Technical Assistance *"Assessment, Design and Implementation of a National System for Monitoring the Quality of Health Care" in Mexico:*

Situational analysis

NICE International

Report and Recommendations

Francis Ruiz

Stephen Campbell

Laura Morris

Kalipso Chalkidou

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Summary of recommended next steps

***Table* 1**

Domain / Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
Political will/policy	• Policy statement (by body with system-wide regulatory remit)[1] that **all health care organisations in Mexico** will be mandated to agree on and submit data for a core set of quality indicators. These will be selected against agreed policy/clinical priorities. • Policy statement that all health care **organisations will cooperate** to create a system to issue every individual in Mexico with a unique patient identifier. This identifier will be shared and used commonly by all health care organisations. • A process is initiated to re-examine decision making approaches adopted by the CSG and its capacities (including technical and managerial) to achieve its stated aims relating to updating the national formulary and the basic package.	• Formal monitoring that all health care organisations in Mexico **agree on business rules** for the core set of quality indicators. • Regulation to ensure that data is **collected and submitted** for the core set of quality indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that comply with the requirements of the core set of quality indicators. ○ Penalties (to be defined) enforced on all health care organisations in Mexico that do not comply with the requirements of the core set of quality indicators • Policy statement with a commitment to include the core set of quality indicators as indicators in future **government strategies** and development plans (e.g. sectoral plan for health sector).	• Regulation to ensure that data is collected and submitted for the core set of quality indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that do comply with the requirements of the core set of indicators. ○ Penalties (to be defined) enforced on all health care organisations in Mexico that do <u>not</u> comply with the requirements of the core set of indicators. • Regulation of health care quality in relation to the standards/targets agreed for the core set of indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that do meet the agreed standards/targets. ○ Penalties (to be defined) enforced on all health care organisations in Mexico that do <u>not</u> meet the standards/targets. • Inclusion of selected indicators from the core set, where relevant, as indicators in Program for the Health Sector, 2019-2024.

[1] As shown in the schematic below, we suggest that this process is coordinated by DGCES, or the proposed Federal Commission for Care Regulation.

Prioritisation	• CENETEC works with the DGCES (or the proposed Federal Commission for Care Regulation) to define prioritisation criteria that will be used to support guideline development, guideline updating, and related core indicator creation. This will involve developing a consultative **process for topic prioritisation**. • Agreement by all health care organisations on a **first set** of core issues (diseases, readmissions etc.) to prioritise for national quality indicators.	• Agreement on a **second set** of core issues (diseases, readmissions etc.) to prioritise for national quality indicators. These will be supported by data collection by all health care organisations in Mexico.	• **Annual agreement** on a set of core issues (diseases, readmissions etc.) to prioritise for national quality indicators. These will be supported by data collection by all health care organisations in Mexico.
Unique patient identifier	• **Written commitment** on creating, sharing and implementing a unique patient identifier for all citizens of Mexico, by all health care organisations in Mexico.	• All citizens of Mexico are **issued** with a unique patient identifier.	
Communication and monitoring of the indicators	▪ Written commitment on a **core set of indicators** to be collected and shared by all health care organisations in Mexico to be submitted to a single database.	▪ Mandatory attendance at quarterly meetings to agree **implementation** of the core set of indicators, by senior decision-makers representing all publically funded health care organisations in Mexico.	
Data collection	▪ Agreement on a core set of indicators to be collected and shared by **all health care organisations in Mexico,** which will be submitted to a single database. These would be augmented by level specific indicators as appropriate (e.g. levels 1-2-3).	▪ Year 2: ○ Conduct **baseline data collection** for agreed core set of quality indicators. ○ Agreement on indicator business rules for data extraction, numerators, denominators, exclusions, etc). ○ Agreement on standards and targets to be set against all indicators. ▪ Year 3: ○ All health care organisations in Mexico **submit data** on a core set of indicators.	

Data analyses			▪ Year 4: **Analyses of data** for all health care organisations in Mexico against the core set of indicators. ▪ Year 5: **Recalibration** of care set and business rules based on years 3-4 data.
Investment	▪ The United Mexican States federal government and 32 States invest in electronic health records and electronic reporting of data at levels 1,2 and 3.		

Executive Summary

Overview of the project

The government of Mexico has implemented a number of initiatives in relation to the use of quality indicators and their role in performance monitoring. Between 2001 and 2006, a national set of quality indicators known as INDICAS (*Sistema Nacional de Indicadores de Calidad en Salud*) was developed and later augmented.

A key objective behind these initiatives is to support the integration and use of these indicators within institutions in Mexico responsible for the delivery and provision of health care.

The General Directorate of Quality and Health Education (DGCES) wished initiate a project with support from the Inter-American Development Bank on the "*Evaluation, Design and Implementation of the National System for Quality Care Monitoring*".

Following a call for an expression of interest in the above project towards the end of 2014, NICE International (NI) was invited to submit a full proposal on its plans to provide the technical support requested. The proposal was accepted and the project was initiated.

The aim of this project is to strengthen the existing monitoring system, taking into account international experience in the design and implementation of quality indicators, with the goal of further improving the health of Mexicans. The NI work programme to address this aim, emphasises the development of a sustainable and robust methodology for indicator development, which will ultimately be led by the *Secretaría de Salud* in collaboration with relevant government and public bodies. The starting point to the project was a situational analysis of the existing system, including importantly assessing the current availability of data to support the development of contextually relevant and viable quality indicators.

The Terms of Reference for the project can be found in Appendix A.

Overview of the situational analysis

NICE International and its academic partner (Professor Stephen Campbell) undertook a review of the current institutional arrangements and structures for developing and implementing quality indicators. This situational analysis aims to provide a review of the **range and scope of existing indicators** and reference standards currently in use. It also aims to articulate the **methods and processes used** when developing the indicator sets. These methods include the types of data and evidence used to define the indicators, the range of issues/conditions covered by existing indicators (including across the spectrum of structure-process-outcome) and the consultation and review processes to assess their impact and relevance.

As part of this analysis, we also assessed the **organizational involvement** by government and non-governmental bodies, and the resources available in terms of data, technical capacity and expertise. This informed our understanding of what can feasibly be achieved in the short- to medium-term when developing contextually relevant and viable quality indicators, and the recommendations we made for longer-term reforms and processes.

Methods for the situation analysis

Activities

A visit was made to Mexico (September 2015) by Francis Ruiz (NICE International) and Stephen Campbell (University of Manchester) to meet with DGCES and other key stakeholders (as arranged by DGCES). This first visit was followed up with desk research in order to prepare a draft report. This draft report was presented to and discussed with policy-makers and stakeholders during a second visit to Mexico (30 November to 4 December 2015) and refined with further meetings and interviews as necessary

Representatives were met from the following institutions:

- Mexican Institute of Social Security (*Instituto Mexicano del Seguro Social* – IMSS)
- General Directorate of Quality and Health Education (*Dirección General de Calidad y Educación en Salud* - DGCES)
- General Directorate of Health Information (*Dirección General de Información en Salud*, DGIS)
- Institute of Social Security and Services for Government Workers (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* – ISSSTE)
- General Directorate of Epidemiology (*Dirección General de Epidemiología*, DGE)
- Seguro Popular / National Commission for the Social Protection in Health (*Comisión Nacional de Protección Social en Salud*- CNPSS)
- General Directorate of Performance Evaluation (*Dirección General de Evaluación del Desempeño*, DGED)
- National Center for Health Technology Excellence (*Centro Nacional de Excelencia Tecnologica en Salud,* CENETEC)

As part of the second visit, the team also met with inter-institutional forums of relevance to the project:

- General Health Council (*Consejo de Salubridad General*, CSG*)*
- National Committee for Health Quality (*Comité Nacional por la Calidad en Salud,* CONACAS)

The agenda for each visit and the full list of representatives can be found in Appendices B-E. Presentations from institutional representatives are available on request.

The full report, building on the draft presented in Mexico, was submitted to institutional representatives for consultation in January 2016. The report was finalised following a consultation period in February 2016.

Findings

Summary of the key themes

- Most of the requirements for a systematic, consistent, common and policy relevant quality assessment and improvement system for health care exist in the Mexican health care system. These include excellent epidemiological data (Directorate of Epidemiology), a national system of health care quality indicators (INDICAS), data capture quality and skills at data analyses (Directorate of Health Information) and clinical guidelines and health technology assessments (CENETEC). There are precedents for shared data and collaboration between directorates and stakeholders.

- However, the system is fragmented, disjointed and inefficient. There are key elements missing or a lack of integration at present that prevent coherent quality improvement in health care and indeed both a duplication of resources and data, as well as a waste of resources and inefficiencies. For example, it is not clear if CENETEC has adequately prioritised the development of its clinical guidelines (although many of these were developed following instructions or by request from other government health institutions). Certainly, it is not clear how the system can accommodate more than 700 clinical guidelines.
- There is also a lack of coordination between the indicator sets developed and used by different health and social security institutions (Seguro Popular, IMSS, ISSSTE, etc). It is not known how far the indicator sets for IMSS, those developed by other relevant public institutions, and INDICAS overlap. The definitions of structure and process indicators used often differ between institutions, making comparison across different sub-systems impossible in most cases.
- While mandatory to provide data against INDICAS indicators, this is not adhered to by all institutions and not enforced. Within organisations such as IMSS, units do not report data even to the IMSS database.
- Throughout the system there is greater emphasis on the quality of data collected than using that data to improve or monitor quality of care.
- Prescribing data need to be used as a cornerstone of quality improvement. Moreover, billing data are under-utilised and must exist within systems such as IMSS and ISSSTE to interrogate prescribing data etc.
- There is a fundamental lack of cohesion between the social security sub-systems and health care policy planning to meet the epidemiological and health care needs of the United Mexican States. Policy planning must use data more effectively, and drawing from the different sub-systems, to support quality and safety improvement and resource allocation.
- Most urgent, is the need for a unique patient identifier for all citizens that can be used to track care and service utilisation across all health care organisations in Mexico. However, not all providers at levels 1, 2 or 3 have the infrastructure to provide data electronically.
- While the public sector system is fragmented and inefficient, data on private provision is mostly absent.

There is a missing link in the health care quality improvement system. While epidemiological data exist, clinical guidelines exist, data systems exist, indicators exist, and so on, there is no coherent system for integrating these. For example, while CENETEC create guidelines and DGCES (through INDICAS) create indicators, these activities appear to be largely separate despite both teams participating in inter-institutional bodies for this purpose. An effective quality improvement system would use national epidemiological and resource-use data to identify clinical priorities, for which guidelines can be used to create quality indicators that are then used to report data to a common database. The data collected from this system will be linked to feedback to providers, regulation, and incentives developed as part of a national strategy.

There is no system also for using the quality indicators to track quality of care and give feedback to providers. To address this will require sustained political will, investment and effective (enforceable)

regulation. The purpose of the planned Federal Commission for Care Regulation is to address this need, but once this body has been formally created it will require political will, investment and policing to meet its remit.

Conclusion

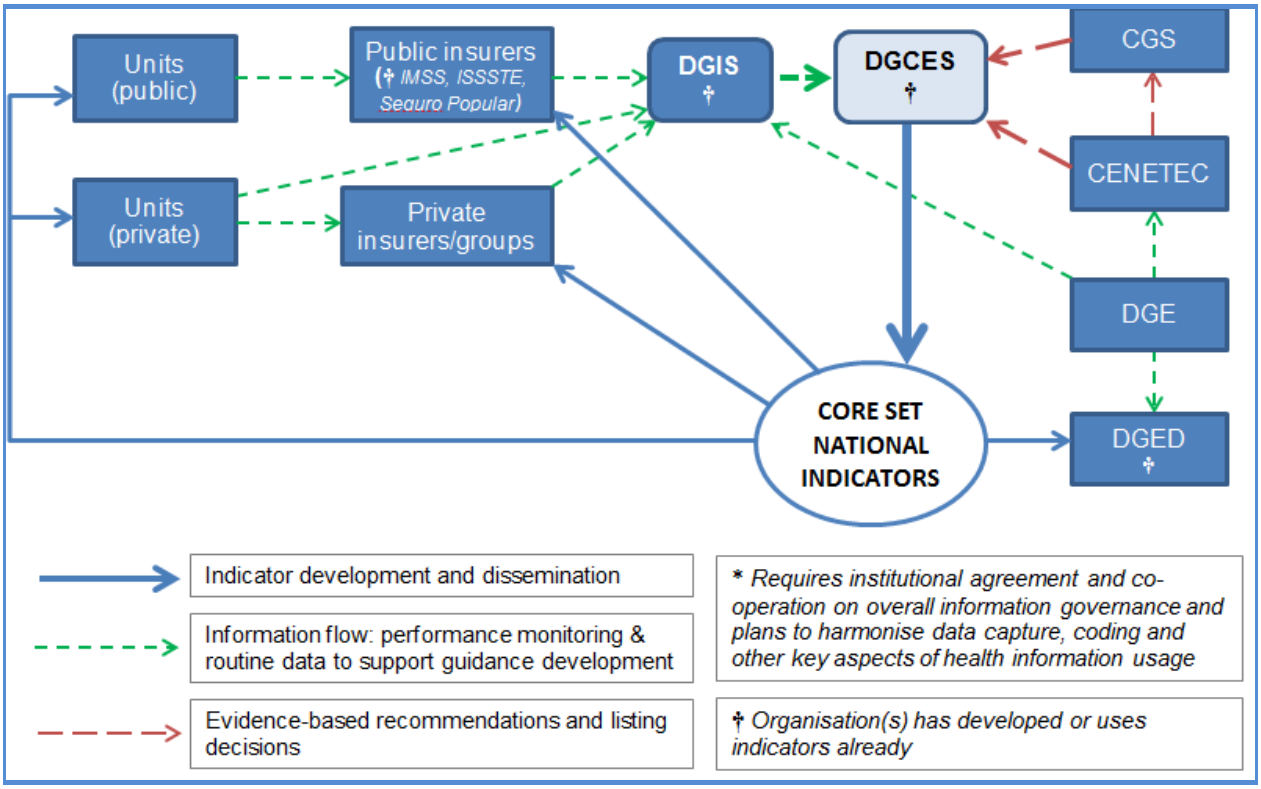
The key challenge is to improve coordination between the different fragmented and disjointed institutions in the Mexican system and take a strategic approach to the common collection and agreed use of health information. Taking this approach will ensure the sustainability and local ownership of successful quality indicators, while mobilising already existing talent and skills. .

Specifically we note the following:

- There is a need to maximise use of existing, locally derived health information across the "evidence to guidelines to indicators" pathway.
- It is critical that an overarching strategic and mandatory approach to the collection and use of health information is developed for Mexico.
- Duplication and redundancy in data collection needs to be addressed in parallel to a clear articulation of required data and a process to address any gaps.
- There is a need to streamline data collection and work to improve quality and the collective sharing of data.
- Better collaboration and coordination among key public sector stakeholders in the system is critical to encourage data sharing and the development of locally relevant evidence-informed guidance to support indicator creation.
- Mexican authorities need to improve data collection from the private sector.

An outline schematic of recommended institutional links is shown below. This gives an overview of the flow of information and evidence, to support the development and monitoring of a **core set** of *national level (federal)* quality indicators. As part of this project, a process and methods manual will be developed to support the creation of a core set of indicators led by the DGCES (or the proposed Commission for Healthcare Quality and Regulation).

Summary schematic of institutional collaboration



The recommendations made in this report do not imply that there will only be one institution in the Mexican health system developing indicators. Uptake of a nationally applicable indicator set and regulatory system would not require individual institutions to retire their own indicators; it is entirely reasonable for other bodies to develop indicators to serve their particular needs. However this should be done in a manner that **minimises duplication and redundancy**, and does not in any way undermine the principle of effective and transparent reporting against a single set of core health indicators.

Overview of the Key Draft Recommendations

1. There is an urgent need to harmonise collection and reporting of data against key policy relevant areas to a single database to enable coherent healthcare policy planning.
2. There is also an over-reliance on unreliable manually completed forms that are self-reported and not checked (e.g. INDICAS indicator data at Unit level is hand-written on forms and then computerised by others).
3. There is an urgent need for a unique patient identifier (General Health Register) for all citizens, which can be used to track care and service utilisation across all health care organisations in Mexico.
4. A coherent system should be developed for integrating epidemiological and health service data, clinical guidelines, and quality indicators. Each of these data sources and products exist in the current health care system, but are only partially linked. Improvements to the existing system would entail using epidemiological data to identify clinical priorities, for which guidelines can be used to create quality indicators that are then used to report data to a common database.
5. Sustained political will, investment, and effective (enforceable) regulation are required in order to use the quality indicators to track quality of care across the whole health system.

Draft recommended next steps for implementation in the short, medium and long term are presented in Table 1 above.

Glossary of acronyms and abbreviations

For Mexican institutions and terms, this report will use the acronym or abbreviation used in Spanish (e.g. DGCES). For international institutions and terms, we use the English-language abbreviation (e.g. IADB for Inter-American Development Bank, not BID)

Acronym or abbreviation used	Term (English)	*Spanish term (if applicable)*
ACE	Angiotensin-converting-enzyme	
ARB	Angiotensin receptor blockers	
CAUSES	Universal Catalogue of Health Services	*Catálogo Universal de Servicios de Salud*
CBCISS	Basic Table and Catalogue of Health Sector Supplies	*Cuadro Básico y Catálogo de Insumos del Sector Salud*
CCG	Clinical Commissioning Group (UK)	
CEA	Cost-effectiveness evaluation	
CENETEC	National Center for Health Technology Excellence (Mexico)	*Centro Nacional de Excelencia Tecnológica en Salud* (also referred to as CENETEC-Salud)
CNPSS	National Commission for Social Protection in Health (Mexico)	*Comisión Nacional de Protección Social en Salud*
COFEPRIS	Commission for Protection against Sanitary Risk (Mexico)	*Comisión Federal para la Protección contra Riesgos Sanitarios*
CONACAS	National Committee for Health Quality (Mexico)	*Comité Nacional por la Calidad en Salud*
CONAVE	National Committee for Epidemiological Surveillance (Mexico)	*Comité Nacional para la Vigilancia Epidemiológica*
CPG	Clinical practice guideline	
CQC	Care Quality Commission (UK)	
CSG	General Health Council (Mexico)	*Consejo de Salubridad General*
CURP	Unique Population Registry Code	*Clave Única de Registro de Población*
DGCES	General Directorate of Health Quality and Education (Mexico)	*Dirección General de Calidad y Educación en Salud*
DGE	General Directorate of Epidemiology (Mexico)	*Dirección General de Epidemiología*
DGED	General Directorate of Performance Evaluation (Mexico)	*Dirección General de Evaluación del Desempeño*
DGIS	General Directorate of Health Information (Mexico)	*Dirección General de Información en Salud*
DH	Department of Health (UK)	
DIF	National System for Integral Family Development (Mexico)	*Sistema Nacional para el Desarrollo Integral de la Familia*

DRG	Diagnostic related group	
EHR	Electronic health records	
Federal Commission for Care Regulation	Federal Commission for Regulation and Supervision of Health Care Establishments and Services	*Comisión Federal para la Regulación y Vigilancia de los Establecimientos y Servicios de Atención Médica*
FPGC	Catastrophic Health Expenditure Fund	*Fondo para la Protección contra Gastos Catastróficos*
GP	General practice/practitioner	
HCQI	Health Care Quality Indicators	
HSCIC	Health and Social Care Information Centre (UK)	
HTA	Health technology assessment	
IADB	Inter-American Development Bank	*Banco Interamericano de Desarrollo (BID)*
ICD-10	International Classification of Diseases, Volume 10	
IMSS	Mexican Institute of Social Security	*Instituto Mexicano del Seguro Social*
INDICAS	National System of Quality Indicators in Health	*Sistema Nacional de Indicadores de Calidad en Salud*
ISSFAM	Institute of Social Security for the Mexican Armed Forces	*Instituto de Seguridad Social Para las Fuerzas Armadas Mexicanas*
ISSSTE	Institute of Social Security and Services for Government Workers	*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado*
JCI	Joint Commission International (USA)	
MI	Myocardial infarction	
MoU	Memorandum of understanding	
NCD	Non-communicable disease	
NHS	National Health Service (UK)	
NI	NICE International	
NICE	National Institute for Health and Care Excellence (UK)	
NOM	Norma(s) Oficial(es) Mexicana(s)	
OECD	Organisation for Economic Co-operation and Development	*Organización para la Cooperación y Desarrollo Económicos (OCDE)*
QOF	Quality and Outcomes Framework	
PEMEX	Mexican Petroleums	*Petróleos Mexicanos*
P4P	Pay for performance	
PGS	General Register of Health	*Padrón General de Salud*
PROM	Patient-reported outcome measure	

QALY	Quality-adjusted life year	
QOF	Quality and Outcomes Framework (UK)	
QS	Quality standard	
SAEH	Automated Hospital Discharge Sub-system	*Subsistema Automatizado de Egresos Hospitalarios*
SEDENA	Secretariat of National Defense (Mexico)	*Secretaría de la Defensa Nacional*
SEMAR	Naval Secretariat (Mexico)	*Secretaría de Marina*
SICALIDAD	Integrated Health Quality System	*Sistema Integral de Calidad en Salud*
SINAIS	National Health Information System	*Sistema Nacional de Información en Salud*
SINBA	National System of Basic Information on Health	*Sistema Nacional de Información Básica en Materia de Salud*
SINOS	Nominal Health System	*Sistema Nomina en Salud*
SMPG	Medical Security for a New Generation	*Seguro Médico para una Nueva Generación*
SNS	National Health System (Mexico)	*Sistema Nacional de Salud*
SPSS	Social Protection System in Health	*Sistema de Protección Social en Salud*
SS	Ministry of Health (Mexico)	*Secretaría de Salud*
QS	Quality standard	
UPI	Unique patient identifier	
WHO	World Health Organisation	

See also Appendix G below: List of official sources of health information in Mexico (provided by DGCES)

Background and aims of the project

The government of Mexico has already implemented several initiatives to create and use quality indicators for performance monitoring, as detailed in the Terms of Reference (Appendix A). INDICAS (*Sistema Nacional de Indicadores de Calidad en Salud*) and SICALIDAD (*Sistema Integral de Calidad en Salud*), introduced successively between 2001-6 and 2006-12, have developed a set of 28 indicators for medical and nursing care, across three dimensions:

- Dignity in care
- Organization of services
- Effectiveness of care

A key objective for the Mexican government in creating these initiatives is to support the integration and use of quality indicators within Mexican institutions responsible for the delivery and provision of health care. There are already multiple indicators of quality in different sectors of the Mexican health system (see 'Findings of the situational analysis' below), but these are broadly not integrated or comparable. Aside from developing a comprehensive database of health system performance organized around these indicators, allowing for comparative analysis of different institutions, it is hoped that integration of these indicators will also support better decision making locally, using the information generated to improve practice. To date, Mexican authorities have obtained the agreement of over 11,000 healthcare providers, across all levels of care within the 32 states to participate in locally registering and using the quality indicators.

