Atlases

Two atlases under the general title "Hotspots of inequality from causes of death" have been created from the 2009 to 2018 causes of death data. The first atlas presents the geographical distribution of deaths for the premature death categories. The second atlas presents the geographical distribution of deaths for the avoidable death categories.

The atlases present the range of geographic and temporal variations in the selected premature and potentially avoidable causes of death categories hen compared to the Australian average rate. Based on the data, a temperature is allocated to an area to visualise the persistence and magnitude of the rate death within an area. Where rates are persistently high over time, these areas are classified as "Hot" in relation to the Australian average. Alternatively, where rates are lower over time, in comparison to the Australian average, the area is classified as "Cold". We also provide a range of temperature values between these two extremes.

Atlas example - initial screen

Taking the atlas for premature deaths as an example, Figure 1 shows the initial web page when the link to the atlas is clicked. The middle window panel shows a map of the Australian continent divided up by Population Health Areas (PHA), the geography used by PHIDU. Areas highlighted as "Hot" are shown on the map as a dark green colour. You can click the PHAs off and on by clicking on the toggle box in the right panel labeled "Population Health Areas".
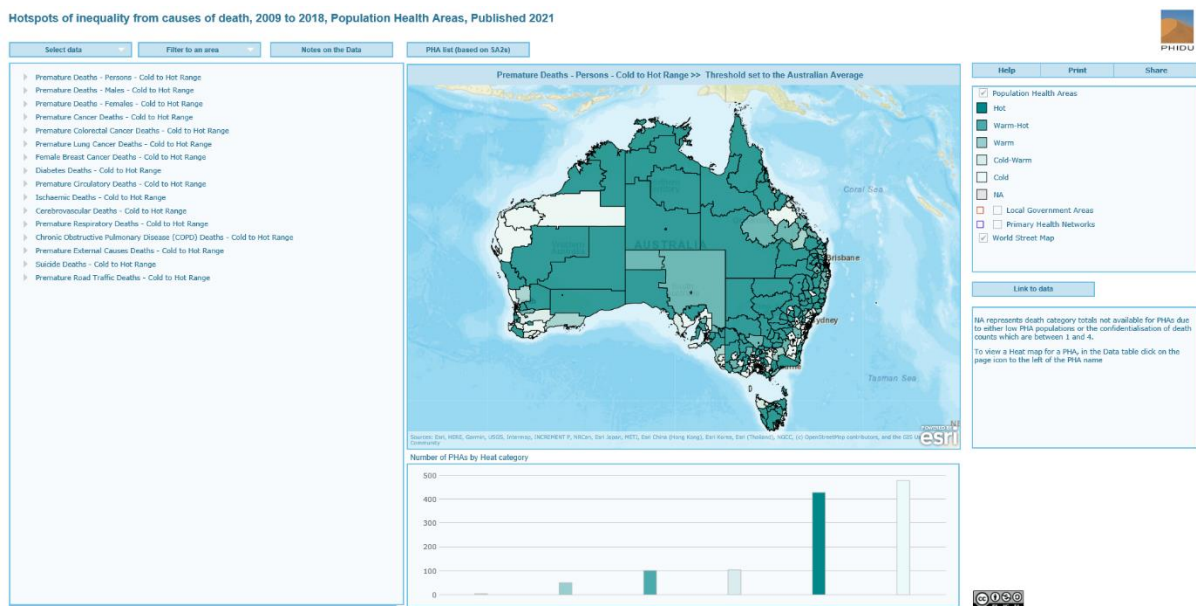

Figure 1 Initial web page of the hotspots of inequality from causes of death atlas – premature death categories.

Other geographic areas (Local Government Areas, Primary Health Networks) are provided for reference purposes and can be accessed by scrolling down the window panel.

