



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

July 15, 2026 – EUHEA 2026

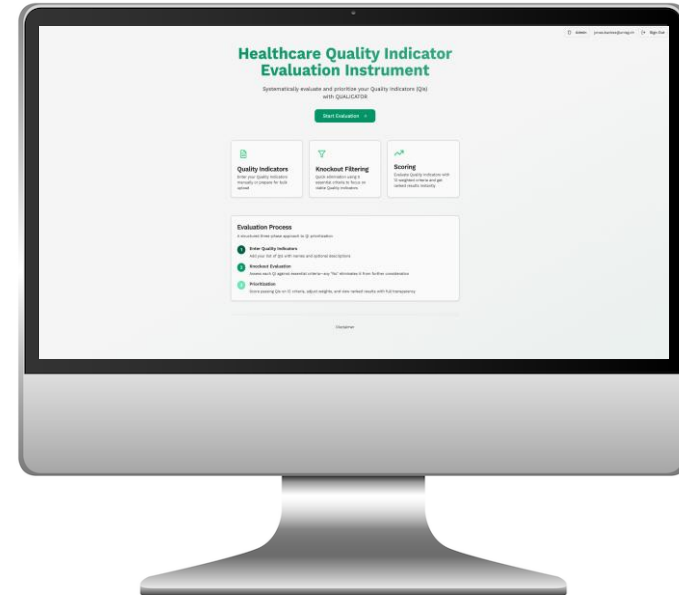
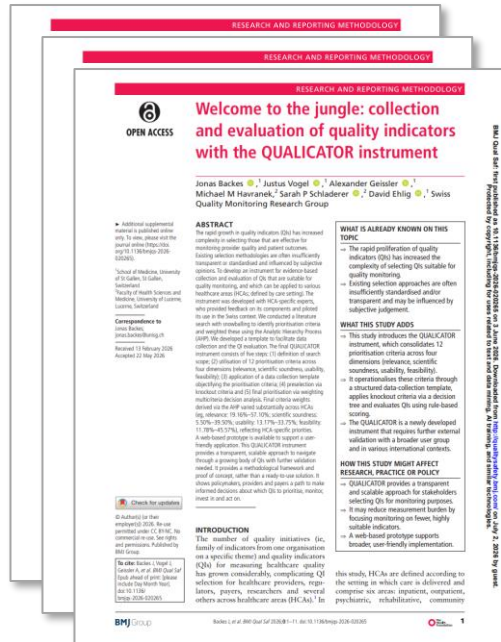
Conference funding
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Swiss Academy
of Humanities
and Social Sciences

From insight to impact.

QUALICATOR recently published in BMJ Quality & Safety



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 have 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 their objectives



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

Current instruments for QI selection remain non-transparent



The 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 non-transparent / 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

Example of selected quality indicators from the Agency for Healthcare Research and Quality (AHRQ) ¹³

Inpatient Quality Indicators (IQIs)

Hospital-Level Indicators

- IQI 08 - Esophageal Resection Mortality Rate
- IQI 09 - Pancreatic Resection Mortality Rate
- IQI 11 - Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate
- IQI 12 - Coronary Artery Bypass Graft (CABG) Mortality Rate
- IQI 15 - Acute Myocardial Infarction (AMI) Mortality Rate
- IQI 16 - Heart Failure Mortality Rate
- IQI 17 - Acute Stroke Mortality Rate
- IQI 18 - Gastrointestinal Hemorrhage Mortality Rate
- IQI 19 - Hip Fracture Mortality Rate
- IQI 20 - Pneumonia Mortality Rate
- IQI 21 - Cesarean Delivery Rate, Uncomplicated
- IQI 22 - Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated
- IQI 30 - Percutaneous Coronary Intervention (PCI) Mortality Rate
- IQI 31 - Carotid Endarterectomy Mortality Rate
- IQI 33 - Primary Cesarean Delivery Rate, Uncomplicated
- IQI 90 - Mortality for Selected Inpatient Procedures
- IQI 91 - Mortality for Selected Inpatient Conditions

