# FILLING THE GAP: DEVELOPING INDICATORS FOR EFFECTIVE SERVICE COVERAGE OF NON-COMMUNICABLE DISEASES IN THE CONTEXT OF UNIVERSAL HEALTH COVERAGE

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## ABSTRACT

**Background:** Universal health coverage (UHC) indicators for monitoring the progress of effective service coverage for non-communicable diseases (NCDs) are still lacking. This paper aims to prove the possibility of adapting Quality Performance Indicators (QPIs) as indicators for effective service coverage of NCDs in the context of UHC.

**Materials and Methods:** By reviewing major literatures on UHC framework and indicators between the years 2012 and 2015, service coverage indicators criteria and effective coverage indicator criteria were compiled. Two QPIs: one on breast cancer and one on acute myocardial infarction from renowned sources were selected as examples and their fulfilment of the indicator criteria was analysed.

**Result:** The findings demonstrated that the selected QPIs were able to fulfil the criteria for indicators to measure effective service coverage component of Universal Health Coverage.

**Conclusion:** It is proposed that suitable QPIs be considered to be adapted as indicators for UHC monitoring for non-communicable diseases.

**Keywords:** Quality performance indicators, effective service coverage, universal health coverage.

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## 1.0 Introduction

In the year 2015, the United Nations replaced the Millennium Development Goals (MDGs) with the Sustainable Development Agenda. This agenda consists of 17 Sustainable Development Goals (SDGs) with 169 targets and is to be achieved by the year 2030. Goal 3 is on Good Health and Well-Being. Achieving Universal Health Coverage (UHC) is stated as Goal 3.8 (WHO, 2010). Between the years 2012 and 2015 numerous meetings on UHC were held and publications produced by experts from around the world (Boerma, Eozenou, Evans, Evans, Kieny, & Wagstaff, 2014; Boerma, AbouZahr, Evans & Evans, 2014; WHO, 2014; WHO, 2016). Debates among the experts on how to monitor the health service coverage: which level of health services to monitor and for which illnesses, continued for the following several years.

Although the initial concept of UHC comprised of population coverage, service coverage and financial protection, UHC monitoring focused on only two discrete dimensions: essential health services and financial protection coverage. The definition of health service coverage was simply "the percentage of people receiving the intervention or service among those who need it" and "proportion of people in need of a service that receive it, regardless of quality (WHO,2014;WHO,2017). Two measures of health interventions were proposed: interventions related to health MDGs and interventions related to chronic conditions and injuries (CCIs) focusing on non-communicable diseases (NCDs). This spectrum of services was then categorized further into two: prevention and promotion; and treatment and care (WHO, 2014).

In the process of establishing the indicators for UHC monitoring, there were deliberations among the stakeholders and experts on the criteria for these indicators. The proposed criteria for these indicators changed a number of times over the course of several years (USAID, 2011; Haas, Hatt, Leegwater, El-Khoury & Wong, 2012; WHO, 2014b;).

The concept of effective service coverage was also discussed. There are three components of effective service coverage: need, use, and quality (Ng et al., 2014). Effective service coverage was defined as "the proportion of people in need of services who receive services of sufficient quality to obtain potential health gains" (WHO, 2015). Effective coverage is a very flexible metric that can easily be adapted for different contexts and at different administrative levels (Ng et al., 2014).

The indicators to monitor the progress of UHC must fulfil the UHC indicator criteria and the criteria for effective coverage. The National Institute for Health and Care Excellence (NICE) in the United Kingdom outlined nine stages in the development of indicators. However, other authors suggested simpler approaches: evidence-based approach where indicators are based directly upon scientific evidence, systematic evidence combined with consensus approach and guideline driven approach where indicators are based on clinical guidelines (Campbell, Braspenning, Hutchinson & Marshall, 2002).