Role of quality indicators

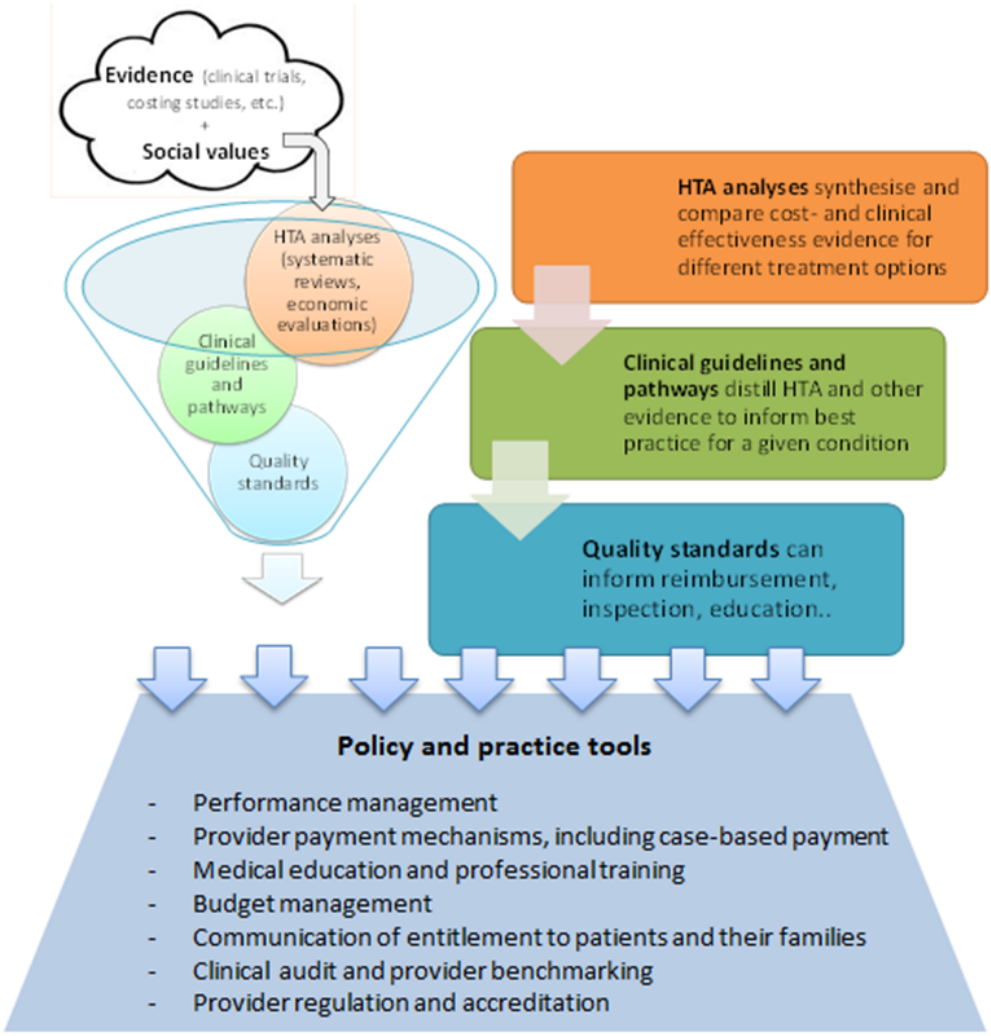
Quality indicators and performance management approaches are among a range of tools which are available to decision-makers, and which are progressively strengthened by the incorporation of evidence into policy. As shown in Figure 1 below, the generation of evidence in specific, credible forms – including clinical trials and costing studies – is only the first step in each country when defining relevant, appropriate tools for quality improvement. The procedural principles of health technology assessment (HTA) are used to produce recommendations of cost-effective treatment options, which in turn are used to develop guides to best practice.

Some key terms used in this report
• **Guidelines are systematically developed statements designed to help practitioners prospectively to 'do the right thing' in specific clinical circumstances.**
• **Indicators are measurable aspects of performance for which there is evidence or consensus that what is measured can be used to assess quality.**
• **A standard is a level of compliance with an indicator.** **A target standard is a level of care set prospectively which stipulates a level of care that providers should meet.**

Indicators in general are defined as "*explicitly defined and measurable items which act as building blocks in the assessment of care*"[2]. They are a statement about the structure, process (interpersonal or clinical), or outcomes of care and are used to generate subsequent review criteria and standards which help to operationalise quality indicators.

Figure 1: Translation of evidence into policy and practice

(adapted from NICE International, 2015: Quality Standards Process Guide[3])



[2] Campbell SM, Braspenning J, Hutchinson A, Marshall MN. Research methods used in developing and applying quality indicators in primary care. *British Medical Journal* 2003; **326:** 816-819

[3] NICE International. Principles for developing clinical Quality Standards in low and middle-income countries: A Guide, Version 2. February 2015. (Version 1 available at: http://www.idsihealth.org/knowledge_base/principles-for-developing-clinical-quality-standards-in-low-and-middle-income-countries-a-guide-version-1/)

Types of indicator

Different types of indicators have different purposes and can provide different insights:

- **Activity indicator**: measures the frequency with which an event occurred, such as blood pressure monitoring.
- **Performance indicator**: statistical devices for monitoring care provided to populations without any necessary inference about quality—for example, cost implications of BP monitoring.
- **Quality indicator**: infer a judgment about the quality of care provided based on evidence e.g. blood pressure monitoring and control for those diagnosed with diabetes.

Indicators of each of these types can relate to the **structure** of health care, actual care given (**process**), or the consequences of the interaction between individuals and a health care system (**outcome**)[4].

Table 2: Aspects of care measured by indicators (excerpted from NICE 2014 Indicators Process Guide)[5]

Type	Characteristics	Example
Structure	May relate to the characteristics that enable the system's ability to meet care needs.	The **proportion** of patients who have had an acute stroke who spend 90% or more of their stay on a stroke unit.
Process	May relate to actions or activities that are undertaken.	The **proportion** of hip fracture patients who receive surgery on the day of, or the day after, admission.
Outcome	May relate to changes in health status or quality of life for individuals or populations, but may also relate to wider outcomes such as satisfaction or experience of people using services, changes in knowledge and changes in behaviour.	**Mortality rates** in the 12 months following admission to hospital for heart failure.

Examples of each of these aspects of care are given in Table 2 above. It is important for bodies developing indicators to distinguish clearly between the aspects of care being measured, and understand how they interact:

- Structure is the conduit through which care is delivered and received.
- Outcome is not a component of care but a consequence of care.

[4] Campbell SM, Roland M, Buetow S. Defining quality of care. *Social Science & Medicine* 2000; **51:**1611-1625

[5] National Institute for Health and Care Excellence (NICE), 2014. Indicators Process Guide

(see: http://www.nice.org.uk/media/default/Standards-and-indicators/CCG-OIS/Indicators-process-guide-2014.pdf)

At the level of a **primary care facility**, process measures are often better indicators of quality of care if the purpose of measurement is to influence the behaviour of those providing care: processes are common, under the control of health professionals, and may be altered more rapidly. Outcomes such as mortality are often rare, meaning that there is insufficient data for statistically robust calculations in any year, and they may follow a change in process by up to ten years (e.g. management of hypertension or diabetes). They may be dependent on factors outside the control of the individual health professional such as wider socio-economic and lifestyle factors[6]. On the other hand, health **agencies at a county/state level** should be able to influence the determinants of health through population-wide measures, so it is more likely that outcome indicators will be appropriate measures of performance.

Outcome indicators, as shown in Table 1, can cover a range of different types of outcome. Changes in health status (including mortality or morbidity) or quality of life are the **'highest-level' outcome** which have the most direct relevance to the ultimate goals of health system reform, but can be influenced by a range of outcomes outside the control of the healthcare services being assessed, such as patients' socio-economic mix[7]. As such, these should be carefully selected and, where necessary, risk-adjusted to avoid misleading results which may demotivate providers. Another peril of these 'ultimate' outcome indicators is that they may take a long time (years or decades) to emerge, and as such are less useful in a management and policy context. For this reason, indicator sets often include **shorter-term outcomes** - such as healthcare-acquired infections, or emergency readmissions after hospital discharge – and **intermediate outcome** measures such as blood pressure or glucose level improvements/declines. These intermediate clinical outcomes are of concern insofar as they affect patients' probability of morbidity and mortality outcomes, and are more directly attributable to healthcare interventions than higher-level outcomes. Another type of outcome measure is **patient experience and satisfaction** following an episode of care; these have largely so far been used in a hospital context, as the patient pool is smaller and easier to survey and the 'episodes' (inpatient stays) more clearly delineated than primary care encounters, but are increasingly being used in primary care contexts.

This variety in the types of outcome indicators can be seen in the NHS Outcomes Framework, which selects a number of different indicators to track progress towards the strategic goals in its domains of quality (illustrated further in Figure 3 below). These indicators are summarised in **Table 3** below, and include measures of health status and HRQoL – both overall incidence, and within a defined period after healthcare encounters – hospital admissions, patient experience and satisfaction, and healthcare safety incidents.

[6] Giuffrida A, Gravelle H, Roland M. Measuring quality with routine data: avoiding confusion between performance indicators and health outcomes. *British Medical Journal* 1999; **319**: 94-98

[7] Iezzoni L. Risk adjustment for performance measurement. In: Smith P, Mossialos E, Papanicolas I, Leatherman S (editors). Performance Measurement for Health System Improvement: Experiences, Challenges and Prospects. 2009. New York: Cambridge University Press

Table 3: Summary of indicators in the NHS Outcomes Framework[8]

Goal	Overarching indicators	Improvement areas
1. Preventing people from dying prematurely	• **Years of life lost from causes amenable to healthcare** • **Life expectancy at 75**	• Premature mortality • Neonatal and infant mortality
2. Enhancing quality of life for people with long-term conditions	• **Health-related quality of life (HRQoL)**	• People feeling supported to manage their condition • Functional ability • Unplanned hospitalisations • Health-related quality of life for carers • Employment rates for people with mental illness
3. Helping people to recover from episodes of ill health or following injury	• **Avoidable emergency admissions** • **Emergency readmission rates**	• Patient-assessed health gains after elective procedures • Emergency admissions for children with lower respiratory tract infections • Survival rates from major traumas • Improvement in activity and lifestyle for stroke patients • Recovery rates from fragility fractures • Older patients' ability to live independently after discharge from hospital
4. Ensuring that people have a positive experience of care	• **Patient experience of primary and hospital care** • **Patient view of inpatients services ('friends and family' test*)**	• Patient experience (including children and young people) of outpatient services • Patient experience (adults only) of A&E, integrated care and community mental health services • Women's experience of maternity services • Bereaved carers' experience of end-of-life care • Hospital responsiveness to patients' personal needs • Access to primary care (GP and dental) services

[8] The NHS Outcomes Framework 2014/15: https://www.gov.uk/government/publications/nhs-outcomes-framework-2014-to-2015

Goal	Overarching indicators	Improvement areas

5. Treating and caring for people in a safe environment and protecting them from avoidable harm	• **Patient safety incidents**
	• **Hospital deaths attributed to care failings**
		• Incidence of avoidable harm in hospital
		  ○ Deaths from venous thromboembolism-related events
		  ○ Incidence of healthcare associated infections (MRSA and C. difficile) and category 2/3/4 pressure ulcers
		  ○ Incidence of medication errors causing serious harm
		• Admission of full-term babies to neonatal care
		• Incidence of harm to children in acute settings due to 'failure to monitor'

** The 'friends and family' test refers to a draft indicator surveying selected inpatients after discharge with a standardised question asking 'How likely are you to recommend our <ward / A&E department> to friends and family if they needed similar care or treatment?' This is intended to capture overall patient views, with additional detailed follow-up questions*[9]

As can be seen in **Table 2** and **Table 4**, indicators are usually specified in the form of a **numerator** and a **denominator** describing the populations to be included in the indicator, which define a proportion (numerator/denominator) reported.

Indicators should also specify a description of **inclusions, exclusions and exceptions** from these populations. This is most effectively done through business rules for electronic records (see 'Verification of indicator reporting' below), although it has been possible in schemes such as the US' Healthcare Effectiveness Data and Information Set (HEDIS) to draw data from paper-based records.

Inclusions, exclusions and exceptions
• **Inclusions and exclusions** form part of the definition of populations to be included in the indicator.
• **Exceptions** refer to patients who are on the disease register and who would ordinarily be included in the indicator denominator, but are removed from the denominator because they meet at least one of the exception criteria specified (e.g. terminally ill). The purpose of allowing exceptions is to avoid penalising practices for patient-specific clinical circumstances: patients excepted from the indicator calculation should receive an equal quality of care to those who are included. The overriding principle is that blanket exception reporting is not acceptable (for example, of all patients with a particular

[9] See: https://www.gov.uk/government/news/friends-and-family-test-what-it-means-for-nhs

comorbidity) and individual decisions based on clinical judgment should be made. There is no 'ideal' level of exception reporting, although healthcare facilities with levels significantly outside the national averages may have this investigated[10].

An example of the specification for several indicators developed in Kerala, India with support from NICE International is in **Table 4** below.

Table 4. Example of a Quality Measure for vaginal deliveries, for Quality Standard on Active Management of Third Stage of Labour (AMTSL) [11]

Structure:
a) Evidence of agreed guidelines or protocols in the hospital for the active management of the third stage of labour b) Display of flow charts based on agreed guidelines, protocols or clinical pathways in the labour room c) Evidence of availability of Oxytocin, Ergometrine and PG F2 Alfa at the place of delivery d) Evidence of suitable storage facilities (refrigerator) for the drugs e) Evidence of equipment for measuring blood loss
Process measure:
Proportion of women giving birth vaginally who receive the Oxytocin, Ergometrine or PGF2 Alfa during third stage management of labour during the month ***Numerator***– the number of women giving birth vaginally receiving Oxytocin, Ergometrine or PGF2 Alfa during the third stage of labour in the hospital during the month ***Denominator***– all women giving birth vaginally in the hospital during the month.
Outcome measure:
Proportion of women who experience an estimated blood loss equal to or more than 500 ml during and or following a vaginal delivery ***Numerator***– the number of women giving birth vaginally receiving the AMTSL who experience an estimated blood loss equal to or more than 500 ml during and/or following a vaginal delivery in the hospital. ***Denominator***– all women giving birth vaginally, who receive AMTSL in the hospital.

[10] NICE, 2014. Indicators Process Guide

See also 'Section 5: Exception reporting', in NHS Employers, Guidance for GMS contract 2015/16

[11] Government of Kerala in collaboration with the National Rural Health Mission, the Kerala Federation of Obstetrics & Gynaecoloy and NICE International. Improving maternity care in Kerala. Quality standards for post-partum haemorrhage and hypertensive disorders of pregnancy. First Edition, 15 January 2013

A summary of this engagement is available online: http://www.nice.org.uk/About/What-we-do/NICE-International/NICE-International-projects/Quality-standards-for-post-partum-haemorrhage-and-hypertensive-disorders-of-pregnancy

Principles for indicator development

Indicators may be used to **judge the performance** of a clinical team, a healthcare institution[12], and/or health systems at the regional or national level[13]. They may also be used (separately or in conjunction) not to formally benchmark providers against each other, but to drive **quality improvement** at a practice or local level. Primary care indicator schemes are well-established in the UK, Australia and France (with pay-for-performance components)[14] and Denmark and Israel[15] (with no financial components), among other settings. Each of these schemes was characterised by buy-in by healthcare professionals and stakeholders, with insurers in Israel involved from an early stage in setting the indicator list.

For the assessment of performance to be credible and acceptable, the indicators selected should follow the principles below:

- Based on **best available evidence** (ideally, evidence-based national guidance);
- Number of **indicators kept to the minimum** for each clinical condition, compatible with an accurate assessment of patient care;
- Data collected from practitioners should be **useful in patient care and minimally burdensome to collect**, never collected purely for audit purposes, and never collected twice (ie: use routine patient data from electronic medical records where possible);
- The indicators selected should cover **all relevant aspects of quality** ('domains') as defined by the decision-maker.

Quality improvement

The relevant domains of quality may be defined differently, depending on what type of healthcare is being assessed and what the purpose of indicators is. For **individual patient care**, the central issues are access and effectiveness: if patients can get the care they need, and if it is safe and effective when they access it.[16] However, when introducing quality indicators for a health service, these should also cover the service's responsibility to promote **public (population-level) health** as well as individual clinical care. This can be seen in the domains defined for the UK Quality and Outcomes Framework (QOF), which is reported at the level of GP practices (Figure 2 below).

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[12] For example, in the UK the QOF scores for each GP practice are available online: http://qof.hscic.gov.uk/

[13] For example, in the UK the NHS Outcomes Framework provides a high-level judgement on performance of the NHS: http://www.england.nhs.uk/resources/resources-for-ccgs/out-frwrk/

[14] Cashin C, et al (eds) Paying for Performance in Health Care Implications for health system performance and accountability. 2014. World Health Organization. Paying for Performance in Health Care: Implications for health system performance and accountability. Maidenhead: Open University Press. ISBN: 978- 0- 33- 526439-1

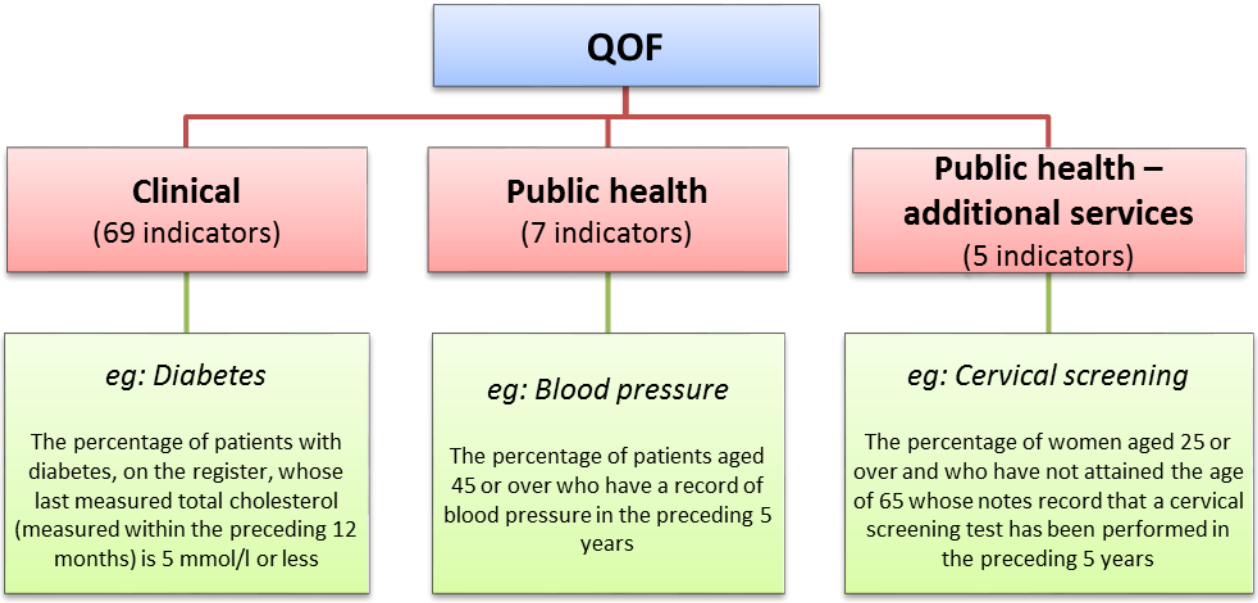
[15] 'Primary care and integrated care in Denmark', in OECD Reviews of Health Care Quality: Denmark 2013, OECD Publishing, Paris. doi:10.1787/9789264191136-6-en

'Strengthening community-based primary health care', in OECD Reviews of Health Care Quality: Israel 2012, OECD Publishing, Paris. doi:10.1787/9789264029941-6-en

[16] Campbell SM, Roland MO, Buetow SA. Defining quality of care, *Social Science & Medicine* 2000: **51**(11), p1611-1625, doi:10.1016/S0277-9536(00)00057-5

The Health and Social Care Information Centre (HSCIC) in the UK, which maintains a public database of all QOF indicators and scores, advises citizens that the indicators "[only reflect] **part of the work** that a general practice is responsible for", selected for the purposes of continuous quality improvement. The QOF, and similar selective schemes, is therefore not suitable for constructing overall rankings or estimates of the general performance of a primary care practice, particularly for non-incentivised conditions and demographics.[17]

Figure 2: Domains in the UK Quality and Outcomes Framework, 2014-2015



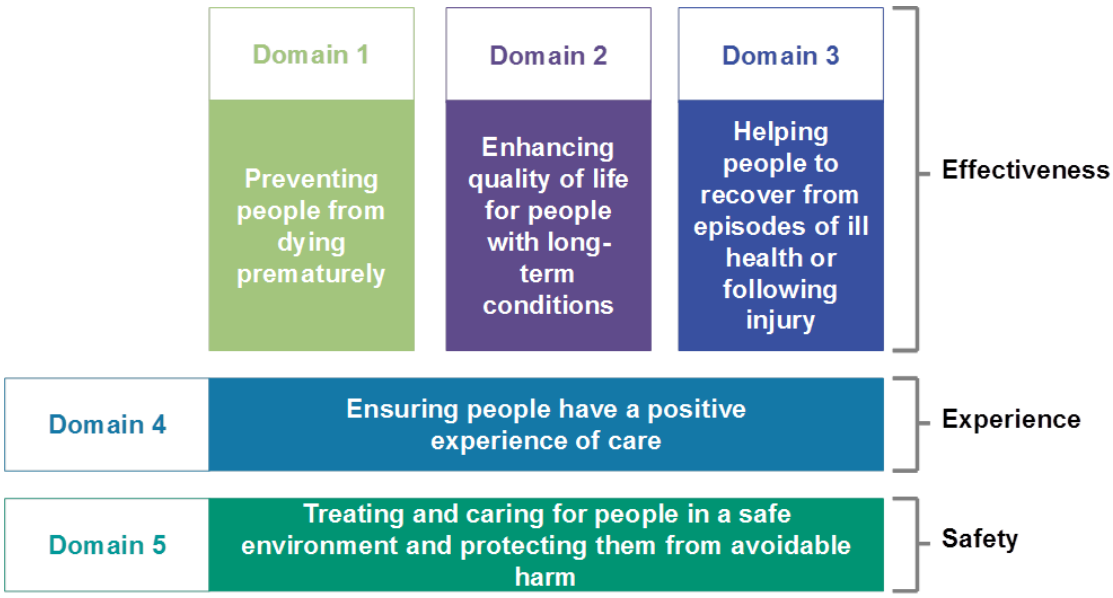
Performance measurement

Alternative domains are shown in Figure 3 below, defined for the NHS Outcomes Framework. In England, the NHS Outcomes Framework and its indicators aim to provide a high level overview of how well the NHS is performing, and is the key accountability mechanism between the Secretary of Health and NHS England. Further indicators have been developed allowing the overarching NHS Outcomes Framework indicators to be measured at the Clinical Commissioning Group (CCG) Level to help drive quality improvement locally.

NICE develops additional evidence-informed indicators to support commissioning at CCG level, as well as evidence-informed indicators for the primary care incentive scheme (the QOF). The QOF and CCG metrics recently merged after previously operating separately.

[17] HSCIC: QOF 2014/15 results. See: http://qof.hscic.gov.uk/

Figure 3: Domains of quality in the NHS Outcomes Framework



Pay for performance

Indicators can, additionally, be tied to payment of healthcare practitioners, with pay for performance (P4P) schemes implemented in a range of countries[18]. Among the largest schemes is the QOF in the UK, which has been active since 2004. Introduced as part of the General Medical Services Contract, the QOF is a voluntary incentive scheme for GP practices in the UK (with approximately 99% taking part), rewarding them for how well they care for patients.

The QOF contains groups of indicators (see 'Quality improvement', above), selected to drive continuous quality improvement. Practices score points against these indicators according to their level of achievement. Practices aim to deliver high quality care across a range of areas, for which they score points. Put simply, the higher the score, the higher the financial reward for the practice. The final payment is adjusted to take account of the practice list size and prevalence. The results are published annually[19].