Patient Safety Indicators (PSIs)

Hospital-Level Indicators

- PSI 02 - Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)
- PSI 03 - Pressure Ulcer Rate
- PSI 04 - Death Rate Among Surgical Inpatients with Serious Treatable Complications
- PSI 05 - Retained Surgical Item or Unretrieved Device Fragment Count
- PSI 06 - Iatrogenic Pneumothorax Rate
- PSI 07 - Central Venous Catheter-Related Blood Stream Infection Rate
- PSI 08 - In-Hospital Fall-Associated Fracture Rate
- PSI 09 - Postoperative Hemorrhage or Hematoma Rate
- PSI 10 - Postoperative Acute Kidney Injury Requiring Dialysis Rate
- PSI 11 - Postoperative Respiratory Failure Rate
- PSI 12 - Perioperative Pulmonary Embolism or Deep Vein Thrombosis (PE/DVT) Rate
- PSI 13 - Postoperative Sepsis Rate
- PSI 14 - Postoperative Wound Dehiscence Rate
- PSI 15 - Abdominopelvic Accidental Puncture or Laceration Rate
- PSI 17 - Birth Trauma Rate – Injury to Neonate
- PSI 18 - Obstetric Trauma Rate - Vaginal Delivery with Instrument
- PSI 19 - Obstetric Trauma Rate - Vaginal Delivery without Instrument
- PSI 90 - Patient Safety and Adverse Events Composite

Prevention Quality Indicators (PQIs)

Area-Level Indicators (e.g., County, State)

- PQI 01 - Diabetes Short-Term Complications Admission Rate
- PQI 03 - Diabetes Long-Term Complications Admission Rate
- PQI 05 - Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
- PQI 07 - Hypertension Admission Rate
- PQI 08 - Heart Failure Admission Rate
- PQI 11 - Community-Acquired Pneumonia Admission Rate
- PQI 12 - Urinary Tract Infection Admission Rate
- PQI 14 - Uncontrolled Diabetes Admission Rate
- PQI 15 - Asthma in Younger Adults Admission Rate
- PQI 16 - Lower-Extremity Amputation Among Patients with Diabetes Rate
- PQI 90 - Prevention Quality Overall Composite
- PQI 91 - Prevention Quality Acute Composite
- PQI 92 - Prevention Quality Chronic Composite
- PQI 93 - Prevention Quality Diabetes Composite

