



Universität St.Gallen

School of Medicine



Swiss Learning
Health System

UNIVERSITÄT
LUZERN

Welcome to the Jungle:

Using the QUALICATOR Instrument to Collect and Evaluate
Quality Indicators

March 10, 2026

From insight to impact.

Agenda for today

1

Background

What is the core idea and research aim?

2

Instrument introduction

What theoretical background supports the study?

3

Instrument deep-dive

Which methods are used for each instrument component?

4

Discussion

What is unique about our instrument vs. existing literature?

5

Limitations and outlook

What are limitations and the role of future research?

Numerous countries launched initiatives aimed at improving healthcare quality and accessibility for their populations



The Federal Council's health policy strategy 2020–2030

1

On 6 December 2019, the Health2030 Strategy was adopted by the Federal Council. Building on the foundations of Health2020, it also defines new health policy priority areas.



Government
of Canada

Working Together to Improve Health Care for Canadians Plan

2

In the 2023 federal budget, we invested more than \$200 billion over 10 years to support the [Working Together to Improve Health Care for Canadians Plan](#).



England

Fit for the Future: 10 Year Health Plan for England

3



Federal Ministry
of Health

Hospital Future Act for the digitalization of hospitals

4



Initiatives supported by **substantial financial investments** (often multiple billions) to achieve initiatives' objectives



Quality indicators (QIs) often determine whether and to what extent these **goals** have been met⁵

Current instruments for QI selection remain untransparent



Number of QIs has grown significantly, making selection challenging,...

- In 2023, over 500 Swiss-specific inpatient indicators were collected from IQM ⁶
- The National Quality Forum (NQF) lists over 1,100 indicators ⁷
- Number of QIs recorded by the NHS England has surged by over 2,700% since 1982 ⁸



Excessive measurement, misalignment with goals, low user adoption, and decision-making paralysis.



...meanwhile measuring indicators remains costly for stakeholders...

- Admin costs account for an estimated ~15% to ~35% of national healthcare expenditures ⁹
- Substantial portion attributed to the collection and reporting of quality indicators
- Single hospital can spend over 100k person-hours annually on quality assessments ¹⁰



Research advocates for reducing the number of indicators to optimize resource allocation¹⁰



...and attempts to reduce QI overload remains untransparent / unsuccessful.

- WHO, NQF, and Institute of Medicine urged stakeholder to prioritize QIs
- Current criteria and process unclear and no standardized instruments exists ¹¹
- Mostly Delphi techniques for HCA-agnostic or HCA-specific instruments ¹²



