Using temporal heat maps as a visualization tool to analyze time trends: a preliminary analysis of disability adjusted life year rates in the European Union

João Vasco Santos, Júlio Souza, João Viana, Carlos Saéz, Alberto Freitas

Faculty of Medicine, University of Porto

CINTESIS—Centre for Health Technology and Services Research

Public Health Unit, ACES Grande Porto VIII (ARS Norte)

jvasco.santos@gmail.com





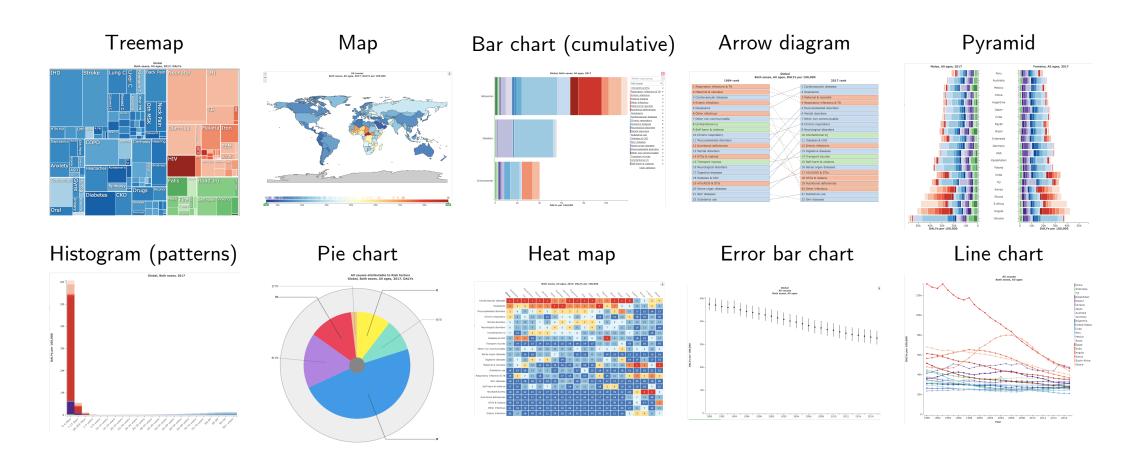






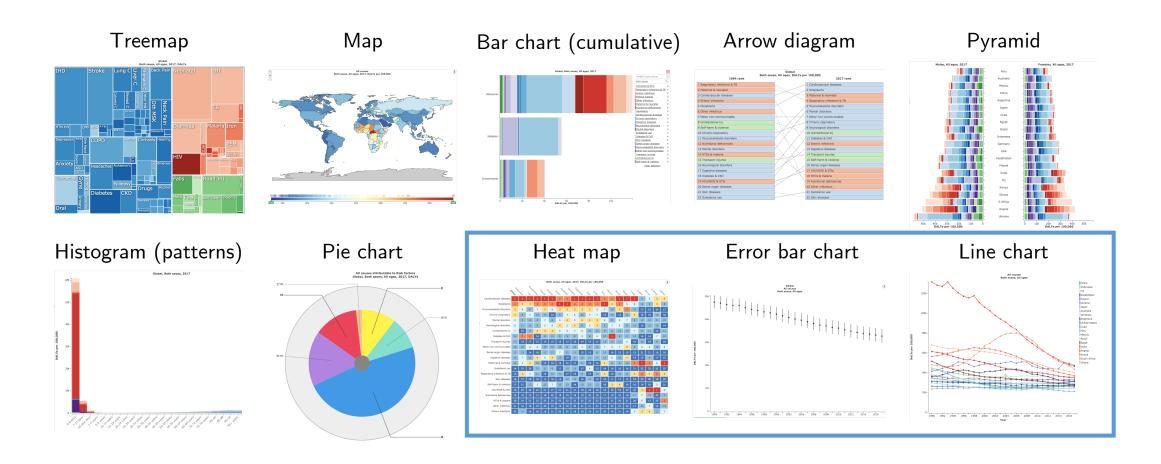
Background (I)