Thus, we came up with the following research aim

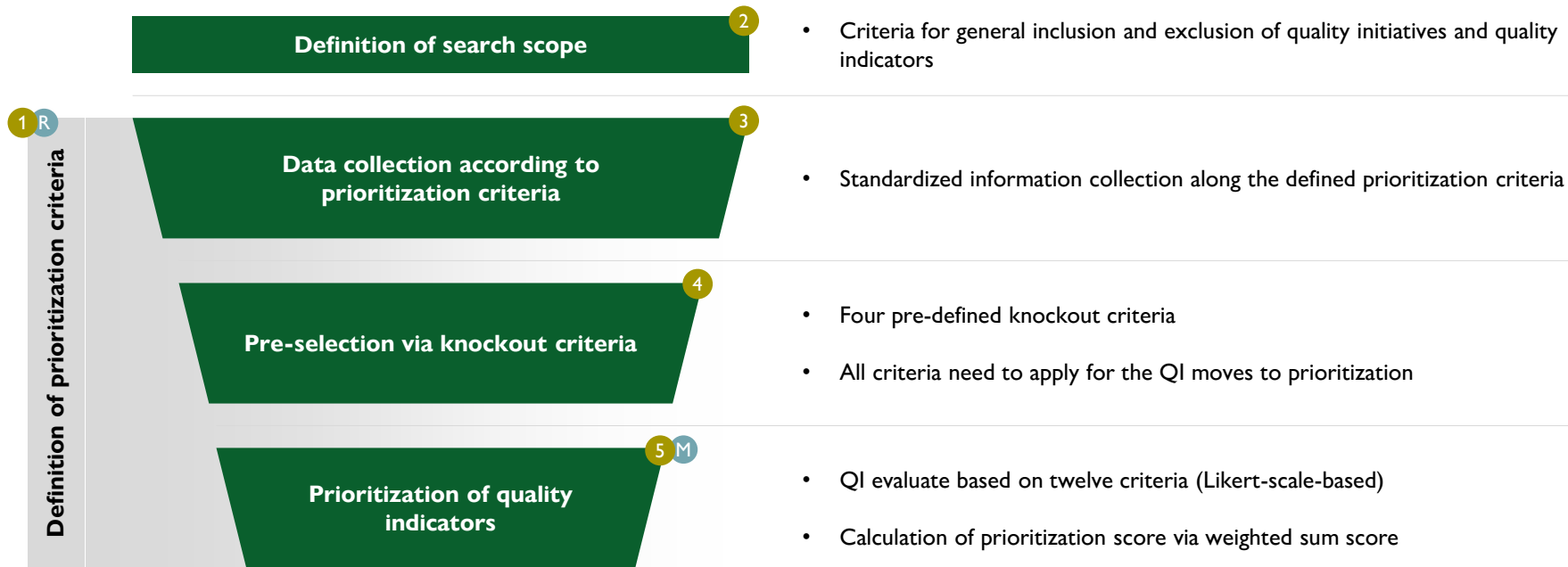
Research Aim

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

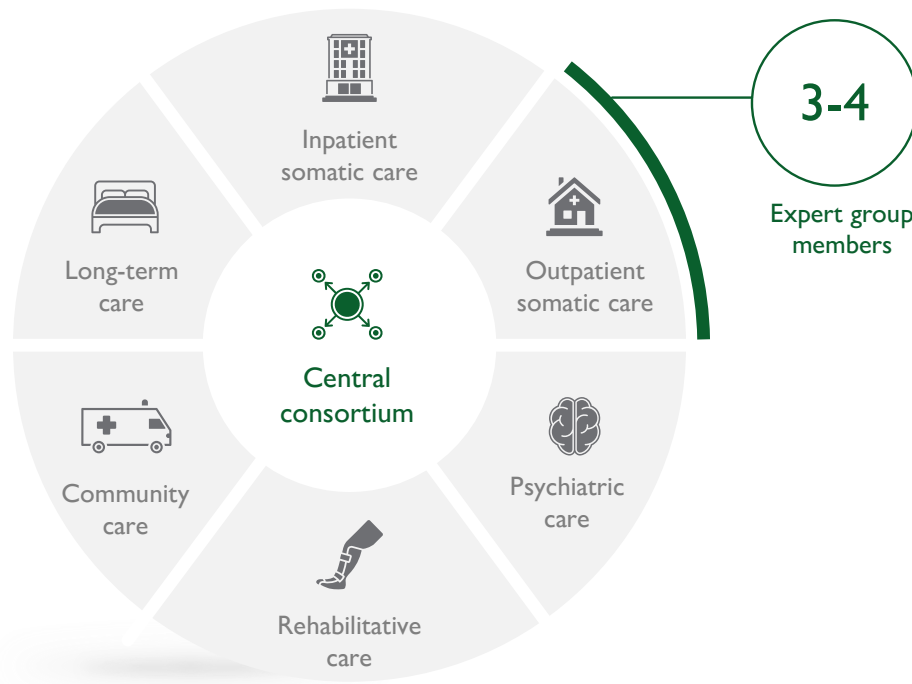
Note: 1. Six healthcare areas include inpatient somatic care, outpatient somatic care, psychiatric care, rehabilitative care, community care, and long-term care.