Various HCA and/or medical specialties select QIs differently

Thus, we came up with the following research aim

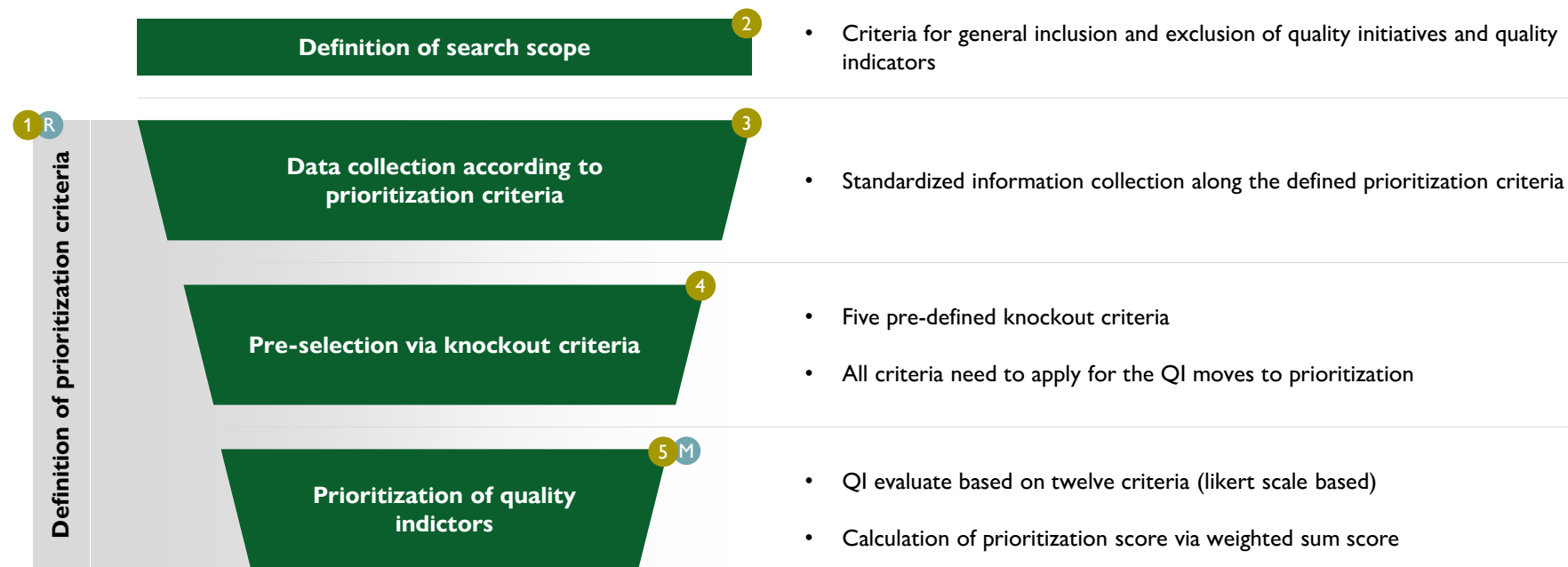
Research Aim

Develop a generic and transparent instrument for collecting and evaluating QIs across different Healthcare Areas (HCAs)¹

Note: 1. Six healthcare areas include inpatient somatic care, outpatient somatic care, psychiatric care, rehabilitative care, community care, and long-term care.



Instrument for quality indicators collection and evaluation



Four instrument dimensions based on existing literature

Existing literature space		
HCA focus	Reference	Year
Overarching HCA	National Quality Forum ¹⁴	2021
	Quentin et al. ¹⁵	2019
	AQUA-Institut GmbH ¹⁶	2015
	Stelfox et al. ¹⁷	2013
	Evans et al. ¹⁸	2008
	Reiter et al. ¹⁹	2008
	Wollersheim et al. ²⁰	2007
	Mainz et al. ²¹	2003
Outpatient care	Kalenderian et al. ²²	2021
Psychiatric care	Pincus et al. ²³	2017
Long-term care	Wagner et al. ²⁴	2020
Community care	Voerman et al. ²⁵	2013



1

Relevance

Health impact, stakeholder importance

2

Scientific soundness

Validity, reliability,
risk adjustment, discriminatory power

3

Usability

Understandability, comparability, actionable
insights

4

Feasibility

Data availability, cost-effectiveness,
ease of implementation

The use of general exclusion criteria helps decide which indicators or initiatives merit data collection

2

General exclusion criteria

Domestic

Exclusion criteria	Definition: Exclude ...
Quality initiatives outside definition ⁽¹⁴⁸⁾	... quality initiatives that do not meet the definition (i.e., QI family from one organization on a specific theme, with the ability to create multiple quality initiatives). ¹
Quality indicators outside definition ⁽¹⁴⁸⁾	... quality indicators who do not meet the definition (i.e., lacking quality goal, measurement concept, or appraisal concept) ²
Insufficient implementation status	... initiatives that are not implemented/do not repeatedly assess QIs at least at cantonal or regional level (i.e., for which data is not yet available for at least N providers (the latter unless the initiative deals with highly specialized medicine or rare diseases). ³
Discontinuity of measurement ⁽¹⁴⁸⁾	... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned.
Initiatives without specific QIs ⁽¹⁴⁸⁾	... initiatives that only contain guidelines, but no specific QIs.
Failure to assess quality ⁽¹⁴⁸⁾	... initiatives that are simply certifications without QIs that are used for provider benchmarking, or that refer to quality management of providers but do not assess the quality itself.
Incongruent unit of analysis ⁽¹⁴⁸⁾	... initiatives that refer to a unit of analysis that does not correspond to the providers in the target HCA (e.g., comparisons of regions instead of providers). ¹