An example of a QOF indicator is shown in Figure 4. The diagram also illustrates the broad process for its development.

[18] Case studies and synthesis in: Cashin C, et al (eds) 2014.

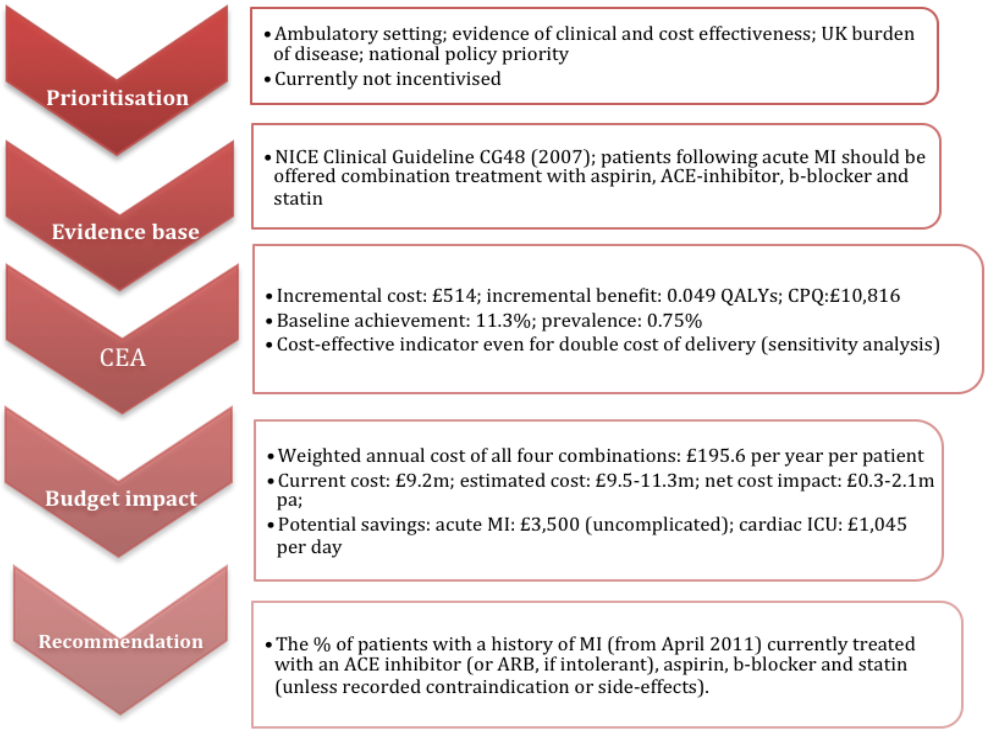
[19] HSCIC: Quality and Outcomes Framework (QOF) - 2014-15. At: http://www.hscic.gov.uk/pubs/qofachprevexcoct15

Figure 4: Example of a QOF Indicator

Indicator area: Secondary prevention of coronary heart disease (myocardial infarction)
Indicator ID: NM07 (http://www.nice.org.uk/aboutnice/qof/indicators_detail.jsp?summary=13071)

The percentage of patients with a history of myocardial infarction from 1 April 2011 currently treated with an ACE inhibitor (or ARB if ACE intolerant), aspirin or an alternative anti-platelet therapy, beta-blocker and statin (unless a contraindication or side effects are recorded).

Process of development



Key lessons from a review of the UK experience implementing P4P are reproduced in Table 5 below. There are over 20 systematic reviews and now one systematic review of systematic reviews examining the question 'Does P4P improve the quality of healthcare?'[20]. The overall message of this research has been summarized as: "*pay for performance can be effective. However, the effects are sometimes only short-term and are often not as large as payers wish. The effect of incentives is dependent on the context in which they are introduced, and [P4P] schemes always have the potential to produce unintended consequences… The choice should therefore not be P4P or no P4P, but rather which type of P4P should be used and in combination with which other quality improvement interventions*"[21]. The limited effects seen may partly be due to weaknesses specific to the incentive schemes (discussed below, including inadequate or excessive financial incentives, poor measurement capacity, or countervailing incentives) or more general factors in

[20] Eijkenaar F, Emmert M, Sheppach M, Schöffski O. Effects of pay for performance in healthcare: a systematic review of systematic reviews. *Health Policy* 2013; **110**: 115-130.

[21] Roland MO. Campbell SM. Successes and Failures of the United Kingdom's pay for performance program. *New England Journal of Medicine* **370**(20):1944-9. doi: 10.1056/NEJMhpr1316051

the policy and health system environment, such as lack of sustained and high-level commitment to the P4P scheme.

Recent research has also considered the effects of P4P on health system functions, and has suggested that the experience of developing and implementing P4P programmes is linked to a greater commitment to and capacity for strategic purchasing. As P4P programmes have several prerequisites including strong information, reporting and audit systems, pay for performance can be a focus for wider improvements in health system functioning.[22]

Table 5: Lessons from the United Kingdom on P4P (text reproduced from Roland and Campbell 2014)

*Pay for performance can be used to improve the quality of care, but it is not a "magic bullet" and needs to be **combined with other quality-improvement initiatives** to produce sustained improvements.*
Aligning financial incentives with professional values may reduce the risk of unintended consequences, including gaming.
*Pay-for-performance administrators need to recognize that large parts of clinical practice **cannot currently be measured**. It is better to recognize this than to force poorly designed indicators into a program.*
*Physicians care about their reputations. Public **reporting of information** on quality of care is often introduced at the same time as pay-for-performance programs and may be an important driver of behaviour change.*
*Single-condition indicators do not adequately meet the needs of elderly patients with **multiple coexisting medical conditions**. Newer indicators attempt to address the quality of care for this increasingly important population.*
Attaching 25% of income to pay for performance resulted in a major focus of family practitioners' attention on limited areas of clinical practice. A proposed redistribution of income that reduces this percentage has been widely welcomed

Cross-cutting issues

There has been a range of suggestions across several countries on the design issues that need to be considered when developing and implementing indicators[23]. What is clear is that the effect of indicators

[22] Cashin C, Chi Y, Smith PC, Borowitz M and Thomson S, 'Health provider P4P and strategic health purchasing', in Cashin C et al (eds) 2014

[23] Including:

Dudley RA. Pay-for-performance research: how to learn what clinicians and policy makers need to know. *JAMA* 2005;**294**:1821-23

Van Herck P, De Smedt D, Annemans L, Remmen R, Rosenthal M, Sermeus W. Systematic review: effect, design choices and context of pay for performance in health care. *BMC Health Services Research* **2010**;10:247

Campbell SM, Scott A, Parker R, Naccarella L, Furler JS, Young D, Sivey P. Implementing pay-for-performance in Australian primary care: lessons from the United Kingdom and the United States. *Medical Journal of Australia* **2010**; 193: 408-411.

and any aligned incentives are dependent on the context (e.g. health care system, economy, etc.) in which they are introduced. Financial incentives can change doctors' behaviour in multiple ways, including possible unintended consequences such as professional conflicts or reduction in doctors' motivation[24]. They can also lead to a focus on incentivized or measured areas of care over non-incentivized areas[25] [26].

For these reasons, it is important for governments implementing indicator and incentive schemes to define the **objectives** of these schemes clearly, and to secure rigorous processes of developing, implementing and reviewing indicators. There should be clear and measurable **criteria** by which to judge the success of an indicator schemes.

Setting target standards for indicators

Targets will ideally be set (and reviewed regularly) to ensure they represent an achievable improvement in care over the current practice. This requires reliable **baseline data** across the country which indicates the level and variation of care.

If the main objective of an indicator scheme is to promote continuous **quality improvement**, the scales and targets should incentivise (and detect) improvement among a majority of health facilities. In the case of the UK's QOF scheme, target standards for many indicators were met by almost all health facilities from the beginning of the scheme. This led to higher-than-expected expenditure, and made it difficult to detect changes in quality over time[27].

Verification of indicator reporting

There needs to be a robust, transparent and reliable system for collecting data that is reliable and accurate irrespective of the source clinical database. This requires semantic operability (the ability of each linked database to synchronise and exchange information with all others) using clear, agreed and specific business rules. **Business rules** are algorithms which state clearly the denominator and numerator requirements, as well as those patients who are eligible to be excepted (see 'Types of indicator' above) to ensure accurate verification across providers. Setting processes for verification is likely to involve a trade-off between being thorough and minimising the administrative burden (and cost) of data collection.

Glasziou P, Buchan H, Del Mar C et al. When financial incentives do more good than harm: a checklist. *British Medical Journal* 2012;**345**:e5047

[24] Campbell SM, McDonald R, Lester H. The experience of pay for performance in English family practice: A qualitative study. *Annals of Family Medicine* 2008; **6:** 228-34

[25] Doran T, Kontopantelis E, Valderas J, Campbell SM, Roland MO, Salisbury C, Reeves D.. The effect of financial incentives on incentivized and non-incentivized clinical activities. Evidence from the UK's Quality and Outcomes Framework. *British Medical Journal* 2011; **342**:d3590 doi: 10.1136/bmj.d3590

[26] Roland MO. Campbell SM. Successes and Failures of the United Kingdom's pay for performance program. *New England Journal of Medicine* **370**(20):1944-9. doi: 10.1056/NEJMhpr1316051

[27] Cashin C, 'United Kingdom: Quality and outcomes framework', in Cashin C et al (eds) 2014;

Forde I, et al. Health System Review of Mexico. 2016. In: OECD Reviews of Health Systems. In press.

The absolute minimum requirement in any health system to verify the figures reported is a functioning patient record system, which includes patient contact details for random checks to weed out 'phantom patients'. Clinical information systems may be progressively more sophisticated in high- or middle-income countries and allow for more rapid verification. In the UK the verification process is based on an electronic health records (EHR) system for primary care, and reviews of automated data have uncovered only minor errors or fraud. This is due to multiple reasons including the policing mechanisms of ensuring accuracy of submitted data, which have payments attached to specific and named READ codes (equivalent of ICD10 in a UK context),and the reliability of the EHR system that has been refined over many years[28]. The principle of avoiding a proliferation of indicators for each clinical condition (see '

Principles for indicator development' above) also makes verification more straightforward.

Verification can generally be carried out by a range of parties, within or outside government (Table 6). The key consideration when planning verification *"to reduce the inherent risk of capture, primarily by the service provider…and [protect] the funding entity against the potential manipulation of results"*[29]. There is usually a more significant risk of capture within government agencies, which may benefit (financially or politically) from inflated results. However, autonomous or semi-autonomous public bodies, such as a national statistical agency, may have sufficient independence from the body leading the P4P project. Selecting an agency for verification will be based on **competency** and **independence**, possibly with a trade-off between the two.

For example, the P4P scheme in Argentina contracts commercial firms to conduct verification, with a limitation on the period the same firm may be continuously contracted, to avoid over-familiarity or collusion by the verifiers. These third-party firms have also been able to act as neutral mediators between the National Government and the Provinces in cases of dispute[30].

[28] Doran T1, Fullwood C, Reeves D, Gravelle H, Roland M. Exclusion of patients from pay-for-performance targets by English physicians. *N Engl J Med*. 2008 Jul 17;**359(3)**:274-84. doi: 10.1056/NEJMsa0800310.

Cashin C, Vergeer P. Verification in Results-Based Financing (RBF) : the case of the United Kingdom. 2013. Health, Nutrition and Population (HNP) discussion paper. Washington DC : World Bank. Available at: http://documents.worldbank.org/curated/en/2013/01/17643176/verification-results-based-financing-rbf-case-united-kingdom

[29] Loening E, Tineo L. Independent Verification in Results-Based Financing. 2012. World Bank, Washington, DC. Available at: https://openknowledge.worldbank.org/handle/10986/16175

[30] Perazzo A, Josephson E. Verification of performance in results based financing programs: the case of Plan Nacer in Argentina. 2014. Washington, DC: World Bank Group. Available at: http://documents.worldbank.org/curated/en/2014/11/24167148/verification-performance-results-based-financing-programs-case-plan-nacer-argentina

Table 6: Potential entities to verify P4P data

Public sector	Third party
• **Ministry of Health** agencies • **National statistical** or audit body • Other semi-autonomous public body/Decentralised Public Organization (**OPD**)	• **Commercial** organisations or consultants • **Non-governmental** organisations • **Civil society** representatives/groups

Adapted from Loening and Tineo, 2012

It is suggested by some P4P specialists that verification of the *quantity* and *quality* of services delivered should be carried out separately. This is partly due to the different types of verification required: verifying quantity resembles a straightforward audit, whereas verifying quality requires more detailed checklist or questionnaire assessment. It is also to maintain the independence of each function[31].

Political commitment to evidence-based approaches

Worldwide there has been an increasing interest in and political commitment to the use of HTA in healthcare decision making. For example, health ministers of 53 countries at the WHO European Ministerial Conference on Health Systems (June 2008) adopted the Tallinn Charter: Health Systems for Health and Wealth[32] which noted that:

> "*Fostering health policy and systems research and making ethical and effective use of innovations in medical technology and pharmaceuticals are relevant for all countries; health technology assessment should be used to support more informed decision making*."

It is recognised that HTA is only one, albeit important, factor in decision making; there are clearly also other important inputs into the process. Nevertheless HTA and other evidence-based approaches (particularly clinical guidelines) can foster more transparent and 'rational' decision making processes as long there is domestic political will to make use of its findings. If HTA is poorly supported politically and technically, there is a risk that 'evidence-based' decision-making could be undermined and discredited[33].

The World Health Assembly in May 2014 further adopted a resolution on Health Intervention and Technology Assessment in Support of Universal Health Coverage[34], which recognised the role HTA can play in reducing inefficiency and sustaining health systems' performance. This also emphasised the prerequisites for successful HTA, including national coordination and *"capacity to assess, research and document the public health, economic, organizational, social, legal and ethical implications of health interventions and technologies"*.

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[31] 'Verification of the Quantity of Services', in Fritsche GB, Soeters R, and Meessen B. Performance-Based Financing Toolkit. 2014. Washington, DC: World Bank. Available at: http://go.worldbank.org/HYCXMYYWW0

[32] WHO 2008. At: www.euro.who.int/document/e91438.pdf

[33] Chapter 2 – Policy Processes and health technology assessment in:"Health Technology Assessment and Health Policy-Making in Europe Current status, challenges and potential". WHO, 2008. At: http://www.euro.who.int/__data/assets/pdf_file/0003/90426/E91922.pdf

[34] WHA 67.23 2014. At: http://apps.who.int/medicinedocs/documents/s21463en/s21463en.pdf

Overview of the situational analysis

NICE International and its academic partner (Professor Stephen Campbell) undertook a review of the current institutional arrangements and structures for developing and implementing quality indicators. This situational analysis aims to provide a review of the range and scope of existing indicators and reference standards currently in use. It also aims to articulate the methods and processes used when developing the indicator sets. These methods include the types of data and evidence used to define the indicators, the range of issues/conditions covered by existing indicators (including across the spectrum of structure-process-outcome) and the consultation and review processes to assess their impact and relevance.

Approach taken to the situational analysis

The incremental process shown in Figure 1 informed our framework for conducting the situational analysis. It is necessary for the long-term sustainability of the system of quality indicators that the analysis produces a clear understanding of the evidence and processes that were used to construct the current indicator sets, as well as assessing their fitness for purpose in terms of validity and relevance.

Key questions we aimed to address with the situational analysis included:

- What evidence, in the form of clinical trials, evidence reviews and professional consensus techniques, is available in Mexico to support the development of quality indicators?
- What evidence is available in Mexico showing how the indicators currently in use have affected the behaviour of health care providers?
- What evidence is available in Mexico showing how the indicators currently in use have affected patient health outcomes?
- Are the indicators developed to date fit for purpose in terms of acceptability, reliability, validity, specificity, and other standard criteria?
- What policy priorities and aspects of Mexico's national health strategies are not reflected in the current indicator set?

Methodology

With support from the local Mexican colleagues in place for this project, NI and its academic partner undertook a pragmatic review and analysis of the current institutional structure for developing and implementing quality indicators. This included an analysis of the bodies and policies in place at the level of government, Ministry, professional and academic organisations, industry (pharmaceutical companies and manufacturers). In addition the work encompassed a review of the current infrastructure (funding level, technical and administrative capacity, structures for disseminating quality indicators) operations (decision making, governance), and processes (Topic selection, methods used, stakeholder involvement) in use.

Information sources for this diagnostic included where available:

- Relevant national reports, policy circulars, legislative documents, dissemination materials and official guidance to healthcare practitioners;

- International literature covering examples of successful programmes developing and implementing quality indicators. This will include, where available, accounts of the requirements and enabling/impeding factors which contributed to these programmes' experience;
- A series of interviews/meetings with key clinicians, Institutes/professional bodies, and experts within academia and government, as appropriate, focusing on their experience of current indicators, processes and institutional structures.

Relationship with OECD Health Report 2016

- The early stages of this project overlapped with the later stages of information-gathering for a review by the OECD of the Mexican health system (updated from the 2005 review).[35] This OECD report discussed the rapid progress made in expanding coverage of publically funded health services, and identified priorities for future health reforms, including: increasing efficiency and responsiveness in the health system, reforming resource allocation across states and health services, and introducing provider payment reforms to strengthen incentives.
- After a draft of this Situational Analysis was shared with the local colleagues at DGCES in November 2015, and discussed during the second project visit to Mexico, NICE International viewed a draft of the upcoming OECD report. Although the interviews and research for each organisation's report was conducted independently and in parallel, NICE International views the content as largely compatible, and the OECD report was a valuable corroborating source of information on the health context in Mexico.
- Key themes highlighted in each report include the financial and health costs due to the fragmentation and poor coordination of multiple health sub-systems, and the need for consolidation of health information and records to enable effective quality monitoring and improvement.

For the production of the situational analysis report, the discussions during our first visit to Mexico (September 2015) with key stakeholders and the materials they provided (mostly in the form of presentations) were used to structure a draft version of the report. These were supplemented with a desk review of other sources as described above. The draft report's findings and recommendations were presented to stakeholders during the second project visit (December 2015), and additional discussions with stakeholders contributed to the final draft of the report. This second visit included targeted interviews making use of a structured questionnaire. Examples of topics of enquiry for these interviews are presented below in **Table 7**.

The full report, building on the draft presented in Mexico, was submitted to institutional representatives for consultation in January 2016. The report was finalised following a consultation period in February 2016. This situational report includes a set of recommendations for improving the current system and

[35] OECD report will be available when finalised at: http://www.oecd.org/els/health-systems/reviews-health-systems.htm

Citation: Forde I, et al. Health System Review of Mexico. 2016. In: OECD Reviews of Health Systems. In press.

institutional reforms. Recommendations given cover **short, medium, and long-term steps** that can be taken and should be prioritised to address the key challenges identified.

This report and recommendations, and later outputs from this project, will be shared at future policy workshops with government officials and other stakeholders from relevant sectors involved in the production and endorsement of quality indicators. The results of these discussions and feedback will inform the final recommendations for the Mexican government.

Table 7: Situational analysis: Example of key themes covered in structured interviews

Institutional framework

- Government policies on clinical guidelines and priorities
- Legal framework
- Strategy for linking quality indicators with other quality policies in healthcare reforms
- Level of funding for quality indicator development and dissemination

Infrastructure

- Responsibility for coordinating the programme
- Organisations/Institutions Involved in developing indicators (and other related products)
- Links and engagement with other organisations (e.g. Cochrane, CENETEC)
- Type of indicator programme (e.g. permanent or ad hoc)

Process

- Topic selection /prioritisation process
- '*De Novo*' indicators or adaptation from other indicators
- Recruitment of experts and others involved in indicator development
- Use and role of other evidence informed products (e.g. HTA outputs, clinical practice guidelines)
- Stakeholder involvement
- Updating mechanisms
- Methods and process manuals
- Quality control mechanisms

Technical capacity

- Current capacity in terms of technical staff (systematic reviewers, statisticians, epidemiologists, clinicians with background in “Evidence Based Medicine”) for developing indicators from non DGCES institutions/units
- Involvement (if any) of these units in developing indicators
- Availability of systematic reviewing, health economics, evidence-based medicine courses currently available in universities and courses (e.g. PhDs programme, Masters, diplomas, short dedicated training courses)

Findings of the situational analysis

Overview of the health care system in Mexico

> ***"Until universal access includes a guaranteed, acceptable level of quality, the egalitarian exercise of the right to protection of health will remain an elusive goal and inefficient out-of-pocket spending will grow."***
>
> ***- Lancet, 2012*** [36]

The health system in Mexico is characterised by fragmentation due to the incremental reforms expanding health coverage over more than 70 years. Institutions constituting the *Sistema Nacional de Salud* (Table 8. Figure 5) serve as insurers and providers for defined sectors of the population, and maintain parallel and non-overlapping funds and provider networks.

The resources and benefit package available to households without employer-based insurance has expanded dramatically since 2003, when the System for Social Protection in Health (SPSS) reforms introduced a single insurance scheme (*Seguro Popular*) for the previously uninsured. There are also private healthcare providers at varying levels of complexity, from hospitals to dispensaries; there are approximately 3,000 for-profit private hospitals, with additional non-profit and third sector providers. Estimates over the past decade indicate that private medical centres account for up to 75% of hospital facilities and 30% of beds (with most facilities having fewer than 15 beds).[37] Some private hospitals are accredited to national or international (USA-based JCI) standards.[38]

The duplication of services and records, as patients are only allowed to use facilities from the scheme they are enrolled in, has contributed to very high **administration costs**: approximately 10% total health expenditure in 2013[39]. The gap in healthcare financing between formal- and informal-sector schemes has narrowed since the SPSS reforms were launched in 2003, as federal and state subsidies provided steadily increasing funds to Seguro Popular, and the number of beneficiaries and covered interventions has expanded accordingly. It was estimated in 2012 that 98% of Mexican residents were registered with a health insurance agency and thus provided with financial protection for essential services.[40]

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[36] Knaul FM, et al. The quest for universal health coverage: achieving social protection for all in Mexico. *Lancet* 2012. **380**:1259-79. doi: 10.1016/S0140-6736(12)61068-X

[37] Presidencia de la Republica, 2007. *Plan Nacional de Desarrollo 2007-2012*. Available at: http://www.oic.sep.gob.mx/portal3/doc/PMG/pnd_2007-2012.pdf

Valencia Lomeli E, Rodriguez DF; Weber DT, 2013. *Sistema de protección social en México a inicios del siglo XXI.* United Nations ECLAC. Available at: http://www.cepal.org/es/publicaciones/3979-sistema-de-proteccion-social-en-mexico-inicios-del-siglo-xxi

[38] Joint Commission International: http://www.jointcommissioninternational.org/about-jci/jci-accredited-organizations/?c=Mexico

[39] OECD Health Data, cited in Forde I, et al. Health System Review of Mexico. 2016

[40] Knaul FM, et al. 2012;

In most publically subsidised services, there are very few **financial incentive or accountability** mechanisms. Payments are generally based on historical budgets without links to output, performance or patient satisfaction.[41]

Table 8: Schemes constituting the 'Sistema Nacional de Salud'

	Coverage	Founded	Population covered (million)[42]	Percentage of enrolees with records loaded in General Healh Register (est.)	Percentage of providers with official records
	Non-contributory ('social protection') schemes				
Seguro Popular	*Public insurance for those not covered by contributory schemes*	2003	57.3	95 %	90 %
IMSS PROSPERA *(formerly IMSS Oportunidades)*	*Selected low-income populations without social insurance*	1979	11.7	72 %	111 %
	Employment-based contributory ('social security') schemes				
IMSS	*Formal-sector employees and self-employed*	1943	47.9	82 %	97 %
ISSSTE	*Government employees and their families*	1959	12.8	57 %	116 %
PEMEX/SEMAR/ SEDENA/ ISSFAM	*State oil and armed forces employees*		1.7	-	-
Total			**131.4**	**84%**	**94%**

As a minority of individuals are registered in multiple schemes (either due to genuine joint eligibility or movement between formal and informal employment, or from deliberate gaming of the system), the total number of 'beneficiaries' is approximately 12 million larger than the Mexican population.

