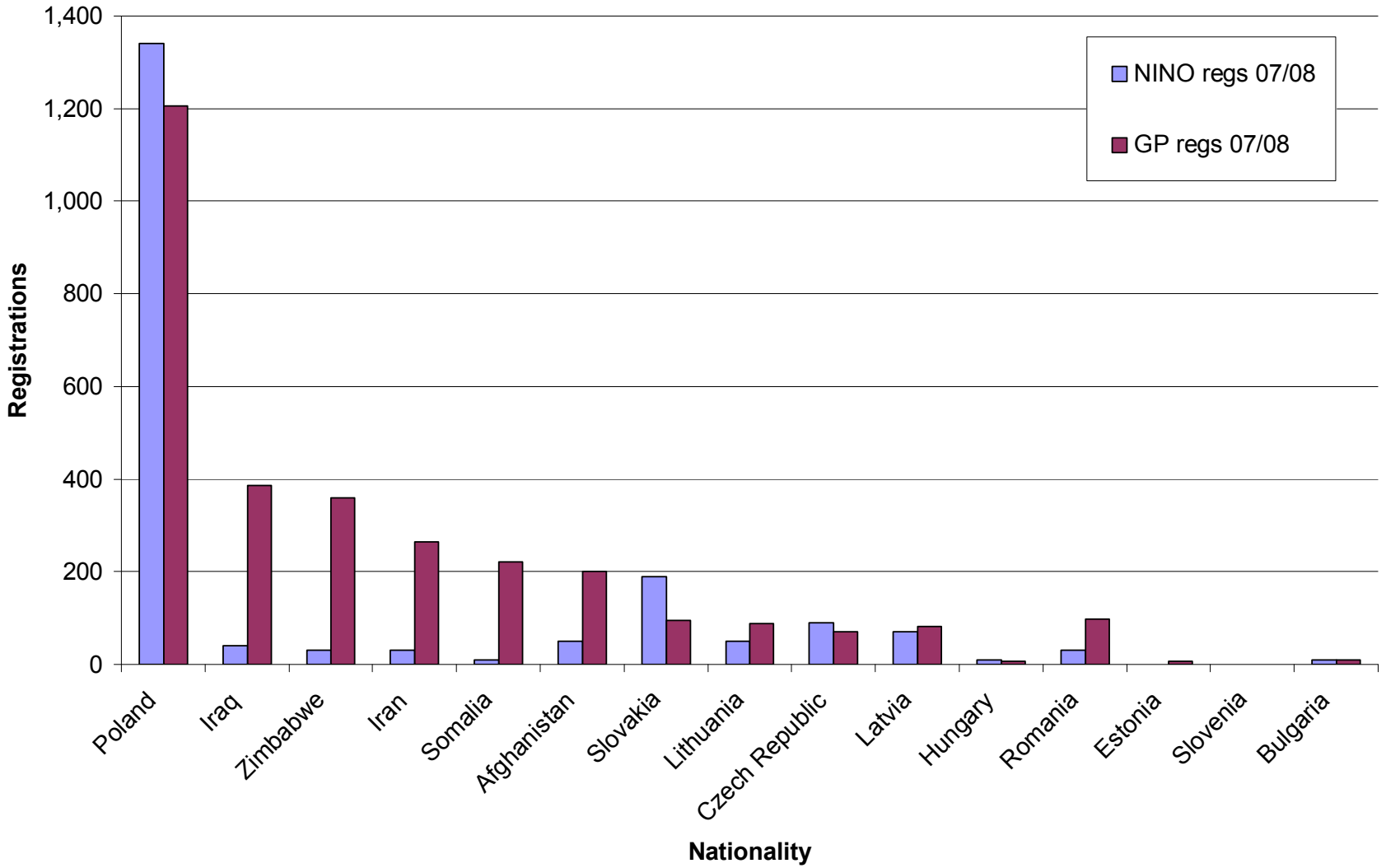
Children by Ethnic group (0-5)

	Schools	Child Health
Asian or Asian British Bangladeshi	5.3	3.6
Asian or Asian British Indian	11.3	11.7
Asian or Asian British Other	2.1	0.9
Asian or Asian British Pakistani	8.5	8.1
Black or Black British African	1.3	1.7
Black or Black British Caribbean	2.5	2.9
Black or Black British Other	0.6	2.1
Chinese	0.2	0.3
Mixed Other	1.9	0.5
Mixed White and Asian	1.6	0.9
Mixed White and Black African	0.3	0.5
Mixed White and Black Caribbean	2.6	1.6
White British	58.1	**46.9**
White Irish	0.2	0.1
White Other	1.2	4.6
Information not yet obtained/Blank	0.9	**11.7**
Any Other Ethnic Group	1.6	1.9
Total	100.0	100.0

Newcomers

- Magnitude of change
  - Migration
  - Housing growth
  - Worker registration

NINos to GP registrations



Why different?