International

Exclusion criteria	Definition: Exclude ...
Quality initiatives outside definition ⁽¹⁴⁸⁾	... quality initiatives that do not meet the definition (i.e., QI family from one organization on a specific theme, with the ability to create multiple quality initiatives). ¹
Quality indicators outside definition ⁽¹⁴⁸⁾	... quality indicators who do not meet the definition (i.e., lacking quality goal, measurement concept, or appraisal concept) ²
Non-transferable to Swiss context	... international quality initiatives or indicators that are not practically relevant and/or have no potential for transfer to the Swiss context.
Duplication of QI search	... indicators already identified in the national or another international search.
Lacking national applicability	... initiatives that are not implemented/do not repeatedly assess quality at least at the national level.
Discontinuity of measurement ⁽¹⁴⁸⁾	... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned.
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3

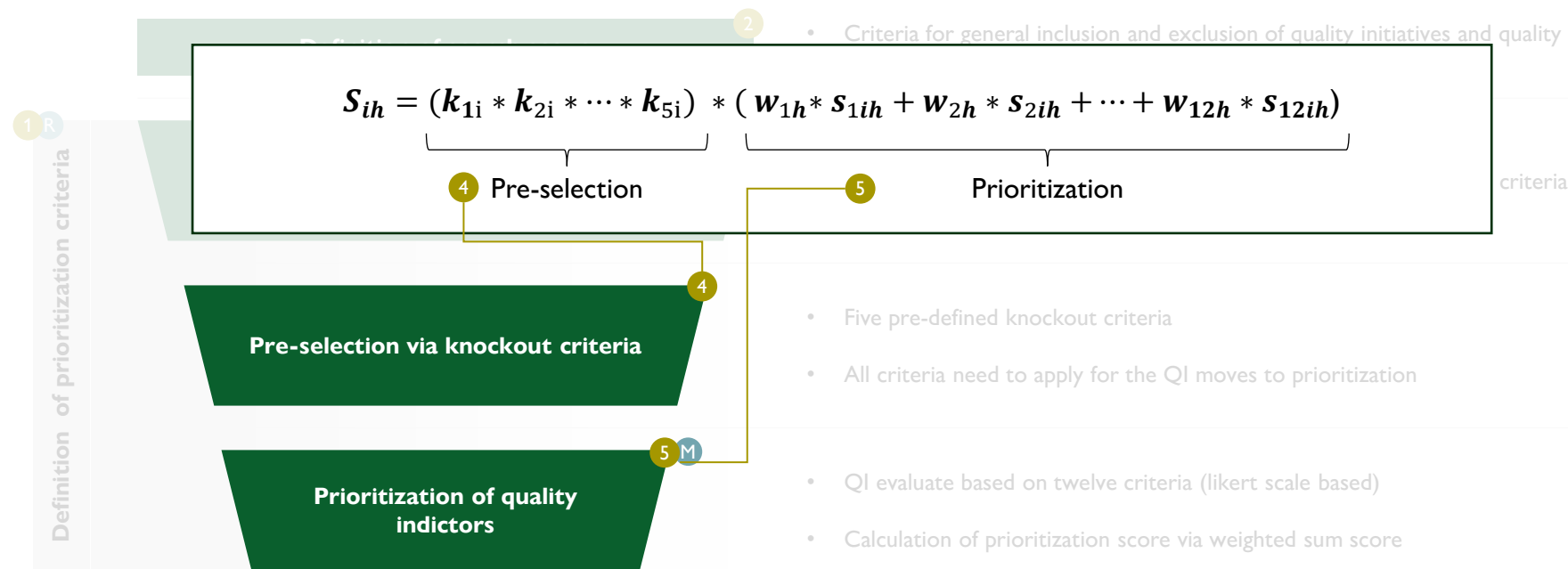
Information collection template

5. GENERAL QI INFORMATION											
Responsible organization and name of initiative			Original QI name (Swiss language)	English QI name	Type of quality indicator	Disease/condition area	Disease/condition sub-area (e.g., investigated patient population)	Type of included facilities/providers	Short description of QI (mainly inclusion & exclusion criteria)	Selected websites to key documents covering QI description	Quality domain
Name of initiative	Responsible organization	Type of organization									
Rehabilitation	AKQ	Non-profit organization	Ungeplante Rehaufnahme von Patienten	Unplanned readmission rates hospital-wide	General	NA	NA	Acute somatic hospitals, outpatient rehabilitation clinics and if there have been somatic care after and hospital with general care for sports (rehabilitation, 1st and 2nd degree specialization in surgery, gynecology/obstetrics)	Hospital with unplanned readmissions within 30 days after hospital stay, occurring in the following categories: • Surgical/gynecological/orthopedic • Cardiac/geriatric/medical	https://www.akq.ch/de/qualitaet/qualitaetsindikatoren/	Outcome
Quality indicators for Swiss acute hospitals, QI 143 (Version 5.0)	BAG	Federal authority	A.1.1.19: HMO-Messung (Index - QI, Manual)	A.1.1.19: HMO-Messung (Index - QI, Manual)	Disease-specific	Cardiology	Cardiology: Myocardial infarction	General acute hospitals, 1st and 2nd degree specialization in surgery, gynecology/obstetrics	Mortality rates of patients with acute and recurrent myocardial infarction > 10 years	General information on the QI-QI quality indicators: https://www.bag.admin.ch/bag/de/home/qualitaet/qualitaetsindikatoren/	Outcome