Despite stewardship and selective public health programs from the *Secretaría de Salud*, these institutions largely plan and deliver health services separately; this limits the efficiency of **health planning and resource allocation** across the population. This arrangement also contributes to the bias towards curative care and long-standing underinvestment in **preventative and public health** services (although the consolidation of public health care under the Seguro Popular/SPSS reforms has reduced these disparities), as well as public goods such as health research.[43] Individual institutions run preventative care programmes for their beneficiaries, such as PREVEN-ISSSTE, PrevenIMSS and Consulta Segura, but there is little incentive for these programmes to be expanded or harmonised.

Bonilla-Cacin ME, Aguilera N. 2013. The Mexican Social Protection System in Health. Available at: http://documents.worldbank.org/curated/en/2013/01/17286333/mexican-social-protection-system-health

[41] Bonilla-Cacin ME, Aguilera N. 2013;

González Anaya JA & García Cuéllar R. The Transformation of the Mexican Social Security Institute (IMSS): Progress and Challenges. *Health Systems & Reform* 2015, **1**:3, 189-199. doi: 10.1080/23288604.2015.1061096

[42] Figures provided by DGIS (October 2015)

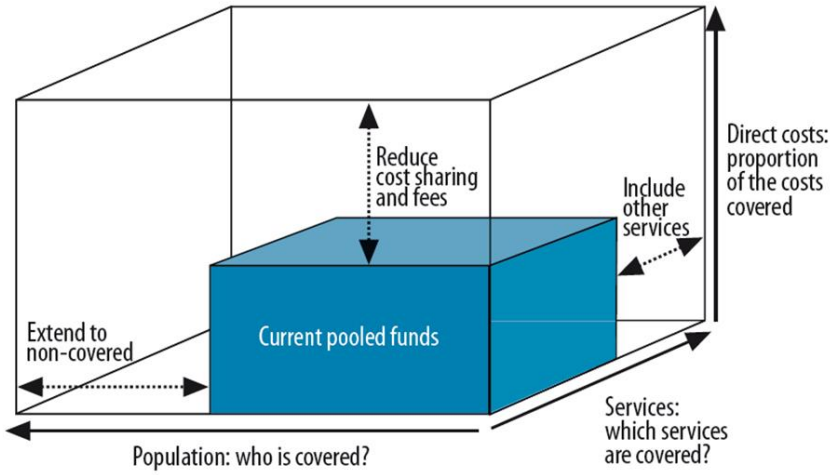
[43] Knaul FM, et al. 2C012.

Up to a third of the population have continued to use **private health services** while simultaneously enrolled in publically financed health insurance schemes, and individual out-of-pocket payments still constitute 45% of total health expenditure. This is recognised by the Secretaría de Salud as indicating potential dissatisfaction with the available public institutions, and constraining the improvements in financial protection over the past decade.[44]

The **benefits package** is set in the first instance by the CSG (General Health Council), the inter-institutional council which makes recommendations on whether funds should purchase interventions approved as safe by COFEPRIS. The council also lists the diseases considered 'catastrophic' in nature and covered by separate funds.

The parallel health providers, including IMSS and ISSSTE, also make decisions on benefit packages that are based partly on budget availability, leading to disparities in coverage between schemes (Table 9).[45] The prices of drugs and other health inputs in the national formulary have been negotiated collectively since 2008 by a separate inter-institutional body.

Table 9: Key figures relating to UHC in Mexico

Dimensions of UHC in Mexico[46]		
		
Who is covered?	*Percentage of the population enrolled in at least one health insurance scheme*	**~ 98%**

[44] Gutiérrez, J., García-Saisó, S., Dolci, G., & Ávila, M. Effective access to health care in Mexico. *BMC Health Services Research* 2014, **14**(1), 1-9. doi: 10.1186/1472-6963-14-186

Juan López M, Martinez Valle A, Aguilera N. Reforming the Mexican Health System to Achieve Effective Health Care Coverage. *Health Systems & Reform* 2015. **1**(3):181–188. doi: 10.1080/23288604.2015.1058999

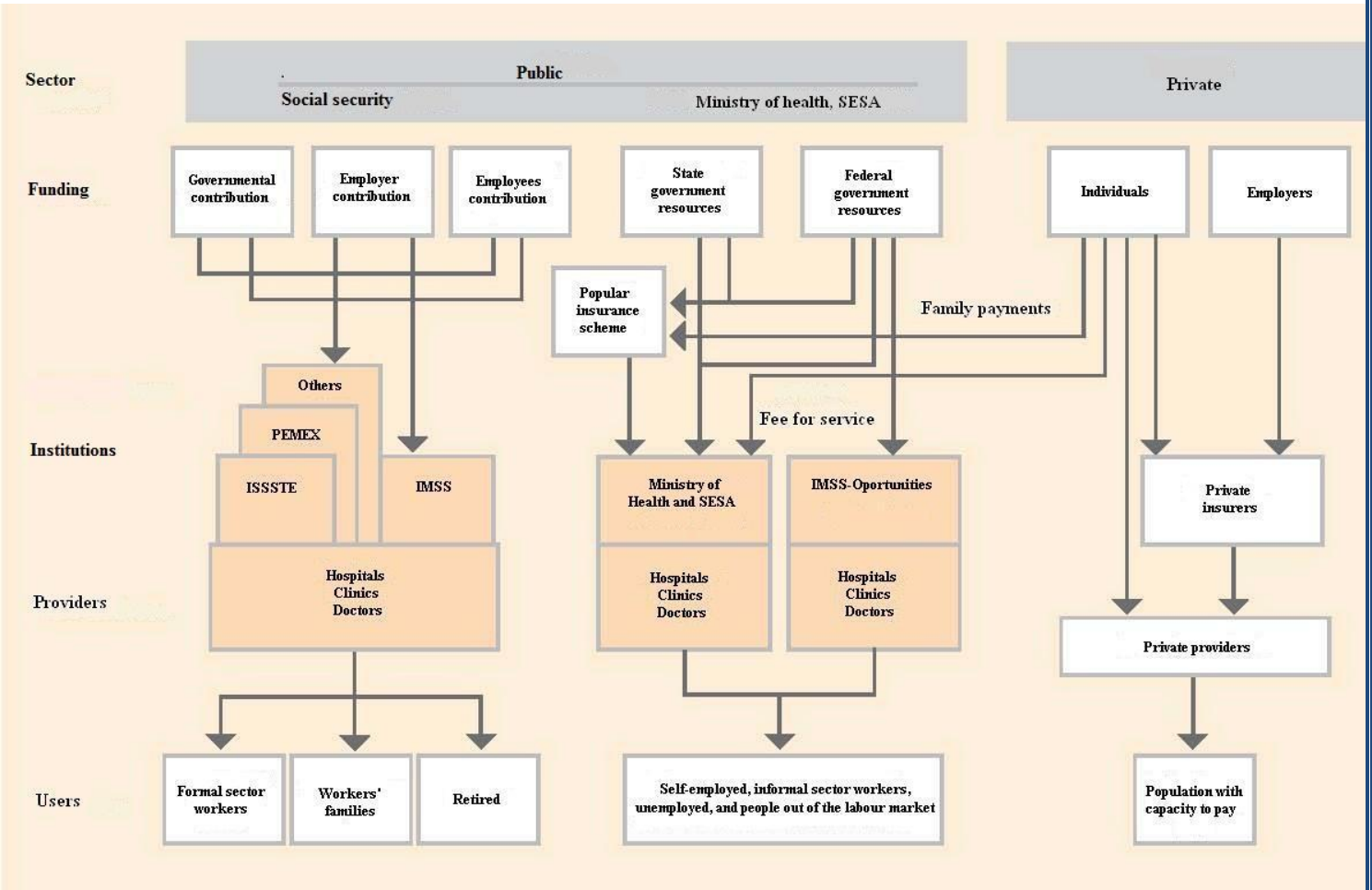
[45] Bonilla-Cacin ME, Aguilera N. 2013

[46] World Health Report, 2010. Health systems financing: the path to universal coverage.

Country data: Valencia Lomeli E et al. 2013; OECD Health Data; World Bank Health Financing Profile; Bonilla-Cacin ME, Aguilera N 2013

Which services are covered?	**SPSS**: defined packages of health services in primary and secondary care, and a small set of high-complexity services, for diagnoses under **1,607 ICD codes.** • *Seguro Popular:* 285 primary and secondary care interventions (CAUSES, *Catálogo Universal de Servicios de Salud*); • *FPGC*: 59 interventions associated with catastrophic spending • *SMPG (Seguro Médico para una Nueva Generación)*: all services not covered by above funds, for children under 5 years of age. **IMSS**: services at primary, secondary and tertiary levels, for diagnoses under **12,487 ICD codes.** **ISSSTE**: services at primary, secondary and tertiary levels, for diagnoses under **12,487 ICD codes.**	**Varies by scheme**
Proportion of costs covered	*Proportion of health expenditure paid by an insurance scheme (100% – individual out-of-pocket payments)*	**~ 55%**

Figure 5: Summary schematic of health system in Mexico



Translation of diagram by Gómez Dantés et al [47]

[47] Gomez Dantes, O, et al. 2011. Sistema de salud de México [Review article]. *Salud Publica* 53(2) See: http://bvs.insp.mx/rsp/articulos/articulo_e4.php?id=002625

Most of the requirements for a **systematic, consistent, common and policy-relevant quality assessment and improvement system for health care** exist in the Mexican health care system. These include excellent epidemiological data (DGE), a national system of health care quality indicators (INDICAS), data quality and skills at data analyses (DGIS) and clinical guidelines and health technology assessments (CENETEC).

There is also a cultural expectation amongst health care providers to collect and report data, and mandatory policy for data capture (e.g. NOM-035 and NOM-024), although in practice there is little enforcement or standardisation of this data.

However, the system is fragmented, disjointed and inefficient:

- The lack of unique patient identifiers constrains the usefulness of data collected;
- Registration in multiple insurance schemes leads to duplication/fragmentation of patient records;
- While CENETEC create guidelines and INDICAS create indicators they are not integrated;
- There are examples also of good practice in one organisation that are not available in others (e.g. ISSSTE's screening tool for those at risk of disease).

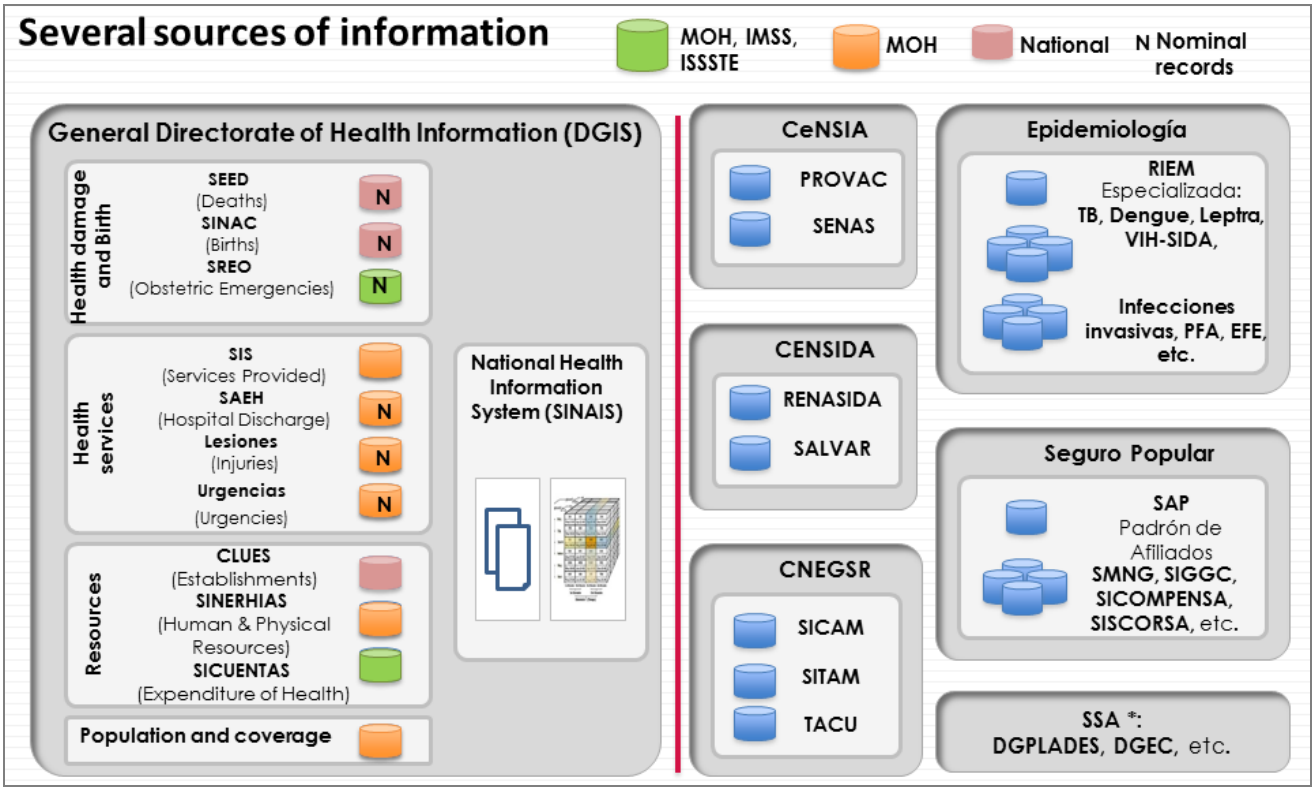
Health information sources and governance

A full list of databases and information sources available to the Mexican social health system is provided in Appendix G below.

The *Dirección General de Información en Salud* (DGIS) is responsible for the integration of health information for statistical purposes, and develops and maintains standards for clinical information. A schematic from DGIS of the sources of national health data is shown below.[48]

[48] Meeting with DGIS;
OECD, 2013. Strengthening Health Information Infrastructure for Health Care Quality Governance: Good Practices, New Opportunities and Data Privacy Protection Challenges. Paris: OECD Publishing. http://dx.doi.org/10.1787/9789264193505-en

Figure 6: Structure of the health information system in Mexico



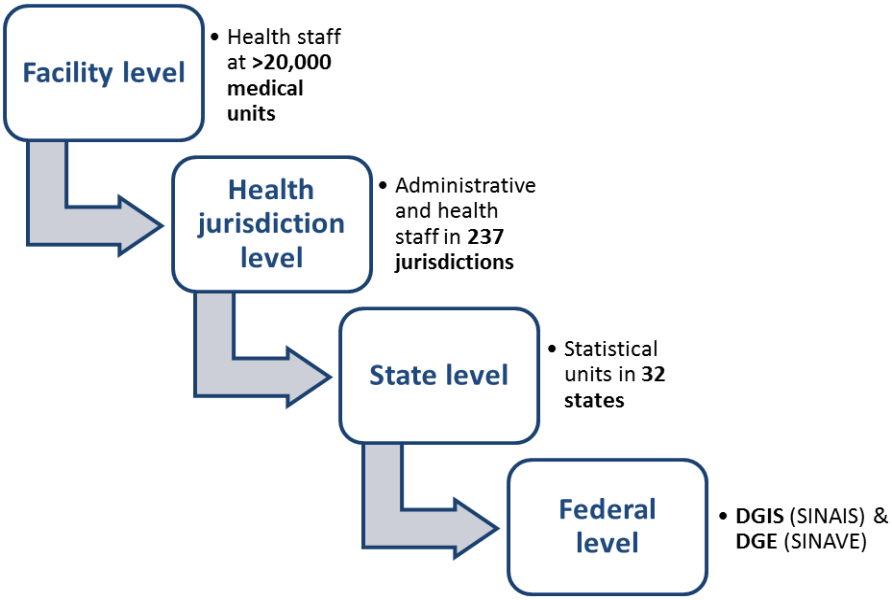
Shared by DGIS

Information is transferred to both DGIS and DGE (*Dirección General de Epidemiología*), following the decentralised federal structure of the health system (Figure 7). However, not all providers at levels 1,2 or 3 have the infrastructure to provide data electronically.

Personnel at each level validate data from the units under their jurisdiction, and transfer data until it reaches the federal level. DGIS has compiled records of total patient numbers from public institutions covering approximately 80% of the population[49].

[49] Meeting with DGIS, October 2015

Figure 7: Flows of information to DGIS and DGE (Directorates for Health Information & Epidemiology)



The non-enforcement of common standards for data collection severely limits the extent to which health data can be used for coherent health care policy planning, or even to investigate quality of care at a national level. The Directorate for Performance Evaluation (DGED) is able to calculate eight OECD HCQI indicators in two out of seven categories: acute care quality (30-day in-hospital mortality for selected conditions) and avoidable admissions[50]. Data for these indicators was drawn from the sectorial database of hospital discharges maintained by DGIS. This registry contains identifying data fields for health care units delivering care, and demographic and clinical information about patients. However, DGED acknowledge that without unique patient identifiers (which would be used to check the data for duplication), and no records of secondary diagnosis or procedures delivered (which would be used to exclude certain patients as specified by HCQI), the results reported are vulnerable to error[51]. Outside this dataset of acute hospital care, even less systematic analysis is possible.

The Directorate of Epidemiology data warehouse for non-communicable disease information (OMENT) and committee for epidemiological surveillance (CONAVE) provide precedents for shared data and collaboration. The inter-agency working groups of CONAVE includes representation from the major federal health institutions, and the regulations they produce are published in the Diario Oficial de la Federación. The same is true of the GDP dashboard for avoidable admissions with both IMSS and ISSSTE, and DGIS, participating.

Health records

Electronic health records (EHRs) are used to varying extents by the main health care institutions (including IMSS, ISSSTE, and Seguro Popular/CNPSS), and have been introduced gradually since approximately 2000[52].

[50] Chapter 8: Quality of care, in: OECD, 2015. *Health at a Glance 2015: OECD Indicators*. DOI: 10.1787/health_glance-2015-en

[51] Meeting with DGED, October 2015

[52] OECD, 2013. Strengthening Health Information Infrastructure for Health Care Quality Governance

These may, however, be used more to log high-level data on health service use (for example, hospital admission and discharge) than to coordinate patient care within a health care institution.

PEMEX is one of the only institutions which has completely switched to using electronic records for routine clinical care[53]; IMSS has a system of linked databases which cover medical histories, clinical encounter notes, prescriptions, and other services delivered[54]. However, personal electronic health records have not been created for all individuals enroled in IMSS; the percentage of enrolees with electronic records is uncertain. ISSSTE attempted in 2007 to create an electronic records system, which could not be implemented, in part due to insufficient coordination between software developers on the data fields and structure[55].

For members of the population enrolled in Seguro Popular, CNPSS has also developed a biometric registration system (SINOS) as part of enrolment. The *Consulta Segura* section includes basic socio-demographic and health (eg. blood glucose, blood pressure) data with the aim of identifying patients with elevated health risks. This appears not to be linked at present with vital registration systems and the hospital discharge database maintained by the Secretaría de Salud (Figure 6 above), as the patient identifiers are used only within CNPSS[56].

A standardised data layout and certification process for software vendors developing electronic health records have been developed. However, there is no obligation on the part of providers to install systems from a certified vendor, and no incentives or penalties on providers to follow the data standards.[57]

Interoperability and coordination between health care institutions

The partial introduction of electronic records in each institution has not translated to information exchange between providers, with technology platforms and database structures not aligned, or creation of unique patient identifiers (see also *'Principles for indicator development',* above). This is recognised by the Ministry of Health as ultimately precluding any serious coordination of services across the different providers, or even identifying the precise scope of duplicate coverage[58].

The SINBA (*Sistema Nacional de Información Básica en Materia de Salud*; *National System of Basic Health Information*) initiative aims to develop a functional technological framework which supports the convergence of information systems, in order to further health policy goals of the Government of Mexico. IMSS, ISSSTE and the Ministry of Health signed a voluntary cooperation agreement (*Convenio General de Colaboración*) in 2012 in preparation for the SINBA initiative, with a technical annex specifying the

[53] Communication from DGCES (meeting, December 2015)

[54] Perez-Cuevas R et al. Evaluating quality of care for patients with type 2 diabetes using electronic health record information in Mexico. *BMC Med Inform Decis Mak*. 2012; **12**: 50.

[55] Communication from ISSSTE (meeting, December 2015)

[56] Bonilla-Cacin ME & Aguilera N, 2013

[57] OECD, 2013. Strengthening Health Information Infrastructure for Health Care Quality Governance

[58] Secretaría de Salud, 2013. Programa de Acción Especifico: Información en Salud, 2013-2018. Available at: http://www.dgis.salud.gob.mx/descargas/pdf/PAE_2013-2018_DGIS_18DIC2014.pdf

mechanisms for information exchange[59]. This includes technical protocols for transfer and integration of beneficiary records into a General Health Register (PGS*, Padrón General de Salud*).

The PGS is overseen by DGIS and is intended as the first major project to be implemented within SINBA, consolidating basic information (including Unique Population Registry Code, name, and date and place of birth) on enrolees in the different health insurance schemes in a single nominal database. It is currently limited by data interoperability across providers, and the presence of some beneficiaries with no Unique Population Registry Code (CURP, *Clave Única de Registro de Población*) [60].

Institutions with responsibilities relating to HTA and quality improvement in healthcare

The proposed Federal Commission for Care Regulation (*Comisión Federal para la Regulación y Vigilancia de los Establecimientos y Servicios de Atención Médica*) will be created through an amendment to the General Health Law, with a remit including regulation of health care facilities and monitoring of quality standards. This body will also support existing agencies and functions within the Mexican health system, including the accreditation and certification currently performed by other bodies, including the General Health Council (CSG, *Consejo de Salubridad General* [61].

However, the additional contribution of the proposed Commission includes:

- independent status as a decentralised body (*órgano desconcentrado independiente*);
- a legally enforced agenda which includes the ability to set penalties

Relationship between HTA and benefits packages

The national formulary or basic package for state institutions is the *Cuadro Básico y Catálogo de Insumos del Sector Salud* (CBCISS)[62]. The CSG has a key role in establishing the basic package by making recommendations on whether the insurers should purchase interventions approved as safe for sale in Mexico by COFEPRIS (Commission for Protection against Sanitary Risk). The CSG also advises CNPSS on which disease areas are included in *Seguro Popular*'s catastrophic disease fund (*Fondo de Protección contra Gastos Catastróficos,* FPGC). The judgements of the CSG make use of health technology assessments, with economic evaluations mandated since 2003, and clinical guidelines.