- **National Insurance and Families**
  - National Insurance numbers refer to individual workers, and do not represent family or numbers of dependants.
  - It is therefore likely that NI statistics exclude dependants who appear in the GP registration numbers, and the
  - NINo registration numbers may therefore be an underestimate of total migrants.
- **Asylum and economic migration**
  - Migrants from A10 countries are overwhelmingly economic countries.
  - Other countries outside the A10 are predominantly asylum groups.
  - The latter are legally ineligible to work in the UK, and therefore, primarily asylum nationality groups are very likely to have much lower rates of NINo registration than GP registration.

Newcomers

- Size only one aspect
- Already heard about the need to understand “who?”
- Problem difficult to track
  - GP registrations only country of birth
  - Not all have children
- But they all have a name!

Using names

Problems of multi-cultural names

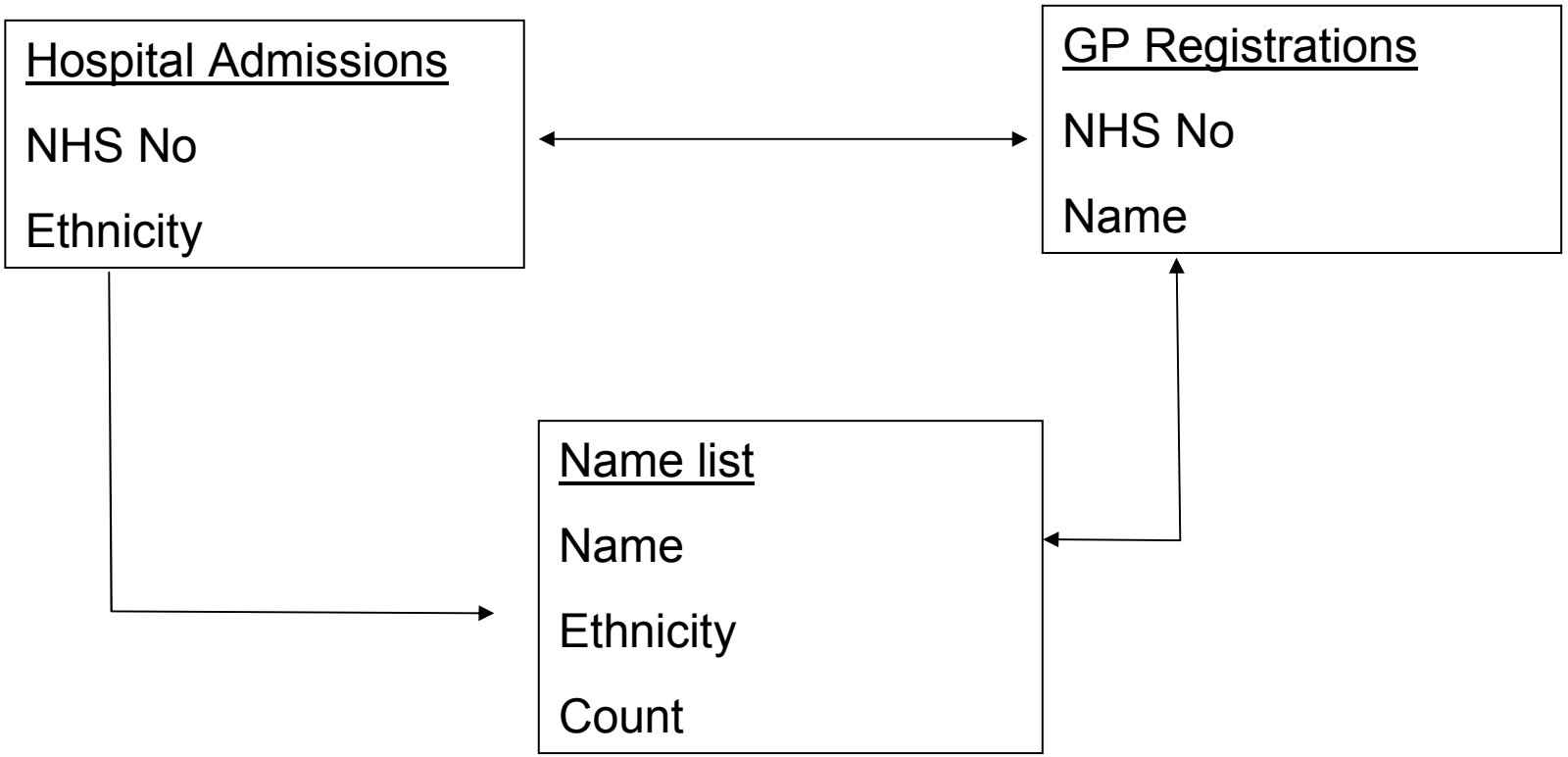
- Mohammed reflects religion not ethnicity nor country of birth
- Many names are shared by Black Caribbean and white communities