Qualitätsicherung mit Routestellen (QSR)	Wissenschaftliches Institut der AOK (WAKO)	Research organization health insurance	Qualitätsicherung mit Routestellen (QSR)	Qualitätsicherung mit Routestellen (QSR)	Procedure-specific	Orthopedics/Traumatology	Hip surgery	Hospitals that treated AOK cases in the respective service area and reporting year	Revision operations on the same hip joint at the start or within 365 days of the operation.	https://www.wako.ch/de/qualitaet/qualitaetsindikatoren/	Outcome
Qualitätsicherung mit Routestellen (QSR)	Wissenschaftliches Institut der AOK (WAKO)	Research organization health insurance	Qualitätsicherung mit Routestellen (QSR)	Qualitätsicherung mit Routestellen (QSR)	Procedure-specific	Orthopedics/Traumatology	Hip surgery	Hospitals that treated AOK cases in the respective service area and reporting year	Revision operations on the same hip joint at the start or within 365 days of the operation.	https://www.wako.ch/de/qualitaet/qualitaetsindikatoren/	Outcome
No specific initiative	Wahler Gesundheitsberichterstattung	Non-profit organization	Wahler Gesundheitsberichterstattung	Wahler Gesundheitsberichterstattung	General	NA	NA	Acute somatic hospitals, rehabilitation clinics (public and private sector)	Number of full-time equivalents employed in various hospitals, by Federal Statistical Office occupational category, 2022	https://www.bfs.admin.ch/bfs/de/home/neuerscheinungen/berichterstattung-berufsausschlag-2022.html	Outcome

- Aim to rapidly eliminate certain quality initiatives or indicators from moving forward to the subsequent stage
- Domestic criteria include, e.g., quality initiatives/indicators outside definition, insufficient implementation, discontinuity of measurement, etc.
- International criteria include, e.g., non-transferable to Swiss context, duplication of QI search, or lacking national applicability, etc.

- An information collection template was developed based on the prioritization criteria, outlining the necessary data for prioritization
- The template decomposes each criterion into measurable components, enabling objective decision-making
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Instrument for quality indicators collection and evaluation



Instrument components x Primary methodologies (F = Field testing; R = Rapid literature search via snowballing; M = Multiple-Criteria Decision Analysis via Analytical Hierarchy Process)

For early exclusion, all QIs undergo an initial knockout evaluation



Aim of knockout evaluation | Aim to keep workload manageable in the final prioritization phase



