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NETHERLANDS CANCER INSTITUTE
ANTONI VAN LEEUWENHOEK

Using next-generation real-world hospital data for HTA in oncology: a future-proof hybrid framework

OECI Oncology Days 2025
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Progression-Free Survival Should Not Be Used as a Primary End Point for Registration of Anticancer Drugs

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BACKGROUND

BACKGROUND

Real-world hospital data

Next-generation RWE

Health technology assessment

Scientific research

Internal quality improvement

Benchmarking

Analytical dashboards

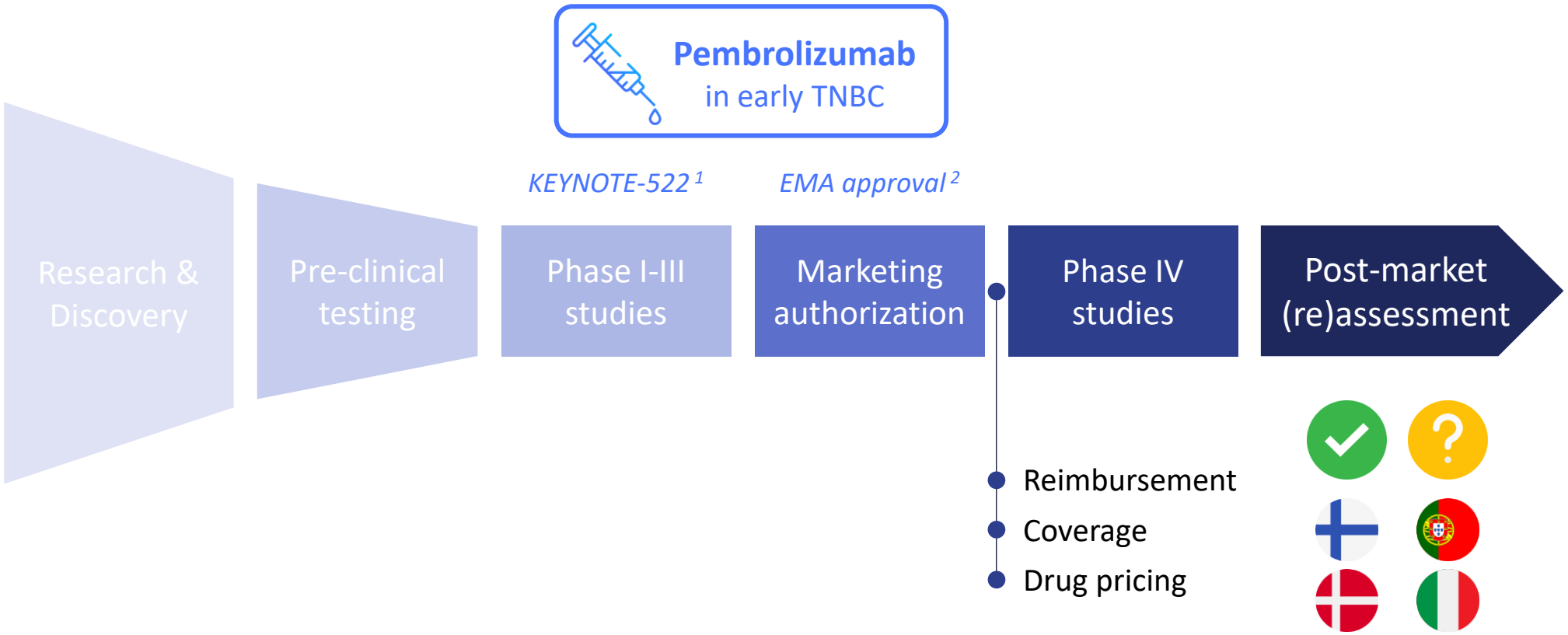
Patient monitoring

Hospital decision-making

Reimbursement

Health technology assessment

Along the drug life cycle



[1] Schmid et al., *New Engl J Med*, 2022 [2] Merck, *https://bit.ly/38e1J1Z*, May 2022

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Horizon Europe consortium

01.12.2022 – 30.11.2026
7 M€ total budget

HUS Helsinki University Hospital
Netherlands Cancer Institute – Antoni van Leeuwenhoek
IPO Porto – Instituto Português de Oncologia do Porto FG, EPE
Istituto Romagnolo per lo Studio dei Tumori Dino Amadori
Region H – Rigshospitalet
Rijnstate
Siemens Healthineers
BC Platforms
IQVIA
elevate
TTOPSTART
CiaoTech