Clinical practice guidelines are defined as "statements that include recommendations, intended to optimize patient care, that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options" (Institute of Medicine (US), 2011). The CPGs are able to ensure the practice of cost effective treatment, optimise patient outcomes and minimize variability in clinical practice (Chen, Wang, Shang, Yang & Norris,

2018). However, the use of CPGs has conventionally been left to the preference of individual clinicians (Krumholz et al., 2000). To encourage the use of CPGs, performance indicators also called quality performance indicators (QPIs) is often used (Grol & Grimshaw, 2003). Low QPIs scores can suggest that clinicians are not providing adequate care to eligible patients (Grube et al., 2012).

Quality performance indicators based on CPGs were also used by the American Society of Clinical Oncologists (ASCO), National Comprehensive Cancer Network (NCCN) and the Commission of Cancer (CoC) of the American College of Surgeons (ACoS) (Bailes, 2006; Desch et al., 2008). In the UK, QPIs based on CPGs were also used in general practice and disseminated widely in the NHS (Campbell, Braspenning, Hutchinson & Marshall, 2002).

As CPGs have been adapted as QPIs, the potential of QPIs to be adapted as indicators of effective service coverage for UHC monitoring of NCDs could be explored. A conceptual framework to illustrate the link between UHC effective service coverage indicator, CPGs and QPIs was suggested (Fig.1).
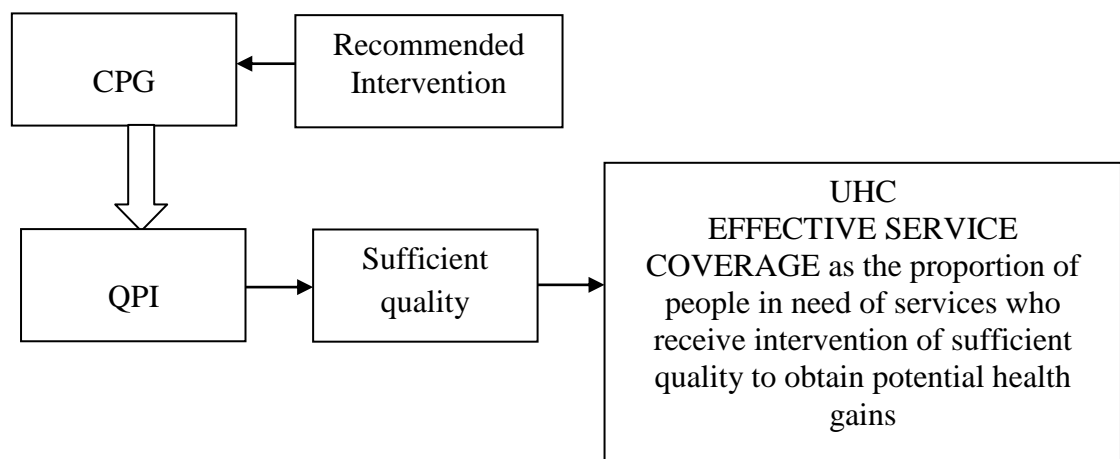


**Fig. 1: Conceptual Framework to Illustrate the Link between CPG, QPI and UHC Effective Service Coverage Indicator**

By using the criteria for UHC monitoring and the criteria for effective coverage; this paper aims to prove that it is possible to adapt suitable QPIs as effective service coverage indicators to monitor progress of UHC for people suffering from non-communicable diseases.

## 2.0 Materials and Methods

Based on the review of online literature on UHC framework and indicators between the years 2012 and 2015, service coverage indicators criteria and effective coverage indicator criteria were compiled. Examples of two QPIs on breast cancer and acute myocardial infarction were selected and compared against the list of indicator criteria.

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## 3.0 Result

Based on four documents which detailed the criteria for UHC monitoring, a list of criteria for UHC monitoring indicators was generated and summarized in the following table (Table I).