Instrument for quality indicators collection and evaluation



Six expert groups supported the development of the instrument



Purpose of expert groups

Expert groups represent the perspectives of their HCA during the development of the instrument

Expert group interaction

Regular online or in-person interactions between consortium and expert groups

Instrument development & execution

Development of instrument by central consortium; execution by expert teams

National and international prioritization

Instrument grounded in domestic context with complementary methods for international QIs

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

12 prioritization criteria covered by our instrument

Dimension	Prioritization criteria	To what extent does/is the indicator...
(1) Relevance	(1.1) High impact	... address a significant health concern affecting patient outcomes or healthcare costs?
	(1.2) Stakeholder importance	... align with the priorities of key stakeholder groups?
(2) Scientific soundness	(2.1) Validity	... measure accurately the intended aspect of quality that is planned to be measured?
	(2.2) Reliability	... produce consistent outcomes across settings and time (i.e., inter and intra)?
	(2.3) Risk adjustment	... account for patient characteristics to ensure fair comparisons?
	(2.4) Discriminatory power	... effectively differentiate between high- and low-performing providers?
(3) Usability	(3.1) Understandability	... easily interpretable by those who use them (e.g., via a monitoring system)?
	(3.2) Comparability	... allow for meaningful comparison across providers and cantons?
	(3.3) Actionable insights	... deliver information that providers and other users can influence and act upon?
(4) Feasibility	(4.1) Data availability	... sourced from existing or soon to be expected data sources?
	(4.2) Ease of implementation	... minimize the technical and administrative burden of users?
	(4.3) Sub-group analysis	... allow for detailed comparison across sub-groups (e.g., patients, providers, cantons)?

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

2 General exclusion criteria

Domestic	International
Exclusion criteria: ... 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 ⁽ⁿ⁼⁶⁾ ... 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 ⁽ⁿ⁼⁶⁾ ... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned. Initiatives without specific QIs ⁽ⁿ⁼⁶⁾ ... initiatives that only contain guidelines, but no specific QIs. Failure to assess quality ⁽ⁿ⁼⁶⁾ ... 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 ⁽ⁿ⁼⁶⁾ ... 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	Exclusion criteria: ... 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 ⁽ⁿ⁼⁶⁾ ... 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 ⁽ⁿ⁼⁶⁾ ... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned. Initiatives without specific QIs ⁽ⁿ⁼⁶⁾ ... initiatives that only contain guidelines, but no specific QIs. Failure to assess quality ⁽ⁿ⁼⁶⁾ ... 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 ⁽ⁿ⁼⁶⁾ ... 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

3 Information collection template

Responsible organization and name of initiative			GENERAL QI INFORMATION								
Name of initiative	Responsible organization	Type of organization	Original QI name (Swiss language)	English QI name	Type of quality indicator	Disease/procedure area	Disease/procedure sub-area (i.e., investigated patient population)	Type of included healthcare providers	Brief description of QI (mainly inclusion & exclusion criteria)	Selected websites to key documents covering QI description	Quality domain
Rehabilitation	AKQ	Non-profit organization	Ungeplante Rehastrassenentlastung	Unplanned rehabilitation cases hospital-wide	General	N/A	N/A	Acute somatic hospitals, outpatient rehabilitation clinics and if there have been acute somatic care after and hospital with general care for sports (rehabilitation, 1st and 2nd degree specialization in surgery, gynecology/obstetrics)	Physical work unperformed/rehabilitation within 30 days after hospital stay, covering of the following content: • Surgical/procedural content • Care management content	https://www.akq.ch/de/qualitaet/qualitaetsmanagement	Outcome
Quality indicators for Swiss acute hospitals, CH-QI (Version 5.0)	BAG	Federal authority	A.1.1.09_HQ_Nachrichten (Zürcher Kanton)	A.1.1.09_HQ_Nachrichten (Zürcher Kanton)	Disease specific	Cardiology	Cardiology: Myocardial infarction	Myocardial infarction (MI) cases	Mortality rates of patients with acute and recurrent myocardial infarction > 10 years	https://www.bag.admin.ch/bag/de/home/qualitaet/qualitaetsmanagement/qualitaetsmanagement.html	Outcome
Qualitätsicherung mit Routestandard (QRS)	Wissenschaftliches Institut der AOK (WNI)	Research organization of health insurance	Implantation einer Hüftgelenke-Endoprothese oder eines Kniegelenks-Endoprothesen bei Routestandard (QRS)	Implantation of a hip joint endoprosthesis or a knee joint endoprosthesis by Routestandard (QRS)	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.wni.ch/de/qualitaet/qualitaetsmanagement/qualitaetsmanagement.html	Outcome
Qualitätsicherung mit Routestandard (QRS)	Wissenschaftliches Institut der AOK (WNI)	Research organization of health insurance	Implantation einer Hüftgelenke-Endoprothese bei Routestandard (QRS)	Implantation of a hip joint endoprosthesis by Routestandard (QRS)	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.wni.ch/de/qualitaet/qualitaetsmanagement/qualitaetsmanagement.html	Outcome
No specific initiative	Wahler Gesundheitsbarometer	Non-profit organization	Personal der Spitälkategorien, WNI	Physical facility staff, WNI	General	N/A	N/A	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.wahler.ch/de/qualitaet/qualitaetsmanagement/qualitaetsmanagement.html	Outcome