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Objective

Both structured and unstructured data

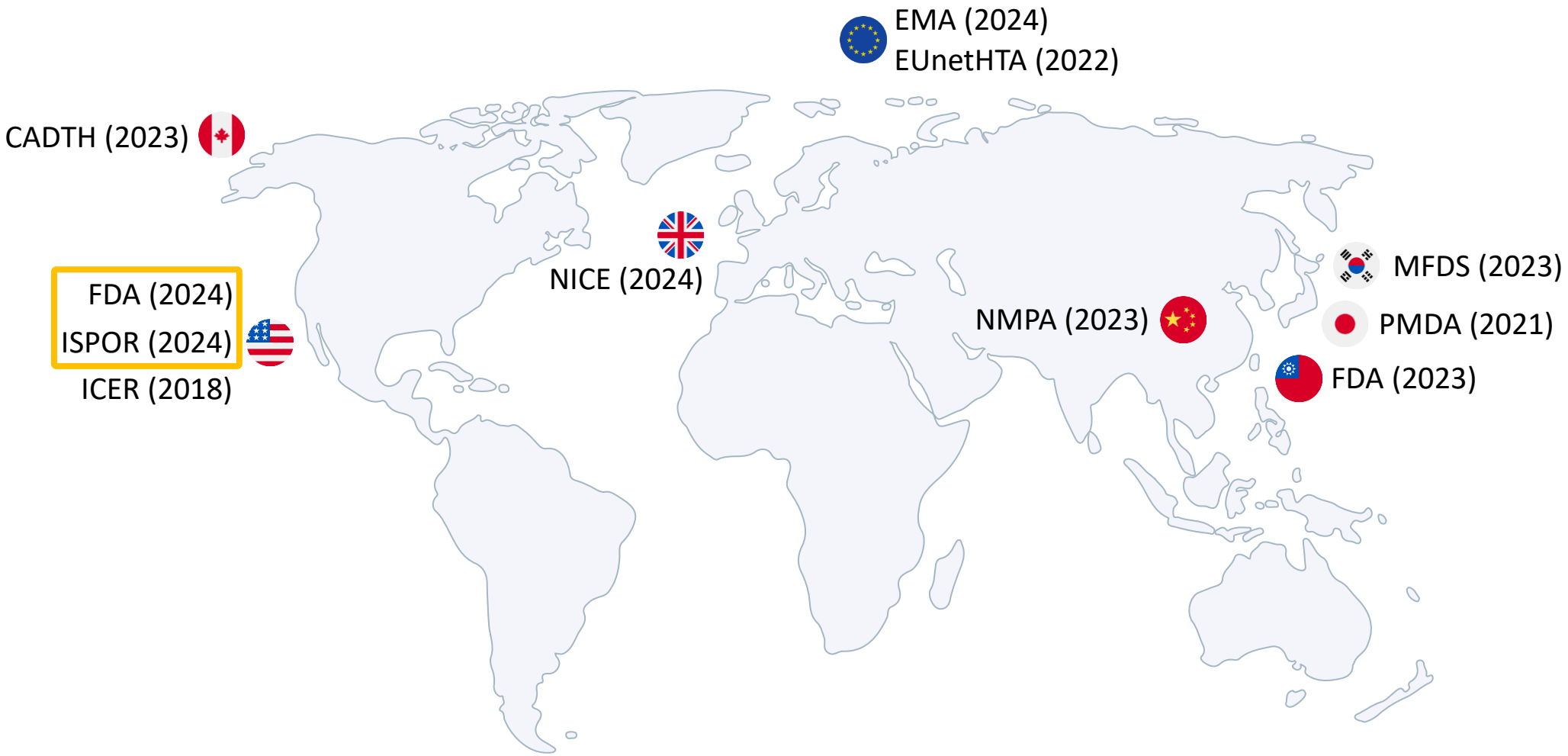
To unlock the full potential of real-world hospital data, generated in European cancer centres, for efficient use in HTA of novel cancer treatments.

