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DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS
HEALTH COMMITTEE

Health Care Quality Indicators

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Progress Report on HCQI Data Principles and Methods

HCQI expert meeting to be held on Thursday 18 and Friday 19 May 2017 at the OECD Conference Centre, 2 rue André Pascal, 16th Arrondissement, Paris

This note sets out the proposed priorities for methodological development of the HCQI suite of indicators based on hospital administrative databases in practical support of the implementation of HCQI Bureau principals.

Ian BROWNWOOD; Health policy Analyst; Email: Ian.BROWNWOOD@oecd.org; Tel: 00 33 (0)1 45 24 92 79

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NOTE FROM THE SECRETARIAT

1. The HCQI Program has been considering the actionability of the quality and outcomes indicators for OECD member countries. Following on from a review of the HCQI suite of indicators in 2013, the HCQI Bureau recently established a set of principles to help improve and safeguard the quality of the indicator data generated through the HCQI data collections processes, to ensure the indicators the Health Division stands behind are valid, comparable and useful to countries (see Annex 1).

2. This note sets out the proposed priorities for methodological development of the HCQI suite of indicators based on hospital administrative databases in practical support of the implementation of HCQI Bureau principals. These include:

- Detailed indicator specification to improve validity and acceptability
- Software codification to improve comparability and reduce data burden
- User involvement to improve understanding and data improvement

3. A phased approach to the implementation of the proposed developments is planned over the next 3 years, with initial related pilot data collections to be carried out during 2017-18.

4. The HCQI experts are invited to:

- COMMENT on their recent experience with the OECD data collections for 2017
- SUPPORT the proposed priorities for methodological development, along with the planned phased implementation over the next three years.

Table of Contents

HCQI DATA PRINCIPLES AND METHODS

1. Background

5. A hallmark of the value of the OECD's products and services to the international community lies in the provision of internationally comparable indicators of performance. It is the bedrock for much of the international comparative analysis and policy advice generated by the OECD and within its member countries. Investing in and maintaining a strong intelligence (data and information) engine room for OECD's Health Division is critical in this regard.

6. Progress with complex methods to specify and adjust performance indicators within countries is being made, particularly on quality and outcome measures. However, the information demands on health systems are growing rapidly, both in magnitude and responsiveness. It is no longer sufficient to have low frequency performance reporting cycles on a few key indicators within health systems. Today, agile reporting systems are delivering real time data to clinicians and care decisions makers using complex algorithms

7. In this context the HCQI Program has been considering the actionability of the quality and outcomes indicators for OECD member countries. Following on from a review of the HCQI suite of indicators in 2013, the HCQI Bureau recently established a set of principles to help improve and safeguard the quality of the indicator data generated through the HCQI data collections processes, to ensure the quality and outcomes indicators the Health Division stands behind are valid, comparable and useful to countries (see Annex 1).

8. Recent HCQI data collections, along with the questionnaire and series of expert interviews across OECD on the uptake and use of the patient safety indicators (see DELSA/HEA/HCQ(2017)4) have identified and amplified opportunities for improving the HCQI data collections which could potentially have broader implications for the way the OECD Health Division manages its data resources into the future.

9. Countries are expressing concerns over increasing data demands given the burden it places on already stretched administrations. Variations in the interpretation of the specifications of the HCQI suite of indicators are undermining their comparability and credibility. The current use of MS Excel spreadsheets and the level of data handling in OECD collection processes are not the most efficient and increase the risk of human error. Also, the current data time lags and frequency of reporting is reducing the usefulness of the data.

2. Potential New Data Collection Methods

10. This section sets out the proposed priorities for methodological development of the HCQI suite of indicators based on hospital administrative databases in practical support of the implementation of HCQI Bureau principals.

11. Over the past two years, the HCQI program has been piloting hospital level data collections on outcomes indicators. These indicators have required complex specification and calculation algorithms to ensure adequate validity at more granular levels in the system, including multi-variable risk adjustment.

12. Using existing methodologies employed by other international programs (e.g. EuroHOPE) an alternative data collection approach was utilised by the Secretariat based on a distributed data infrastructure model. The approach involves three key elements:

1. Detailed indicator specification to improve validity and acceptability

   Extensive expert consultation and detailed specification of the indicator, including diagnosis and procedure code lists, construction of the units of measurement, scope and coverage of care and the variables and methods of risk adjustment.

2. Software codification to improve comparability and reduce data burden

   Codification of the indicator specifications and calculation methodology in software and the specification of data variables required in the construction of the analysis database upon which the software would be applied.

3. User involvement to improve understanding and data improvement

   Establishment of an online community of interest to bring technical experts and data analysts responsible for generating indicator data in their country together to consider key methodological issues and play a role in peer review and problem solving.

13. At the current time, every change to an existing indicator or any introduction of a new indicator by the HCQI program requires each of the 35 member countries to make its own interpretation of the specifications and create its own SAS code to extract and calculate the indicator values. The use of SAS software to codify the hospital performance indicator specifications and calculation methods has made the generation of indicator values more transparent and open to sharing and learning for improvement. It has also reduced the potential for variations in interpretation and application by data analysts in member countries. The specification and reporting of additional data, indicators and information can also be readily achieved without additional data burden for countries.

