



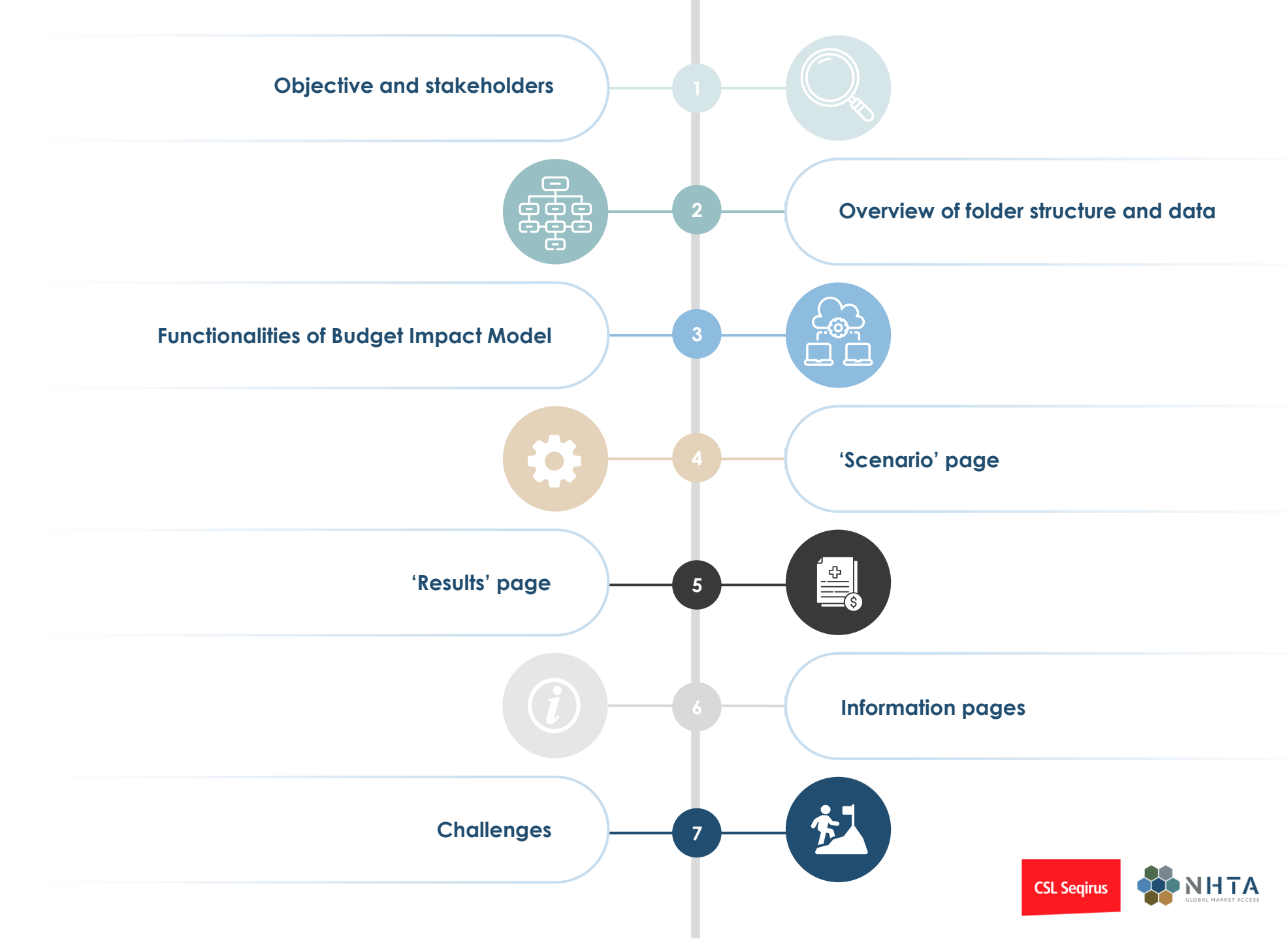
NHTA
GLOBAL MARKET ACCESS

CSL Seqirus

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 sought 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

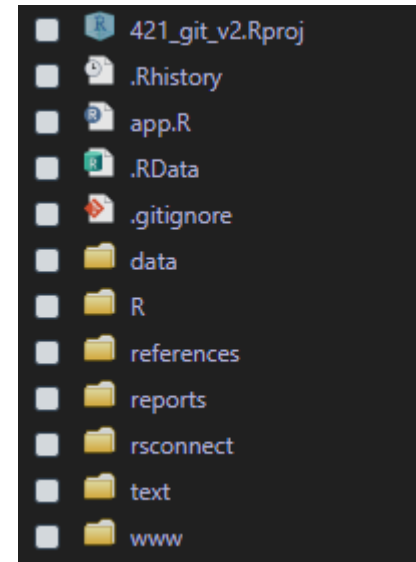


Influenza strain distribution

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...	+
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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 **bs1ib** package is used to create a **CSL Seqirus-specific theme** and use their styling consistently according to their compliance.