- Plenty of visualization tools, including within GBD context

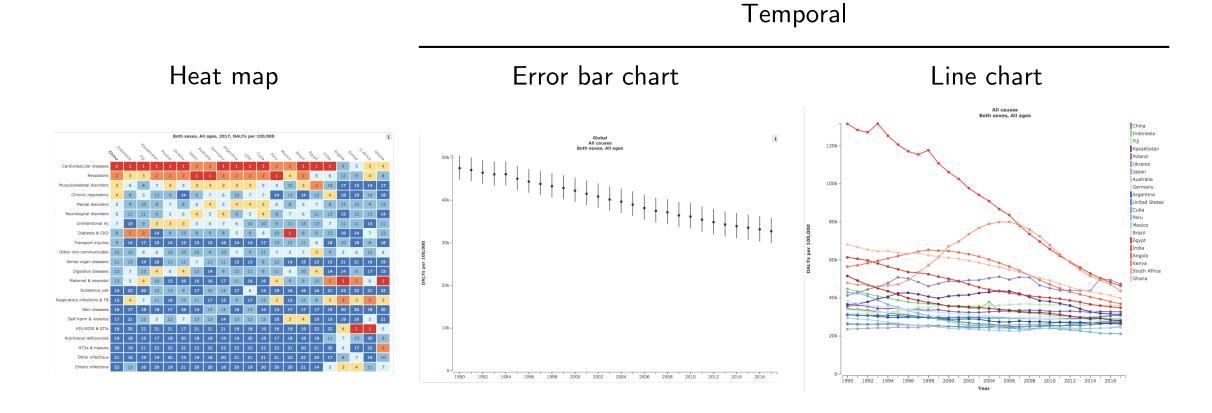


Background (I)

- Plenty of visualization tools, including within GBD context



Background (II)



- How can a temporal heatmap help us analyzing time trends?

Methods (I)

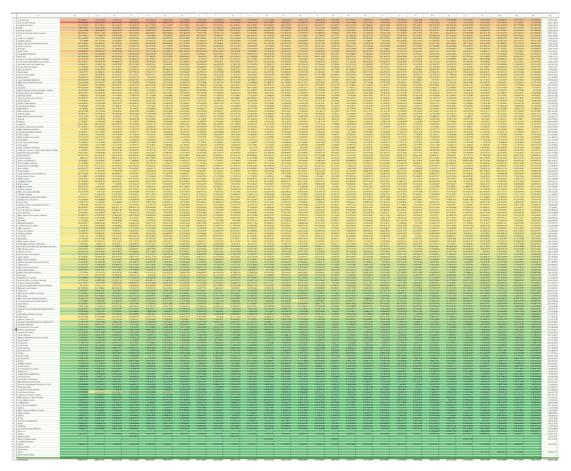
Data – age-standardized DALY rates (level 3) in EU-28 (and countries) between 1990-2017

- 1. Temporal heatmaps with all causes
 - Microsoft Excel approach
 - EHRtemporalVariability (R package)

- 2. Temporal heatmaps by cause
 - EHRtemporalVariability (R package)

