Perinatal Health Surveillance: A Spatiotemporal Analysis of Administrative Health Records from Queensland, Australia, 2008–2018
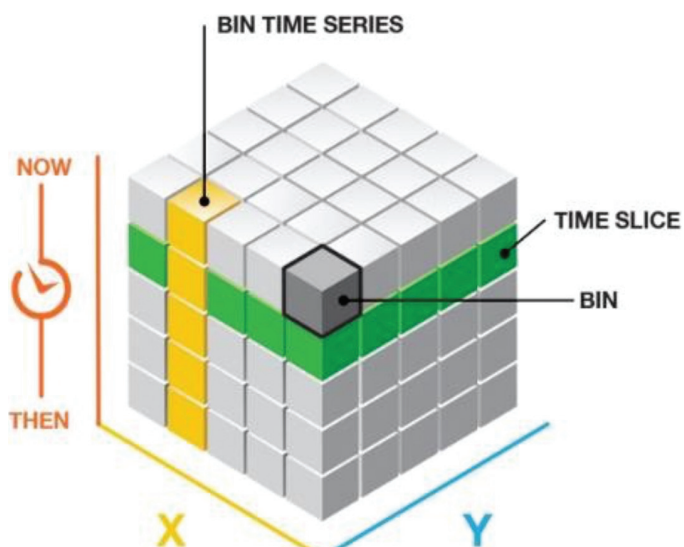
Cynthia Parayiwa[1], Alison M. Behie[1] and Aparna Lal[2]

[1] *School of Archaeology and Anthropology, Australian National University, 44 Linnaeus Way, Acton, ACT 2601, Australia (cynthia.parayiwa@anu.edu.au, alison.behie@anu.edu.au)*
[2] *National Centre for Epidemiology and Population Health, Australian National University, 62 Mills Road, Acton, ACT 2601, Australia (aparna.lal@anu.edu.au)*
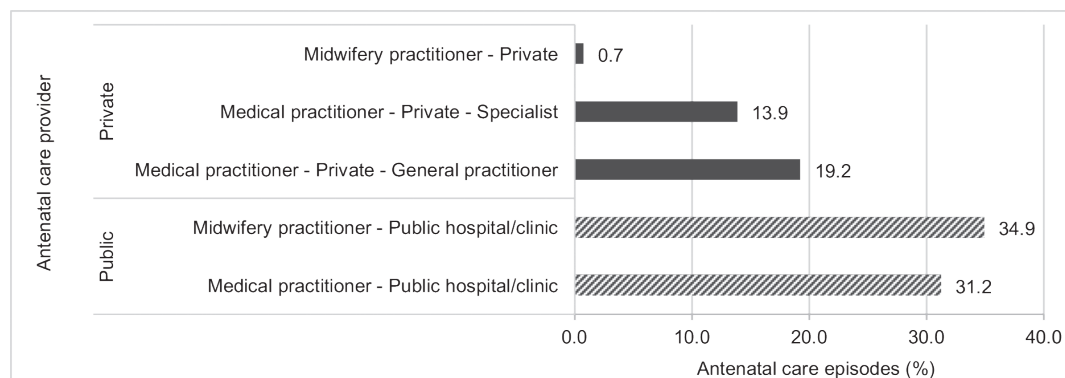
SUPPLEMENTARY MATERIAL

SUPPLEMENTARY FIGURE 1. Visualisation of space-time cube structure. Each bin within the cube contains a count of the data value collected at each bin location for the time step interval specified. *Image Source*: Esri (2020).

Supplementary Table 1. Australian Standard Geographical Classification (ASGC) and Australian Statistical Geography Standard (ASGS) coding applied during Queensland Perinatal Data Collection data recording.

Collection year	ASGC coding	ASGS coding
2017–2018	—	ASGS 2016
2016–2017	—	ASGS 2011
2015–2016	—	ASGS 2011
2014–2015	—	ASGS 2011
2013–2014	—	ASGS 2011
2012–2013	—	ASGS 2011
2011–2012	ASGC 2010	—
2010–2011	ASGC 2010	—
2009–2010	ASGC 2008	—
2008–2009	ASGC 2008	—
2007–2008	ASGC 2007	—

SUPPLEMENTARY FIGURE 2. Antenatal care provider use in Queensland between July 2016 and June 2018. Antenatal care providers presented as a proportion of cases where antenatal care provider known, *n*=293,546. *Note*: A mother can seek support from different antenatal care providers during the same pregnancy. Private general practitioners had the highest proportion of use among private health providers, while midwifery practitioners made up most public healthcare providers.

Supplementary Table 2. Emerging hot spot analysis categorisation of study area locations based on bin hot spot z-scores and *p* values.

Categorisation symbol	Categorisation definition
No trend detected	Doesn't fall into any of the hot or cold spot patterns below.
New hot spot	Statistically significant hot spot for most recent time step only.
Consecutive hot spot	Run of statistically significant hot spots in the most recent time steps.
Intensifying hot spot	Location that has been consistently hot and is getting hotter.
Persistent hot spot	Location that is consistently hot (90% of bins are statistically significant hot spots).
Diminishing hot spot	Location that is consistently hot but is cooling off.
Sporadic hot spot	Location that is on-again, off-again hot.
Oscillating hot spot	Location that is sometimes hot and sometimes cold, but most recently hot.
Historical hot spot	Most recent time step is not hot, but 90% of the bins are statistically significant hot spots.
New cold spot	Statistically significant cold spot for most recent time step only.
Consecutive cold spot	Run of statistically significant cold spots in the most recent time steps.
Intensifying cold spot	Location that has been consistently cold and is getting colder.
Persistent cold spot	Location that is consistently cold (90% of bins are statistically significant cold spots).
Diminishing cold spot	Location that is consistently cold but is heating up.
Sporadic cold spot	Location that is on-again, off-again cold.
Oscillating cold spot	Location that is sometimes cold and sometimes hot, but most recently cold.
Historical cold spot	Most recent time step is not cold, but 90% of the bins are statistically significant cold spots