Its judgements – through a multi-stakeholder engagement process that includes key social security institutions - can therefore lay the basic framework for standardised practice across the Mexican social

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[59] DGIS, 2014. Convenio General de Colaboración y Anexo Técnico. Available at: http://www.dgis.salud.gob.mx/contenidos/intercambio/iis_convenio.html

[60] Diario Oficial de la Federación 08/11/2012. Operations Manual for the National System of Basic Health Information (Manual de Operación del Sistema Nacional de Información Básica en Materia de Salud). Available at: http://dof.gob.mx/nota_detalle.php?codigo=5276976&fecha=08/11/2012

See also: http://www.dgis.salud.gob.mx/contenidos/intercambio/gpadron.html

[61] Draft text of amendment: *Draft decree amending, supplementing or repealing certain provisions of the General Health Law (Iniciativa con Proyecto de decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley General de Salud)*. Available at http://207.248.177.30/expediente/v99/Ley1A-02092014.pdf

[62] Knaul FM, et al. 2012

security system and as such, be used to inform a core set of federal quality indicators, consistent with the CBCISS. However, following discussion with key stakeholders it became apparent that there are weaknesses in the decision making process within the CSG, and its judgements while in principle having the endorsement of implementing institutions, are sometimes not taken up by those same institutions because of concerns around relative cost-effectiveness, and particularly the budget impact of the included interventions. What may be considered 'cost-effective' by one decision making entity with system wide responsibilities (the CSG), may not be considered 'affordable' by another decision maker in relation to its particular health insurance package.

In practice, the NICE International team were made aware of instances where interventions listed as part of the basic package were not reimbursed by the relevant social security institution, who sometimes undertake or commission their own additional economic evaluations. Manufacturers also routinely submit separate health economic models of the anticipated budget impact from new technologies on each institution's budget[63]. This lengthens the decision-making process by up to six months, and is a further example of duplication in evidence generation and decision-making. Aside from raising potentially difficult questions relating to consistency in the technical approaches used and equity in care provision across the system, these differences between what 'should' be offered as judged by the CSG, and what is actually provided risks further encouraging the judicialisation of healthcare.

Although CENETEC has an advisory role to the CSG for setting the national formulary, CENETEC's clinical practice guidelines do not include economic evaluations and additionally, there is a gap between the guidelines and the national formulary. Of approximately 700 guidelines produced by CENETEC, some evaluate and recommend drugs and interventions not approved by the CSG[64].

Legislative framework and mandates in relation to data and quality improvement

Table 10: Legal and policy documents relating to data and quality improvement

Name	***Year***	***Description***
Legal		
Ley General de Salud	1984, 2004	General Health Law. Validates the Ministry of Health's stewardship and coordination role. Amendments in 2004 reflected the SPSS reforms and established contribution levels for *Seguro Popular*.
Acuerdo DOF 18/10/2011	2011	Agreement (*Acuerdo*) amending provisions of the guidelines for *Seguro Popular* membership, including introduction of the National Register of Beneficiaries with biometric registration (*SINOS*)
Acuerdo DOF 05/09/2012	2012	Agreement to establish the *Sistema Nacional de Información Básica en Materia de Salud* (SINBA)
Mandatory policy circulars		

[63] Meeting with CSG, December 2015

[64] Meeting with CSG, December 2015

NOM 024-SSA3	2010	Regulation of the use of Electronic Health Records.
NOM-024-SSA3-2012	2012	Sets out policy for exchange of health information (*Intercambio de Información en Salu*d) between health care providers; Mandates DGIS to issue information standards
NOM-035-SSA3	2012	Sets policy on capture and use of health data across SINAIS
Manuals with legal status		
Manual SINBA: DOF 18/09/2012	2012	Manual for the *Sistema Nacional de Información Básica en Materia de Salud*

Legislative and judicial input in the health system

Interviewees from several institutions highlighted the risk of increased **judicialisation** in Mexico, whereby patients or manufacturers bring lawsuits with the claim that a lack of publically funded access to a particular medicine or technology infringes the (constitutional or international) 'right to health'. In extreme cases, as seen in Colombia, Brazil, and other Latin American countries, numerous government decisions on the health benefit package may be overturned by the courts. This limits the power of government bodies to allocate resources across the health sector, and may lead to corresponding opportunity costs as other health interventions are withdrawn or not provided in order to finance the court ruling.[65]

Some lawsuits on this topic have already been brought in Mexico, known as *recursos de amparo* (constitutional appeals).[66] Although the relationship between judicialisation and a constitutional right to health (or, as in Mexico, health protection/coverage) is not straightforward, recent lawsuits in Mexico have referred to the Constitution and General Health Law as overarching justifications for their case. General arguments for avoiding recourse to the courts, where possible, include the relatively high costs (to companies, government bodies and the tax-paying population) of bringing a lawsuit and of implementing any decision; social inequalities in access to the legal system; and a lack of health economics expertise in the judiciary to estimate the resources needed to introduce a health intervention and compare this to other potential items in the benefit package. Although recourse to lawsuits is a valuable and necessary part of accountability in the health system – for example, to expose and challenge an alleged example of poor

[65] Dittrich R, et al. The International Right to Health: What does it mean in legal practice and how can it affect priority setting for Universal Health Coverage? *Health Systems & Reform* 2016, **Supplement 1 (in press)**

Iunes R, Cubillos-Turriago L, Escobar M. Universal Health Coverage and Litigation in Latin America. *World Bank en breve* 178. July 2012. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/13072/726880BRI00PUB0TION0Knowledge0notes.pdf

Yamin AE, Parra-Vera O. How Do Courts Set Health Policy? The Case of the Colombian Constitutional Court. *PLOS Medicine* **6**(2), 2009 doi:10.1371/journal.pmed.1000032

Gonzalez AC, Duran J. Impact of Court Rulings on Health Care Coverage: The Case of HIV/AIDS in Colombia. *MEDICC Review* **13**(3), 2011.

[66] Forde I, et al. Health System Review of Mexico. 2016 (in press)

decision-making processes - it is quite unsuitable for routine and systematic priority-setting.[67] This priority-setting is best done explicitly, by a defined body (or bodies) which consider the resources available for health services across the whole population.

A thorough and transparent process of priority-setting for the benefits package can limit the potential costs of successive **judicial challenges**, which are likely to increase in Mexico if social security benefits decisions are partially made ad-hoc on the basis of affordability. Large institutions such as **IMSS** and **ISSSTE** are particularly at risk of litigation. It is promising that in one recent case, the Supreme Court in Mexico did not issue a simple judgement on whether a particular drug (eculizumab, aka Soliris) should be provided or not by IMSS, but deferred to the **General Health Council**, which had not yet reviewed the drug. However, the Court also expressed concern about the fairness of processes in this Council, including transparency and consultation with stakeholders.[68]

The ability of courts, including in Mexico, to comment on the quality of processes for setting health benefits packages highlights the importance of countries specifying and adhering to a robust process. The Supreme Federal Tribunal in Brazil similarly prompted the reform to the decision-making process for setting the essential health package.[69]

Quality improvement initiatives

The Quality Management Model adopted by the Ministry of Health (Figure 8) forms a high-level outcomes framework for the selection of quality indicators. This framework of priority outcomes can also be used for public communication and reporting of progress at a national level, with more granular indicators for benchmarking and regulation of individual providers.

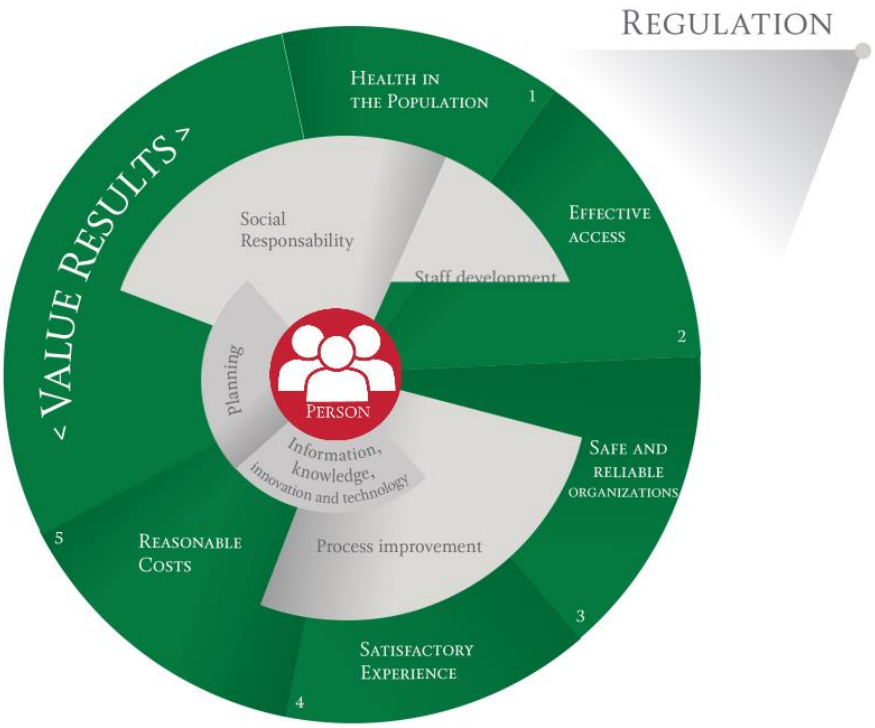
[67] Dittrich R, et al. 2016 (in press)

Daniels N, Charve S, Gelpi AH, Porteny T & Urrutia J. Role of the Courts in the Progressive Realization of the Right to Health: Between the Threat and the Promise of Judicialization in Mexico. *Health Systems and Reform* 2014 **1**(3). doi:10.1080/23288604.2014.1002705

[68] Daniels et al. 2014.

[69] Iunes R et al. 2012

Figure 8: Quality Management Model (Modelo de Gestión de Calidad), Mexico



Source: DGCES

During meetings with stakeholders and review of documentation provided by institutions involved in indicator development, it was apparent that skills already exist in many of the institutions to develop quality indicators. These institutions or bodies include DGCES, IMSS, ISSSTE, Seguro Popular, and the DGED. Indicator development appears to be more advanced and data collection more comprehensive in the **hospital** than **primary care** sectors. For example, DGED's recent "Better Hospitals" report evaluates over 700 hospitals using indicators based on the *effectiveness, efficiency* and *appropriateness* of care delivered.[70] This is a significant step forward both for providing a clear early analysis of performance across the nation, and for its use of routine data from DGIS.

There is also a system, within multiple providers, of units being awarded green status to work with those being graded red, which provides evidence of quality improvement cycles and collaboration. However, as these were developed in isolation, the exact definitions for structure and process indicators used often differ between institutions.

There was also a recognition by stakeholders of the need to review and update indicator sets used *within their own* institutions, reflecting a concern that some are no longer fit-for-purpose or reflect procedural 'norms' that have been applied for many years (sometimes decades) with an unclear evidence base or indeed relationship to quality (however defined). For example, we heard from IMSS representatives that

[70] Secretaría de Salud. MH 2015: Mejores Hospitales de la Secretaría de Salud Federal y los Servicios Estatales de Salud. Dirección General de Evaluación del Desempeño. Secretaría de Salud. México, 2015. Available at: http://www.dged.salud.gob.mx/contenidos/dess/descargas/mh/MH_2015_F.pdf

the institution is currently reviewing its existing indicator sets with a view to update them, and where necessary remove underperforming and “redundant” indicators.

The challenge therefore relates less to the purely technical aspects of indicator development in Mexico, but rather in rationalising existing sets to reduce duplication and developing a focussed core set that reflect Federal priorities for quality improvement.

Meetings and interviews with key Mexican stakeholders

A full list of meetings held in September-October can be found in Appendix C below.

A full list of meetings held in December can be found in Appendix D.

Key themes from the meetings

The majority of institutions met during visits to prepare the situational analysis have been engaged in developing or using indicators for the health facilities under their jurisdiction. Although the early visits did not include meetings with representatives of private providers, it is likely that the largest private health care companies and networks have the resources to collect data and are managing their own performance.

The early goal in this project is to learn from the experience and achievements of each set of stakeholders, and agree a core set of standards and practices that will enable meaningful comparison of care across the range of providers.

Table 11: Summary of themes during meetings

Institution	Area of focus	Achievements highlighted	Opportunities for improvement
DGCES (Accreditation unit)	**Accrediation and defining basic standards**, particularly for Seguro Popular healthcare providers	• Covered large **network** of providers	• **Data collection** from units not enforced • Only able to **enforce** accreditation for *Seguro Popular* units
DGCES (INDICAS unit)	Capturing **quality indicators** and **patient satisfaction** at different types of facility	• Multi-agency Quality Committees convened in all states to implement program	• Low **levels of reporting** against INDICAS indicators from many provider groups; • Potential for providers to **game system** (paper-based reporting methods with little verification) leads to low credibility within state health institutions • Providers not given **timely feedback** on data submitted
DGED (Performance Evaluation)	Assessing **hospital performance** and results for MoH budget; Reporting **OECD** HCQI	• Launched initiative measuring **hospital performance** (April 2015) with PAHO representation • **Results-based budget model** to assess programmes in federal budget	• Only able to report to **8 of 52** OECD indicators • Collect **data directly** for 80% of programmes; could streamline workload with more collaboration

Institution	Area of focus	Achievements highlighted	Opportunities for improvement
DGIS (Health Information)	Strengthening completeness and quality of **health information**	• Strong **policies and agreements** with government-wide backing (eg manual for SINBA) [71]	• Need to improve **governance** of information collection and use; • Lack of **enforcement** for agreements and policies (eg on unique patient ID) • System-wide **fragmentation** • Little to no data from **private providers** • Redundancy/duplication in data **collection and databases**
DG Epidemiology	**Disease surveillance** (both communicable and non-communicable) to guide public policy	• Multi-agency **committees integrating information** from across country and institutions; • Central **data warehouse;** • International technical **collaboration**	• **Paper-based** data collection • Not clearly **linked** to other relevant institutions
SIDSS (Integration and Development)	Overview of **health sector integration**	• Usually have enough data	• Lack of **patient identifier** use • **Under-utilisation** of existing data • Some data (prescribing information) not available from **IMSS**
IMSS	Health **outcomes** for social security beneficiaries	• Well-developed **IT platforms**; • Established grading system to monitor and evaluate quality for providers under the scheme; • Expert input to indicators during development process	• **Performance management** of units, including financial incentives; • Reduction in **workload** by coordinating with parallel data initiatives in the health system
ISSSTE	Health **outcomes** for social security beneficiaries	• Well-developed **IT platforms**; • Well-educated beneficiary **population** with greater internet access; • Collect **quality data** including patient satisfaction • **Cost and activity data** used for planning and reports	• Low activity in **PREVEN**-ISSSTE; • Cost and activity data not used for **DRG reimbursement** or other provider payment reforms • **Electronic patient records** not implemented

[71] See: http://www.gob.mx/salud/acciones-y-programas/manual-de-operacion-del-sistema-nacional-de-informacion-basica-en-materia-de-salud

Institution	Area of focus	Achievements highlighted	Opportunities for improvement
CNPSS	Management of *Seguro Popular*	• Comprehensive **supervision of secondary care** • **Mandatory data collection** for indicators (as of 2015) • **Register of procedures** that they will reimburse (reviewed annually) which could be the basis of indicator data	• **IT system** for real-time data collection and monitoring still being developed • **Infrequent** data collection and lack of feedback to providers
CENETEC	Creation of clinical **guidelines;** Advice to **CSG** (General Health Council)	• **In-house expertise** in guideline adaptation, development and updating • **New manual** includes guidance for prioritising 'core' guidelines • Use ADAPTE to **develop CPGs**	• Should use more national epidemiology/resource use data from **DGE and DGIS** • Previously lacked means to **select or prioritise guidelines** (were developed for topics of interest to state health institutions[70]) • Guidelines developed in isolation from **listing decisions** • Can improve links with **regulation and horizon scanning**
CSG (General Health Council)	Coordinating updates of the *Cuadro Basico* (national formulary); Certification and inspection of private providers	• Inter-institutional process **engaging main stakeholders** in the Mexican health system • Links with DGCES' accreditation function • Certification process reaches large number of **private health facilities**	• Decision-making process for *Cuadro Basico* not binding on other institutions (eg IMSS, ISSSTE) • Certification largely **voluntary** and does not reach smaller private providers

System-wide points arising

- There are key **elements missing** or a **lack of integration** at present that prevent coherent quality improvement in health care and indeed both a duplication of resources and data, as well as a waste of resources and inefficiencies. For example, CENETEC have produced many clinical practice guidelines (CPGs), without sufficient prioritisation[72].

[72] This situation is partly due to historical circumstance and political directives; when Seguro Popular was created, CENETEC was instructed (with the intention of strengthening provision of health services) to develop CPGs for every intervention covered by Seguro Popular. Similarly, specialist state health organisations such as SEDENA and SEMAR were able to request national CPGs be developed on topics of interest to them. As the health system does not appear to support or effectively use the approximately 700 guidelines currently in force, CENETEC is now initiating work to prioritise the updating and development of CPGs.

Another example is that it is not known how far the definitions of indicator sets for IMSS and INDICAS overlap.

- While it is mandatory to provide data against INDICAS indicators this is not adhered to by all organisations and **not enforced**. Within organisations such as IMSS, units do not report data.
- Throughout the system there is greater emphasis on the quality of data collected than using that data to improve or monitor quality of care. For example, prescribing data should, and needs to, be used as a cornerstone of quality improvement. Moreover, **billing data** are under-utilised and must exist within systems such as IMSS and ISSSTE to interrogate prescribing data.
- There is a fundamental **lack of cohesion** between social care (e.g. IMSS) and health care policy planning, quality and safety improvement and resource allocation to meet the epidemiological and health care needs of the United Mexican States.
- The system is **fragmented, disjointed and inefficient**. There is an urgent need to harmonise collection and reporting of data against key policy relevant areas to a single database (administered by DGIS) to enable coherent health care policy planning. This is required rather than a system that allows multiple data systems and indicators (such as IMSS, ISSSTE etc). For example, despite the data available in the Mexican healthcare system, DGED were able to provide data to OECD on only 8 out of 52 indicators recently. Moreover, DGED has three main programmes and each can duplicate data collection from the same sources.
- There is also an over-reliance on unreliable **manual written completion** of forms that are self-reported and not checked (e.g. INDICAS indicator data at Unit level is hand-written on forms and then computerised by others). This also delays any possible feedback on performance which can be given to states, districts or healthcare units.
- Most urgent, is the need for a **unique patient identifier** for all citizens that can be used to track care and service utilisation across all health care organisations in Mexico. This would alleviate also the burden expressed by providers of having to provide the same data to multiple masters.
- While the public sector system is fragmented and inefficient, data on private provision is mostly absent.

Conclusions from the discussions with stakeholders

- There is a missing link in the health care quality improvement system. While epidemiological data exist, clinical guidelines exist, data systems exist, indicators exist and so on, there is no coherent system for using epidemiological data to identify clinical priorities, for which guidelines can be used to create quality indicators that are then used to report data to a common database.
- There is no system also for using the quality indicators to track quality of care.

To address the above will require sustained political will, investment and effective (enforceable) regulation.

The concept of a focussed core set of indicators, applying to all relevant institutions in the Mexican health system and supplementing their existing indicator sets by reducing duplication, was discussed with key stakeholders during visits to Mexico. The concept received general support from the institutional representatives involved in the development of this situational analysis, although all highlighted key challenges that need to be overcome. These include improving the reliability and quality of existing information sources (from routine data collection to the development of clinical guidelines), and generating the necessary overarching governance framework. Cross-institutional collaboration and consultation is required to deliver existing policy commitments to improve the quality of healthcare for all Mexican citizens.

Recommendations

Overview of the Key Recommendations

1. There is an urgent need to harmonise collection and reporting of data against key policy relevant areas to a single database to enable coherent healthcare policy planning.
2. There is also an over-reliance on unreliable manual written completion of forms that are self-reported and not checked (e.g. INDICAS indicator data at Unit level is hand-written on forms and then computerised by others).
3. There is an urgent need for a unique patient identifier (General Health Register) for all citizens, which can be used to track care and service utilisation across all health care organisations in Mexico.
4. A coherent system should be developed for integrating epidemiological and health service data, clinical guidelines, and quality indicators. Each of these data sources and products exist in the current health care system, but are only partially linked (see '*System-wide points arising*', above). Improvements to the existing system (Figure 9 below) would entail using epidemiological data to identify clinical priorities, for which guidelines can be used to create quality indicators that are then used to report data to a common database.
5. Sustained political will, investment, and effective (enforceable) regulation are required in order to use the quality indicators to track quality of care across the whole health system.

Draft recommended next steps for implementing these recommendations in the short (within 12 months), medium (years 2 and 3) and long term (years 4 and 5) are presented in Table 1 and the sections below.

As part of this project, a process and methods manual will be developed to support the creation of a core set of indicators led by the DGCES (or the proposed Federal Commission for Care Regulation), as shown in Figure 9 below. This manual will be informed by the findings of the present situational analysis, and it will be necessary to engage with all relevant institutions in the manual's creation and future use. This is important not only because it is necessary to avoid any perception that initiatives of this kind represent top down regulations that are 'imposed' on institutions. It is also important to engage with stakeholders since it helps ensure that any methods and processes developed are fit for purpose, and draws on existing expertise in the development and use of indicators across the system. Ultimately the aim is generate a set of indicators following on from application of the manual that has cross-institutional acceptance (backed by relevant regulations) as forming a core set that is applicable system-wide.

The following sections of the report outline considerations that informed the above recommendations, and in addition, highlight areas for further investigation and analysis. Based on the discussions with stakeholders and a review of relevant literature from Mexican public authorities and other sources, we highlight the importance of addressing broader structural factors affecting the overall efficiency of the system, particularly where these appear likely to undermine any gains anticipated through the development of a core set of indicators.

Political will/policy

Developing a strategy for the collection and use of health information

High-level initiatives by the Government of Mexico demonstrate an acknowledgement of the fundamental need to reform health information systems. The broad requirements of a standardised health information infrastructure, in order to provide useful and comparable national data, have also been specified since 2012 or earlier[73]. The most significant obstacles to putting this structure into practice are not lack of technical knowledge in the health system, but the lack of:

- incentives for institutions to join and adhere to a common system, or
- an overarching governance framework guiding the collection and use of health information.

Leadership and stewardship by the Government of Mexico must provide this framework by supporting a **mandated institution** with regulatory powers. A range of supportive measures and, where necessary, sanctions can be employed by regulatory bodies. For example, the Care Quality Commission in the UK is able to issue mandatory recommendations, including formal referral to economic regulators, and sanctions to the leaders of hospital trusts.

A strategic approach to using data to monitor and improve quality would ideally also **incorporate selected indicators into national development plans**. The five-year health sector plans include high-level outcome and coverage indicators, including selected mortality and hospitalisation rates as metrics of quality. There is scope to include selected indicators from the core set developed in future sectoral plans, to avoid proliferation or contradiction in indicator sets.

Institutions in the National Health System will be reassured that greater coordination in health information does not require a single database or IT system. As with the Business

[73] See broad requirements set out in:
Manual SINBA: DOF 08/11/2012 http://dof.gob.mx/nota_detalle.php?codigo=5276976&fecha=08/11/2012
NOM-024-SSA3-2012: DOF 30/11/2012. Available at:
http://dof.gob.mx/nota_detalle.php?codigo=5280847&fecha=30/11/2012

Rules used in the UK NHS across all IT contractors (with 5-6 main providers) what is required is a standardised format for medical records and **ability to extract** data. This will underpin the semantic interoperability of the Business Rules for each indicator. The most urgent requirements of the health information system are the **unique patient identifier,** and movement **away from manual and paper forms**.

A strategy for the use of health information will also include anticipation of potential unintended consequences as a result of an indicator scheme in general, or specific indicators (see 'Analysing the data collected', below). Routine and consultative pilot-testing of specific indicators can identify concerns and experiences about unintended consequences at an early stage, when there is time to remove or adapt problem indicators[74].

