The Daffodil Centre

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The National Bowel Cancer Screening Program's "Hot Zone Policy" Presents Risks and Opportunities for Rural and Remote Australia

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Conclusions

- The **National Bowel Cancer Screening Program** (NBCSP) provides screening kits to **prevent colorectal cancer** (CRC) and increase the chances of **early detection** across Australia
- Areas affected by the hot zone policy (kits are not sent when the average temperature is **above 30°C**) are also more likely to have **lower socioeconomic status**, **higher Aboriginal and Torres Strait Islander populations**, and **lower screening participation rates**
- The reduced schedules means that **well-timed campaigns** targeting increasing participation could be **more effective** in these areas.
- Conversely, any **disruption to screening** may impact CRC mortality rates disproportionately in remote and regional Australia

Table 1

	All Australia*	Areas affected by hot zone –number of eligible screening months		
		11 or fewer**	6 or fewer	3 or fewer
Proportion of Australia	100%	18.7%	1.0%	0.4%
NBCSP invitees, 2017-18	5,000,000	1,020,000	39,600	13,700
NBCSP participation (%)	42.5%	41.7%	29.9%	24.10%
Average SEIFA	1000	970	886	811
Indigenous population (%)	3.00%	6.70%	27.80%	43.10%

* Including all affected and unaffected areas.
** Each column includes individuals in the subsequent columns, i.e.. "11 or fewer" includes those with 6 or fewer eligible screening months.

Background

The NBCSP provides test kits to Australians aged 50-74, with faecal testing kits sent every two years since 2019. Kits are delivered through the postal system, and the two samples are stored in the refrigerator between collection, then returned for laboratory analysis. If a test is positive, the individual is typically referred for a diagnostic colonoscopy.

As tests have worse performance at higher temperatures,[Grazzini et al, Gut, 2010], kits are not sent to areas in months where the average monthly temperature is over 30.5°C. This is known as the *hot zone policy.* This means affected areas have as few as one month a year where test kits can be safely distributed (**Figure 1**).

Methods

To quantify the number and characteristics of Australians affected by the *hot zone policy*, we used R statistical methods to calculate the correlations between affected areas and other variables of interest, including participation rates in the NBCSP, Socio-Economic Indexes for Areas (SEIFA), and proportion of the population identifying as Aboriginal and Torres Strait Islander, based on publicly available Australian Bureau of Statistics datasets.

To assess the potential *hot zone* impact in the case of a disruption to screening, we used a calibrated and validated microsimulation model of CRC and the NBCSP in Australia, *Policy1-Bowel*, to estimate the potential impact of changes to participation in affected areas on cancer mortality. *Policy1-Bowel* has been used to inform CRC screening guidelines in Australia. We modelled a hypothetical 3-month disruption (i.e. no screening participation) over April-June for areas that were affected or unaffected.[Worthington et al, Report to the Department of Health, 2020] We also modelled the hypothetical effects of a campaign to increase participation over April-June, based on previous campaigns aimed at increasing NBCSP participation.[Worthington et al, Public Health, 2020]

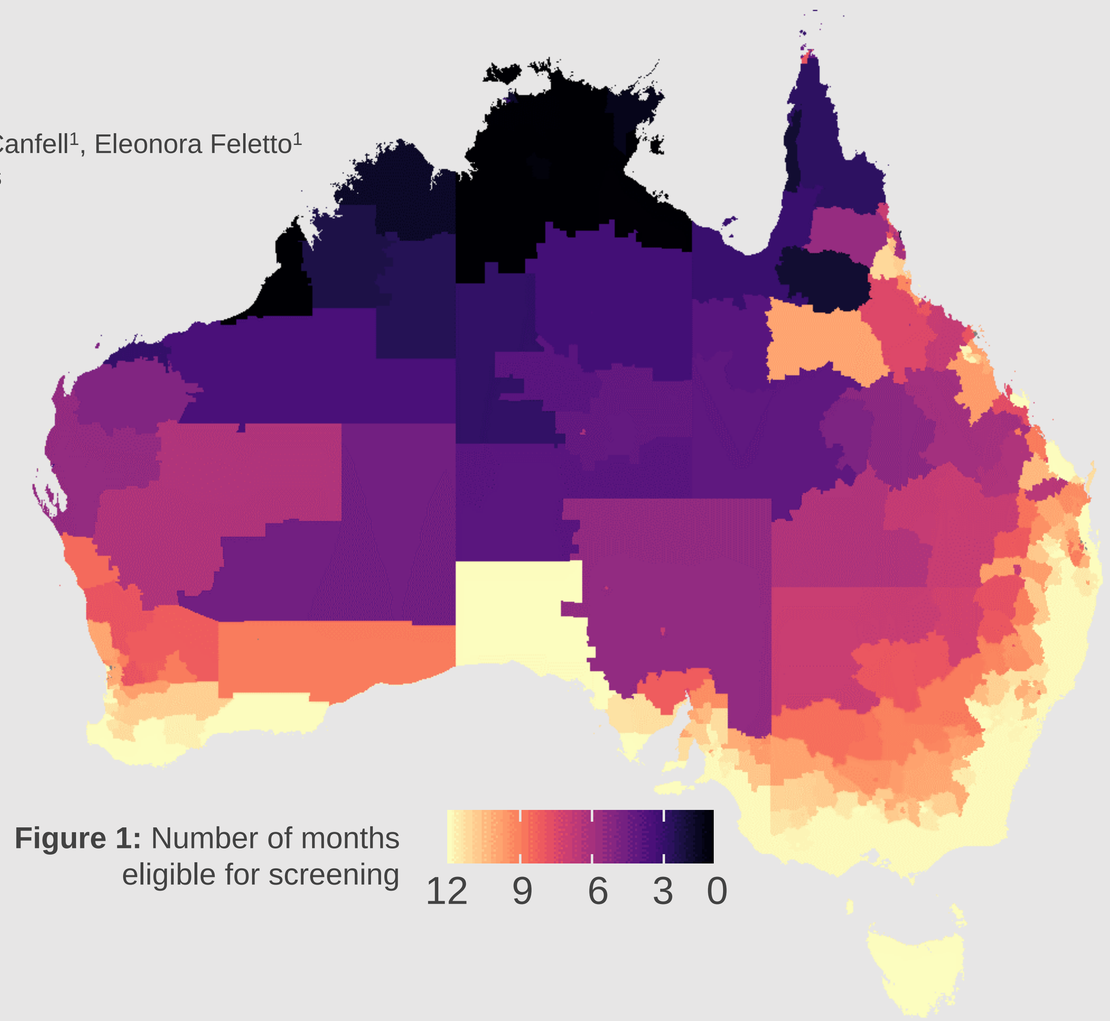

Figure 1: Number of months eligible for screening

Results

People affected by the hot zone are more likely to live in lower socioeconomic areas, be Aboriginal or Torres Strait Islander Australians, and are less likely to participate in the NBCSP in general (Table 1).

The modelled results of changes to participation are below . People in affected areas are likely to have worse impacts from any disruption to screening during winter months, but would benefit more from a well-timed campaign to increase participation compared to people in unaffected areas.

A 3-month disruption to screening…

*could **increase** CRC mortality in affected cohorts by **3.8-7.3%** in hot zone areas,*

*up to 4.1 times higher than in unaffected areas (**1.8%**)*

… but a targeted 3-month campaign

*could **decrease** CRC mortality in affected cohorts by 1.2-2.4% in hot zone areas,*

up to 3.5 times higher than in unaffected areas (0.7%)

compared to screening remaining at status quo Australian participation rates (43%)

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