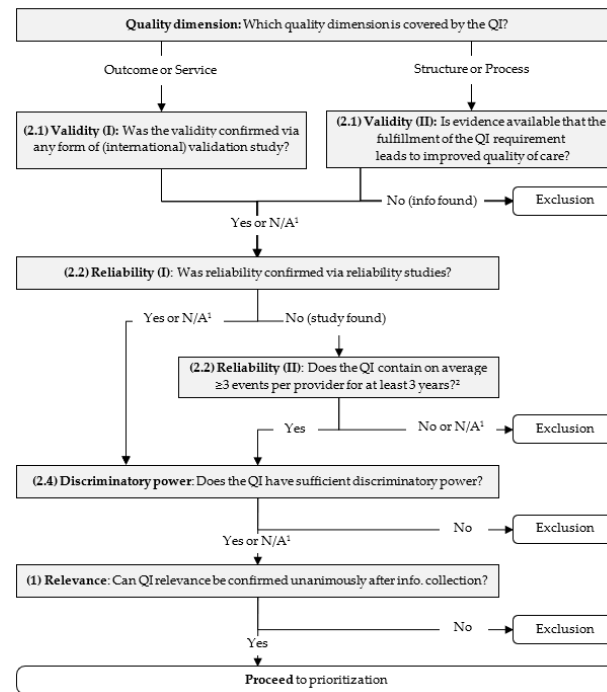
Validation of criteria | Defined by the authors reviewed and endorsed by the respective healthcare area expert groups



Four knockout criteria | Initial evaluation of QIs based on four predefined knockout criteria which are also part of the prioritization



All must be fulfilled | QIs had to fulfill all five criteria to advance to prioritization

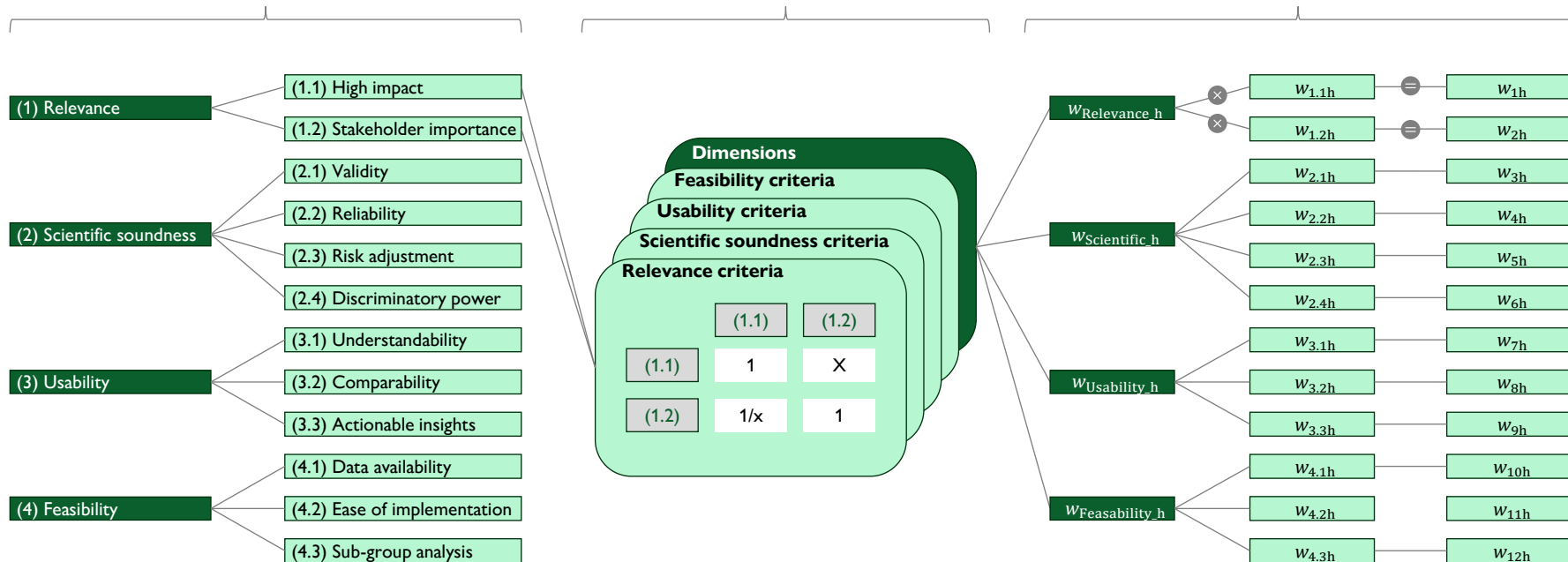


Because different HCA may prioritize QI selection criteria differently, they are weighted to reflect their level of importance

