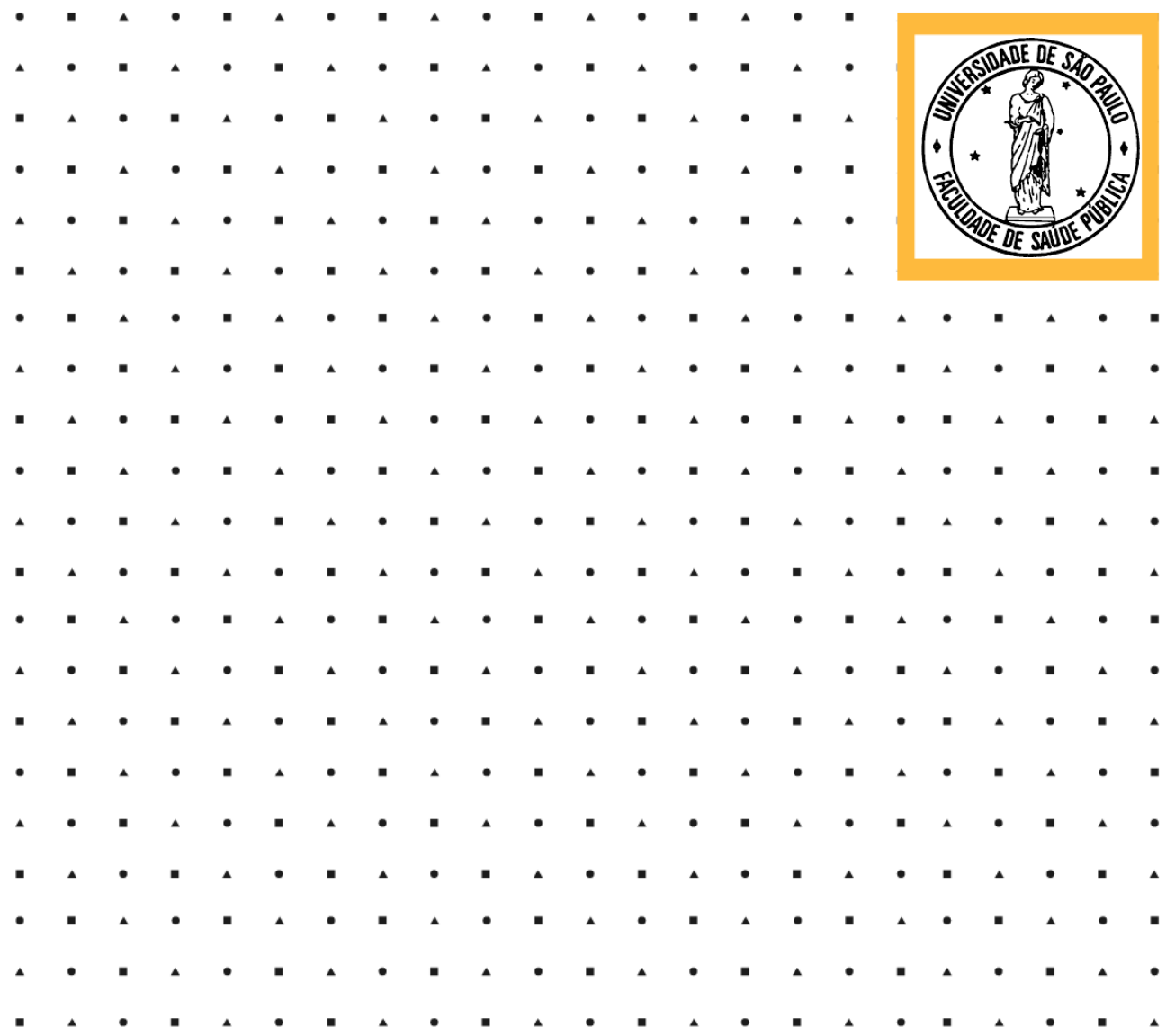


Data Literacy

Prof. Dr. André Filipe M. Batista





Data
Literacy

Entender

A grande mensagem

★ EVERYTHING IN THE FUTURE BOILS DOWN TO THESE ALGORITHMS

1 • $\text{HEALTHCARE VALUE} = \frac{\text{HEALTHCARE OUTCOME}}{\text{TOTAL COST}}$

2 • $\text{OUTCOME} = \text{QUALITY OF LIFE} \times \text{LENGTH OF LIFE}$

3 • $\text{QUALITY OF LIFE} = \text{FUNCTIONAL CAPABILITY} \times \text{PATIENT PERCEPTION}$

★ WE NEED TO COLLECT BETTER DATA AROUND TOTAL COST & FUNCTIONAL CAPABILITY



IGUALDADE



EQUIDADE



Determinantes de saúde

- Contexto ambiental
- Contexto social
- Fatores socioeconômicos
- Fatores individuais-comportamentais