- Aims 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

Detailed criteria for exclusion of quality initiatives and QI groups

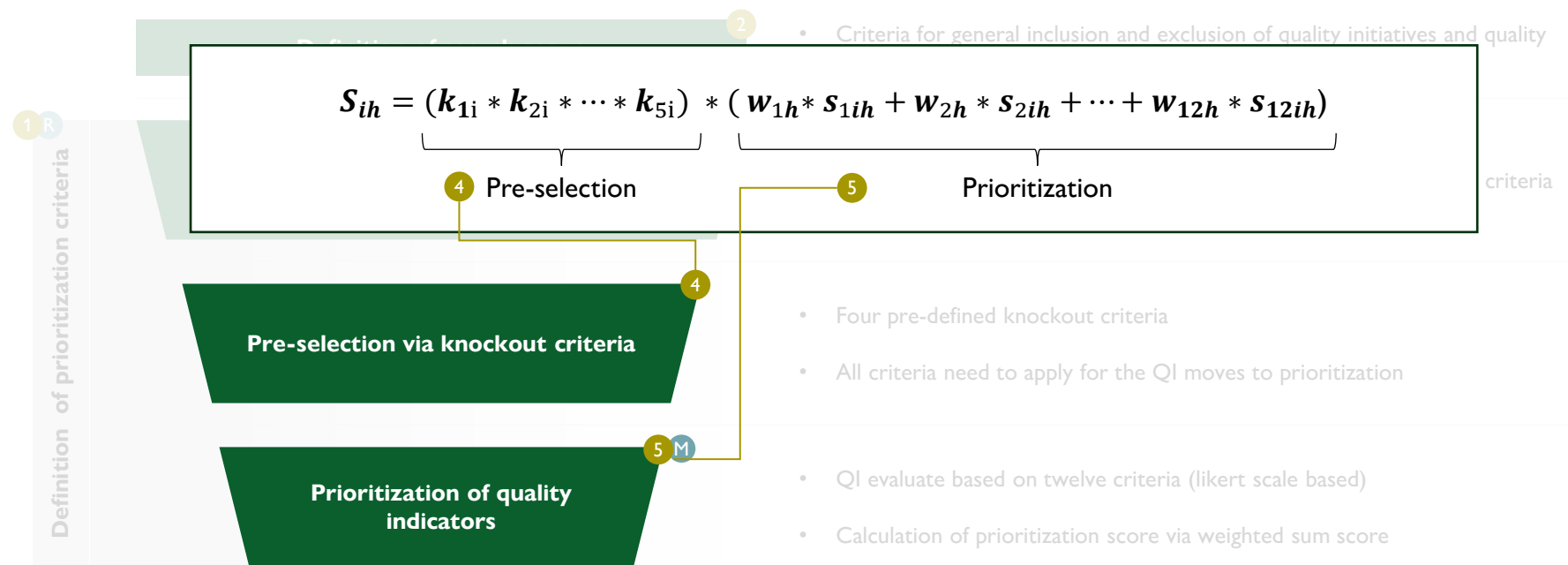
Domestic QI search

Exclusion criteria	Description: Exclude ...
Quality initiatives outside definition (N&I)	... 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 (N&I)	... quality indicators who do not meet the definition (i.e., lacking quality goal, measurement concept, or appraisal concept) ¹
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 one data collection period to evaluate the QIs) and for at least N providers (the latter unless the initiative deals with highly specialized medicine or rare diseases). ²
Discontinuity of measurement (N&I)	... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned.
Initiatives without specific QIs (N&I)	... initiatives that only contain guidelines, but no specific QIs.
Failure to assess quality (N&I)	... 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 (N&I)	... 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). ³