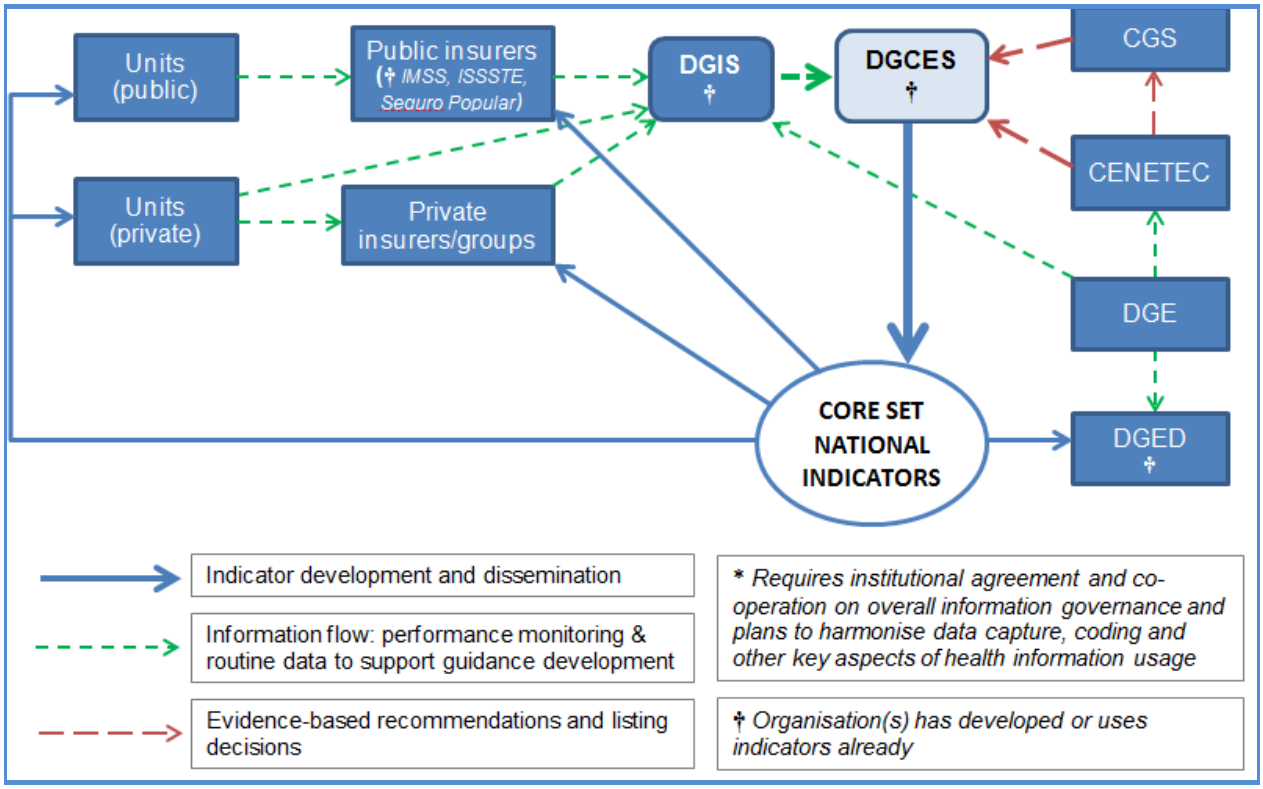
See also sections below on Collecting data to serve policy objectives' and 'Unique patient identifier'.

Improving collaboration between key institutions

An outline schematic of recommended institutional links is shown below. This gives an overview of the flow of information and evidence, to support the development and monitoring of a **core set** of *national level (federal)* quality indicators. Critically it requires better collaboration and coordination between institutions in the supply of information to DGCES, which in turn develops a core set of national indicators that apply to all providers in the system.

[74] Lester HE, Hannon KL, Campbell SM. Identifying unintended consequences of quality indicators: a qualitative study. *BMJ Qual Saf.* 2011 Dec;**20**(12):1057-61. doi: 10.1136/bmjqs.2010.048371. Epub 2011 Jun 21.

Figure 9: Summary schematic of institutional collaboration



Note that the schematic does not imply that there will only be one institution responsible for developing indicators. Uptake of a nationally applicable indicator set would not require individual institutions to retire their own indicators; it is entirely reasonable for other bodies to develop indicators to serve their particular needs. However this should be done in a manner that **minimises duplication and redundancy**, and does not in any way undermine the principle of effective and transparent reporting against a single set of core health indicators.

Roles of selected federal institutions

The development of these indicators will require CENETEC to work closely with DGCES in providing evidence-based products to underpin the indicators. Indeed, DGCES would need to have an important role in shaping the topic selection processes used by CENETEC when identifying topics for guideline development (see 'Prioritisation' below). Within the jointly identified high-priority topics for guideline development (later expanding to all CENETEC guidelines), CENETEC should also have an authoritative role in setting a binding system-wide formulary and benefits package.

Conversely, CENETEC guidelines should be harmonised with benefits package decisions, to avoid cases seen at present where guidelines include drugs and interventions not approved by the CSG.

The meetings during the December visit reinforced the views of the NICE International team of the need to strengthen the governance arrangements of institutions and bodies within the 'evidence to indicators' pathway. This is particularly the case with the CSG and CENETEC. While there is undoubtedly a need to strengthen the technical capacity of CSG to use and interpret evidence, particularly cost-effectiveness analyses, it is perhaps equally, if not more important to **re-examine the overall process** of decision making within the CSG so that it strikes a more effective balance between what might be regarded as 'aspirational' and what is realistic, given budget and/or other constraints that might reasonably apply. This should include ensuring that any reformed process is independent and free of vested interests – and is seen as such[75]. This review of processes within the CSG should involve the key institutions currently participating in the work of the CSG.

The overriding need is for all institutions to adhere to a truly **joint set of criteria** for decision-making on a common basic package, although institutions would remain free to approve additional services and interventions. If implemented, this would reduce the time and costs of manufacturers making separate applications to the CSG and each social security institution. The risk of judicial challenge to coverage decisions would also be lessened if the process for setting the *Cuadro basico* included a more systematic, cross-institution, review of available evidence.

Main recommendations on political will

Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
	• Policy statement (by body with system-wide regulatory remit)[76] that **all health care organisations in Mexico** will be mandated to agree on and submit data for a core set of quality indicators. These will be selected against agreed policy/clinical priorities. • Policy statement that all health care **organisations will cooperate** to create a system to issue every individual in Mexico with a unique patient identifier. This identifier will be	• Formal monitoring that all health care organisations in Mexico **agree on business rules** for the core set of quality indicators. • Regulation to ensure that data is **collected and submitted** for the core set of quality indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that comply with the requirements of the core set of quality indicators. ○ Penalties (to be defined) enforced on all health care	• Regulation to ensure that data is collected and submitted for the core set of quality indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that do comply with the requirements of the core set of indicators. ○ Penalties (to be defined) enforced on all health care organisations in Mexico that do not comply with the requirements of the core set of indicators.

[75] Glassman A et al, 2012. *Priority-Setting in Health: Building Institutions for Smarter Public Spending*. Available at: http://www.cgdev.org/publication/priority-setting-health-building-institutions-smarter-public-spending

[76] As shown in the schematic above, we suggest that this process is coordinated by DGCES, or the proposed Federal Commission for Care Regulation.

	shared and used commonly by all health care organisations. • A process is initiated to re-examine decision making approaches adopted by the CSG and its capacities (including technical and managerial) to achieve its stated aims relating to updating the national formulary and the basic package.	organisations in Mexico that do not comply with the requirements of the core set of quality indicators • Policy statement with a commitment to include the core set of quality indicators as indicators in future **government strategies** and development plans (e.g. sectoral plan for health sector).	• Regulation of health care quality in relation to the standards/targets agreed for the core set of indicators: ○ Rewards (Financial/non-financial) on all health care organisations in Mexico that do meet the agreed standards/targets. ○ Penalties (to be defined) enforced on all health care organisations in Mexico that do not meet the standards/targets. • Inclusion of selected indicators from the core set, where relevant, as indicators in Program for the Health Sector, 2019-2024.

Prioritisation

The first sets of core issues to prioritise for data collection should ideally be consistent with the new set of high-priority guidelines to be listed by CENETEC, although the final lists will not be identical. We recommend that CENETEC works more closely with the DGCES (or the proposed Federal Commission for Care Regulation) to define **criteria and a proposed process** for prioritisation, and ensure that lists overall reflect issues of national priority.

DGCES and CENETEC should include appropriate stakeholder engagement when selecting potential criteria for topic prioritisation. These criteria will be used to support guideline development, guideline updating, and related core quality indicator creation.

Potential criteria for selecting topics for indicators and clinical guidelines include (in no particular order)[77]:

- Whether the topic is associated with a significant burden of care/illness, premature mortality or reduced quality of life (including a significant economic impact)
- Alignment with national (political) priorities
- The potential for guidance on the proposed topic to addressing elements of the Quality Management Model (Modelo de Gestión de Calidad), particularly with

[77] See also NICE process for Selecting and prioritising guideline and quality standard topics. Available at: http://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-guidelines/selecting-and-prioritising-guideline-and-quality-standard-topics

regards to the five dimensions of population health; effective access; safe and reliable organisations; patient experience; and costs

- Effect of a guideline or quality indicator on equity issues / health inequalities

It is very challenging to derive any single (aggregate) measure of priority from a set of criteria, due to the lack of clear weights attached to each of the criteria above. Rather, an initial prioritisation exercise will yield a shortlist which can be discussed with major stakeholders.

Approaches to topic prioritisation will be considered more fully when developing a Process and Methods manual for Mexico. The final, ongoing process of topic selection will be steered by DGCES (or the Federal Commission for Care Regulation) to ensure that selection decisions are made against transparent criteria that reflect national priorities. However, the process will include **consultation with key stakeholders** (including IMSS, ISSSTE and other institutions), based on shortlists developed using the above (or similar) criteria.

Main recommendations on prioritisation

Timeframe	*Immediate (within 12 months)* *"Initiating collaboration and change"*	*Medium term (years 2 and 3)* *"Developing and implementing"*	*Long term (years 4 and 5)* *"Evaluating, recalibrating, consolidating"*
	• CENETEC works with the DGCES (or the proposed Federal Commission for Care Regulation) to define prioritisation criteria that will be used to support guideline development, guideline updating, and related core indicator creation. This will involve developing a consultative **process for topic prioritisation**. • Agreement by all health care organisations on a **first set** of core issues (diseases, readmissions etc.) to prioritise for national quality indicators.	• Agreement on a **second set** of core issues (diseases, readmissions etc.) to prioritise for national quality indicators. These will be supported by data collection by all health care organisations in Mexico.	• **Annual agreement** on a set of core issues (diseases, readmissions etc.) to prioritise for national quality indicators. These will be supported by data collection by all health care organisations in Mexico.

Unique patient identifier

As discussed above and in 'Political will and policy', many of the challenges and inefficiencies in the Mexican health system demonstrate the urgent need for unique patient

identifiers. Combining a UPI system (possibly the General Health Register proposed) with effective use of EHRs would streamline the currently unwieldy system of record-keeping and auditing, and enable real-time automatic collection of data. Full use of EHRs has been the most efficient and proven method of improving patient safety[78]. In countries such as the UK, a comprehensive EHR system in primary care has been fundamental to the successful implementation of indicator schemes such as QOF (and quality improvement more generally).

A unique patient identifier system would give one number to each individual, seamlessly connecting him or her to his or her medical records. This will enable data collected in relation to indicators to be accurately and reliably about only those patients who are stipulated as part of the denominator in the verifiable Business Rules. It would also eliminate cases of mistaken identity, focus attention on the diagnoses and medical/health issues of every patient in Mexico uniquely, and prevent duplicate records. UPIs are the most efficient way to limit the data overload, lower unnecessary costs and improve patient care.

Main recommendations on unique patient identifiers

Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
	• **Written commitment** on creating, sharing and implementing a unique patient identifier for all citizens of Mexico, by all health care organisations in Mexico.	• All citizens of Mexico are **issued** with a unique patient identifier.	

Communication and monitoring of the indicators

Principles for communication and implementation

The processes for creating and implementing a core set of quality indicators will be defined more fully when developing a Process and Methods manual for Mexico. However, it is particularly important that the early process of developing a nationally applicable set of indicators is transparent and open to consultation and feedback from the public or professional groups. It is possible for professional culture to change rapidly, and support for

[78] Shekelle PG, et al. The Top Patient Safety Strategies That Can Be Encouraged for Adoption Now. *Ann Intern Med*. 2013;158(5_Part_2):365-368. doi:10.7326/0003-4819-158-5-201303051-00001

an regulatory or incentive scheme is more likely if professional representatives are substantively engaged from an early stage. Even in the UK, the willingness of clinicians to share outcome and process data has increased rapidly in short periods (5-10 years).

Empowering primary care

Developments in health policy have highlighted the importance of primary care and preventive services, although among many countries of different income levels, specialists still significantly outnumber 'generalist' practitioner. Orienting health care services so that they are delivered where possible in primary care settings can yield significant benefits in terms of overall cost-effectiveness. In addition, a strong and well performing primary care sector represents a marker of healthcare quality[79]. Proxy measures such as the number of (avoidable) admissions for uncontrolled diabetes can give an indication of the strength of primary care systems and the level of care coordination and continuity.

Monitoring and improving quality and health outcomes

Consideration should be given to providing financial incentives to encourage efficient prescribing and the provision of high quality care. It may also help in improving information technology infrastructure, and drive critical data collection in high priority disease areas.

As noted earlier, there appears to be a relative underfunding of primary care compared with the specialist and secondary care sector. Moreover, family doctors are constrained in their capacity to practice efficiently and effectively, at least in comparison to standard practice in many other countries. Any rebalancing of funding (and care responsibilities) in the Mexican healthcare system could be accompanied by provider reimbursement mechanisms that are partially linked to the achievement of performance outcomes. A possible model for such a framework is the UK Quality and Outcomes Framework (QOF)[80].

The use of any financial incentives needs to be carefully considered, and will certainly not be the only or even the principal tool to drive efficiency and high quality care. Other quality initiatives such as clinical audit, improvements in information technology, and creation of entities to develop quality standards and monitor performance, are likely to have a significant effect in improving quality of care. When developing indicators that can be used to incentivize providers, it is necessary to consider the underlying evidence base, and so the HTA function described above will have an important role in informing the choice of indicator. When considering the impact of an indicator for which there is potentially a linked financial reward, it is also important to consider the cost-effectiveness and overall financial impact of the incentive, to ensure that the additional payments offered and the expected outcomes are calibrated optimally.

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[79] Government Accountability Office (2008). Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services. Testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate. At: http://www.gao.gov/new.items/d08472t.pdf

[80] See: http://www.nice.org.uk/aboutnice/qof/qof.jsp and 'Background and aims of the project' above

Main recommendations on communication and monitoring

Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
	▪ Written commitment on a **core set of indicators** to be collected and shared by all health care organisations in Mexico to be submitted to a single database.	▪ Mandatory attendance at quarterly meetings to agree **implementation** of the core set of indicators, by senior decision-makers representing all publically funded health care organisations in Mexico.	

Collecting data to serve policy objectives

Importance of effective data collection systems

Routine and robust data collection is essential in monitoring and improving the quality of healthcare, irrespective of the type of healthcare system. Moreover, data gathering mechanisms need to be driven by the needs of decision-makers at all levels of the healthcare system.

Information systems need to be established to support the development of clinical guidelines and similar evidence informed products such as HTAs that are the critical underpinnings of quality indicators. A **national database** needs to be created that collects average unit cost data and utilization for products, services and procedures both individually and by Diagnostic Related Group (DRG) or some suitable variant, which in turn can be used to set levels of payment. This database would need to be updated annually.

It is also important that data are collected (and appropriately coded) to enable policy makers and researchers to link activity and expenditure to individual diagnoses and therapeutic indications. This data linkage, for example, will be essential in estimating costs and savings from changes in access to particular services. It will also enable comparisons across hospitals to assess variation in practice and expenditure.

Taking hospital care as an example, a **data warehouse** could be developed containing details of all admissions to hospitals. Such data could include:

- clinical information about diagnoses (coded according to the International Classification of Diseases for example) and operations
- information about the patient, such as age group, gender and ethnic category
- claims data to support outcome analysis, quality measurement and demographic expenditure analysis
- administrative information, such as time waited and date of admission
- geographical information on where the patient was treated and the area in which they lived.

Access to the detailed records would need to be strictly controlled to avoid the identification of individual patients. There should be also restrictions on the nature of the aggregated summaries available to researchers and policy makers.

In addition to robust and credible national cost data, basic epidemiological information (ideally including, data on the natural history of disease) is a pre-requisite for decision-making and health technology assessment. Moreover, there is growing trend for the routine use of Patient Reported Outcome Measures (PROMs)[81]. PROMs focus on measuring quality from the patient's perspective and can include standard tools for assessing health-related quality of life, essential for relevant cost-effectiveness.

To assist in the development of comprehensive data collection we would recommend conducting a workshop with key stakeholders to explore, identify and gain consensus in prioritizing **information needs, structures and data collection mechanisms**.

Piloting

Using an indicator testing protocol as part of piloting is a valuable way of testing potential indicators in 'real world' settings.[82] It is a means of assessing potential quality indicators when adapted to specific country health care settings and is useful to policy-makers to test the likely effect of implementing indicators prior to roll out. The value of piloting was seen as akin to a 'reality check', and learning process highlighting potential problems which could then be addressed prior to the indicator being implemented on a national level; especially in terms of implementation issues (e.g. availability of necessary services or equipment to meet an indicator) or data collection issues.

Data collection directly from patients and the public

The Ministry of Health has highlighted the importance of user (citizen) perception in evaluating the quality of healthcare ("*The best indicators for assessing quality are measures of the perceptions of users*"), and monitors trends through National Health Surveys every six years[83]. User satisfaction and patient experience is an important domain of performance, particularly when judging a health system's responsiveness to citizens' non-clinical expectations; it is also positively associated with clinical effectiveness and safety[84]. The

[81] See: http://www.ic.nhs.uk/proms

[82] Campbell SM, Kontopantelis E, Hannon KL, Barber A, Burke M, Lester HE. Framework and indicator testing protocol for developing and piloting quality indicators for the UK Quality and Outcomes Framework. *BMC Fam Pract*. 2011 Aug 10;**12**(1):85

[83] Juan López, et al. 2015;

Encuesta Nacional de Salud y Nutrición 2012, at: http://ensanut.insp.mx/resultados_principales.php

[84] NICE guidelines [CG138] Patient experience in adult NHS services. 2012. Available at: http://www.nice.org.uk/guidance/cg138

emphasis placed on understanding patients' views in Mexico should be maintained in all future quality initiatives.

However, questions posed directly to patients and citizens must be carefully specified in order to be clear exactly what factors are contributing to a good or bad perception of health services. Surveys of patient satisfaction may find that responses are skewed towards a positive evaluation, and are influenced by educational and socio-economic status. A few examples of questions posed internationally, which attempt to articulate the **different aspects of patient experience**, are:[85]

- *"Were you involved as much as you wanted to be in decisions made about your care and treatment?"*
- *"When you need care or treatment, how often does your GP or medical staff explain things in a way that is easy to understand?"*
- *"In the past 2 years, have you ever been given the wrong medication or wrong dose by a doctor, nurse, hospital or pharmacist?"*
- *"[In the past two years] was there ever a time when doctors ordered a medical test that you felt was unnecessary because the test had already been done?"*
- *"When you left the hospital, did the hospital make arrangements or make sure you had follow-up care with a doctor or other health care professional?"*

The type of questions asked in population-level assessments of **health system** performance may differ from patient feedback to improve or benchmark individual **health services**, and this information should be supplemented (as is done in the existing National Health Surveys) with routine measurement of data such as waiting times and adverse events.

It is also possible to collect data and feedback from members of the public using a more **structured and ongoing process** than surveys. Examples include lay representation in decision-making committees, or creating standing panels or 'councils' of citizens to deliberate on ethical and procedural issues.[86]

Doyle C, Lennox L, Bell D. A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ Open* 2013;**3**:1 e001570 doi:10.1136/bmjopen-2012-001570

[85] Commonwealth Fund, 2013. International Health Policy Survey. Available at: http://www.commonwealthfund.org/interactives-and-data/surveys

OECD, 2013. Health Care Quality Indicators - Responsiveness and Patient Experiences. Available at: http://www.oecd.org/els/health-systems/hcqi-responsiveness-and-patient-experiences.htm

Jenkinson C, Coulter A, Bruster S. The Picker Patient Experience Questionnaire: development and validation using data from in-patient surveys in five countries. *International Journal for Quality in Health Care* 2002. doi: 10.1093/intqhc/14.5.353

The Health Foundation, 2013. Evidence scan: Measuring patient experience. Available at: http://www.health.org.uk/sites/default/files/MeasuringPatientExperience.pdf

[86] iDSI, 2015. Policy Note: Process Matters for Priority Setting and Health Technology Assessment. Available at: http://www.idsihealth.org/wp-content/uploads/2015/04/Policy-Note-Process-matters-LM-FR-April-2015.pdf

Main recommendations on data collection

Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
	▪ Agreement on a core set of indicators to be collected and shared by **all health care organisations in Mexico,** which will be submitted to a single database. These would be augmented by level specific indicators as appropriate (e.g. levels 1-2-3).	▪ Year 2: ○ Conduct **baseline data collection** for agreed core set of quality indicators. ○ Agreement on indicator business rules for data extraction, numerators, denominators, exclusions, etc). ○ Agreement on standards and targets to be set against all indicators. ▪ Year 3: ○ All health care organisations in Mexico **submit data** on a core set of indicators.	
	▪ The United Mexican States federal government and 32 States invest in electronic health records and electronic reporting of data at levels 1,2 and 3.		

Analysing the data collected

Data analysis may be conducted by national-level bodies or directorates with expertise (such as DGIS or DGED), reporting to the body responsible for maintaining the indicator set. Criteria should be set out, in advance of piloting and implementing the indicators, to identify results which suggest the indicator set should be recalibrated. **Baseline data collection** is an important input when deciding both the topics for a core set of quality indicators, and the target standards for each indicator.

Consistently high quality in the baseline data suggests an indicator can be dropped from the proposed set. For example, in the UK, baseline studies when piloting the QOF scheme indicated that a requirement to *check* blood pressure was already being met in over 95% of cases. The relevant indicators were therefore recalibrated to refer to *specific* blood pressure readings, indicating well-controlled blood pressure.

Data collection should also include a process, where possible, of **feedback to health providers**. This is often a challenging prospect for health systems, but offers a non-financial incentive to facilities concerned with their professional reputation and demand from patients. At present, partly because much data is collected manually, the main health care institutions in Mexico report that feedback to healthcare units cannot be given in a timely fashion.