Condições de Saúde da população

- Morbidade
- Estado Funcional
- Bem-estar
- Mortalidade

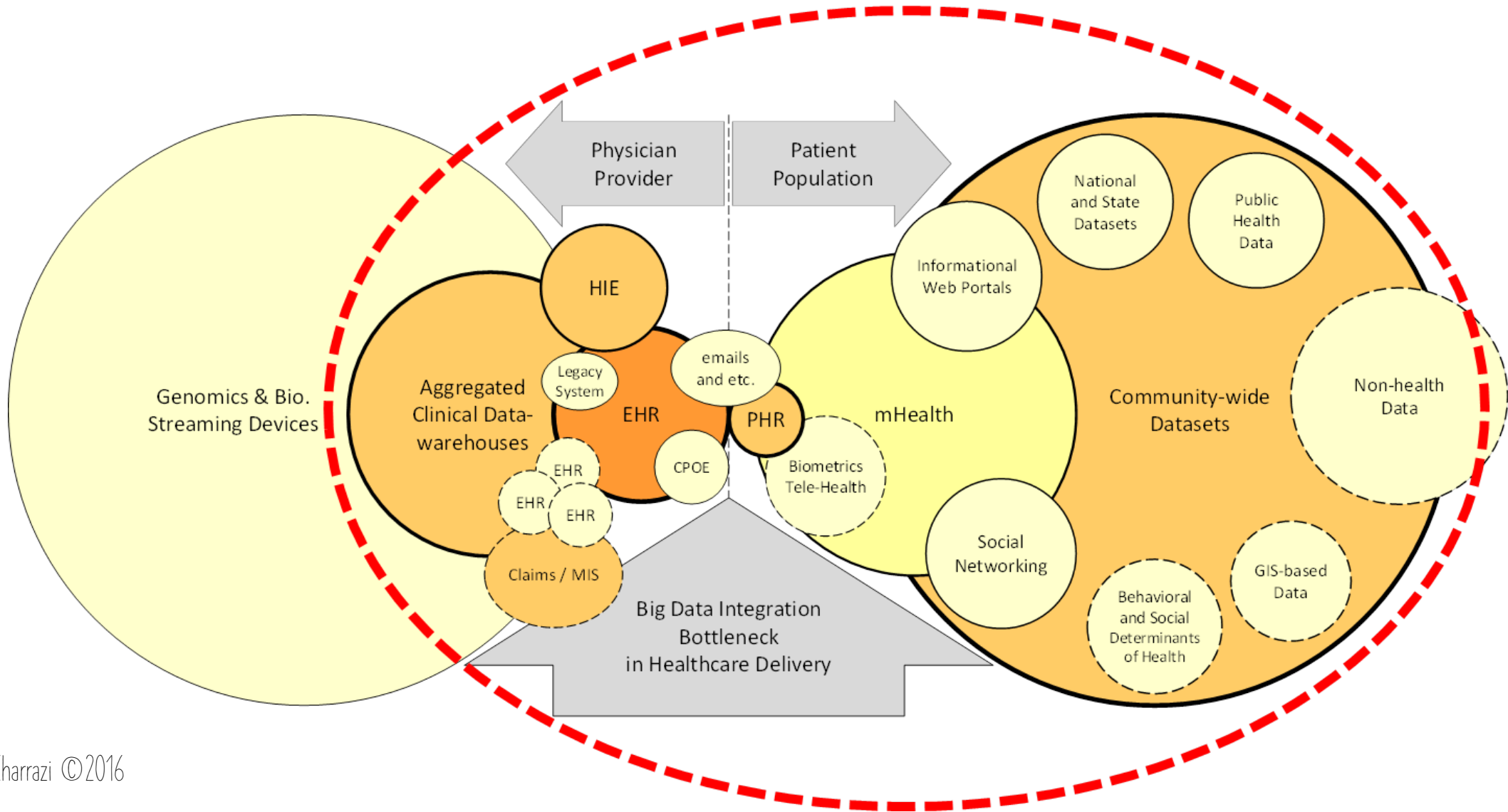
Estrutura do sistema de saúde

- Condução
- Financiamento
- Recursos

- Efetividade
- Acessibilidade
- Eficiência
- Respeito ao direito das pessoas
- Aceitabilidade
- Continuidade
- Adequação
- Segurança

Desempenho do sistema de saúde

Fontes de dados



Análise Espacial

- Dados permitem explorar fatos que aconteceram, na busca de insights
- Até o momento estávamos fazendo uso de dados que nos diziam **o que** aconteceu
- Agora vamos adicionar uma nova dimensão: **onde** aconteceu





Dados vetoriais

Representações comuns

- O mundo é representado a partir de três elementos:

- Pontos
- Linhas
- Polígonos



Dados vetoriais

Representações comuns

- O mundo é representado a partir de três elementos:

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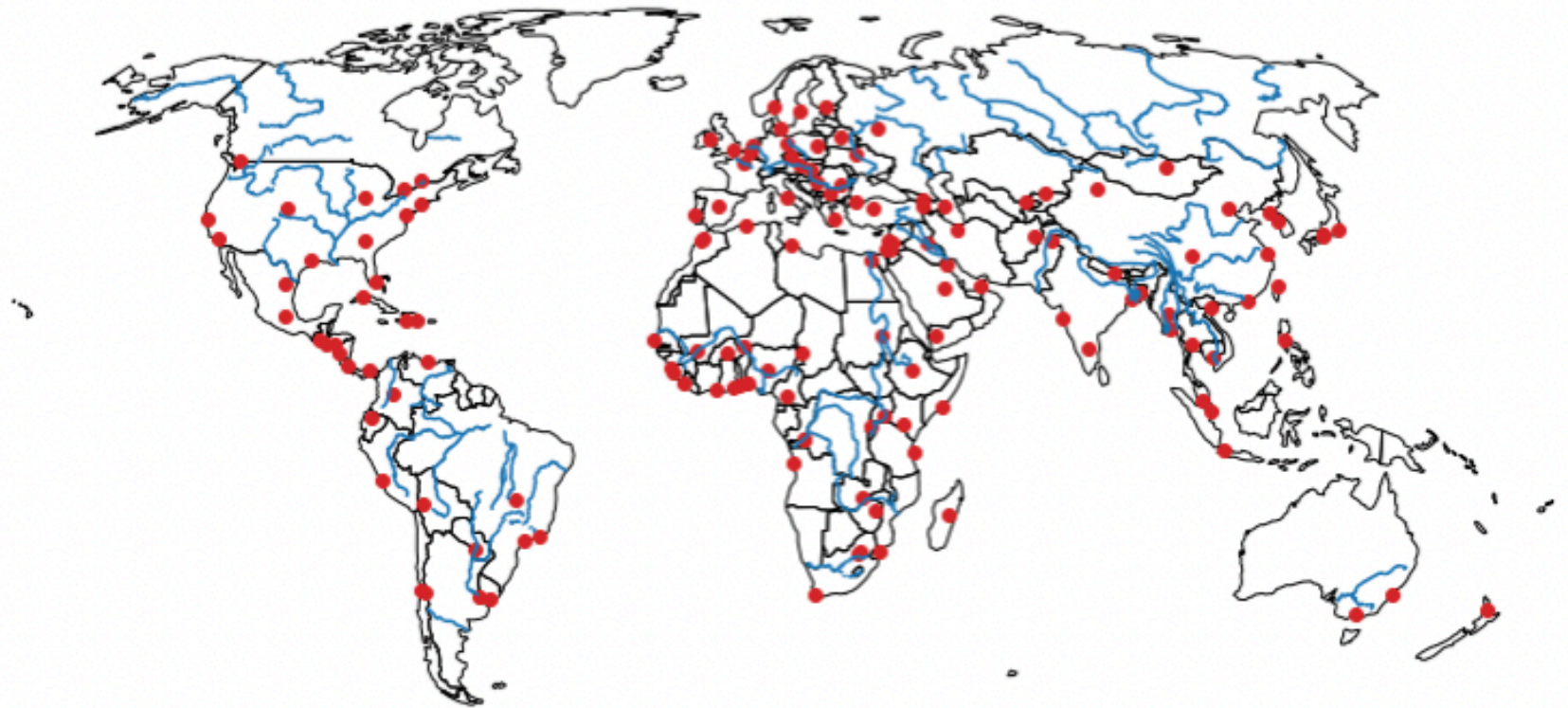


Dados vetoriais

Representações comuns

- O mundo é representado a partir de três elementos:

- Pontos
- Linhas
- Polígonos



Dados vetoriais

Como são representados?

- Exemplo GeoJson dos municípios do estado de SP

- Disponível em:

<https://raw.githubusercontent.com/tbrugz/geodata-br/master/geojson/geojs-35-mun.json>

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GEOJSON

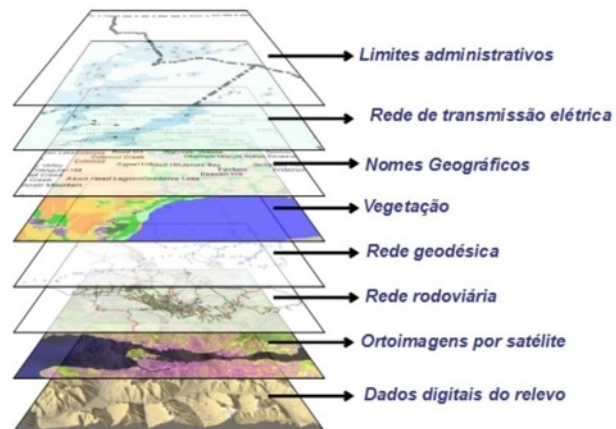
- Visualize em <http://geojson.tools>



Geopackage

IBGE

Bases Cartográficas Contínuas do Brasil



A BCIM é a base cartográfica de referência, sendo insumo geoespacial para a produção de série de mapas e cartas temáticas que contemplam dados da população, solo, geologia, vegetação, recursos naturais e outros

