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## Using routinely-collected records to measure antidepressant exposure and response and to assess Treatment Resistant Depression

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### Objectives

Many people with depression do not respond to antidepressants and our poor mechanistic understanding of antidepressant response has hampered efforts to personalise treatment. In this study, we aimed to develop novel measures of antidepressant treatment exposure and response by capitalising on the variety and volume of UK administrative records.

in treatment can provide new measures that help to better understand treatment resistance and maintenance. How these measures are used in defining outcomes such as Treatment Resistant Depression requires further exploration and standardization.

### Methods

We identified cases of depression from national primary and secondary care records, and derived longitudinal antidepressant treatment episodes from national community dispensing data. We then produced several proxy measures of antidepressant response. We developed these methods in the Generation Scotland cohort (N = 21,000) and further applied them to national data linkage cohorts, such as the DataLoch databank, for validation. The derived measures of treatment response were used to identify those with Treatment Resistant Depression according to current guidelines (i.e., based on switches).

### Results

Several proxy measures of antidepressant treatment response were identified, including switching, drug maintenance, and discontinuation. Of the Generation Scotland cohort, around 1,500 were diagnosed with depression and were treated with an antidepressant. Over 60% of these individuals switched antidepressant during treatment, and both within- and between-class switching were common features. Using proxy measures, we identified Treatment Resistant Depression in around 10% of cases, although this rate differed widely depending on the operational definition used. We describe the demographic and clinical characteristics of those defined as treatment resistant, and the consequences of each definition for subsequent health and wellbeing.

### Conclusions

Linked electronic records provide the opportunity to track antidepressant exposure and response longitudinally. Changes