### Table I.  Criteria for UHC Monitoring Indicators

| Criteria for indicators | Source |
|---|---|
| 1. Condition is of high epidemiological relevance | Rockefeller Foundation Center Bellagio (2012); WHO (2014a); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 2. Have evidence-based intervention that is effective | Rockefeller Foundation Center Bellagio (2012); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 3. Measureable for both numerator and denominator | Rockefeller Foundation Center Bellagio (2012); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 4. Numerators and denominators are well-defined | Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 5. Services which are cost-effective | WHO (2014a) |
| 6. Service coverage which are effective or quality-adjusted | WHO (2014a), Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 7. The interventions chosen have potential financial risks to user/involves major health expenditure | WHO (2014a) |
| 8. Ultimate target for indicators set at 100%, clear target | Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 9. Disaggregation by social stratifiers such as age, ethnicity | Rockefeller Foundation Center Bellagio (2012); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 10. Have readily available data | WHO (2014a); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 11. Results easy to understand, communicate | Rockefeller Foundation Center Bellagio (2012); Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 12. Universality/ relevant in many settings | Rockefeller Foundation Center Bellagio (2012); |
| 13. Comparable over time and in many countries | Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 14. Part of international initiatives | Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |
| 15. The number of indicators should be kept small. | Boerma, T., AbouZahr, C., Evans, D., & Evans, T. (2014). |

Two process indicators, one on breast cancer and one on acute myocardial infarction were selected from online literature to serve as examples (Desch et al., 2008; Health Information and Quality Authority, 2013).

Example 1:
Adjuvant multi-agent (combination) chemotherapy for women under age 70 with Stage I to III ER/PR negative breast cancer within 120 days of date of diagnosis (Desch et al., 2008).

Example 2:
Percentage of patients with Acute Myocardial Infarction (AMI) requiring thrombolysis who receive thrombolytic therapy within 60 minutes of presentation to the Emergency Department (Health Information and Quality Authority, 2013).

Process measures were used instead of outcome measures because in the cases of chronic diseases, the outcomes cannot realistically be assessed in a timely or feasible fashion (Davies, 2006; Mant, 2001). Process indicators were also used in the first global report on UHC monitoring (World Health Organization, 2015). The adherence of the QPI to the criteria for UHC monitoring indicators is shown in Table II.

**Table II.          Adherence of KPI to the Criteria for UHC Monitoring Indicators**

| Criteria for indicators | Adherence of Example 1 | Adherence of Example 2 |
|---|:---:|:---:|
| 1.   Condition is of high epidemiological relevance | Yes | Yes |
| 2.   Have evidence-based intervention that is effective | Yes | Yes |
| 3.   Measureable for both numerator and denominator | Yes | Yes |
| 4.   Numerators and denominators are well-defined | Yes | Yes |
| 5.   Services which are cost-effective | Yes | Yes |
| 6.   Service coverage which are effective or quality-adjusted | Yes | Yes |
| 7.   The interventions chosen have potential financial risks to user/involves major health expenditure | Yes | Yes |
| 8.   Ultimate target for indicators set at 100% | No | No |
| 9.   Disaggregation by social stratifiers such as age, ethnicity | Possible | Possible |
| 10.  Have readily available data | Yes | Yes |
| 11.  Results easy to understand, communicate | Yes | Yes |
| 12.  Universality/ relevant in many settings | Yes | Yes |

| | | |
|---|---|---|
| 13. Comparable over time and in many countries | Yes | Yes |
| 14. Part of international initiatives | Yes | Yes |
| 15. The number of indicators should be kept small. | Yes | Yes |

It is important to note that 100% compliance for each measure is not always possible because patients may refuse recommended care or are contraindicated to certain treatment (Health Information and Quality Authority, 2013). As for eligible patients presenting with AMI the target was set at 65% based on current evidence (32). Disaggregation by social stratifiers such as age, ethnicity and even socioeconomic status could be captured if such data were collected upon commencement of treatment.