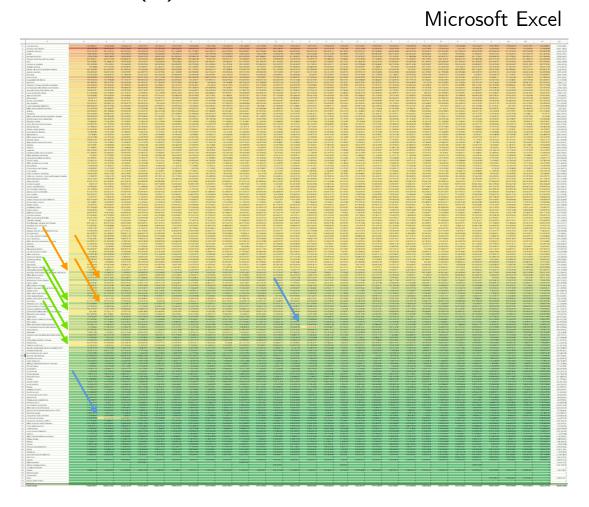
Results (I) - with all causes

Microsoft Excel



EU-28 age-standardized DALY rates between 1990-2017, by (level 3) cause

Results (II) - with all causes



Interruptions / abrupt changes

2003 – Environmental heat and cold exposure

1991 - Conflict and terrorism

Decreasing trends

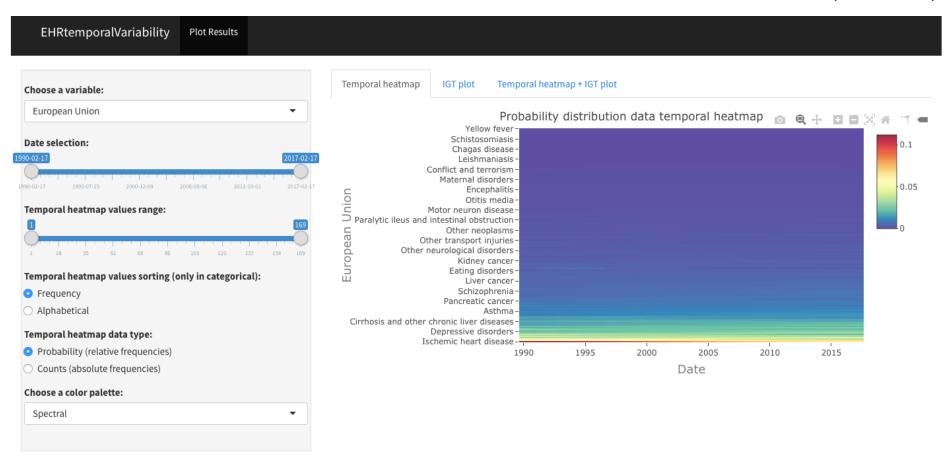
Sudden infant death syndrome Tuberculosis Meningitis Vitamin A defficiency

Increasing trends

Peripheral arterial disease Inflammatory bowel disease Intersticial lung disease and pulmonary sarcoidosis

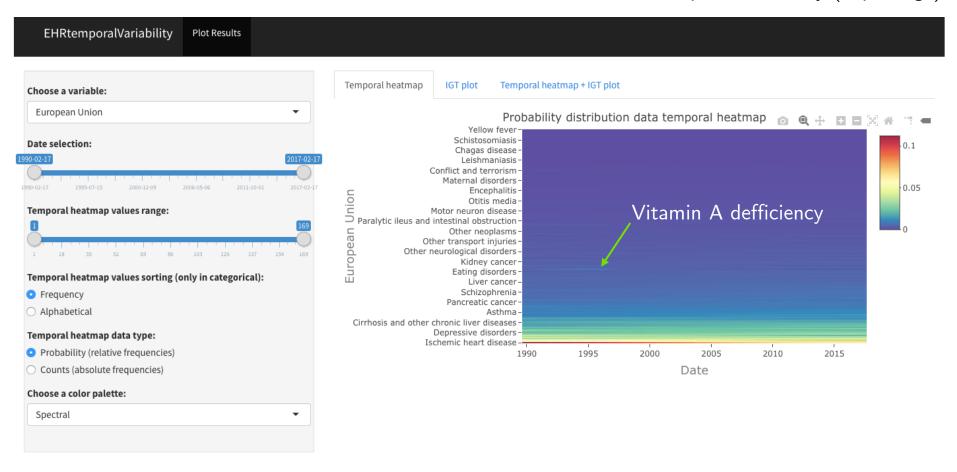
EU-28 age-standardized DALY rates between 1990-2017, by (level 3) cause

Results (III) - with all causes



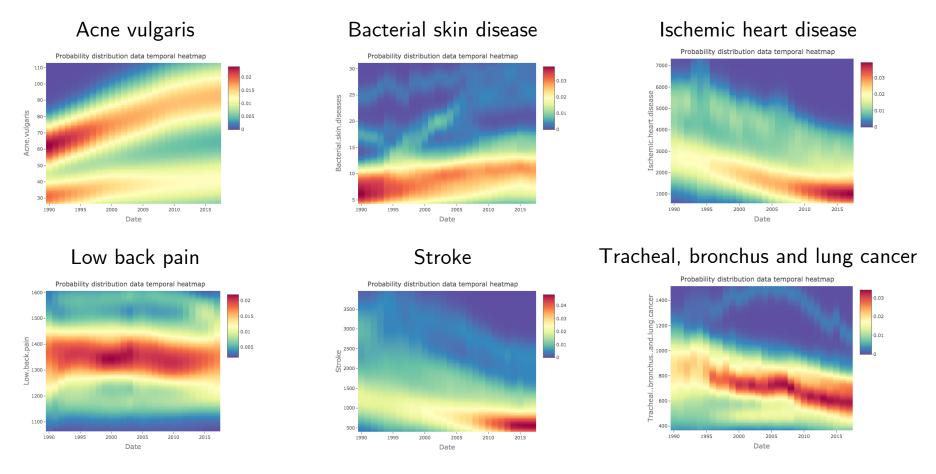
EU-28 age-standardized DALY rates between 1990-2017, by (level 3) cause