The left window panel has a list of the categories of premature death categories that can be investigated. By default, the selected scenario is the Premature Deaths – Persons – Cold to Hot Range >> Threshold set to the Australian average. This is shown in the top label of the middle window panel. If this is not the case, you can click on the "Select Data" tab to resent the left panel to the show the list of premature death categories. When you select a category, the selection name will appear in this label. The right window panel shows the legend which has five heat

classifications; Hot, Warm-Hot, Warm, Cold-Warm and Cold. A Not Applicable (NA) category is also included. This category highlights PHAs which have been confidentialised because of small populations and/or have less than five reported deaths over the ten years of analysis.

The bottom middle window panel provides a bar graph of the distribution of data for the five classifications and NA classification. For the current selected category and threshold, nearly half the PHAs are identified as "Hot" meaning that these PHAs have been classified as having rates higher than the Australian average threshold for the majority of years under investigation. Alternatively, nearly half the PHAs are identified as "Cold" meaning that these PHAs have been classified as having rates lower than the Australian average threshold for the majority of years under investigation.

Atlas example – zooming in/out and data selection

By clicking on the premature death category of interest via the arrow. This expands to show a list of 20 thresholds. Clicking on a threshold selects the scenario. Here, Premature Deaths – Persons – Cold to Hot Range >> Threshold set to the Australian Average has been chosen (Figure 2). You can zoom in via your mouse wheel or by placing your mouse pointer on the map in the middle window panel and then clicking on the zoom buttons which will pop up in the left corner of the panel. Alternatively, you can click on the "Filter to an area" drop down menu and select an option to zoom to specific areas.
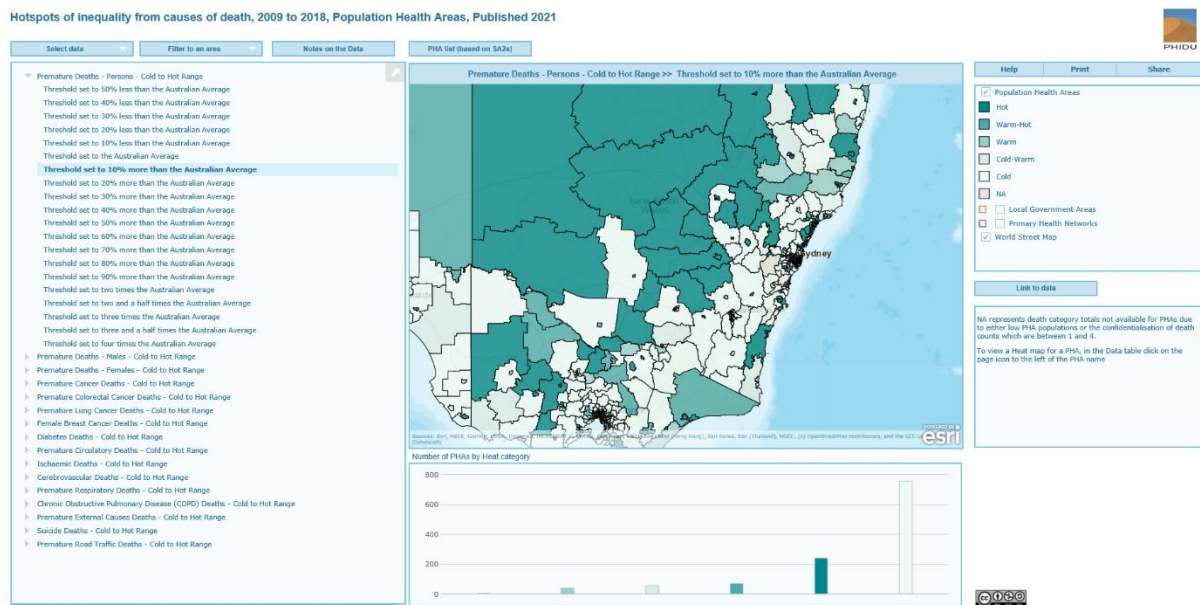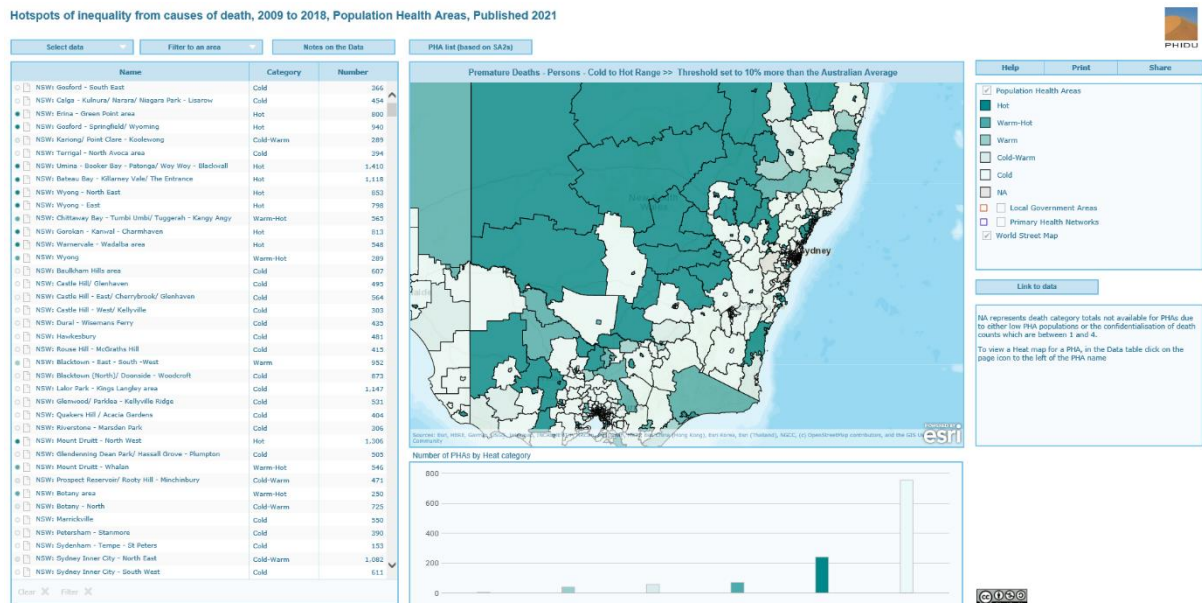