14. The HCQI program currently relies on the use of MS Excel spreadsheets to collect and upload data into the OECD databases. The SAS code used in the hospital performance project enables countries to generate and transmit data in a format that enables less data handling by countries and the Secretariat, without the use of intermediate Excel spreadsheets. This will improve efficiency by reducing data burden and human error across the data collection process.

15. The key building block in this approach is the specification and establishment of a common analysis dataset in each country, with key variables and data definitions. These datasets allow the application of the standardised SAS code, even though the national databases from which they were established display a degree of heterogeneity.

16. This new approach opens up the possibility of more frequent data collections and reduced lag times between data requests and data reporting through OECD publication channels. Once the protocols for an analysis dataset have been established, it could be quite possible to establish data collection cycles that align with the national data reporting frequency of OECD countries, which are usually at least annual. This could even enable publication of the data as and when the data becomes available in each country during a year.

17. The Secretariat proposes that this new approach be further developed and tested in 2017-18 with a view to applying it in the first instance to all HCQI indicators drawn from hospital administrative data, including relevant primary care, acute care, patient safety and dementia care indicators. This approach might also be relevant for other OECD data collections based on hospital administrative data.

18. The Secretariat will play the central coordinating role and bring together a group of technical experts to establish the indicator specifications, requirements for an analysis database and the SAS code. The process will require access to bespoke SAS coding skills, if not also R and STATA.

19. Collaboration with the International Methodology Consortium for Coded Health Information may also be beneficial as they are exploring similar distributed data infrastructure methods and have extensive technical expertise in clinical classifications and coding, including cross membership with the HCQI experts, including those from Canada, Germany and US.

3. Proposed Timeline for Implementation

20. A phased approach to this work is proposed as follows:

Phase 1: 2017-2018

- Review specifications and codes set for all HCQI program indicators that are calculated using hospital administrative data, including consideration of specific country classification modifications and procedure classifications.
- Develop specifications for a one common analysis dataset that can generate all the relevant HCQI indicators based on hospital administrative data, including key variables and data definitions
- Develop indicator SAS code that reflects the updated indicator specifications and agreed calculation methods and can be used by countries to produce all the relevant indicators.
- Conduct a pilot data collection during 2017-2018 replicating the data years covered by the HCQI data Collection for 2017.
- Introduce new data collection arrangements into the 2019 HCQI data collection.

Phase 2: 2019

- Same as for Phase 1 but with the ability for countries to upload data to an OECD server when data is available for their country.
- Built in quality assurance checks are developed to run when data is uploaded and where anomalies exist they are automatically send to the country and to the Secretariat for verification.
- Both the country and OECD verify data on the server and publish immediately to OECD.stat and/or other relevant reporting platforms.
- Introduce new data collection arrangements in 2020 with annual cycles therein.

Phase 3: 2020

- Same as for Phase 2 but with development of interactive on-line health analytics databases that allow customised statistics, analysis and presentation of indicator data, including enhanced benchmarking capability and graphical representation.

ANNEX 1

HCQI Bureau

Methodological Guiding Principles for Strengthening the International Comparability of HCQI Indicators

The aim of these methodological principles is to propose overarching guidelines that will serve as a reference for strengthening the international comparability of indicators in line with the HCQI strategic goals.

The proposed guiding principles are based on the current experience with the HCQI Project. They will serve as a working document towards future coordination of efforts in order to ensure compliance and facilitate R&D work.

The guiding principles do not address certain issues that constrain international comparisons which are due to differences between countries in the:

- linkage of hospital admission records to deaths after discharge from hospital,
- conventions used for coding primary diagnoses (the main clinical reason for hospital admission versus the use of hospital resources for billing purposes),
- depth of secondary diagnoses coding,
- quality of coding diagnoses and procedures (doctors vs. professional clinical coders).

Principles

Modes of data collection

1. Indicators are calculated from reliable data that is fit for the purpose, *ie.* meets requirements for relevance, accuracy, specificity, completeness, standardisation and timeliness.

2. Data are collected by a standardised software application (*eg.* SAS macro) if the calculation process is complex and generates a range of supplementary data.

3. Indicators are sourced from international collaborations and studies if this is deemed to improve at least two dimensions out of reporting completeness, standardisation and timeliness.

Definitions and calculation methods

4. The numerator and denominator are defined by the right unit of measurement and at the right level for analysis, preferably same where the numerator is a subset of the denominator or different where two measures are related to each other.

5. Indicator specifications are developed bearing in mind trade-off between the use of ideal patient subset in the denominator and ability to measure a particular aspect of healthcare quality.

6. The definition of most robust (*ie.* gold standard) indicators is compromised as little as possible in order to increase participation in data collection and to generate similar results.

7. Appropriate clinical code mapping between classifications is carried out to address differences in granularity and to ensure that a concept (*ie.* diagnosis, procedure) does not differ greatly in content.

8. The calculation process does not utilise steps which are known to invariably skew the results across countries.

Indicator standardisation and quality assurance

9. Validity checks are performed whenever possible (*eg.* collection sheets, denominators, supplementary data) to ensure trust in the results.

10. Where appropriate, crude rates are standardised for one or more underlying factors (*eg.* age, sex, comorbidity and other variables as appropriate for the indicator) to control for differences in patient case-mix across countries and to provide a fairer comparison.

11. Decisions regarding the method of calculation and adjustment are based on strong supporting evidence rather than predominant opinion.

12. Indicators that don't meet data quality standards in principle 1 are not published.

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