International QI search

Exclusion criteria	Description: Exclude ...
Quality initiatives outside definition (N&I)	... 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 (N&I)	... quality indicators who do not meet the definition (i.e., lacking quality goal, measurement concept, or appraisal concept) ¹
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 (N&I)	... initiatives that were only implemented in the past but have been discontinued, or for which no repeated measurements are planned.
Initiatives without specific QIs (N&I)	... initiatives that only contain guidelines, but no specific QIs.
Failure to assess quality (N&I)	... 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 (N&I)	... 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). ³

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



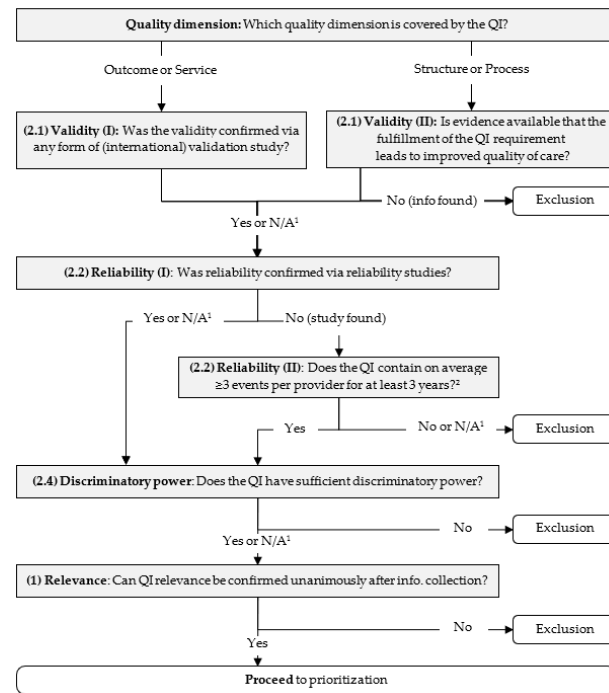
Validation of criteria | Defined by the authors, reviewed and endorsed by the respective healthcare area expert groups



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

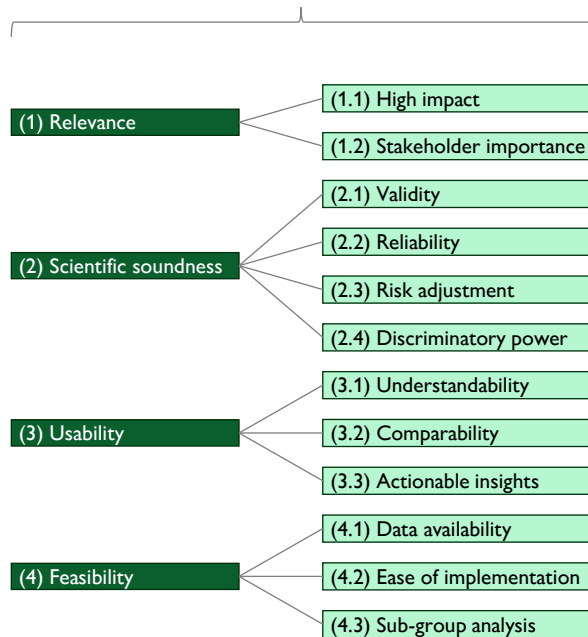


All must be fulfilled | QIs had to fulfill all five criteria to advance to prioritization