Figure 2 Zoom buttons and the range of 20 threshold selections under a chosen premature death category via clicking the arrow.

Atlas example –data visualisation

When making this selection, the left hand window panel now changes to reflect the data for the selected threshold (Figure 3). The first column is the dot column, this represents the heat of the PHA in tabular form. For example, for the first instance is the NSW: Gosford-South East PHA show in the Name column. The dot is white representing the "Cold" category which is also reported in the Category column. Another instance is the NSW: Erina – Green Point area PHA which has a dark green dot colour representing the "Hot" category. The Number column represents the total number of deaths over the ten years for the specific death category regardless of the threshold chosen. In this example, the Numer column shows a list of the total number of premature deaths for perosns

between 2009 and 2018 for each PHA. Placing the mouse over an instance in the Name column highlights the PHA on the map in the middle window panel and clicking on the instance zooms to that selected PHA.

Figure 3 Change to the left and middle panels when a threshold has been chosen – Premature Deaths – Persons – Cold to Hot Range >> Threshold set to 10% more than the Australian Average.

We have made two selections within this threshold, and the map in the middle window panel now shows the geographic variation in the heat of the Premature Death – Persons category around the region of Gosford. (Figure 4). This geographic variability in heat can be explored further by zooming in and out of the panel. Choosing a new threshold also changes the bar graph in the bottom middle window panel. To go back to the list of premature death categories click on the "Select data" tab.