Additionally, these indicators also fulfilled the criteria for effective coverage, which were - need, use and quality. For the indicator examples mentioned above, their adherence to the criteria for effective service coverage is detailed in Table III.

**Table III. Adherence to the Criteria for Effective Service Coverage**

| Criteria for effective service coverage | Adherence of Example 1 | Adherence of Example 2 |
|---|---|---|
| 1. Need | "Women under the age of 70 with Stage I to III ER/PR negative breast cancer." A woman who fits this criterion would need and benefit from this intervention, based on clinical evidence. | "Patients with Acute Myocardial Infarction (AMI) requiring thrombolysis who presented to the Emergency Department." A patient who fits this criterion would need and benefit from this intervention based on clinical evidence. |
| 2. Use | Use is captured by this indicator by the number of patients who received this intervention. | Use is captured by this indicator by the percentage of patients who received this intervention. |
| 3. Quality | Quality in is embedded in the indicator, where the indicator had specified the treatment (adjuvant multi-agent (combination) chemotherapy), the type of patient who would most benefit from it (women under the age of 70 with Stage I (Tc) to III ER/PR negative breast cancer) and the time frame the intervention need to be given to give the best outcome (within 120 days of date of diagnosis). | Quality in is embedded in the indicator, where the indicator had specified the treatment (thrombolytic therapy within 60 minutes of presentation), the type of patient who would most benefit from it (patients with Acute Myocardial Infarction requiring thrombolysis), and the time frame the intervention need to be given to give the best outcome (within 60 minutes of presentation to the Emergency Department) |

## 4.0 Discussion

Based on the UHC monitoring indicator criteria, effective service coverage criteria and the indicator description list, results in Tables II and III demonstrate that suitable QPIs may be able fulfil these criteria and hence be potentially adapted to be used as indicators for UHC monitoring for NCDs such as cancer and myocardial infarction - among individuals who at least had one encounter with the health care provider and diagnosed with those diseases.

The advantages of adapting QPIs as UHC indicator include having readily available data hence saving time and resources in data collection. QPIs are usually based on CPGs which are in turn evidence-based recommendations. These recommendations often use international standards therefore the results would be comparable between countries.

Nonetheless, although the usage of CPGs as QPIs are unavoidable given the context of the subject matter being assessed (the process of treatment), the use of this type of indicators does have its disadvantages, which include not taking into account illness severity of the sample population, patient preferences or clinician (Walter, Davidowitz, Heineken& Covinsky, 2004). Yet, despite these pitfalls the potential advantages of performance measures derivative of evidence-based guidelines should be considered, as the quality of medical care can be improved (Walter, Davidowitz, Heineken& Covinsky, 2004).

The proposal to adapt QPIs as UHC monitoring indicator for effective service coverage for NCDs in this paper has several limitations. The use of the example indicators in this paper were for individuals who had at least one encounter with the health care provider and diagnosed with the disease. However, although the indicators could not capture the entire population, the indicators did capture the population who were in need of the health intervention, and measured if the patient did get the required intervention at an acceptable quality level. Determining the need of the general population for NCD intervention would be an almost impossible feat, because there is no way of knowing those who suffer from NCDs unless they were diagnosed. Perhaps this is when and where organized screening programs would be extremely advantageous. Effective service coverage focused on by the WHO and WBG were mainly on essential health services and not specific interventions such as cancer and AMI as presented in this paper. Additionally, there is an element of time-frame in the example indicators. Non-adherence to the time-frame must be considered with caution because the non-adherence could be due to many factors.

## 5.0 Conclusion and recommendation

In conclusion, this paper proved that QPIs which fulfil the criteria for UHC monitoring indicators should and can be used to monitor the progress of coverage of health services especially for non-communicable diseases. The use of these QPIs not only saves time and money, but also utilises available data. Why reinvent the wheel?

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## Declaration

Author declares that this manuscript has never been published in any other journal.

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