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## Removal of sugary drinks from vending machines: an Australian university case study

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More than 75% of young Australian adults consume sugar in excess of World Health Organization guidelines, with more than half of that coming from sugar-sweetened beverages (SSBs), particularly soft drinks, sports drinks and energy drinks.<sup>1</sup> As consumption of SSBs contributes to weight gain, diabetes and dental caries,<sup>2</sup> public health and community actions are needed to reduce SSB consumption in this population. There is growing recognition that enhancing the healthiness of the food environment by implementing policies that limit the sale of unhealthy products, and replacing them with healthier options, is critical in improving consumer choice.<sup>3</sup> Universities are particularly important settings, as large proportions of young adults spend substantial amounts of time at these locations. Yet few studies have assessed the availability of SSBs on Australian university campuses and whether universities can implement policies to reduce their availability.

In collaboration with campus management, we conducted an evaluation of the vending machine offerings at Australian Catholic University (ACU), which has seven campuses serving 32,000 students. Vending machines were targeted as ACU senior management indicated this was a priority area. Products available for sale were assessed based on photographs taken of a sample of all vending machines ( $n=14$  out of 23). Products were classified to determine the primary outcomes, including the proportion of beverages that were SSBs and the relative proportion of 'core' vs. 'discretionary' beverages as defined by the *Australian Dietary Guidelines*.<sup>4</sup> Results were compared against the New South Wales (NSW) Healthy Food and Drink for Health Facilities Framework,<sup>5</sup> which sets out notional targets for product availability for NSW hospitals and

represents an ideal standard to measure our findings against. Importantly, the Framework outlines a removal from sale of all SSBs, which it describes as drinks with any sugars added during the processing (excluding milk drinks). These may include soft drinks, some flavoured waters, fruit drinks, cordials, iced teas, energy drinks and sports drinks.

While small variability was observed across vending machines, in general, SSBs dominated available products (mean $\pm$ SD, 56 $\pm$ 14%, 8 machines with  $\geq$ 51% SSBs). On average, discretionary products made up 77% of all products, falling far short of the 25% limit suggested by the NSW Framework.<sup>5</sup> Following consultation with ACU campus management and the vending machine supplier, all vending machines were overhauled at ACU campuses to adhere to the NSW Framework, with ACU becoming the first Australian university to remove SSBs from sale in vending machines on its campuses. Re-evaluation conducted in 2018 confirmed the change in product offering (Figure 1).

Our findings add to growing evidence of a high prevalence of unhealthy foods and beverages (in particular SSBs) on Australian university campuses, which is concerning.<sup>6</sup> Consistent with existing theoretical frameworks to support guideline implementation, these results indicate that the use of an audit and feedback strategy for food environments, in combination with strong leadership, can affect positive change.<sup>7</sup> Limiting the availability of unhealthy products such as SSBs in local settings could complement national-level efforts such as taxation and subsidies aimed at improving the food supply. Our findings suggest that, at least for vending machines, removal of SSBs is feasible. Future work is needed to explore whether a similar audit and feedback approach can also bring about improvements

in food environments in other Australian universities. In addition to likely health-related benefits to students, such improvements may also help to shape accepted norms around healthy food environments, given the recognised role of universities as leading institutions for education and health.

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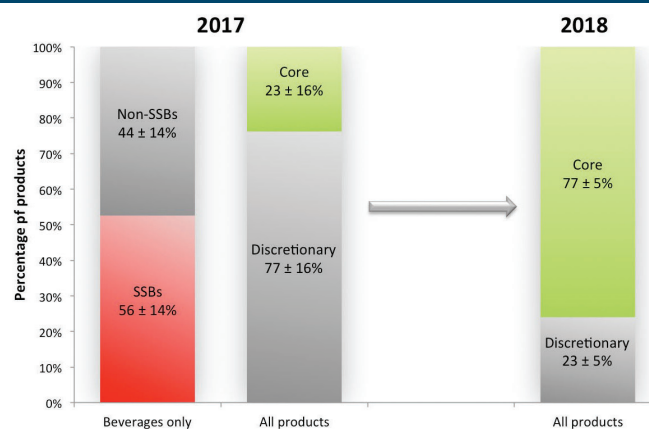
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**Figure 1: Changes in the types of beverages available in ACU vending machines from 2017 to 2018.**



Note: Values presented in bars are mean $\pm$ SD of each product type. In 2017, Discretionary products dominated with little variation across machines, while SSBs dominated beverages. Following consultation with ACU management, product offerings were updated in 2018. Re-evaluation in March 2018 confirmed that Core products dominated offerings and all SSBs have been removed.

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