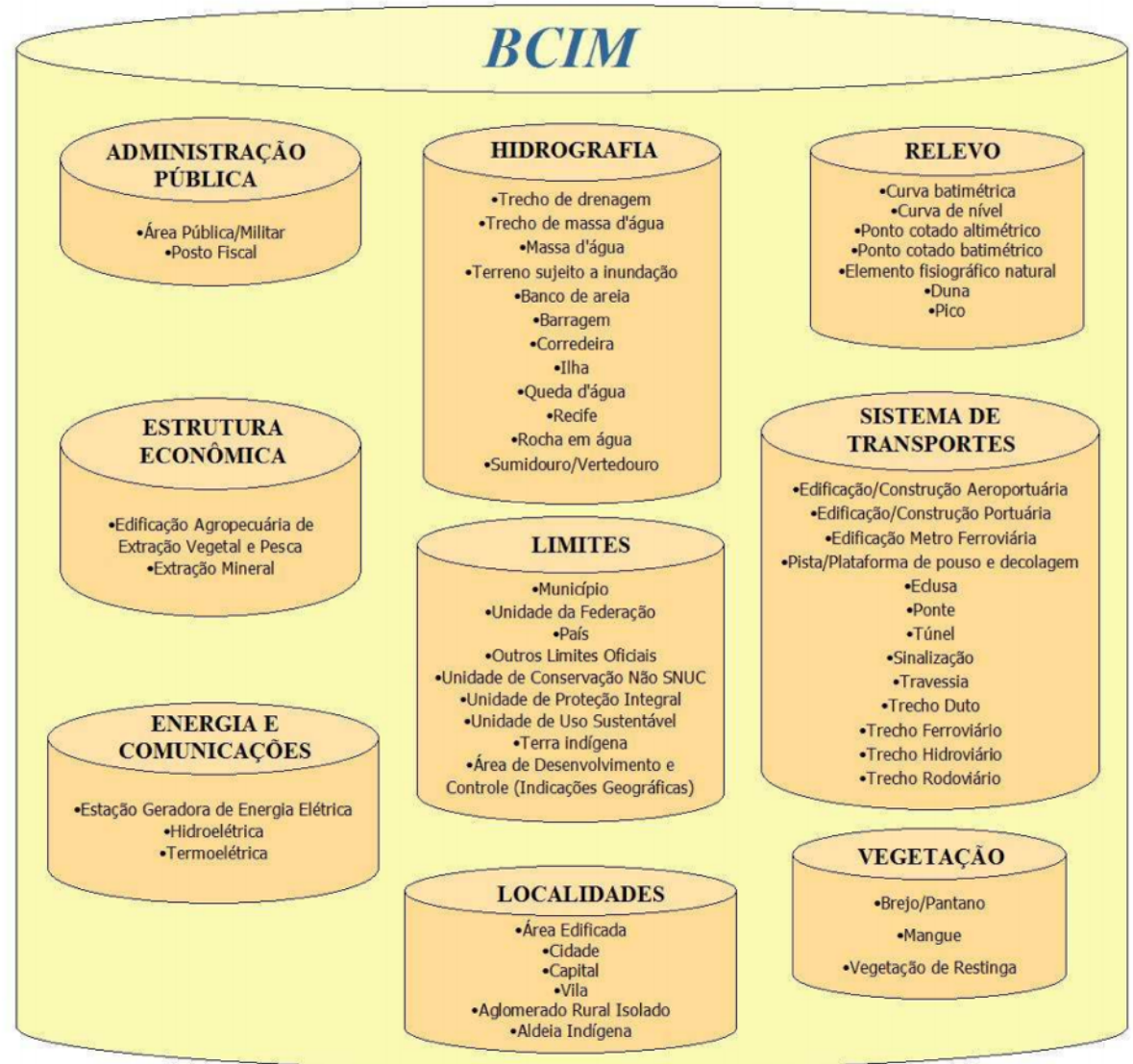


Figura 3.1 – Modelo de Dados – BCIM 2016

GeoSES

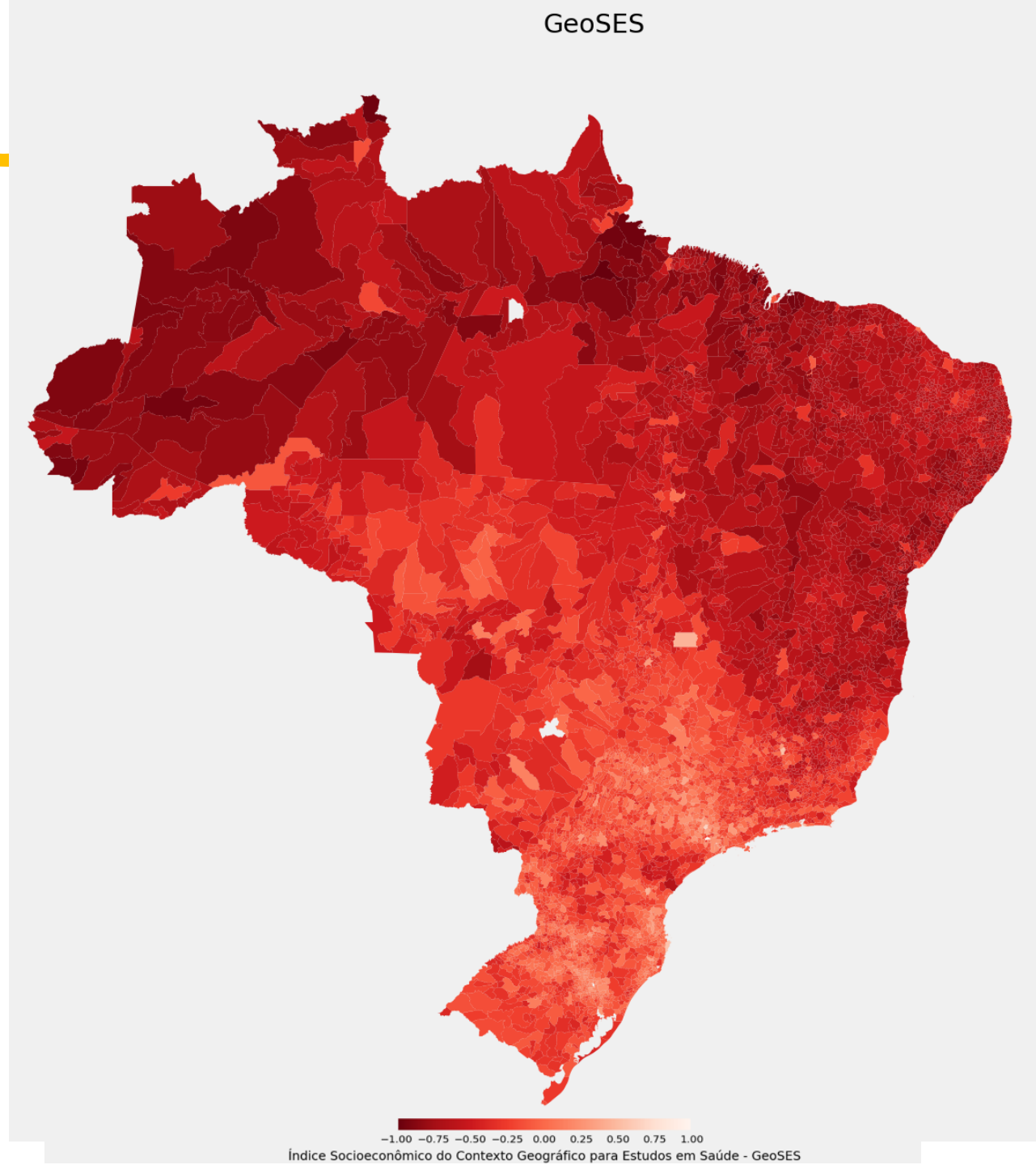
Índice Socioeconômico do contexto geográfico para estudos em saúde