NICE Citizen's Council: https://www.nice.org.uk/get-involved/citizens-council

Reviewing and retiring indicators

It is important that indicators and targets are clearly defined, with clear aims to change a perceived quality deficit (whether in quality of care or workforce behaviour *et cetera*). However, there must be also clear criteria agreed for when to remove/retire targets or indicators to prevent ossification.[87]

A set of underpinning principles have been developed for indicator replacement and key issues that need to be considered by any organisation or country planning to remove indicators or targets from a clinical performance framework. These include assessing the performance of an indicator (and associated target) in at least five ways:

1. *Average rate of achievement*
2. *Recent trend in achievement rate*
3. *Extent and trend in variation of achievement rate*
4. *Average rate and trend in exception reporting*
5. *Extent and trend in variation of exception rate.*

Monitoring unintended consequences

The introduction of any health system reform, albeit structural, data collection, accreditation, targets, financial incentives or workforce planning etc, may, or indeed will, have unintended consequences.[88]

Undesirable consequences can include unwanted changes to behaviour due to perverse or financial incentives or targets, less prioritisation on non-targeted issues due to a (potentially misconceived) perception that they are less important, exemption schemes etc. To help ameliorate against this, we concur with the set of desirable general principles for setting targets set out by the Royal Statistical Society, including the following:[89]

1. *Indicators should be directly relevant to the primary objective or be an obviously adequate proxy measure.*

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[87] Reeves D, Doran T, Valderas JM, Kontopantelis E, Trueman P, Sutton M, Campbell SM, Lester H. How to identify when a performance indicator has run its course . *British Medical Journal*. 2010 Apr **6;340**:c1717. doi: 10.1136/bmj.c1717

[88] Campbell SM, Kontopantelis E, Hannon KL, Barber A, Burke M, Lester HE. Framework and indicator testing protocol for developing and piloting quality indicators for the UK Quality and Outcomes Framework. *BMC Fam Pract*. 2011 Aug 10;**12**(1):85

Smith PC, Busse R.Learning from the European experience of using targets to improve population health. *Prev Chronic Dis*. 2010 Sep;**7**(5):A102. Epub 2010 Aug 15.

Smith P. On the unintended consequences of publishing performance data in the public sector. *International Journal of Public Administration* **Volume 18**, Issue 2-3, 1995, 277-310

Roland and Campbell 2014 NEJM

[89] Bird SM, Cox D, Farewell VT, Goldstein H, Holt T, Smith PC. Performance indicators: good, bad and ugly. *J R Stat Soc Ser A Stat Soc* 2005;**168**(1):1-27.

2. *Definitions need to be precise, practicable, and consistent over time.*
3. *Indicators should be straightforward to interpret and avoid perverse incentives.*
4. *Indicators should be based on adequate sample sizes, and technical properties of the indicator should be satisfactory.*
5. *Indicators should not impose an undue burden in terms of cost, personnel, or intrusion on those providing the information*.

Main recommendations on data analysis

Timeframe	*Immediate (within 12 months) "Initiating collaboration and change"*	*Medium term (years 2 and 3) "Developing and implementing"*	*Long term (years 4 and 5) "Evaluating, recalibrating, consolidating"*
			• Year 4: **Analyses of data** for all health care organisations in Mexico against the core set of indicators. • Year 5: **Recalibration** of care set and business rules based on years 3-4 data.

Other

Secondary/Tertiary care – funding and the role of DRGs

The priority for the Mexican health system is arguably strengthening the capacity and performance of primary care services (including preventative care), as described in the sections above. However, financing reform for secondary and tertiary care facilities can also be important in supporting quality improvement and the uptake of quality indicators.

The NICE International team heard from a variety of stakeholders during its initial visits of the interest in using diagnostic related groups (DRGs) as a possible means of activity monitoring and financing. Currently hospitals appear to be largely funded on the basis of historically derived budgets, with occasional fee-for-service reimbursement. It is not necessary to abandon either financing method entirely – for example, fee-for-service payment may be a useful means to encourage high-priority services which are currently under-provided – but DRGs allow hospital reimbursement to be linked more closely to the health needs of the population. They also form an effective base for future performance-related bonuses or other financial incentives. Although IMSS collects service use data using a DRG system, this has not been applied to reimbursement[90].

The effective use of DRGs in a health system requires consistent diagnostic coding across providers (for example, the ICD system), which appears to already be practiced in Mexico[91].

[90] Meeting with DGCES, December 2015

[91] OECD , 2013. Strengthening Health Information Infrastructure for Health Care Quality Governance

It also requires policy-makers to control for the potential cost escalation seen in other health systems (due to upcoding/'DRG creep') with binding guidelines on appropriate coding, and a system for periodic verification.

The NICE International team will further investigate the issue of hospital financing, specifically in relation to supporting quality indicator uptake, in later stages of the project.

Involvement of the private sector

It was noted by many stakeholders that the private sector represents an important consideration in any strategy to improve the quality of care, representing a large yet diffuse component of health service use (see 'Overview of the health care system in Mexico' above). The private sector is the main driver of **out-of-pocket** spending, which poses particular financial protection risks to lower socio-economic groups (although in absolute terms, spending is greatest in the top income groups)[92].

It was argued repeatedly by stakeholders across the state-funded health system that while data reporting is a **mandatory** requirement, the private sector avoid providing information submissions. The CSG (General Health Council) appears to have the most extensive interactions with private providers through its certification programme. There is an indirect economic incentive for establishments to request certification, as those without certification are not allowed to work with any insurers. However, this is unlikely to be a concern for most smaller private establishments (2-10 beds), which are not affiliated with insurers and rely on out-of-pocket payments. Given the proliferation of these small facilities, it is considered likely that a majority of private consultations are still with uncertified providers[93].

However, the certification process is potentially a useful starting point to build more extensive formal interaction with private providers. For example, the process could be amended to include basic quality indicators (such as waiting-time information) in addition to the current framework focussing on service availability.

It will also be necessary to find a mechanism for involving **smaller private facilities** in the quality agenda (including the rising numbers of pharmacies/dispensaries with attached clinics)[94], potentially using financial incentives.

It is also notable that much private work is conducted by personnel who work in both the public and private sectors, although the scale and effects (for example, crowding-out of public work) of this **dual practice** is generally unknown. This practice is likely to require a pragmatic approach: namely, to initially prioritise more effective monitoring and regulation.

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[92] Forde I et al, 2016 (in press)

[93] Discussions in meeting with CSG, December 2015

[94] 'Diagnóstico', in Programa Sectorial de Salud 2013-2018. Available at: http://portal.salud.gob.mx/contenidos/conoce_salud/prosesa/prosesa.html

It is necessary to understand the scale of the practice before attempting a deterrent; heavy-handed regulations or punishments may simply drive providers out of the public sector altogether. Recommendations by the OECD on steps to formalise dual practice should be considered, including allowing treatment in public facilities on the condition that a defined share of the fees are fed back to the facility[95]. There is a clear role for public information campaigns in reducing out-of-pocket health expenditure more broadly – for example, to raise awareness of the availability of generic alternatives to branded products and those with lower co-payment. They may also be used to encourage consumers to seek information on risks, benefits and costs of proposed treatments and of any alternatives. However, public information campaigns alone will be of limited impact unless accompanied by effective mechanisms of provider audit. Ultimately, if dual practice is better documented and audited, the results of audit could lead to the publication of benchmarking and performance data.

The policy priority at this stage, from our perspective, should be implementing a **sustainable process for improving quality** in the public sector; this can be amended as soon as feasible to include private providers. We anticipate that in the long term, improved income for the public-sector health workforce (potentially including greater sensitivity to performance) would attract some healthcare personnel back to public facilities. Conversely, raised quality in public sector facilities would reduce some demand for private insurance and out-of-pocket payment; the public sector must be prepared to absorb this additional workload and maintain any successes improving quality.

[95] 'Smarter purchasing of goods and services' in Forde I et al, 2016 (in press)

Appendix A

Terms of Reference

MÉXICO

SCL/SPH

Reorienting health investment and strengthening of governance in the quality of health services in Mexico

ATN/FI-14656-ME (ME-T1264)

Consultancy for the Evaluation, Design and Implementation of the National System of Quality of Health Care Monitoring

Terms of Reference: proposed revisions based on original ToR (IADB)
and selected Technical Submission (NICE International)

INTRODUCTION (RETAINED FROM ORIGINAL TOR)

The government of Mexico has implemented several initiatives of quality indicators monitoring systems. During the National Crusade for the Quality of Health Services 2001-2006, the National System of Health Quality Indicators (INDICAS) was developed. It consisted of 21 indicators organized into seven indexes related to dignified care, effective medical care and health services organization in rural, urban and emergency levels. The universe consisted of 10.669 first and second level of care Ministry of Health units and had an 83% report by units. Later, with the development of the Health Quality Integrated System (SICALIDAD) 2006-2012, an index on nursing care was incorporated to the former system index, increasing the system to 28 indicators. Also, in this initiative units of IMSS, IMSS *Oportunidades*, ISSSTE, Mexican Navy, Ministry of Defense, PEMEX, University Hospitals, some private sector hospitals as well as units of tertiary care, blood banks and hemodialysis units joined voluntarily. During the last quarter, 11,288 establishments in all levels of care of the 31 states and the Federal District issued their report. Although the number of reporting units has gradually increased, still has not been able to have a system that completely reflects the Quality of Care units' performance.

The General Directorate of Quality Health Education (DGCES) is interested in developing the project "Evaluation, Design and Implementation of the Quality of Care Monitoring National System" in order to determine national and international benchmarks that evaluate and monitor the quality of care in the country. This will help in the guidance of decision-making for the implementation of public policies that achieve a greater impact on the Mexicans health.

In this framework, and with the objective of devising strategies and actions to strengthen the role of DGCES in quality regulation, the Inter-American Development Bank (IDB), in support of the Secretariat for the Integration and Development of the Health Sector (SIDSS) and the DGCES will finance the Technical Cooperation ME- T1250 and ME-T1264. This Technical Cooperation has three components to finance: 1) Reorient the health investment; 2)

Governance of the quality of health services; and 3) Design proposals for the improvement of maternal and perinatal care.

The project "Evaluation, Design and Implementation of the Quality of Care National Monitoring System" referred in the present terms of reference is inserted in component 2. This component will finance consultancies to design strategies and actions to strengthen DGCES role in the quality regulation; areas not covered in the quality regulation will be prioritized, taking as reference international models that address these issues. The evidence derived from this work will support to lay the foundations of the Federal Commission for the Health Care Regulation and Supervision.

The above is consistent with the National Development Plan (PND) 2013-2018 and with the Sectorial Health Program (PROSESA) 2013-2018 with regard to effective access to quality health services. Thus, this Technical Cooperation will support the SIDSS and DGCES to fulfill its mandate to strengthen the governance of the quality of care. These terms of reference refer to the activities that the consulting firm will perform to support DGCES in the activities of component 2.

CONSULTANCY OBJECTIVES

(MODIFIED FROM ORIGINAL TOR TO REFLECT PROPOSAL SELECTED)

Development of a sustainable and robust methodology for creating and using quality indicators, which will ultimately be led by the Mexican MoH;

Introduction and refinement of methods and tools developed with a selection of key policy-makers and practitioners in Mexico;

Exploration of activities beyond the specific engagement, including recommendations on next steps using the tools and methods developed.

GUIDELINES FOR THE CONSULTANCY (RETAINED FROM ORIGINAL TOR)

The consulting firm shall comply with the stipulated in the eligibility certificate for consultants.

The consulting firm, in order to elaborate the respective products, should take into account the laws, rules and regulations of the Ministry of Health: Political Constitution of the Mexican States, General Health Law, Regulations of DGCES, National Development Plan, National Health Plan, among other necessary documents. The consulting firm will have the responsibility to identify the necessary documents, in coordination with the DGCES.

SCOPE OF WORK AND INDICATIVE ACTIVITIES

(MODIFIED FROM ORIGINAL TOR TO REFLECT PROPOSAL SELECTED)

We have proposed a work programme which emphasises development of a sustainable and robust methodology, which will ultimately be led by the Mexican MoH, rather than NI developing a suite of indicators independently. This is more feasible for an initial project plan

of 12 months as requested, and will enable the client to take ownership of the implementation process.

The following listed activities have to be developed in order to achieve the consultancy objective. These activities should be reflected in the expected products whose sequence is described in Section V of these TOR.

A methodology consisting of three stages will be developed: Situation analysis, Manual development, and Recommendations for implementation.

Situation analysis: NICE and its academic partner (Professor Campbell) will undertake a review of the current institutional arrangements and structures for developing and implementing quality indicators. The situational analysis will provide a review of the range and scope of existing indicators and reference standards currently in use, but also go beyond this to understand the methods and processes used when developing the indicator sets. These methods include the types of data and evidence used to define the indicators, the range of issues/conditions covered by existing indicators (including across the spectrum of structure-process-outcome) and the consultation and review processes to assess their impact and relevance.

As part of this analysis, we will also assess the organizational involvement by government and non-governmental bodies, and the resources available in terms of data, technical capacity and expertise..

Manual development: NICE International will lead development of a Methods and Process Manual to refine indicator development, review and retirement in Mexico. This will include details regarding disease/condition prioritization for indicator development, and how indicators can be assessed in terms of cost-effectiveness in order to inform any possible linkage with financial incentives.

Implementation recommendations: We will develop a proposal for piloting and testing indicators, with a variety of approaches (full piloting process; stakeholder workshops; assessment of data) according to which is the most appropriate for each draft indicator. We will also make recommendations on requirements and methods for a future impact assessment protocol will be based on the outputs and findings from the situational analysis and the development of the manual.

Our proposal will also explore activities beyond the specific engagement, and present recommendations on next steps using the tools and methods developed. This further supports the sustainability of any changes to the system of developing and using quality indicators within Mexico.

One option, if suitable for the client and **subject to additional funding**, is to **consider extending** the engagement by approximately 6 months to allow the development of new indicators by DGCES based on piloting the new manual (area of work 4 – see table below). The contractor could then review the newly developed indicators and also provide an assessment of what worked well and what didn’t when implementing the new manual.

We will also **present recommendations**, when developing a proposal for pilot implementation of draft indicators, on **impact assessment** of this pilot. These recommendations can also be developed into a separate protocol in a **subsequent separate engagement with DGCES**, or **a possible extension to the current engagement**.

EXPECTED PRODUCTS (MODIFIED FROM ORIGINAL TOR TO REFLECT PROPOSAL SELECTED)

Product 1. Work Plan.

Product 2. Situational analysis and diagnostic

Product 3. Methods and Process Manual

Product 4a. Proposal for piloting manual.

Product 4b. Recommendations for impact assessment

Product 5. Executive and final reports.

All products and reports shall be delivered by the Consultants in the English language, with translation of documents and interpretation during meetings provided as necessary by the client or IADB.

Outline of expected work areas indicating changes from the original TOR (Jan 2015)

Product (Area of work)	***Activities and deliverables***	**Approx. delivery date after start**	**Changes proposed from original Terms of Reference**
Area/Activity 1. Work Plan	***Work schedule*** *will be finalised and delivered, based on feedback from the client on plan proposed in TECH-4 below.*	3 weeks	- Corresponds to 'Product 1' - We proposed to commence work in August 2015
Area/Activity 2. Situational analysis and diagnostic	*Visit to Mexico (1 week) to:* *a. understand current system and range of indicators and how they were developed, including available data sources;* *b. lead on a workshop dedicated to the development and implementation of quality indicators relevant to the context of Mexico* *Report on current situation, including recommendations on improving current system. The report will include a review of the indicators developed to date. (An interim report will be submitted for review by the client)*	4 months	- Corresponds to 'Product 2' - We plan a workshop with policy-makers and stakeholders as one of the activities contributing to our report - We have provided more information in TECH-4 below about the technical considerations and methodologies we will use conducting this work.

Product (Area of work)	*Activities and deliverables*	Approx. delivery date after start	Changes proposed from original Terms of Reference
Area/ Activity 3. **Methods and process manual**	*Based on (1):* ***development of a methods and process manual*** *to refine indicator development and retirement in Mexico. This will include details on disease/condition prioritization for indicator development and how indicators can be assessed in terms of cost-effectiveness in order to inform any possible linkage with financial incentives.* ***Visit to Mexico*** *(1 week) to present draft manual for feedback from key stakeholders in Mexico. Deliver* ***workshop*** *to discuss manual and recommendations from (1) and provide* ***training*** *on specific aspects as necessary*	9 months	- Corresponds to 'Product 3' with adaptations reflecting client discussions - We have proposed a work programme which emphasises development of a **sustainable and robust methodology**, which will ultimately be led by the Mexican MoH, rather than NI developing a suite of indicators independently. - Work area 4 below will build on this activity to provide **further practical support** to the client with a pilot of draft indicators.
Area/Activity 4. **Proposal for pilot study – implementation of the manual and protocol for test-piloting draft indicators**	*Develop a* ***proposal for piloting*** *the manual based on a specific disease/condition area (such as diabetes)* *This proposal will include* ***a protocol on test piloting draft indicators*** *on a sample of practices and patients before inclusion in the final indicator set. Such a pilot would evaluate the performance of these draft indicators in terms of their feasibility, acceptability, reliability, validity and implementation issues including the potential for unintended consequences if they were implemented nationally.* *The pilot protocol will also include* ***recommendations to be considered when assessing impact of national quality indicators****, which can be used when developing a future protocol for impact assessment. The recommendations will cover assessment of impact on costs, on the processes of care, and where possible, on patient outcomes. It will also include an overview of possible assessment approaches and their implications, including econometric techniques, interrupted time series analysis, stepped wedge designs etc.*	12 months	- Corresponds to 'Product 3' and 'Product 4' with adaptations reflecting client discussions - The deliverables under this work area will have broad, long-term applicability to DGCES' future activities introducing indicators in a range of disease areas. The specific pilot we develop a proposal for will be tailored to the indicators for a high-priority disease or condition, following consultation with the client.
Area/Activity 5. **Final report**	*A* ***final report and executive report*** *will be developed that brings together areas of work (1) to (4).* *Final* ***visit to Mexico to discuss implications of the project****, particularly with respect to the pilot proposals set out in (4), and* ***next steps****.*	12 months	- Corresponds to 'Product 5' *Time frame is flexible according to client demand (see section A above)*

PAYMENT SCHEDULE

(RETAINED FROM ORIGINAL TOR)

10% at the delivery and approval of the work plan

30% at the delivery and approval of product 2

30% at the delivery and approval of product 3

30% at the delivery and approval of products 4 and 5

REQUIRED PROFILE OF CONSULTING FIRM (RETAINED FROM ORIGINAL TOR)

Type of consultancy: Consulting firm.

Qualifications: profile of consulting firm: Proven track record of studies and evaluations in the field of health policy, governance, regulation and management of health services, as well as policy and management of health care quality studies.

Qualifications and experience of key team:

Project manager with experience conducting public policy and quality in health services studies.

Team members areas of expertise: analysis and evaluation of public policy, governance, regulation and management of health services with a focus on quality in health services care; knowledge of the legal and regulatory framework of Mexico's health sector. Degree in a health area with graduate studies in Public Health, Health Services Management, Health Quality, Economics, Social Sciences, Social Policy or Public Administration with a specialization in Public Health. At least five years of experience in health systems quality issues. Proved experience in national or regional health systems quality studies.

BASIC CONDITIONS, DURATION AND COORDINATION

(MODIFIED FROM ORIGINAL TOR TO REFLECT LATER START)

Start date: August/September 2015

Place of work: México, Distrito Federal

Duration: 12 months from contract signature

CONSULTANCY COORDINATION (RETAINED FROM ORIGINAL TOR)

The technical and administrative coordination of the consultancy will be undertaken by Ricardo Pérez Cuevas (SPH / CME) with support from Nelly Ceron (CID / CME). The products of the consultancy should be submitted electronically to the following addresses: rperez@iadb.org, nellyc@iadb.org

TIMING OF ACTIVITIES AND DELIVERABLES (ADDED)

See separate worksheets: Mexico QOF Project Plan August 2015.

Mexico QoF project plan August 2015.xls:

Appendix B

Agenda for the first visit to Mexico by the NICE International team – Sep 2015

Program of the Visit #1 of NICE International to Mexico

Program Objective: To acknowledge the official information sources, that exists in the Mexican health system, for the possible construction of quality indicators.

	ACTIVITIES
SCHEDULE	MONDAY – Project start event by *Dr. Eduardo González Pier,* and visit to *IMSS*
09:00 – 10:00	Pick up consultants of NICE International at hotel/Transfer
10:00 – 13:00	Project start event by Dr. Sebastián García Saisó, General Director for Quality of Health Care and Education.
13:00 – 15:00	Lunch/Transfer
15:00 – 16:30	Information systems administered by IMSS
	TUESDAY – Visit to *INDICAS Program*
16:00 – 16:30	Pick up consultants of NICE International at hotel/Transfer
16:30 – 17:00	Presentation
17:00 – 18:15	Information sources
18:15 – 19:30	Construction of indicators
	WEDNESDAY – *Visit to General Directorate of Health Information and ISSSTE*
11.30 – 12:00	Pick up consultants of NICE International at hotel/Transfer
12:00 – 12:30	Presentation
12:30 – 13:15	Information systems administered by the Directorate
13:15 – 14:00	Information sources
14:00 – 17:00	Lunch/Transfer
17:00 – 18:30	Information systems administered by ISSSTE
	THURSDAY – *Visit to General Directorate of Epidemiology and CNPSS*
09:00 – 10:00	Pick up consultants of NICE International at hotel/Transfer
10:00 – 10:15	Presentation
10:15 – 11:15	Information systems administered by the Directorate
11:15 – 12:15	Information sources
12:15 – 13:15	Analysis Methodology
13:15 – 15:30	Lunch/Transfer
15:30 – 17:30	Information systems administered by CNPSS
	FRIDAY – *Visit to General Directorate of Performance Evaluation, SIDSS and CENETEC*
09:30 – 10:00	Pick up consultants of NICE International at hotel/Transfer
10:00 – 10:30	Presentation
10:30 – 11:45	Information sources
11:45 – 13:00	Construction of indicators
13:00 – 14:00	Interview with Dr. Eduardo González Pier, Undersecretary for Integration and Development of Health Sector
14:00 – 15:00	Lunch
15:00 – 17:00	Clinical Practice Guidelines by CENETEC

Start Event of the Project: Assessment, Design and Implementation of a National System for Monitoring the Quality of Health Care

Date and time: September 28th 2015, 10.00 am.

Place: Auditorium "Miguel A. Bustamante", Lieja 7, col. Juárez, del. Cuauhtémoc, México, D.F., C.P. 06600.

Objective: Present the objectives, work plan and expected results of the Project: Assessment, Design and Implementation of a National Monitoring System Quality Health Care.

PROGRAM

9.30-10.00	**Register**
10.00-10.30	**Welcome** • Dr. Sebastián García Saisó, General Director for Quality of Health Care and Education. • Francis Ruiz, NICE International.
10.30-11.30	**Presentation of the Project: Assessment, Design and Implementation of a National System for Monitoring the Quality of Health Care** • Francis Ruiz, NICE International.
11.30-11.45	**Coffee break**
11.45-12.45	**UK experience in the development of indicators** • Stephen Campbell, Manchester University.
12.45-13.00	**Close of meeting and next steps** • Dr. Sebastián García Saisó, General Director for Quality of Health Care and Education.

Appendix C

List of institutional representatives who participated in discussions during the first visit to Mexico by the NICE International team

(Full signed PDF lists of attendees at each meeting are available on request.)

Lead discussants from each institution are listed below.