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

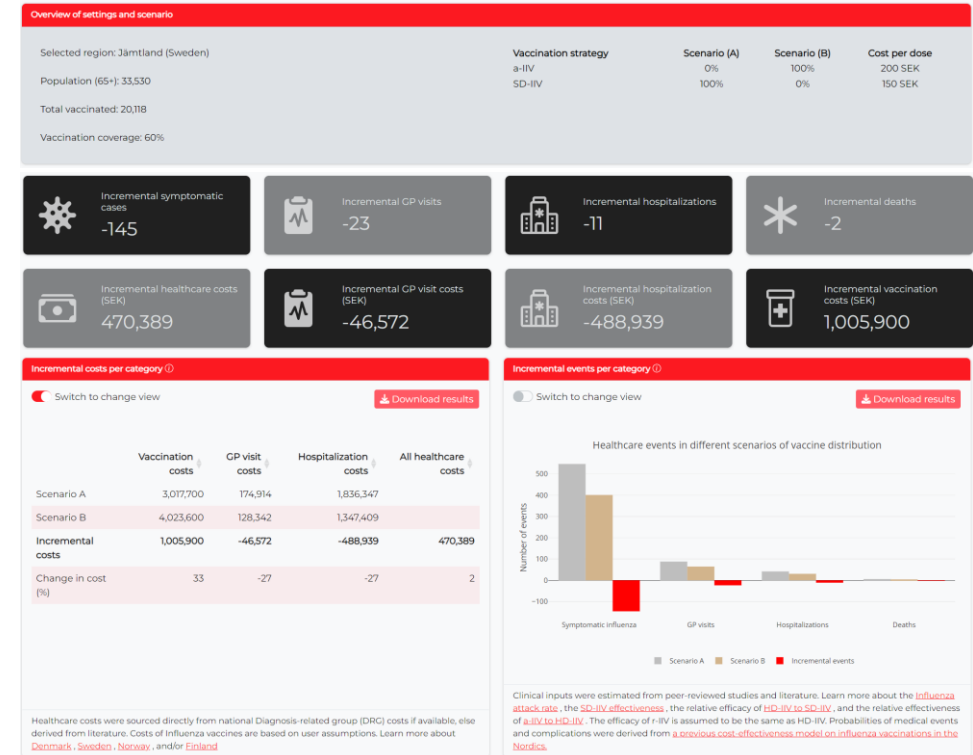
The screenshot displays a web interface for configuring a model scenario. It is divided into several sections:

- Country and region:** Features dropdown menus for 'Choose a country' (set to 'Sweden') and 'Choose a region' (set to 'Jämtland'). Below these are two maps: the first shows Sweden with the Jämtland region highlighted in red, and the second shows a more detailed map of Jämtland with its sub-regions highlighted.
- Adjustable settings:** Includes input fields for 'Population size (65+ years)' (33,530) and 'Vaccination coverage in 65+ years population (%)' (60). It also displays 'Total vaccinated: 20,118'. Under 'Included vaccines', there are checkboxes for 'a-IV' (checked), 'SD-IV' (checked), 'HD-IV' (unchecked), and 'r-IV' (unchecked). A 'Save link to current settings' button is at the bottom.
- Costs per vaccine:** Contains a 'Choose currency' dropdown (set to 'SEK') and input fields for 'a-IV (SEK)' and 'SD-IV (SEK)'.
- Vaccination Strategy (% vaccine distribution):** Shows two scenarios, 'Scenario A' and 'Scenario B', with input fields for 'a-IV' and 'SD-IV'. Below these are red text prompts: 'Fill out all fields in Scenario A' and 'Fill out all fields in Scenario B'. A button at the bottom says 'Click to enter vaccine distribution in model'.

Small text at the bottom of the interface states: 'Assumptions, adjustable to own insights'.

'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

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