Automatic generation and use of data in real-time

Full health economic evaluation based on clinical, cost and QoL data

HTA framework

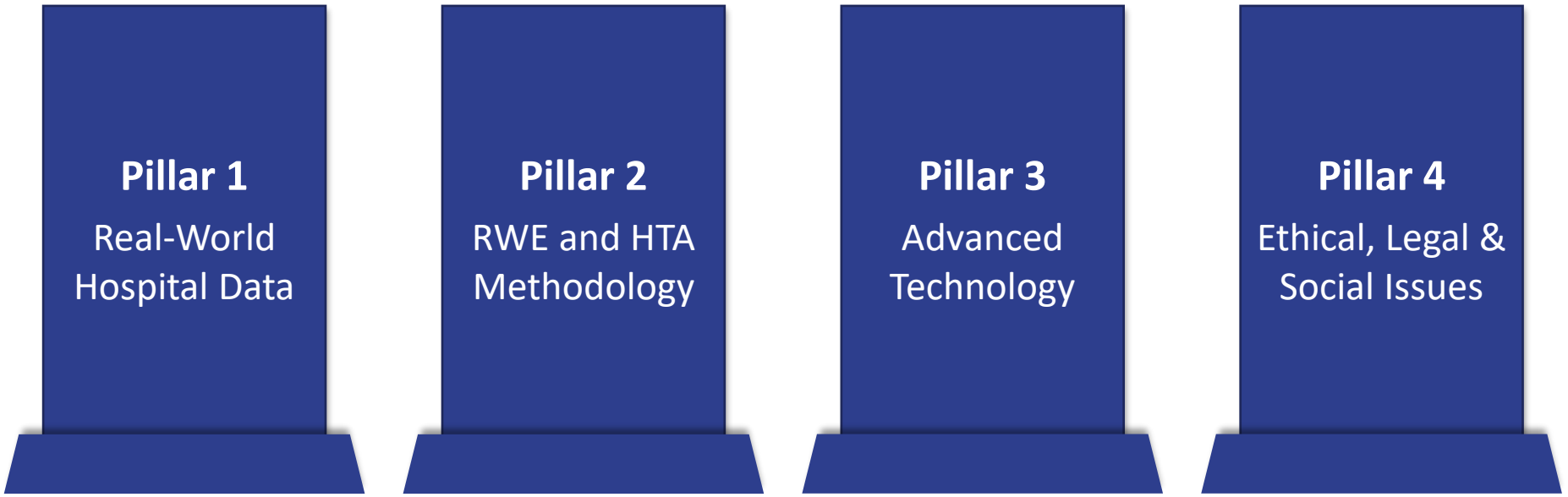
Existing RWE guidelines



HTA framework

Using real-world hospital data

Objective: A practical and transparent framework that guides both hospitals and HTA researchers in generating and analyzing real-world hospital data for HTA in oncology.