Results (IV) - with all causes



EU-28 age-standardized DALY rates between 1990-2017, by (level 3) cause

Results (V) - by causes



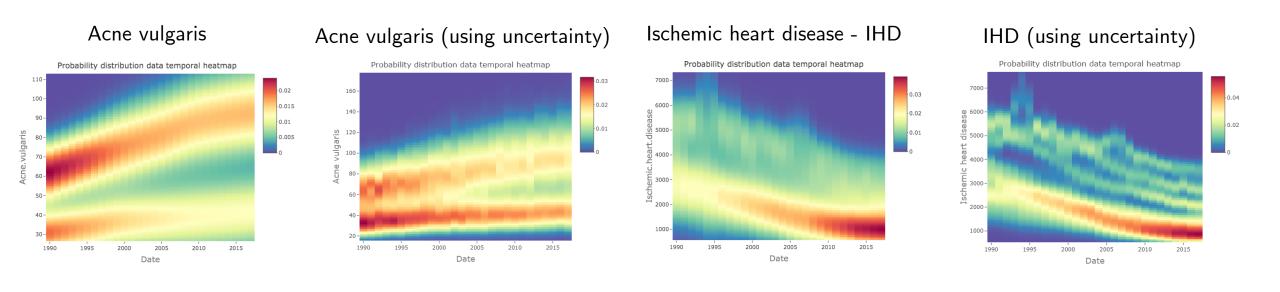
EU-28 age-standardized DALY rates between 1990-2017 - each heatmap, one (level 3) cause

Methods (II)

To account for ucertainty (95% UI)

- 3. Temporal heatmap by cause (using uncertainty)
 - EHRtemporalVariability (R package)
 - Triangular distribution (95%UI lower limit, mean estimate, 95% UI upper limit -> min, mode, max)
 - 100 draws for each country-year CircStats (R Package)

Results (VI) - by causes



EU-28 age-standardized DALY rates between 1990-2017 - each heatmap, one (level 3) cause

Conclusion (I)

- Temporal heat maps seems an interesting method for rapid data assessments in an epidemiological context
- They allow sub-analyses by all the variables that might be considered (e.g. age groups, sex and country)
- Heat maps are particularly useful in detecting temporal patterns in big datasets

Recent articles



Fegure hand finds floods, i.d.

The State of health in the European Union (EU-28) in 2017. an analysis of the burden of diseases and injuries about November 1, 1987. The State of health in the European Union (EU-28) in 2017. an analysis of the burden of diseases and injuries about November 1, 1987. https://doi.org/10.1001/10

Europe. At a time of change for the Congress Union and European Region of WINQ, with a new lead Commission and Regional Section, Regional, and a first Windows of Windows and American Section (Section Section Sectio

ntroduction

The variety of the property of

undimination of notion species. (2019) Such has aliated surjage database of marriary reasons of health at national and, in a increasing number of countries, sub-national level worklook, covering more than 500 cause of disease and thipsy and 4 this factors, producing estimates of mortally, 5 animary measures included years of file incide the presentate mentiley (TLL), among to the control of the countries of the countries of the substitute of the countries of the Mark the rain GED papers report the global picture, there is an increasing number of regional and animal analyses, seen in the The state of health in the European Union (EU-28) in 2017: an analysis of the burden of diseases and injuries

João Vasco Santos, Júlio Souza, José Valente, Vera Alonso, André Ramalho, João Viana, Walter Ricciardi, Alberto Freitas





European Union state of health from 1990 to 2017: time trends and its enlargements' effects

João Vasco Santos, Mariana Lobo, Rui Manuel Neiva, João Viana, Júlio Souza, Cláudia Camila Dias, Jonathan Cylus, Walter Ricciardi, Alberto Freitas

Using temporal heat maps as a visualization tool to identify time trends changes: a preliminary analysis of disability adjusted life year rates in the European Union

João Vasco Santos, Júlio Souza, João Viana, Carlos Saéz, Alberto Freitas

Faculty of Medicine, University of Porto

CINTESIS—Centre for Health Technology and Services Research

Public Health Unit, ACES Grande Porto VIII (ARS Norte)

jvasco.santos@gmail.com