Figure 4 Selecting specific PHAs through the data table for the Gosford area.
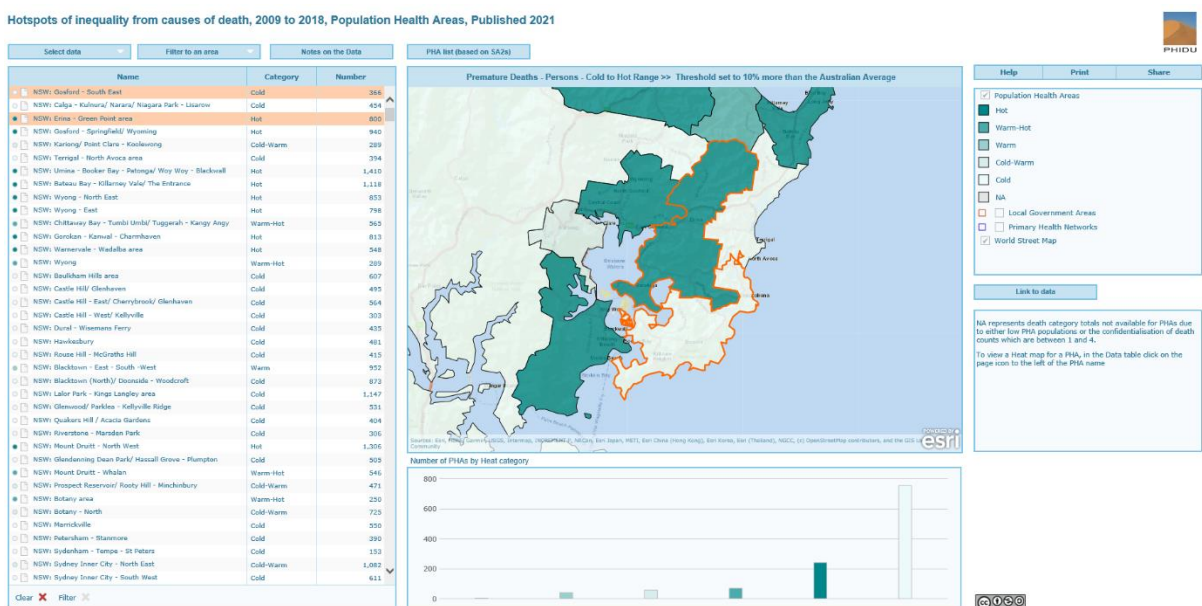
Heat Map Graphs by PHA

To summarise the large amount of information available within and across the premature and potentially avoidable causes of death categories and thresholds at the PHA geography, we provide a heat map graph for each PHA. These can be investigated by clicking on the file graphic which is to the immediate right of the dot column. A dialog box should pop-up asking permission to display it on your computer (Figure 5).
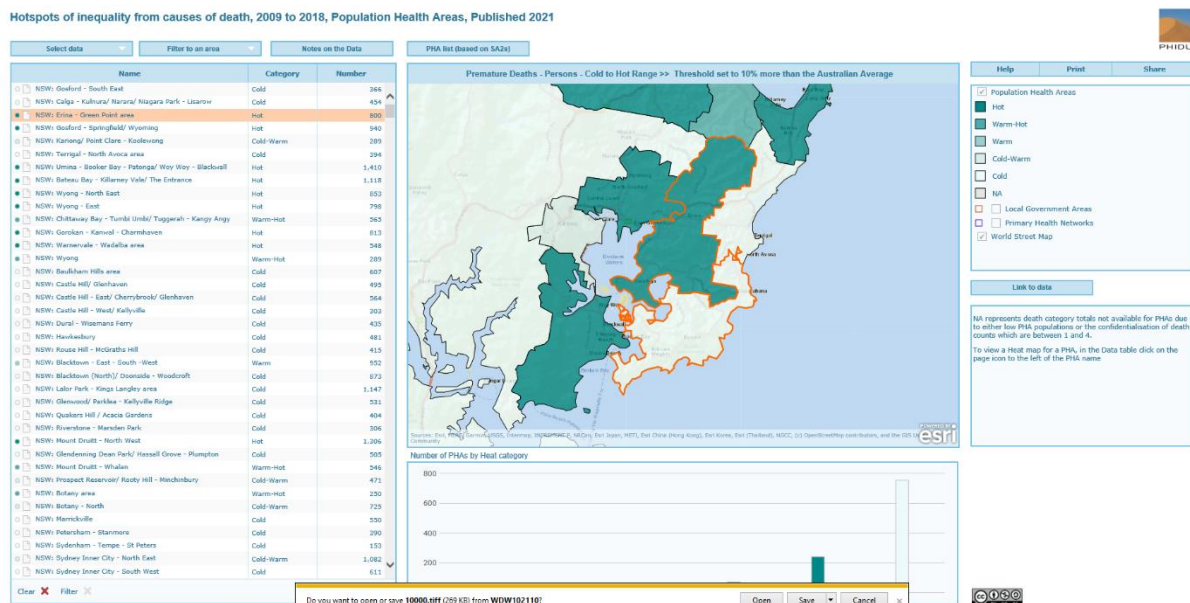