HTA framework

Delphi study

Delphi Session 1

May 2025

Written feedback

June - August 2025

Focus groups

September 2025

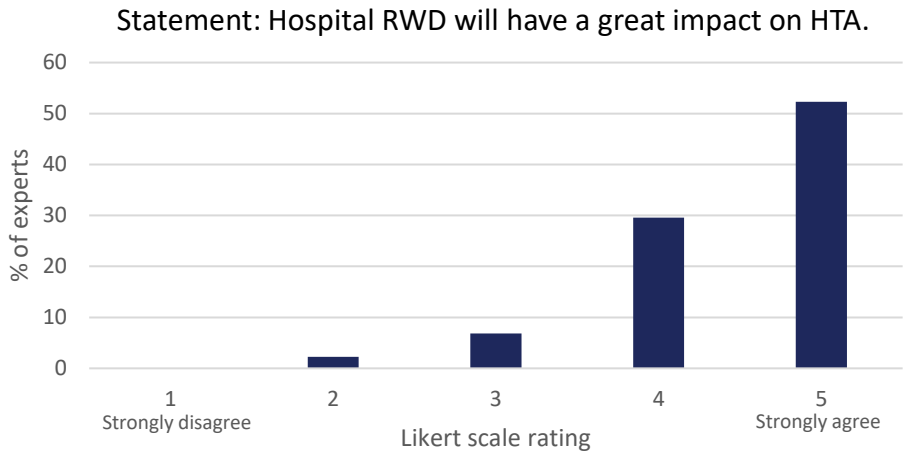
Delphi Session 2

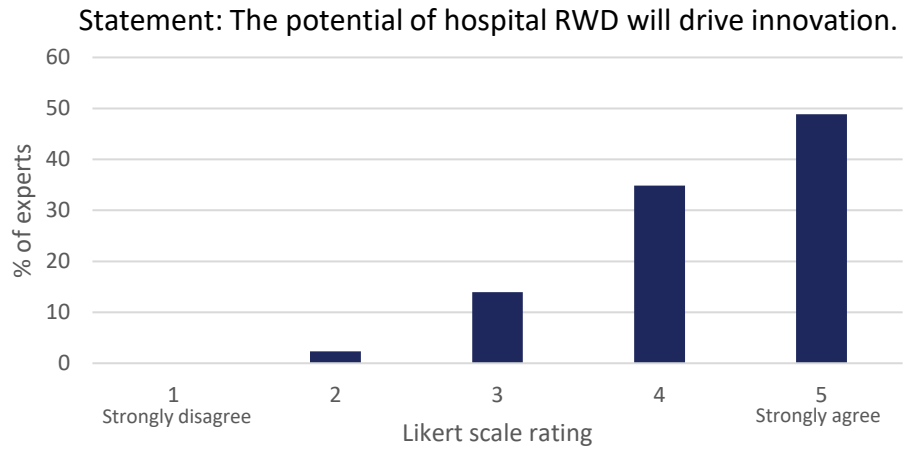
October 2025

You can still participate in our Delphi study!
Please reach out to us: k.tittel@nki.nl

Preliminary results

Characteristics of experts (*n* = 44)





Demographic	% of experts
Sector	
Academia	49%
Public authority	21%
Consultancy	9%
Industry	7%
Other	14%
Years of experience	
0 – 5	14%
6 – 10	14%
11 – 20	45%
21 – 30	23%
> 30	5%
Expertise	
Collecting and/or using hospital data	39%
(Statistical) methods for RWE and/or HTA	36%
AI, OMOP and/or federated analysis	11%
Ethical, legal and social issues	14%

Preliminary results

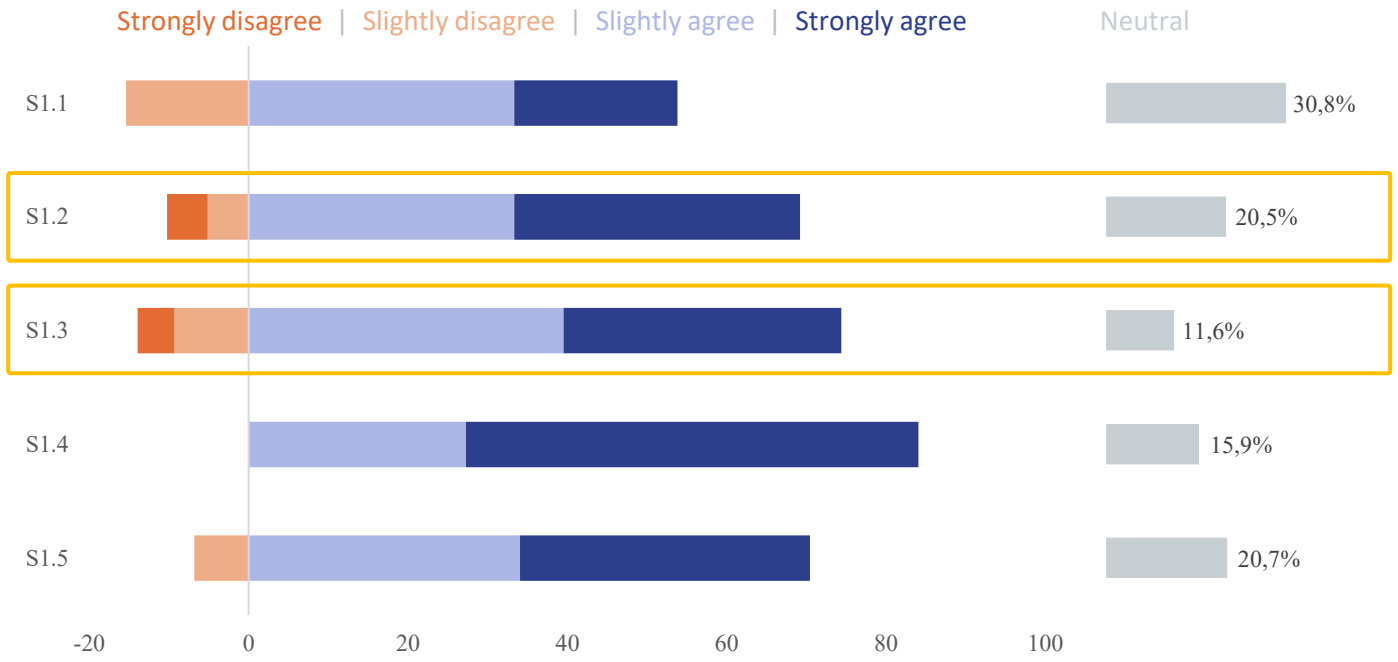
Framework Pillar 1: Real-World Hospital Data

