Application of RShiny as a Strategic Tool for Evidence-Based Payer Engagement in Nordic Influenza Vaccine Tenders

2nd July 2024 – R for HTA workshop

Contents

Objective and stakeholders

CSL Seqirus seeked to explore:

The development of a user-friendly, visually intuitive **budget impact model of their adjuvanted influenza vaccine (FLUAD TETRA) in the Nordics** to support data-driven decision-making for payers

The use case of the budget impact model is for CSL Seqirus to collaboratively explore the economic and healthcare implications with **payers (i.e., hospitals, healthcare regions etc.)**

Scope of the model

Patients
Population of 65+ in Denmark, Sweden, Norway and Finland

Intervention
Adjuvanted influenza vaccination (**FLUAD TETRA**; a-IIV)

Comparator
Standard-dose influenza vaccination (**SD-IIV**)
High-dose influenza vaccination (**HD-IIV**)
Recombinant influenza vaccination (**r-IIV**)

Outcomes
Healthcare costs such as vaccine acquisition, hospitalization and GP visit costs will be captured. Healthcare outcomes from the decision will also be presented.

- Efficacy of r-IIV assumed equal to HD-IIV

Overview of folder structure and sourced data

- The /data folder contains:
  - Geodata for the country and region maps
  - Excel sheet containing sourced data that needed to be client friendly

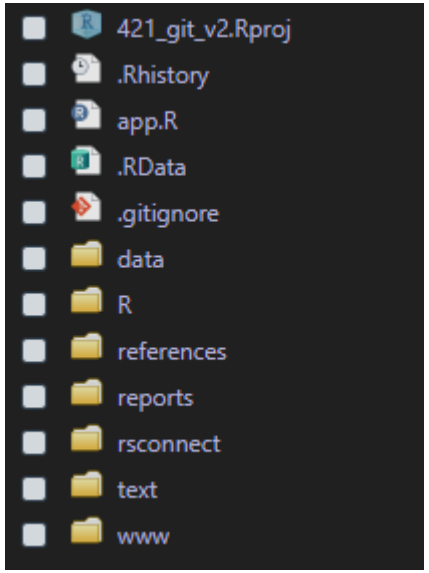
CSL Seqirus **Clinical data**

Influenza strain distribution

Variable	Value	Note	Source
	2022-2023		
Influenza strain A (H1N1)	**34.3%**	Total tested samples: 4346, of which	SSI (2023). https://en.ssi.dk/surv
Influenza strain A (H3N2)	**16.1%**	Total tested samples: 4346, of which	SSI (2023). https://en.ssi.dk/surv
Influenza strain B	**49.6%**	Total tested samples: 4346, of which	SSI (2023). https://en.ssi.dk/surv

Vaccination effectiveness

Clinical | Denmark | Sweden | Finland | Norway | Clinical_app | Norway_app | Finland_app | Sweden_app | Denma ... +



Functionalities of Budget Impact Model

The user can **select which settings are relevant** and reflect the for the user's decision problem:

- Country and region
- Influenza vaccine formulations
- Tender prices
- Market shares

The user can adjust local settings and market insights to their own assumptions and can then:

- Download an RMarkdown **report**
- Get **a shareable link** that saves the user-modified settings

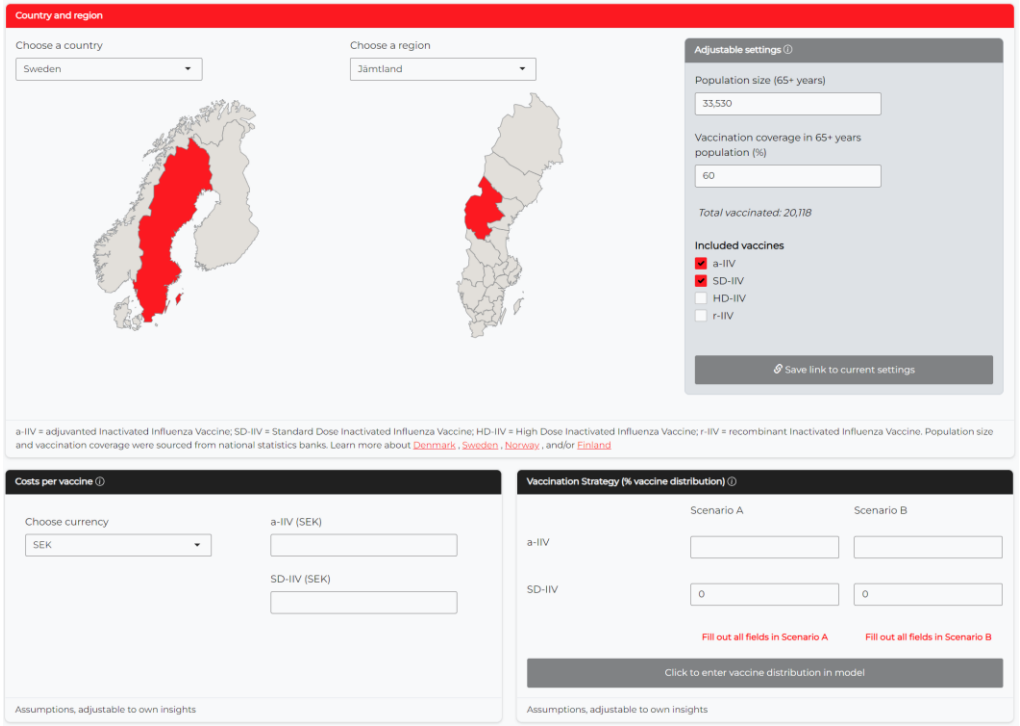
The `bslib` package is used to create a **CSL Seqirus-specific theme** and use their styling consistently according to their compliance.