Development of value tree that decomposes decision problem into dimensions and sub-criteria

Pair-wise comparison of all dimensions and sub-criteria via Analytic Hierarchy Process (AHP)²⁶

Aggregation of weights and multiplication with dimensional score to get final weights of criteria



HCA individual scorecards are finally used to prioritize each QI

Prioritization criteria	Source for rating	Weight	Rating
(1) Relevance			
(1.2) High impact issue: To what extent does the QI target an issue with significant impact on patient outcomes and healthcare costs?	Delphi	w_{1h}	1 – 2 – 3 – 4 – 5 – N/A
(1.3) Stakeholder importance: How well does the QI reflect the priorities and concerns of key stakeholders?	Delphi	w_{2h}	1 – 2 – 3 – 4 – 5 – N/A
(2) Scientific soundness			
(2.1) Validity: To what extent has the validity of the QI been confirmed?	Information collection	w_{3h}	1 – 3 – 5 – N/A
(2.2) Reliability (I): To what extent has the reliability of the QI been confirmed? (e.g., test-retest)	Information collection	w_{4h} (avg.)	1 – 3 – 5 – N/A
(2.2) Reliability (II): How many events does the indicator include per provider for the measured data period?	Information collection		1 – 2 – 3 – 4 – 5 – N/A
(2.3) Risk adjustment: How well does the QI account for patient characteristics to ensure fair comparisons across providers?	Information collection	w_{5h}	1 – 3 – 5 – N/A
(2.4) Discriminative power: What % of providers have the lowest or the highest value of the QI?	Information collection	w_{6h}	1 – 2 – 3 – 4 – 5 – N/A
...	...	...	...

$$S_{ih} = \sum_{m=1}^n w_{mh} * c_{mih}$$

Distinctiveness of our instrument and its implications

What is unique about the instrument?



Holistic healthcare-specific weighting of criteria through MCDA approach, addressing sector-specific needs and reducing biases



Structured pre-selection using exclusion and knockout criteria, enabling rapid exclusion of weak indicators



Full methodological transparency, providing detailed tools (e.g., data templates, questionnaires, decision trees)

What are practical implications?



Swiss Federal Council tasked the FQC with establishing the basis/**content of a national quality monitoring system**



Structured weighting system makes frequent **re-evaluation straightforward**, avoiding repeated full Delphi cycles



Blueprint for other countries and org. (e.g., regulators, hospitals) that considered to (re-)prioritize their set of indicators

Instrument limitations and directions for subsequent research

Instrument limitations

Context specificity

Weights reflecting Swiss expert perspectives and may require adaptation

Methodological complexity

Instrument integrates multiple Methods (knockout pre-selection, MCDA, Delphi)