- **O paradigma do CEP:** o lugar onde o indivíduo mora é um preditor mais importante de sua saúde do que o seu próprio código genético. No nível do indivíduo, a relação entre o status socioeconômico e a prevalência de doenças crônicas apresenta um claro gradiente linear inverso
- O GeoSES sintetiza as dimensões socioeconômicas mais relevantes para contextualizar a saúde
 - **Dimensões (46 variáveis):**
 - **Renda** – influencia a etiologia de vários desfechos em saúde, em parte, através de mecanismos que envolvem a obtenção de recursos materiais
 - **Educação** – reflete o conhecimento geral e sanitário, capacidade de solucionar problemas, prestígio, influência, participação em redes sociais e acesso às inovações tecnológicas, trazendo vantagens para a saúde do indivíduo
 - **Pobreza** – capacidade mínima de sobrevivência e acesso a recursos materiais
 - **Riqueza** – proxy para recursos econômicos acumulados ao longo da vida
 - **Privação a recursos e serviços** – privação material de Tonwsend, que diz respeito à desvantagem em relação à sociedade à qual o indivíduo pertence. Mede-se o quanto uma pessoa dispõe de recursos materiais e conveniências que fazem parte da vida moderna (habitação adequada, posse de carro, geladeira, computador, etc.)
 - **Mobilidade** – afeta a saúde em vários aspectos (e.g. tempo dispendido no deslocamento casa-trabalho)
 - **Segregação residencial** – habitação separada de diferentes grupos populacionais em diferentes partes da cidade (insegurança, ansiedade, isolamento social, ambientes perigosos, etc.)

GeoSES

GeoSES

| | <i>GeoSES</i> |
|-----------------|---------------|
| GeoSES | 1 |
| educ | -0.86 |
| pobreza | -0.96 |
| privação | 0.93 |
| riqueza | 0.57 |
| renda | 0.93 |
| segreg | 0.82 |



GeoSES

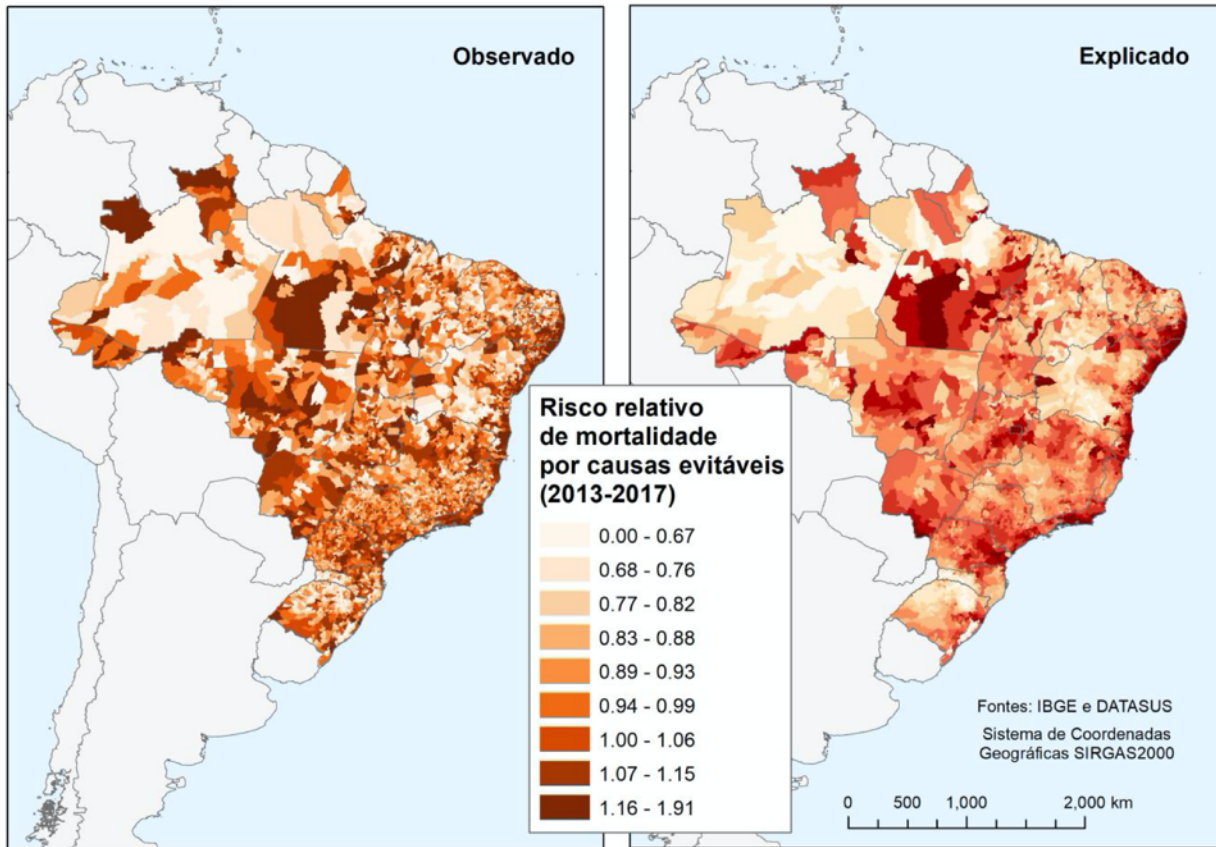


Figura 1 – Riscos relativos de mortalidade por causas evitáveis de 5 a 74 anos (2013 a 2017): risco relativo observado e risco relativo explicado pelo GeoSES-pobreza.