CSL Seqirus NHTA GLOBAL MARKET ACCESS

Model walkthrough

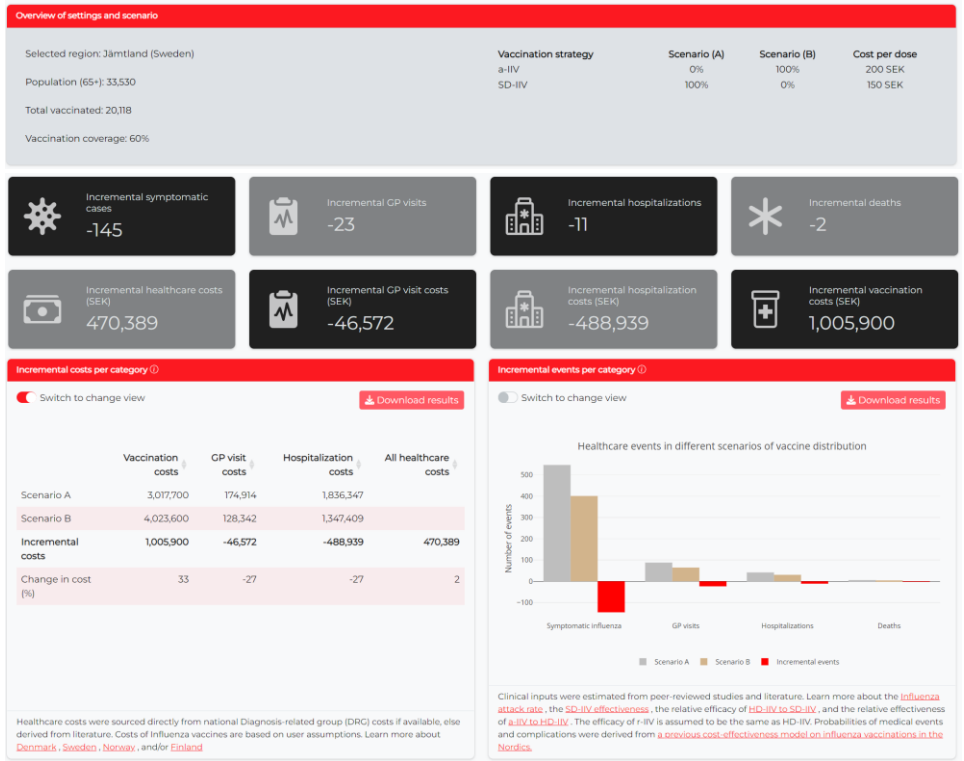
‘Scenario’ page

- Data from GADM was used to inform health regions in the Nordics
  - Not all geodata-regions were aligned with the health regions, so manual merging was needed
  - The `leaflet` package was used to support the visualizations
- Region-specific population and vaccination coverage data was sourced, which is loaded into the model when the user selects a country and then a region



‘Results’ page

- An overview of selected settings that go into the model
- Value boxes to highlight economic and healthcare outcomes, using package `bslib`
- Detailed overview of the outcomes in either a bar graph or tabular form
  - The user can switch using a `prettySwitch()`
- In the `card_footer()`, more details on model inputs are highlighted and which data and/or studies they are referencing
- The Download results button triggers the download of an HTML RMarkdown of the key model inputs and the results (both in graphical and tabular form)



Information pages

- Model information
  - Attributes and limitations
  - Model structure
- Model inputs
  - Exact values used in the model including references
- References
  - All references (with URLs), formatted using `includeMarkdown()`

Challenges

- How to make an RShiny methodologically transparent?
- Functionality of bookmarking in an organized coding framework
- Cybersecurity and access for bigger organizations

Contact

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