S1.2

To make hospital RWD suitable for conducting HTA, clinicians should start registering and harmonizing their source data according to a CDM (e.g. OMOP).

S1.3

Hospitals should start registering all relevant patient comorbidities and treatment side effects (e.g. adverse events) of routine clinical care patients.



Preliminary results

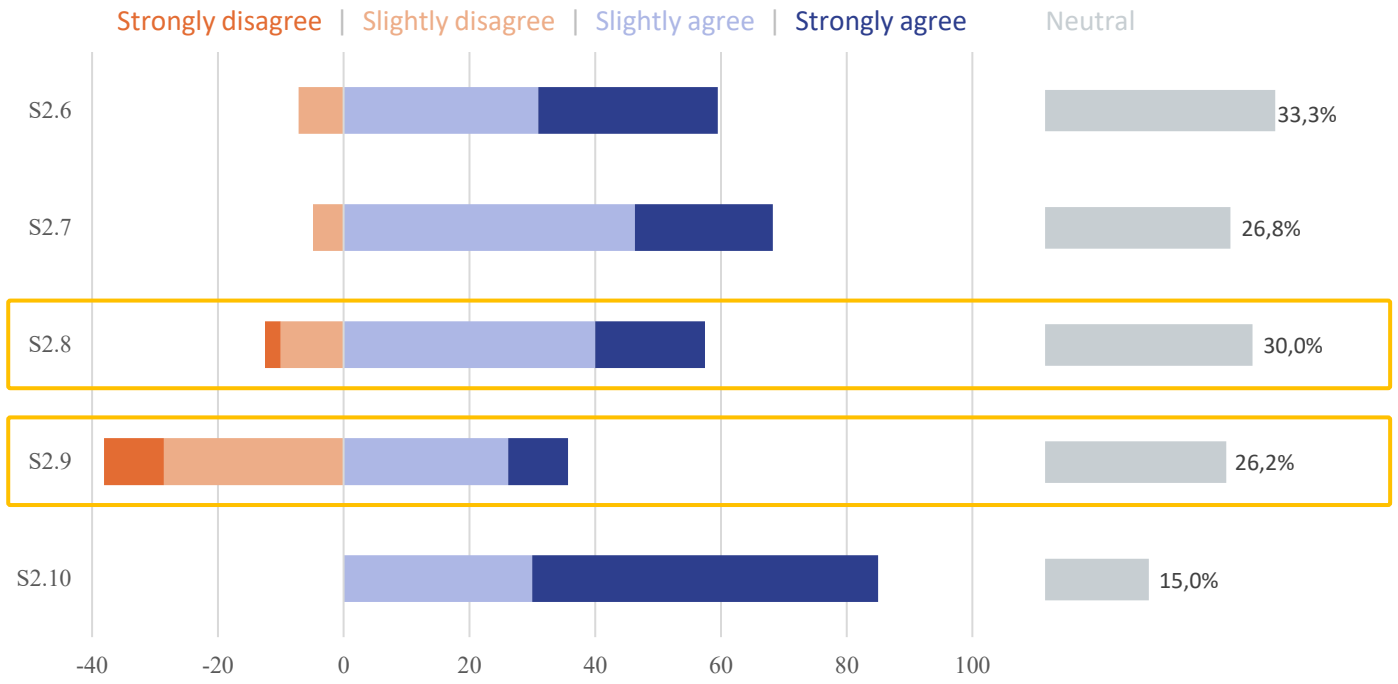
Framework Pillar 2: RWE and HTA Methodology

S2.8

To fully capture patient heterogeneity in routine clinical practice, causal ML should complement traditional statistical methods in analyzing hospital RWD for HTA.

S2.9

To automate real-time use of hospital RWD, manual validation of the patient cohort selection and corresponding data should be fully replaced by novel (AI-driven) tools.



