**IPACS Acute Admission Cohorts**

### 1. **Background**

The IPACS project aimed to alleviate the shortage of acute beds, resulting from delays in discharge to social care, by developing research methods to improve the flow between acute, community, and social care and ultimately improve patient experience and health outcomes. As part of this, there was an interest in identifying patients most at risk of unplanned admissions, particularly those who might follow post-acute discharge complex care pathways (D2A).

### 2. The Question

Which cohort of patients will be following the post-acute discharge complex care pathways?

### 3. Approach

First, a new field was added to the base data used by the ExploreR, containing the number of secondary non-elective admissions in the past year that lasted at least 24 hours (1 day). The tool was then re-loaded using the new data. The analysis then followed these steps:

1. Population cohort definition
2. Analysis of existing service contact data focusing on acute/community health/ mental health contacts
3. Investigating per capita activity usage

The following key attributes were selected initially when the Analysis Dataset was defined:

* Age: 65 years and older
* Secondary non-elective (SNE) activity: patient with at least one non-elective hospital admission lasting >24 hours

The cohort identified by this criterion was then segmented by:

* Dementia
* Electronic Frailty Category (derived from Electronic Frailty Index Score)

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| The dementia attribute was ‘yes / no’, and the EFI criterion comprised four sub-categories: ‘healthy, mild, moderate, severe’. For the purposes of the D2A analysis patients in the healthy category were excluded. By defining a new Analysis Dataset for each unique value in these fields, the following summary tables were recorded:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Has Dementia | |  |  | | EFI Category | Y | N | Total |  | | Mild | 233 | 3138 | 3371 |  | | Moderate | 577 | 4077 | 4654 |  | | Severe | 484 | 1808 | 2292 |  | | Total | 1294 | 9023 | 10317 |  | | Table 1: Count of patients with EFI classification by dementia | | | |  | |  | Has Dementia | |  |  | | EFI Category | Y | N | Total |  | | Mild | 7% | 93% | 100% |  | | Moderate | 12% | 88% | 100% |  | | Severe | 21% | 79% | 100% |  |   Table 2: Proportion of patients with EFI classification by dementia |
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Initial analysis then looked at single individual patients using theoplots, although this was extended to look at groups of 20 individuals simultaneously to see if any patterns emerged. The hypothesis was that inpatient admissions followed immediately by a discernible use of community health resources would be indicative of P1-P3 pathway admission.

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Figure 1: A theoplot for a single patient

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Figure 2: A theoplot for multiple patients

The ‘Activity Overview’ page was used to compare activity usage between EFI categories and patients with or without dementia.

Chart

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Analysis of the cohort by whether dementia was present or not indicated an (expected) larger per capita frequency of contacts for dementia patients except for:

* Mental health contacts (fewer than non-dementia)
* Secondary care contacts (fewer than non-dementia)

### 4. Results

The cohort of interest was established. Potential data quality issues were highlighted by subsequent analysis, further investigation of which then had to be undertaken. Potential use of theoplots and other features of the tool were established for quickly identifying and visualising cohort activity and spend.

### 5. Outcome

**T**heoplots can offer a visual perspective on the D2A timeline. Most difficulties during the analysis stemmed from unclear data definitions, and missing data that directly related to the D2A interpretation narrative. The cohort definitions established provided the foundation for further work examining D2A pathways.