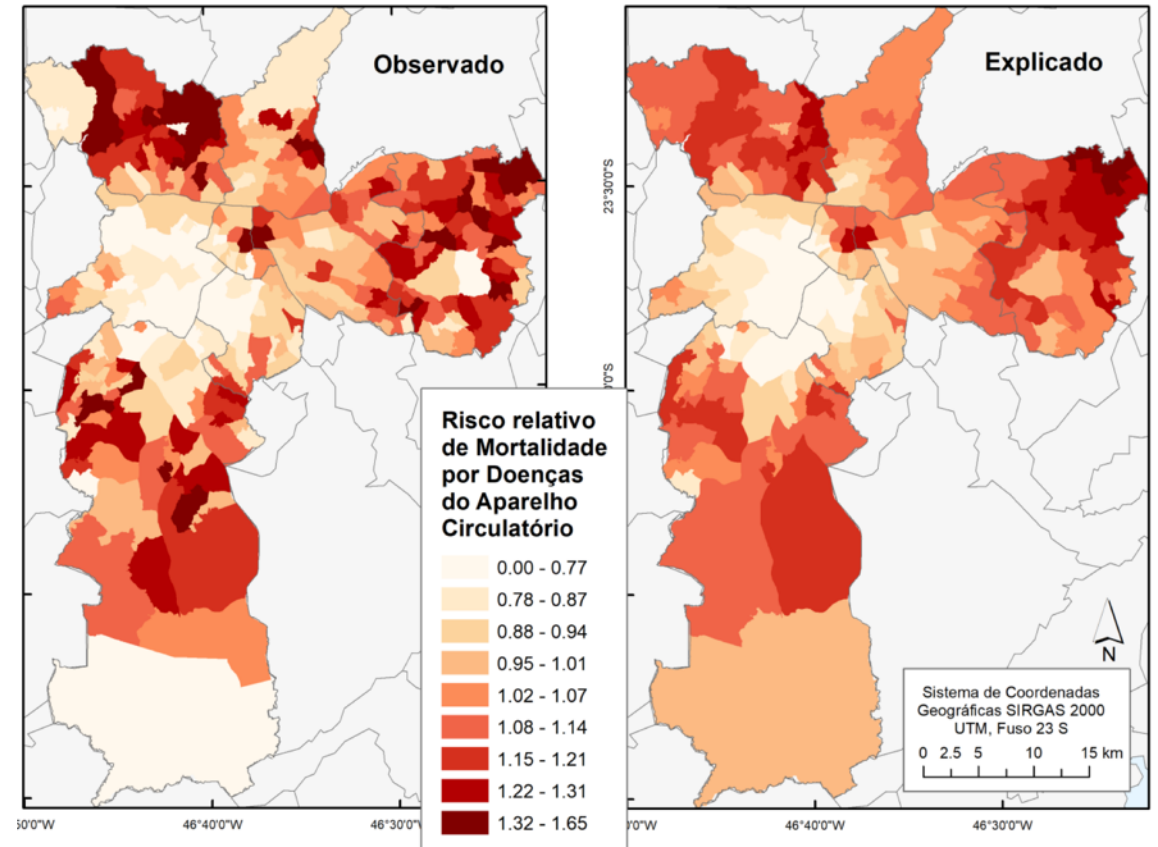
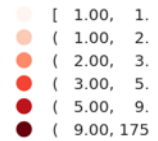
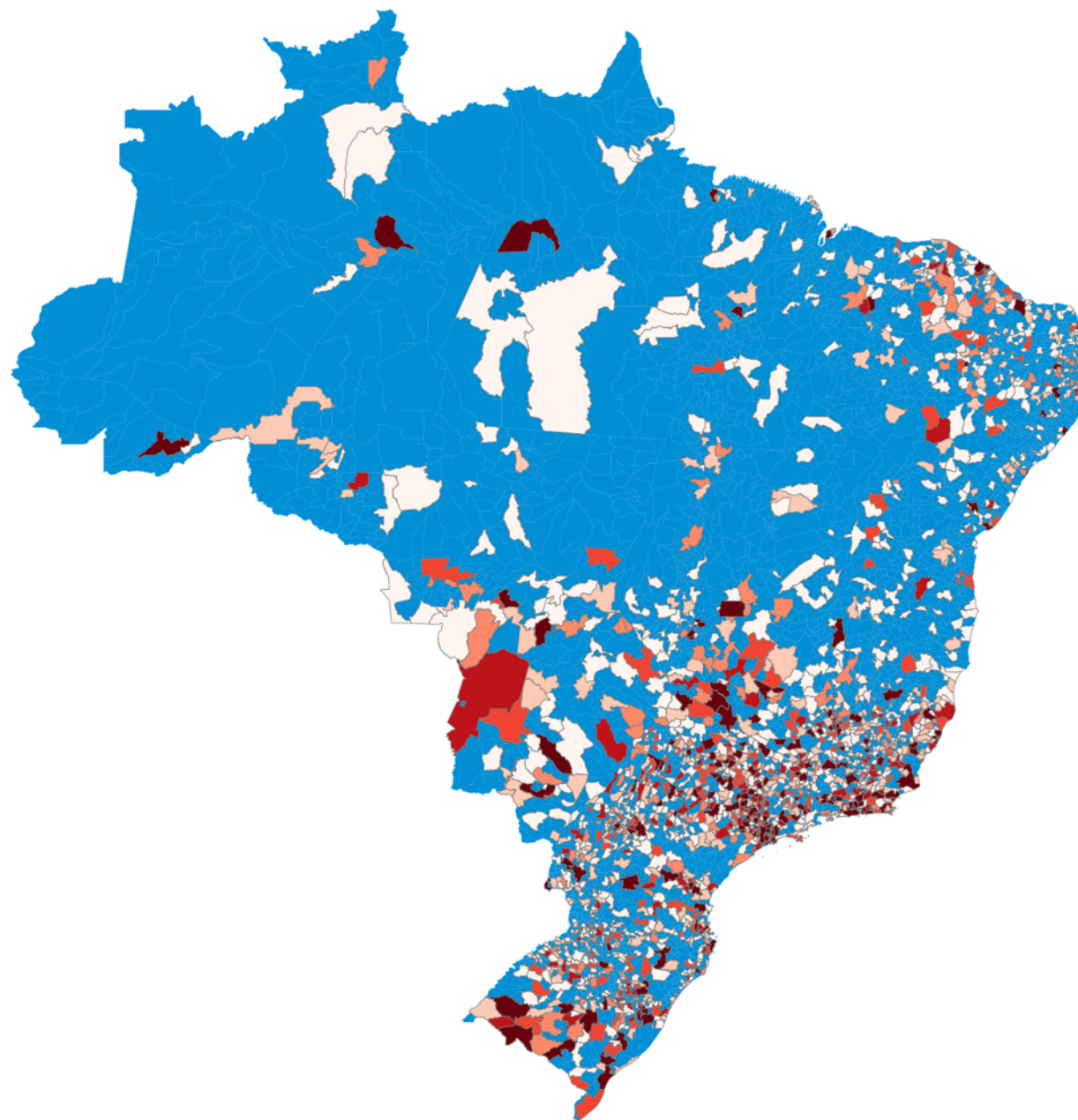