Figure 5 Selection and pop-up box to display the heat map graph for two PHA, NSW: Gosford-South East (bottom PHA) and NSW: Erina – Green Point area (top PHA).

We provide two examples of a heat map graph (Figure 5). The first is for the NSW: Gosford-South East PHA classified as "Cold" and the second the NSW: Erina – Green Point area PHA classified as "Hot" for the Premature Deaths – Persons category (Figures 4 and 5). The heat maps for these areas are shown in Figure 6.

Within each PHA and premature disease categories, the heat of a PHA, starts off in these examples as "Hot", as all categories have greater rates of deaths when compared to the lowest threshold; the 50% less than the Australian average rate (Aust. Avg.) threshold (half the Australian rate). As the thresholds are increased, the heat of the death category either persists as "Hot" or becomes cooler.

For example, for the Premature Deaths – Persons category, the heat the Gosford – South East PHA becomes "Cold" at the 10% less than the Australian Average threshold. While some causes of death reported "Warm-Hot" and "Warm" classifications for thresholds over the Australian average rates, no premature category of death was classified as "Hot" over this threshold. In comparison, several causes of death were classified as "Hot" over the Australian average for the Erina – Green Point area. COPD was classified as "Hot" when the threshold reached 20% more than the Australian Average.
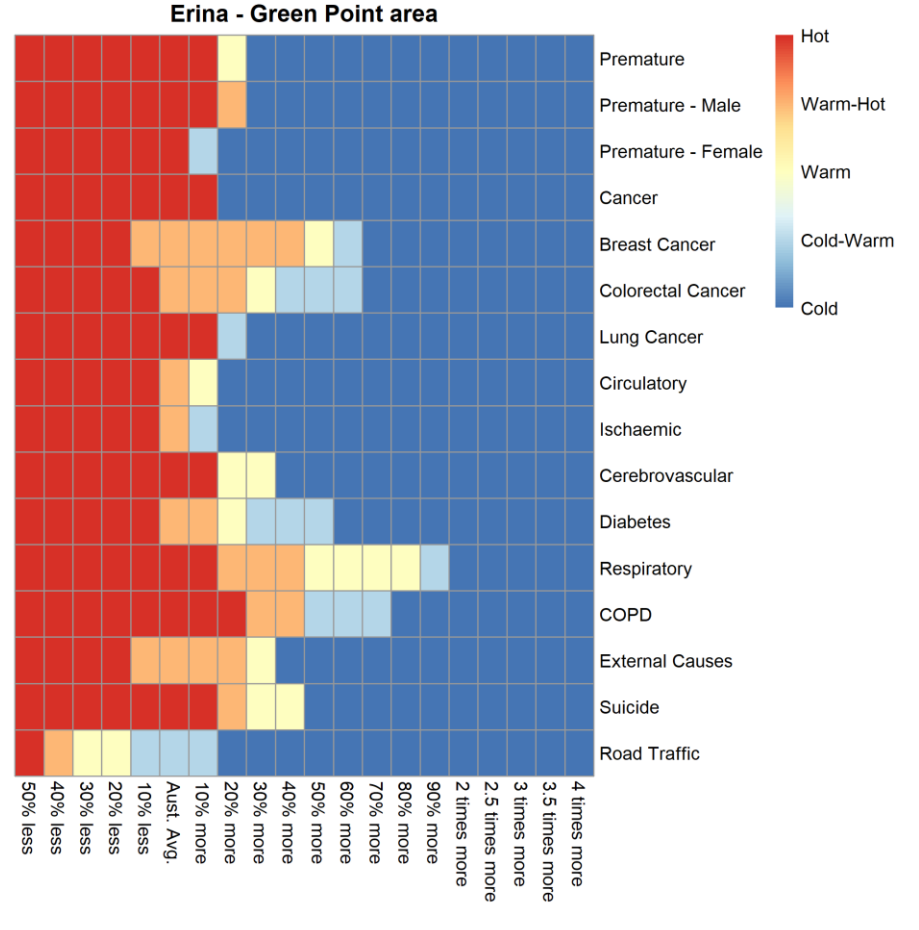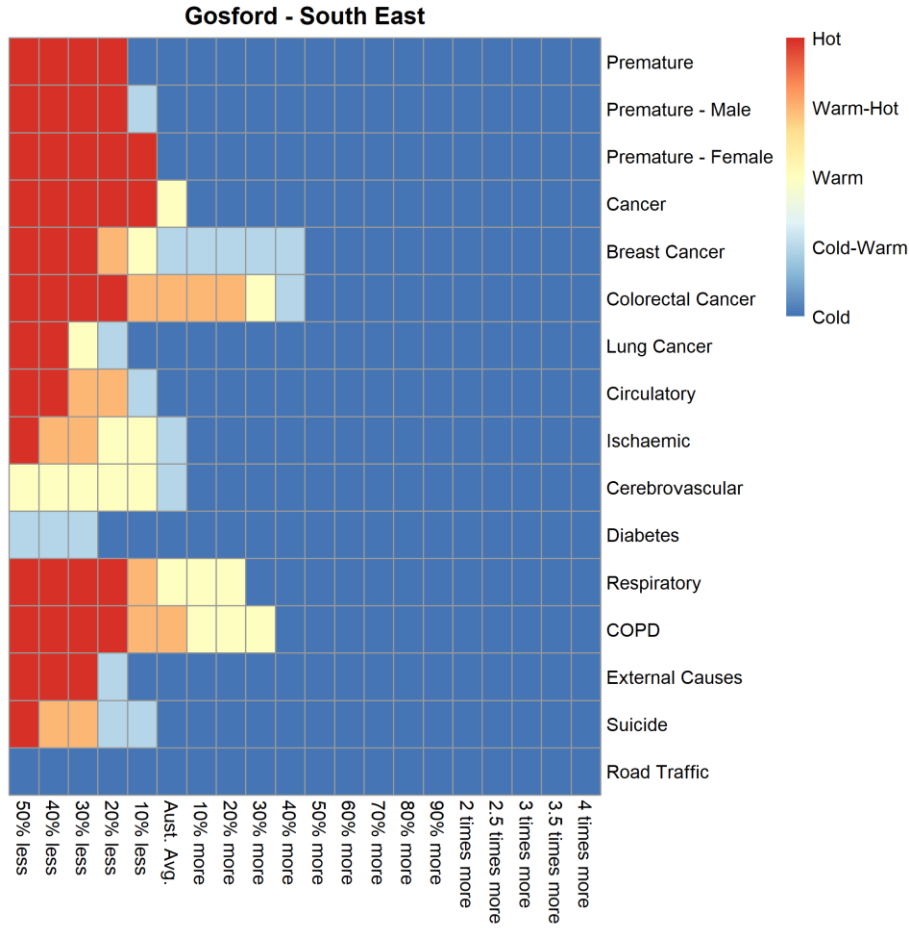
Figure 6 Heat map graphs for the Gosford – South East and Erina – Green Point area PHAs.