Preliminary results

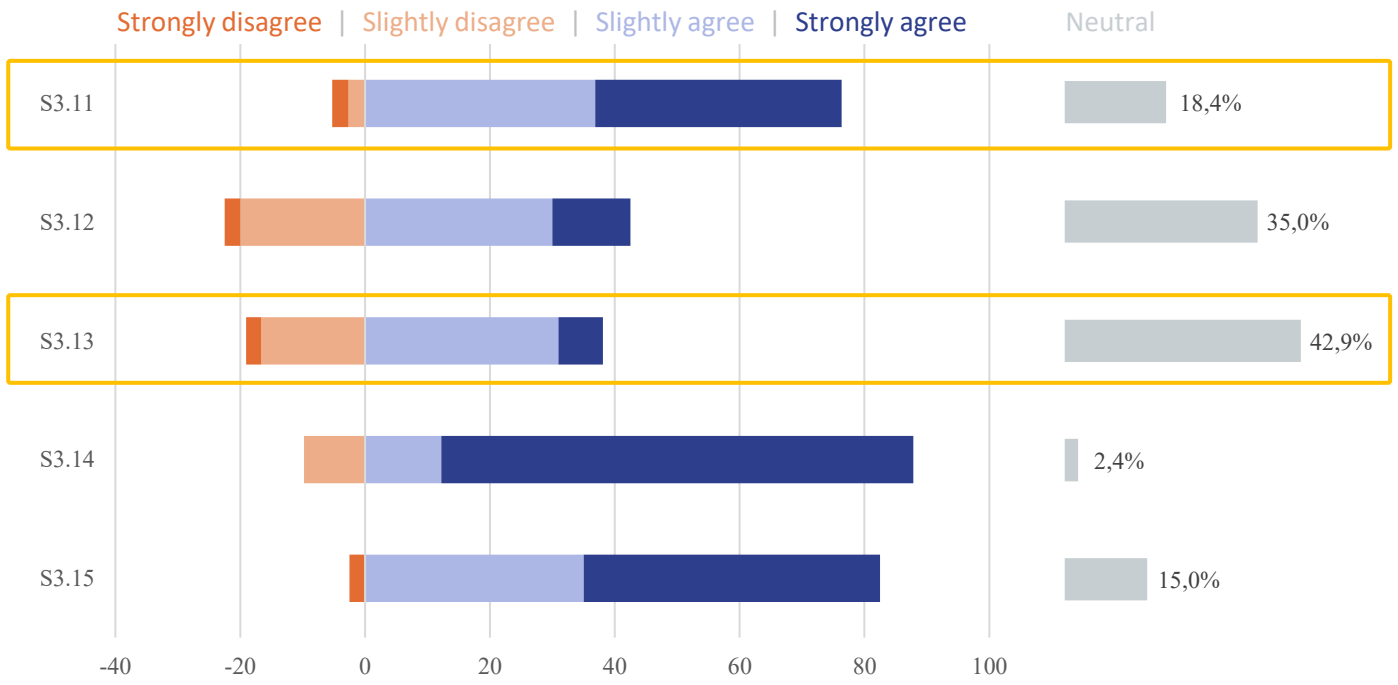
Framework Pillar 3: Advanced Technology

S3.11

Hospitals should adopt advanced infrastructures (e.g. data lakes) with well-developed systems, standardized processes and reliable data quality controls for conducting HTA.

S3.13

To enable an iterative HTA infrastructure, hospitals should implement NLP and LLMs as default techniques for real-time data extraction from unstructured data.



