**Estimating and Projecting the Population Living with Dementia at the Local Area Scale in Australia**

## Introduction

Population ageing in Australia is expected to be accompanied by a significant increase in the number of people living with dementia. Current estimates and projections of dementia prevalence in Australia focus on the national level (Australian Institute of Health and Welfare, 2023), and are based on international data and a small study on early onset dementia in Eastern Sydney (AIHW, 2024). Data at the sub-national level is scarce and unreliable, creating challenges for healthcare and aged care planning and service delivery. This research aims to create small area estimates and projections of the numbers of people living with dementia from 2021 to 2036 in Australia by age, sex, and SA3 area under three dementia prevalence scenarios: decreased prevalence, constant prevalence and increasing prevalence.

## Methods and Data

The SA3 level projections of the number of people living with dementia were developed in three steps:
**Estimates of the 2021 dementia prevalence**: SA3 level dementia estimates were created using national estimates published by the Australian Institute of Health and Welfare (2023) with local area variations estimated using 2021 Census data on long-term health conditions (Australian Bureau of Statistics, 2021). This method relied on several assumptions including that national dementia estimates are reliable, that the change in dementia prevalence at the SA3 level reflects national trends, and that the 2021 Census-based rates give a reliable indication of local to national prevalence ratios. Three scenarios of future dementia prevalence were created:

- The **Constant Prevalence** scenario assumes that prevalence rates by age, sex and SA3 area remain fixed over time. This is a conservative assumption which reflects the limited time series and mixed data quality on dementia in Australia.
- **The Decreasing Prevalence** scenario assumes prevalence rates decline exponentially by 1% per year, in line with some international studies which suggest a decline in dementia prevalence, with considerable variations by country and generally wide confidence intervals around measures of

prevalence (Farina et al., 2022; Harrison et al., 2020; Morovatdar et al., 2022; Roehr et al., 2018; Wu et al., 2017).

- The **Increasing Prevalence** scenario assumes prevalence rates increase exponentially by 1% per year. Whilst there is less evidence of increasing prevalence, it has been found in some studies in the UK and Japan (Chen et al., 2023; Ohara et al., 2017).

**Population Projections Framework:** Population projections for SA3 areas from 2021 to 2036 were prepared using the synthetic migration cohort-component model (Wilson, 2022). The model outputs population projections by sex and five-year age group up to age 85+ years in five-year intervals. The prevalence scenarios were applied by age, sex, and SA3 area to the SA3 population projections to produce projections of the number of persons living with dementia for each of the scenarios.

**Results**

Due to population ageing and the age profile of the prevalence rates, the number of people living with dementia in Australia is projected to increase between 2021-2036, regardless of the prevalence scenario (Figure 1). Between 2021 and 2036 the overall number of Australians is projected to increase by 21.8%, whilst those living with dementia are projected to increase by 42.8%, 65.6%, and 92.5% in the Decreasing Prevalence, Constant Prevalence, and Increasing Prevalence scenarios, respectively.