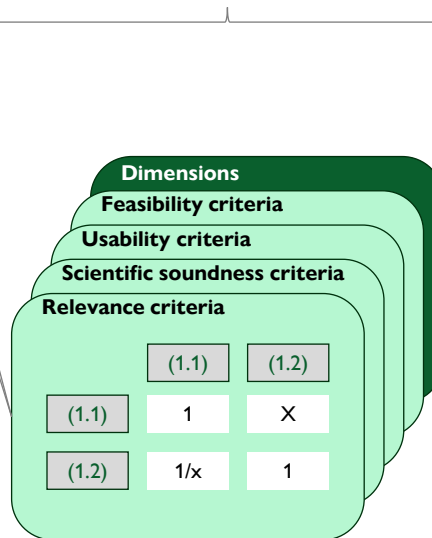


Because different HCAs may prioritize QI selection criteria differently, they are weighted to reflect their level of importance

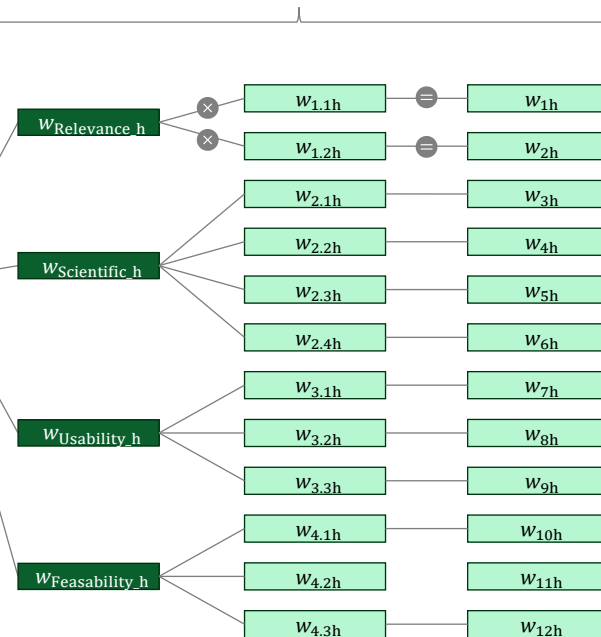
Development of value tree that decomposes decision problem into dimensions and sub-criteria



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			
(1.1) 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
(1.2) 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) Discriminatory 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

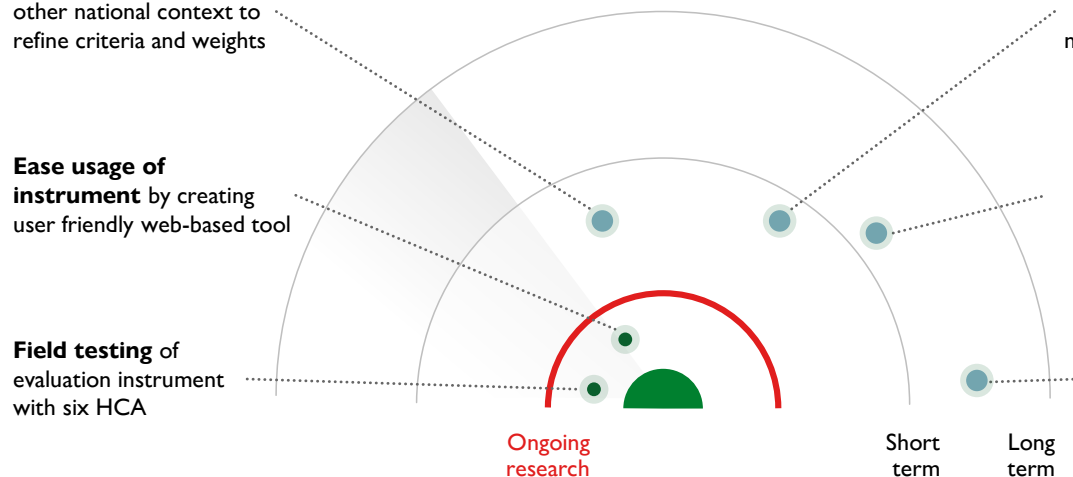
Compare results with

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



Thank you very much for
listening!



Q&A:

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

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