High data requirements

Dependency on reliable data; incomplete data may hinder accurate scoring



Potential future research direction

Test transferability

in other national context to refine criteria and weights

Ease usage of instrument

by creating user friendly web-based tool

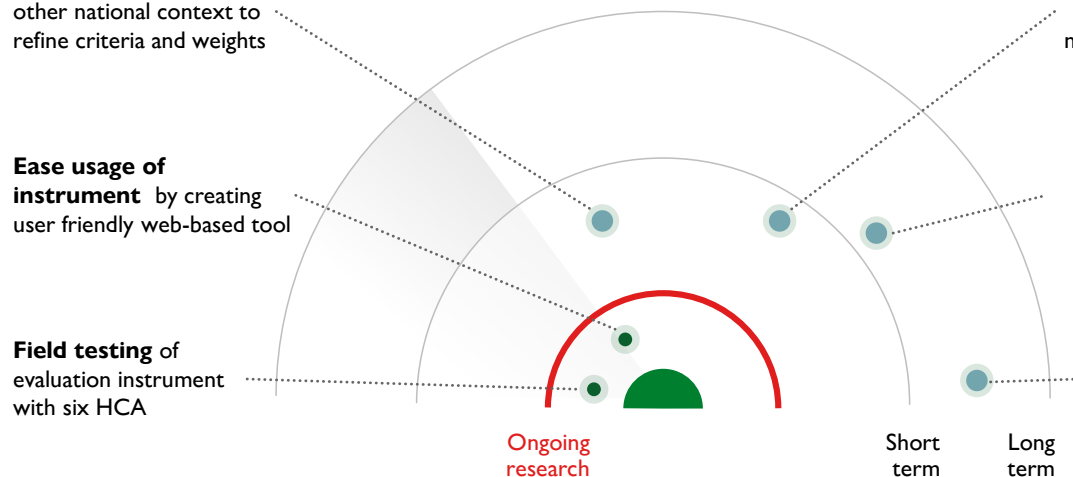
Field testing of evaluation instrument

with six HCA

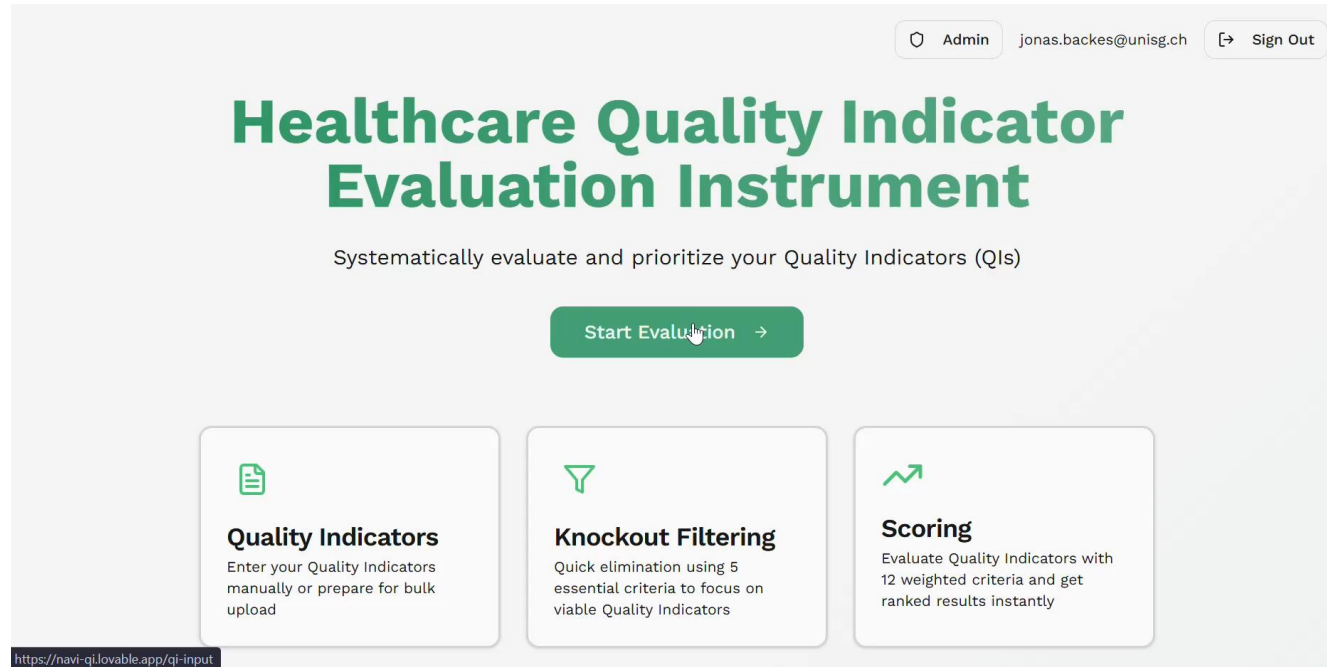
Compare results with rankings from expert-only methods (Delphi, QUALIFY¹⁹)

Test additional HCAs beyond the six included (e.g., pediatrics)

Create guidance on how to apply AI/NLP to automate info. collection



The instrument is being transferred to a web-based platform to simplify use for researchers



Thank you very much for
listening!



Q&A:

Do you have any questions,
comments or thoughts to share?

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