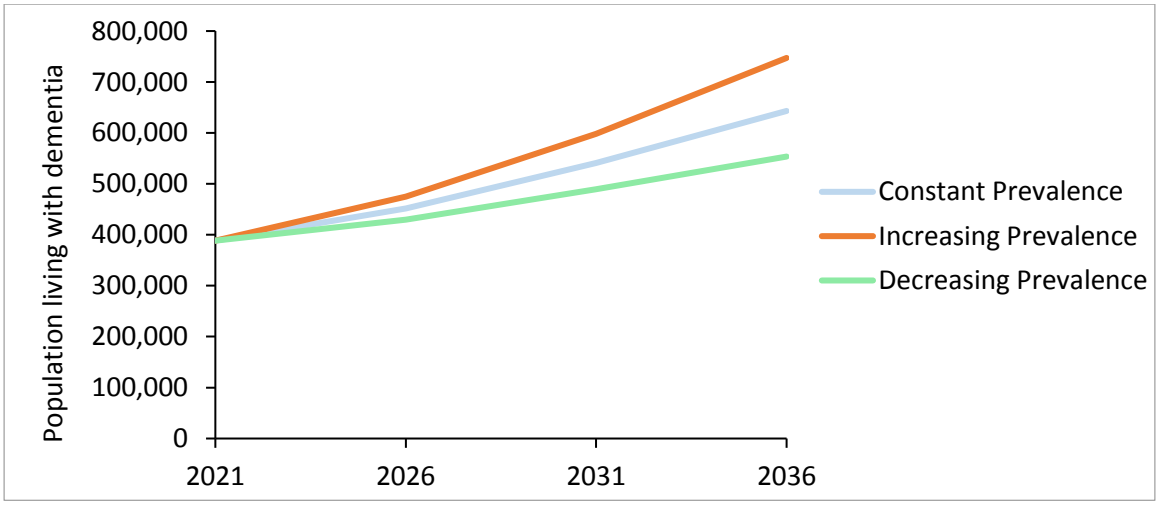


**Figure 1:** Projected growth in the population living with dementia in Australia by prevalence scenario, 2021-36.

When we focus on the sub-national results, the projections show that the increases in the number of persons living with dementia is spatially heterogeneous. Table 1 shows the projected growth in Australians living with dementia for the period 2021 to 2036 under the constant prevalence scenario, for each of the state and territories. Figure 2 presents the projected increase in persons living with dementia at the SA3 level. Increases are visually prominent in remote SA3 areas in Western Australia, the Northern Territory, and Tasmania, these areas are often geographically large which may present challenges in the provision of dementia care. All capital cities also show significant projected growth.

**Table 1**: Projected growth in the population living with dementia by State and Territory, constant prevalence scenario, 2021-36

| State/Territory | 2021 | 2026 | 2031 | 2036 | % change | Change |
|---|---|---|---|---|---|---|
| **NSW** | 127,069 | 144,700 | 170,019 | 198,871 | 56.5 | 71,802 |
| **Vic** | 94,852 | 108,871 | 129,202 | 152,923 | 61.2 | 58,071 |
| **Qld** | 76,830 | 92,617 | 113,966 | 137,945 | 79.5 | 61,115 |
| **SA** | 35,538 | 40,475 | 47,593 | 55,621 | 56.5 | 20,083 |
| **WA** | 37,902 | 46,103 | 57,215 | 70,219 | 85.3 | 32,317 |
| **Tas** | 8,882 | 10,257 | 12,090 | 14,056 | 58.3 | 5,174 |
| **NT** | 1,838 | 2,346 | 2,981 | 3,693 | 100.9 | 1,855 |
| **ACT** | 5,462 | 6,505 | 7,973 | 9,633 | 76.4 | 4,172 |
| **OT** | 69 | 92 | 122 | 157 | 126.8 | 88 |
| **Australia** | 388,441 | 451,968 | 541,161 | 643,119 | 65.6 | 254,678 |

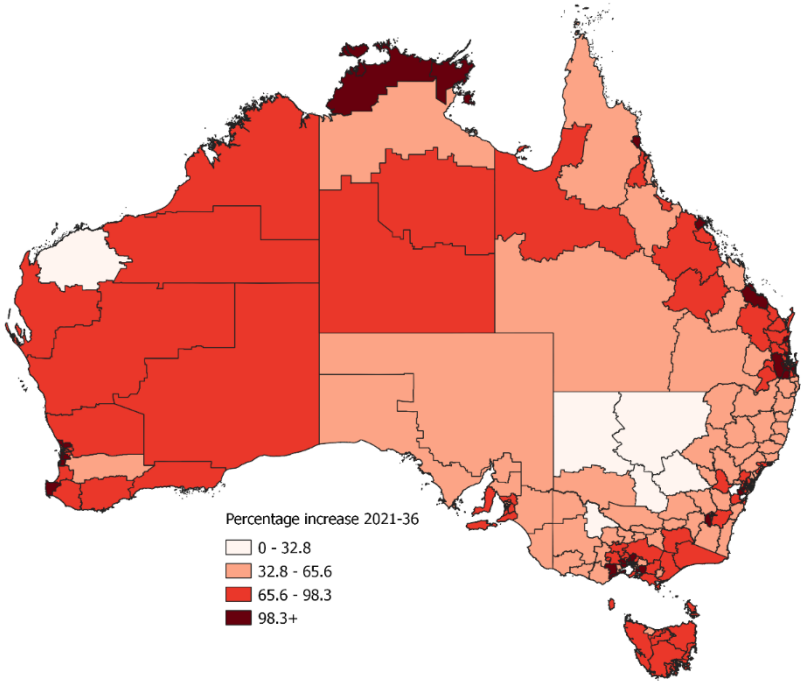


**Figure 2:** Projected increase in the numbers of people living with dementia by SA3 area, 2021-36 (constant prevalence scenario).

## Discussion

This study shows that there is substantial regional heterogeneity in projected population ageing, dementia prevalence, and in the size of the service population from which professional care and medical staff may be drawn from 2021-2036. We have presented three scenarios of future dementia prevalence: Decreasing Prevalence, Constant Prevalence and Increasing Prevalence. Our findings indicate that, even in a Decreasing Prevalence scenario, the number of people living with dementia will increase significantly in Australia and across its regions. Future research is required to support more detailed scenario planning and policy development to support targeted interventions to support local dementia care needs.

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