- Solution: derive a local name to ethnic group lookup

Local naming solution

- Advantages
  - Reflects local diversity in names
    - Communities often cluster together and retain naming heritage
- Disadvantage
  - Only as comprehensive and accurate as the lists it is derived from

Methodology – Health data

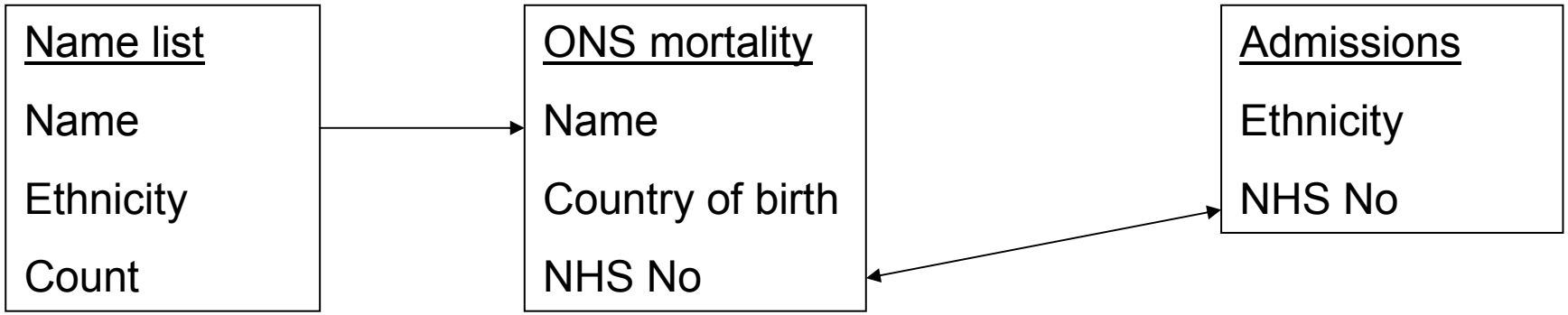


Count is used to determine the sensitivity (true positives)

Results

- 93% population assigned ethnicity
  - Age differences
    - 83% of 25-49 year old women
    - Visual inspection indicated that most of these were Eastern European names
- Refine using child health data and school registers to increase coverage of name:ethnicity link

Uses: ethnicity at death



	Ethnicity by last declaration	Ethnicity by names
Bangladeshi	0.25%	0.35%
Pakistani	0.82%	0.96%
Indian	3.28%	3.94%
Any other Asian background	0.20%	0.04%
Black African	0.10%	0.03%
Black Caribbean	1.61%	**1.02%**
Any other Black background	0.28%	0.10%
Chinese	0.01%	0.02%
Mixed	0.17%	0.04%
Other Ethnic Groups	0.36%	0.09%
White	78.71%	**88.10%**
Not stated	14.20%	**5.31%**
Grand Total	100.00%	100.00%

Achievements

- Migration proven by ONS and other work reported elsewhere
- Improving ethnicity monitoring
  - Deaths
- New comers
  - Contemporary montioring

Going Forward

- Requires not just data
  - Strategic commitment
  - Information Sharing Protocol
  - Governance

Population model

- GP registrations basic building block
  - Weakness is ghost patients
- Requires input from Child Health/births
- Benefits from higher quality data in School Census
- Names adds value
  - precautions about interpretation

Next steps

- Map population to households to understand list inflation in General Practice
- Strategic Information Board to approve the creation and maintenance of a population model