Preliminary results

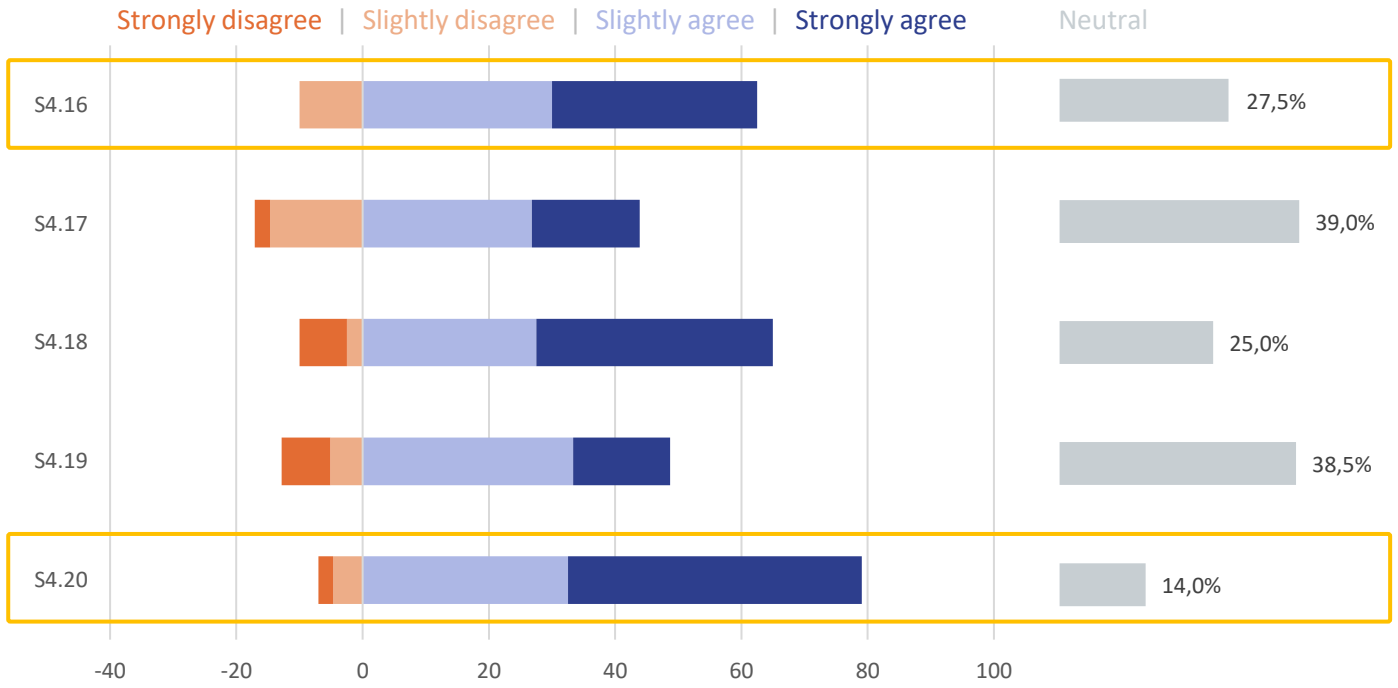
Framework Pillar 4: Ethical, Legal & Social Issues

S4.16

Hospitals should systematically report and communicate data quality (e.g. dashboards) with clinicians and others to enhance socio-dynamic aspects of data registration.

S4.20

Hospitals should implement novel tools (e.g. speech to text) to decrease the burden of data registration for clinicians and to increase data structure and harmonization.



Preliminary results

Potential implications for concrete practical guidelines

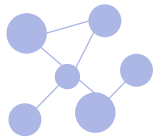
Pillar 1

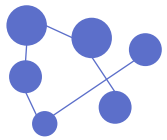
How do we measure data suitability in a concrete manner?

Pillar 2

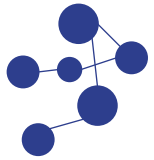
What amount of missing/unstructured data can we accept?

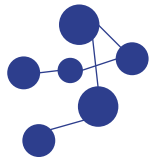
Raw data

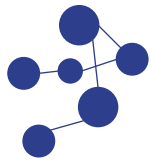




Analytical data







Pillar 3

How do we report on AI tool codes, queries, and performance?

Scripts

Pillar 4

How do we ensure patient privacy-preserving analyses?

Preliminary results

Live voting

Statement 1

I would be willing to spend more time on structured data registration for HTA, if these data would also provide me with real-time insights for benchmarking and quality of care improvements.

Statement 2

Hospitals should invest in advanced infrastructures (e.g. data lake, federated network, AI & ML services, cloud solutions) in order to enable real-time use of hospital data for decision-making purposes.

Preliminary take home messages

Expected outcomes and next steps

Practical guidance

and recommendations on collecting, using and analyzing hospital data in a reliable way.

Better instruments

for (federated) cohort research, internal quality improvement, and benchmarking.

Stronger position

for hospitals and HTA bodies (re)assessing coverage decisions with real-world value.

State-of-the-art

RWE and HTA methods and advanced technologies to unlock the rich hospital data.

Thank you for listening!

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