Figura 2 – Riscos relativos de mortalidade por doenças do aparelho circulatório (2006 a 2009) no Município de São Paulo (SP): risco relativo observado e risco relativo explicado pelo GeoSES.



Óbitos por Demência e GeoSES

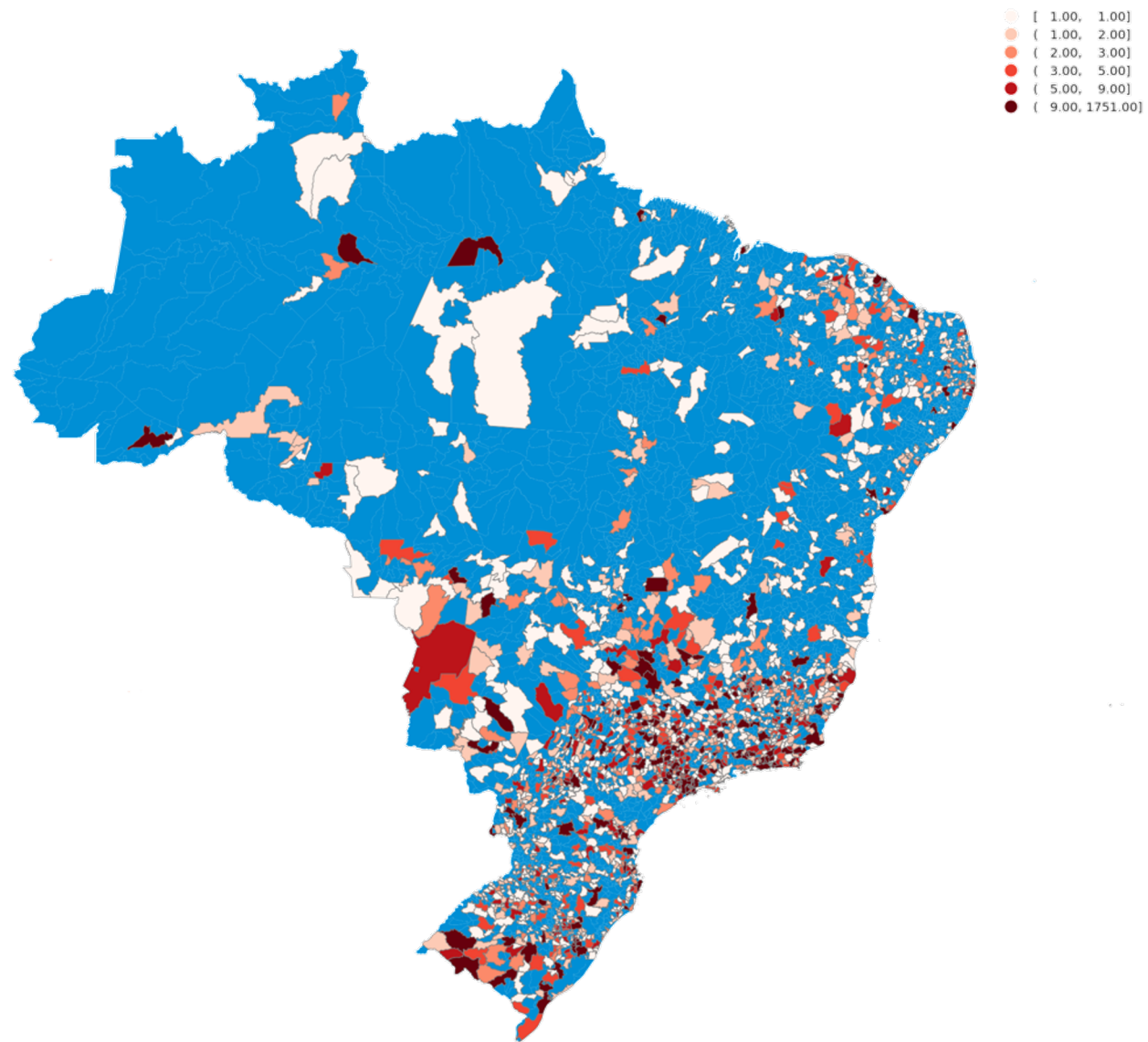
Microdados do SIM
+ BCIM do IBGE



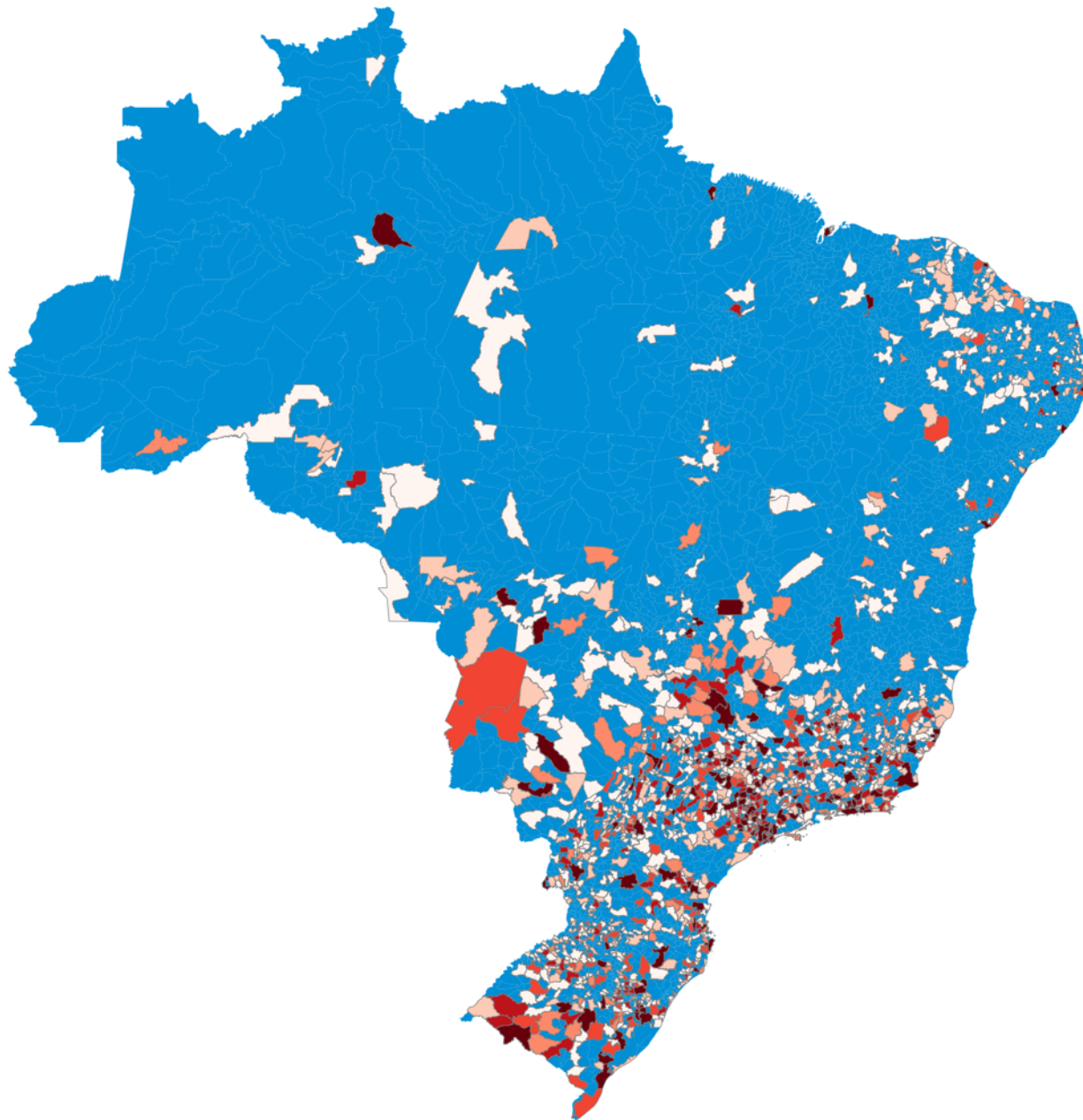
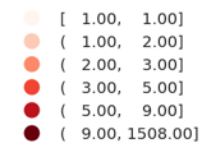
GeoSES



Total de Óbitos por Demência - Desde 2010



Total de Óbitos por Demência - 2010 (Branco)



Risco Relativo de Óbito por Demência (2010)

- [0.08, 0.32]
- (0.32, 0.53]
- (0.53, 1.05]
- (1.05, 10.82]



Aproveite o curso!

- Obrigado

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