Name	Position	Organisation / directorate	*Translated name*
Ministry of Health			
Dr. Sebastián García Saisó	Director General	**DGCES**	*General Directorate for Health Quality and Education*
Dr. Odet Sarabia González	Deputy Director		
Dr. Eduardo González Pier	Undersecretary for Integration and Development of Health Sector	**SIDSS**	-
Dr. Carlos Sosa	Director of Information Resources for Health	**DGIS**	*General Directorate for Health Information*
María Eugenia Jiménez Corona	Assistant General Director of Epidemiology	**DGE**	*General Directorate for Epidemiology*
Dr. Mirna Hebrero	Director for Health Services	**DGED**	*General Directorate for Performance Evaluation*
Other institutions			
Dr. José González Izquierdo	Head of Health Care Unit	**IMSS**	*Mexican Social Security Institute (Directorate of Medical Benefits)*
Dr. Eugenio Torres Pombo	Subdirector for Health Management and Evaluation	**ISSSTE**	*Institute of Social Security and Services for Government Workers (Medical Directorate)*
Dr. Luis Antonio Garcia Valladares	Head of Department for Health Services Management	**CNPSS**	*National Commission For Social Protection In Health (Directorate of Health Services Management)*
María Luisa González Rétiz	Director General	**CENETEC**	*National Center for Health Technology Excellence*

Summary of meetings during the first visit to Mexico

Instituto Mexicano del Seguro Social (IMSS)

IMSS is one of two key social security schemes in Mexico for salaried workers in the formal sector of the economy (the other is ISSSTE). IMSS insures about 42 million people[97].

Representatives from IMSS delivered a series of presentations on the following topics:

- The "Model for Competitiveness "that aims to support quality improvement within its network of providers
- Evaluating and monitoring quality
- Strategies to improve quality and safety

The NICE International team particularly noted the detailed "Methods manual of Medical Indicators" developed by IMSS, containing 164 indicators which appears to demonstrate existing institutional expertise in the development of quality indicators. The NICE International team learnt that these indicators are used to compare performance across its network of health care providers. In addition, IMSS reports also to the INDICAS programme. IMSS are currently exploring the role of providing financial incentives to support quality and performance improvements.

Dirección General de Calidad y Educación en Salud (DGCES)

The DGCES representatives gave detailed overview of the origins and scope of the INDICAS programme. They noted that the INDICAS system can support cross-sectional and longitudinal comparisons of different medical "units" (primary care facilities, hospitals etc). The INDICAS system also includes an OECD questionnaire relating to patient satisfaction.

DGCES representatives noted a number of key issues in relation to performance monitoring based on their existing set of indicators:

- medical units reporting more than once on similar or overlapping indicators (because of data collection requirements of other bodies)
- only a small proportion of private providers submit INDICAS data
- data collection begins with manual data entry and is based sampled patient data – units can select the patients on which to base their submissions according to a pre-determined sample size
- There are currently weak data verification mechanisms, and no link presently with accreditation (although this is being considered)

[97] Bonila-Chacin ME and Aguilera N. 2013

The DGCES team also gave an overview of the accreditation process. It was highlighted that accreditation was mandatory for all units receiving Seguro Popular subsidy, and all units need to be re-accredited after 5 years. Accreditation failure could lead to loss of Seguro Popular subsidy. It is not clear to what extent the social insurers such as IMSS and ISSSTE operate accreditation for their networks of providers.

DGCES considered important to link accreditation to the provision of information based on INDICAS derived quality indicators. Currently units can be accredited without any obligation to submit information.

Dirección General de Información en Salud (DGIS)

The DGIS have a key role as a national hub for health information, and setting technical standards for data collection. DGIS representatives were candid at the meeting over the challenges faced by the Mexican health system, and the impact that has on the operation of DGIS.

They highlighted a number of health system issues

- Fragmentation in the health sector
- A public sector characterised by several vertically integrated insurer/provider systems (such as IMSS and ISSSTE), serving their own defined populations and operating as essentially distinct entities, with little interaction
- In addition there are systems aimed at uninsured populations (such as *Seguro Popular*) operating at Federal and State ministries of health
- There is a very large, and mostly unregulated, private sector.

In terms of the challenges faced by the DGIS, the noted:

- The absence of unique patient identifiers, although they are working to address this issues
- Concerns over the quality of data received given the number of steps involved in the transfer of information from unit level facilities to the Directorate. There are multiple opportunities for errors and / or direct manipulation
- There appears to be redundancy and duplication in data collection. In fact there are multiple health databases in the country which are likely to be holding overlapping information
- Of the data collected by DGIS there is limited internal capacity to analyse the information provided
- Units are legally obliged to provide data but enforcement is unclear or weak. Sanctions appear not to be applied.

In brief, DGIS representatives highlighted that there is a critical need for improved governance with respect to the collection and use of health information, focusing on a clear articulation of what data is required by policy makers, and a commitment to coordinated working by all stakeholder bodies in the health sector. They noted the ongoing SINBA (*Sistema Nacional de Información Básica en Materia de Salud*) initiative that seeks to address these issues. SINBA has high level (Presidential Office) support and has a wide remit including:

- Defining a technical framework to unify systems
- Defining information needs aligned with priorities
- Supporting the integration, management and use of health information

Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)

ISSSTE is the second of two key social security schemes in Mexico for salaried workers in the formal sector of the economy. It specifically targets government employees and their dependents. ISSSTE representatives highlighted the distinct composition of their membership, compared to say enrolees on other schemes. For example, ISSSTE enrolees are more likely to be educated to tertiary level and have access to the internet, compared with the general population.

ISSSTE representatives at the meeting delivered a number of presentations that focussed on the databases ISSSTE users as part of its routine data collection activities. The current system relies heavily on the IT infrastructure at provider level – ISSSTE are exploring options to develop a more centralised structure for data collection.

One database that was particularly notable, given its role in supporting health promotion and disease prevention, was PREVEN-ISSSTE. This internet based service aims to identify patients at risk of non-communicable diseases. High risk individuals are referred for formal diagnoses. Others will be enrolled on health promotion programmes to encourage behaviour change. They are not yet following up individuals who have undergone these assessments in terms of health outcomes, but surveys indicate an “80% positive response” to the health promoting programmes.

In terms of measuring and monitoring quality, ISSSTE representatives noted that they “use” (and report to) the INDICAS indicator set, but information to support reporting requirements for these indicators are not collected through their existing databases. Notably, local ISSSTE provider units undertake the relevant data collection which is then reported to DGCE. Currently, 291 of the ISSSTE units report to INDICAS (ISSSTE manage 1200 units).

ISSSTE makes use of surveys (including patient satisfaction questionnaires) to monitor the quality of the facilities it runs. Key performance indicators have been developed, and these

are tailored to each unit based on their local catchment population. There are 44 indicators used for tertiary level facilities, 27 of which relate to efficiency and productivity.

NICE International representatives noted that ISSSTE appears to be collecting a relatively rich dataset of activities and services linked with their provider units. ISSSTE collects data to support the ongoing development of DRGs, although, as is the case with IMSS, this is not used currently to inform provider payment.

ISSSTE representatives were concerned about the extent of the information currently collected arguing that to a certain extent this is beyond their control since they are compelled to provide certain information. ISSSTE are keen to see integration of the various information systems, but they see this as a long-term objective.

Dirección General de Epidemiología (DGE)

The presentations at this meeting focused on the critical role DGE has in disease surveillance (the SINAVE system) and the work the Directorate undertakes to ensure the quality of the data it receives. Surveillance activities are undertaken in accordance to an official regulatory standard (NOM-017-SSA2-2012) and in line with other national and international regulations. It is clear that aside from surveillance, the DGE has potentially an important role in supporting HTA and guideline development through the provision of locally relevant epidemiological data to inform priority setting and topic selection, in addition to the conduct of any statistical and economic analyses to generate evidence-informed recommendations. DGE can also help support indicator development in relation to capturing data on health outcomes.

In terms of quality indicator development, DGE representatives noted that it is critical to identify core data needs and coordinate across sectors. DGE representatives expressed a strong willingness to engage in quality indicator development with appropriate support.

Dirección General de Gestión de Servicios de Salud (Dirección de Supervisión y Verificación / Seguro Popular

Representatives of the Directorate / *Seguro Popular* (SP), highlighted the purpose of SP in terms of financing health services for its enrolees who would otherwise not be covered by the existing social insurance schemes (although there are instances that enrolees in SP may also be members of a social insurance scheme). SP works with the *Secretaría de Salud* in setting service standards, with the delivery of care taking place mainly at publicly owned facilities managed at State level. While quality and coverage within the SP programme are the responsibility of the States, Federal level supervision takes place involving inspectoons of health units, and monitoring the care provided. There are currently 1000 inspectors involved in this work. Supervisory activities cover both the financial and the medical aspects of the delivery of health services.

As part of its role in supervising health services covered by SP, the Directorate have developed a set of 71 indicators covering the following categories:

- Quality – 23 indicators
- Prevention – 10 indicators
- Patient rights – 38 indicators

The indicators developed have elements that include 'structure', 'process', and 'outcome' measures. Supervision also includes speaking to enrolees directly about their experience of care.

Not all units are subject to supervision. In primary care, a sample is identified based on geographic representation. In secondary care, selection takes into account the cost of the unit providing the services, with an emphasis on high cost units, and units associated with disease outbreaks and/or negative media coverage.

Notably, the Directorate representatives highlighted that an IT platform is currently under development that will help support the collection of monitoring information in real time, particular in relation to avoiding drug stock outs.

The NICE International team queried how the SP benefits package is developed, particularly in relation to pharmaceuticals. The Directorate representatives noted that an expert group is convened but there are two key criteria that need to be met before inclusion into the SP package:

- The drug has to be already included in the 'basic package' as defined by the General Health Council (*Consejo de Salubridad General*, CSG) which maintains a list of approved drugs for the whole health system.
- There needs to be an accompanying 'economic evaluation' (SP undertake a budget impact analysis based on the potentially eligible pool of enrolees)

Dirección General de Evaluación del Desempeño (DGED)

The presentations from Directorate representatives and the associated discussions focussed on three areas:

- Health Care Quality Indicators (HCQI) in Mexico, specifically in relation OECD reporting requirements
- Recent initiative (April 2015) in measuring hospital performance
- Quality indicators and the MOH budgetary programme – this relates to planning and management decisions when assessing Federal Budget programmes, linked with a 'results-based budget model' using indicators. This work is also used to inform decisions on the budget allocation to health-related services

The discussions with DGED representatives further reinforced the perception by NICE International that strong technical skills exist in the creation of indicators. Key challenges as highlighted by DGED representatives relate to:

- Availability of information to support reporting against indicators. For example, OECD request reporting against 52 indicators but DGED can only supply data for 8
- Absence of a unique patient identifier
- Need for clarity over required data and related institutional responsibilities, to avoid duplicative and fragmented data collection. For example, while DGED interacts with DGIS in support if its activities, DGED still engages in direct data collection, and occasionally the same information is collected by both Directorates, and the findings are not always consistent.

Centro Nacional de Excelencia Tecnologica en Salud (CENETEC)

The meeting with CENETEC representatives covered a number of topics including: the origins of CENETEC; its work in Health Technology *Assessment* (HTA) and role in supporting formulary listing decisions by the General Health council (CSG); and the development of clinical guidelines by CENETEC.

It was noted that HTA activity is done in-house with a team of only 17 people. Moreover, CENETEC have issued 724 clinical guidelines, which while representing an impressive achievement, the NICE International team were concerned about the extent to which they help address domestic health priorities. In addition, such a large number of guidelines could be difficult to implement, even if some of them are not directly relevant to the Mexican context (CENETEC is also a WHO collaborating centre).

Meeting with Eduardo Gonzalez Pier, Undersecretary for Integration and Development of Health Sector

During this meeting, which also included participation by Ricardo Perez Cuevas of the Inter-American development Bank, the NICE International team highlighted its findings to date, focussing on the disjointed and fragmented nature of current data collection, and the absence of a unique patient identifier.

Appendix D

Agenda for the second visit to Mexico by the NICE International team – Dec 2015

	ACTIVITIES
SCHEDULE	MONDAY – Visit to *General Health Council* and *IMSS*
13:00 – 15:00	Meeting with representatives of the General Health Council.
15:00 – 16:00	*Lunch/transfer*
16:00 – 18:00	Targeted interview: IMSS
	TUESDAY – Visit to *Seguro Popular (CNPSS), ISSSTE and DGCES*
10:00 – 12:00	Targeted interview: Seguro Popular (CNPSS)
12:00 – 13:00	*Transfer*
13:00 – 15:00	Targeted interview: ISSSTE
15:00 – 19:00	*Lunch/transfer*
17:00 – 19:30	Targeted interview: Dr Sebastián García Saisó (DGCES)
	WEDNESDAY – Planning for workshop
16:00 – 18:30	Feedback to DGCES about interviews & planning workshop on developing indicators.
	THURSDAY – *Visit to CENETEC and National Committee for Quality in Health*
14:00 – 16:00	Meeting: CENETEC
16:00 – 17:00	*Transfer*
17:00 – 19:00	Meeting: National Committee for Quality in Health (Twelfth Ordinary Session)
	FRIDAY – *Workshop and meeting with CENETEC and DGCES*
09:00 – 13:30	Training workshop on developing indicators (separate agenda below)
13:30 – 15:00	Lunch
15:00 – 16:00	Meeting with DGCES and CENETEC on prioritization of clinical practice guidelines
16:00 – 17:00	Meeting with DGCES: feedback and next steps

Content of training workshop led by NICE International/University of Manchester during second visit to Mexico

Main aims for participants:

- Understand key **principles** and methodological questions for developing indicator sets
- Understand key lessons from **international experience** implementing national indicator sets
- Articulate the **aims** of a national indicator set and its **requirements**

Date: Friday 4th December, 2015

Time	Programme	Objective	Lead
9:00 – 9:15	**Introductions**	-	-
9:15 – 10:30	Question 1. What is quality?	*Participants should have an understanding of the need for conceptual frameworks for quality. They should be able to describe what quality is, and how*	**Stephen Campbell**, University of

Time	Programme	Objective	Lead
		this definition relates to other frameworks which describe care (e.g. Donabedian's structure, process and outcome). Participants should be able to describe some strengths and weaknesses of process and outcome measurement in quality assessment.	Manchester
	Question 2. Why measure quality?	*Participants should be able to describe reasons for measuring quality.*	
	Question 3. What is an indicator? What types are there? What is "good" and "bad"?	*Participants should be able to describe what an indicator is, and distinguish indicators from guidelines and targets. They should be able to distinguish between an activity, performance and quality indicator and identify some attributes of a "good" indicator.*	
10:30 – 11:00	Quality indicators: International examples	*Participants should have an understanding of the methods used to implement national indicator sets in selected countries, and key lessons from this experience.*	**Francis Ruiz & Laura Morris,** NICE International
11:00 – 11:15	***Break***		
11.15 – 13:00	Question 4. Who should measure quality?	*Participants should be able to describe the different perspectives on quality measurement that professionals, patients and managers may have. They should understand when and why each should be addressed.*	**Stephen Campbell**
	Question 5. How can quality indicators be developed?	*Participants should be able to describe the different ways of developing quality indicators and the different types of evidence that may be used.*	
	Question 6: What are the problems in measuring quality?	*Participants should be able to describe some pitfalls in measuring quality.*	
13:00 – 13:30	**Final Q&A**	*Answer final questions from participants.*	-
13:30	***End of workshop***		

Appendix E

List of institutional representatives who participated in discussions during second visit to Mexico

(Full signed PDF lists of attendees at each meeting are available on request.)
Lead discussants from each institution are listed below.

Name	Position	Organisation / directorate	*Translated name*
Ministry of Health			
Dr. Sebastián García Saisó	Director General	**DGCES**	*General Directorate for Health Quality and Education*
Dr. Odet Sarabia González	Deputy Director		
Other institutions			
Dr. Leobardo C. Ruiz Pérez	Secretary of CSG + President of Inter-institutional Commission for CBCISS	**CSG**	*General Health Council*
Dr. José González Izquierdo	Head of Health Care Unit	**IMSS**	*Mexican Social Security Institute (Directorate of Medical Benefits)*
Eugenio Torres Pombo	Deputy Director of Health Management and Evaluation	**ISSSTE**	*Institute of Social Security and Services for Government Workers (Medical Directorate)*
Enrique Vincent Dávila	Advisor	**CNPSS**	*National Commission For Social Protection In Health (Directorate of Health Services Management)*
María Luisa González Rétiz	Director General	**CENETEC**	*National Center for Health Technology Excellence*

List of institutional representatives at Committee for Quality meeting (3 Dec 2015)

Name	Committee role	Position	Institution
Secretariat:			
Dr. Eduardo González Pier	President	*Undersecretary for Integration and Development of Health Sector*	***SS*** *(Ministry of Health)*
Dr. José Meljem Moctezuma	General Coordinator	*National Commissioner*	***CONAMED*** *(National Commission for Medical Arbitration)*
Dr. Odet Sarabia González	Technical Secretary	*Deputy Director*	***DGCES*** *(General Directorate for Health Quality and Education)*
	Members/representatives		
Dr. Sebastián García Saisó		*General Director*	***DGCES***
Gral. De Brigada Médico Cirujano René Gutiérrez Bastida		*General Director of Military Health*	***SEDENA*** *(Secretariat of National Defense)*

Name	Committee role	Position	Institution
Contralmirante S.S.N. M.C Pediatra Rafael Ortega Sánchez		*Deputy Director of Naval Health*	***SEMAR** (Naval Secretariat)*
Ing. Norberto Miguel Ramírez		*Head of Technical Coordination for Competitiveness (rep. Director for Medical Services)*	***IMSS** (Mexican Social Security Institute)*
Dr. Rafael Manuel Navarro Meneses		*Medical Director*	***ISSSTE** (Institute of Social Security and Services for Government Workers)*
Dr. Marco Antonio Navarrete Prida		*Deputy Director of Health Services*	***PEMEX** (Mexican Petroleums)*
Dra. Virginia Rico Martínez		*Director of Rehabilitation (rep. Head of Unit)*	***DIF** (National System for Integral Family Development)*
Dra. Juana Jiménez Sánchez		*General Coordinator of Permanent Commission on Nursing*	***SS** (Ministry of Health)*
Dr. Sigfrido Rangel Frausto		*President*	***SOMECASA** (Mexican Society for Quality of Health Care)*
Lic. José Campillo García		*Executive Chairman*	***FUNSALUD** (Mexican Health Foundation)*
Dra. Elena Trejo Flores		*Member of Board (rep. President)*	***AMH** (Mexican Association of Hospitals)*
Dr. Víctor George Flores		*Secretary of Health*	*State of **Baja California Sur***
Mtro. César Nomar Gómez Monge		*Secretary of Health*	*State of **Mexico***
Dr. José Antonio Copca García		*Subsecretary for Health Service Provision (rep. Secretary of Health)*	*State of **Hidalgo***
	Attending		
Dr. Miguel Ángel Lezana Fernández		*Director General of Dissemination and Research*	*National Commission of Medical Arbitration*
Dr. Rafael Santana Mondragón		*Deputy Director for Coordination (rep. Secretary)*	***CSG** (General Health Council)*
Dr. Abraham Pablo Sánchez López		*Deputy Director of Operational Supervision (rep. National Commissioner)*	***CNPSS (**National Commission For Social Protection In Health**)***
Dr. Miguel Ángel Cedillo Hernández		*General Director*	***DGED** (General Directorate for Performance Evaluation)*
Lic. Juan Carlos Reyes Oropeza		*General Director*	***DGIS** (General Directorate for Health Information)*
Ing. María Luisa González Rétiz		*General Director*	***CENETEC** (National Center for Health Technology Excellence)*
Teniente de Navío SSN MC NAV Lizbeth Chávez Valdéz		*Head of Quality Department*	*Directorate for Naval Health, **SEMAR***
Lic. Grisel Elva Maruri Arizmendi		*Subdirector for Quality in Health, Health Secretariat*	*State of **Mexico***
Dr. Simón Kawa Karasik		*Director General of Coordination for National Institutes of Health (rep. Committee Head)*	***CCINSHAE** (Coordinating Committee of National Institutes of Health and Highly Specialised Hospitals)*
Dr. Héctor Robledo Galván		*Executive Director (rep. President)*	***ANMM** (Mexican National Academy of Medicine)*

Name	Committee role	Position	Institution
Dr. Ricardo Pérez Cuevas		*Senior Social Protection Specialist in Health*	***IADB** (Inter-American Development Bank)*
Francis Ruiz		*Senior Advisor*	***NICE International***
Laura Morris		*Technical Analyst*	
Prof. Stephen Campbell		*Professor of Primary Care Research*	***University of Manchester***

List of institutional representatives at training workshop led by NICE International/University of Manchester during second visit to Mexico

	Name	Organisation / directorate	*Translated name*
	Organisers		
	Sebastián García Saisó	**DGCES**	*General Directorate for Health Quality and Education*
	Odet Sarabia		
	Paulina Pacheco		
	Participants		
1	**Mónica Sánchez**	**DGCES**	*General Directorate for Health Quality and Education*
2	**Israel Zenteno**		
3	**Fernando Rodríguez**		
4	**Juan Robledo**		
5	**Marcela Sánchez**		
6	**María de Jesús Santiago**		
7	**Aidé Hernández**		
8	**Pablo Moreno**		
9	**Eduardo Cabrero Castro**		
10	**Alina Chávez**		
11	**Francisco Javier Mayer**		
12	**Patricia Vázquez**		
13	**Michiko Amemiya**		
14	**Erika Bravo**		
15	**Laura Dergal**		
16	**Dámaris Sosa de Antuñano**	**DGED**	*General Directorate for Performance Evaluation*
17	**Luis Armando Ocaranza Ordáz**		
18	**Rubén López Molina**		
19	**Arturo Barranco Flores**	**DGIS**	*General Directorate for Health Information*
20	**Juan Gabriel Hernández Márquez**	**DGE**	*General Directorate for Epidemiology*
21	**Beatriz Calderón Cruz**		
22	**Maria Cortes Ramírez**		
23	**Daniel José Regalado Santiago**		
24	**Alina Chávez**	**CNPSS (Seguro Popular)**	*National Commission For Social Protection In Health*
25	**Abraham P. Sánchez López**		
26	**Edgar Joel Martinez Zúñga**		
27	**Alma Patricia Téllez González**		

	Name	Organisation / directorate	*Translated name*
28	**Enrique Vincent**		
29	**Rafael Adrián Arceo Schravesande**	**IMSS**	*Mexican Social Security Institute*
30	**Adrián Alcántar Bautista**		
31	**Maribel Sierra Díaz**	**ISSSTE**	*Institute of Social Security and Services for Government Workers*
32	**Hugo A. Acuía Cruz**		
33	**Fabiola Aguler Baruga**		
34	**Elsa Patricia Cruz Pérez**		
35	**Rosa Icela Frutis Eslava**		
36	**Yael Rodríguez Guadarrama**	**CENETEC**	*National Center for Health Technology Excellence*
37	**Ojino Sosa García**		

Appendix F

Structure of questions for key informant interviews

Questions for targeted interviews

Opening/introduction question:

- Can you describe briefly what your role is in the existing (INDICAS and SICALIDAD) schemes?

Suggested questions (with prompts if respondents do not reply to initial open question)

1. Indicator development and governance

1.1. What do you think about the clinical and health service areas covered by the current system of indicators?

- Do you think the indicators cover all the important areas of care?
- What additions or removals would you make?
- Do the indicators link to and reinforce any other quality programmes?

1.2. What do you think about the institutional arrangements for the indicator scheme in practice?

- For example do you think the system of accountability between practitioners and province work well?
- Do you think enough information goes back down to the practitioner level (do they get enough feedback on their own performance) and up to policy-makers (feedback or complaints from state-level administration or practitioners)?
- Have you experienced any delays, bottlenecks in the system?

1.3. To what extent do you think the performance indicators in the scheme reflect good performance?

- Are they all relevant, or some only, should they remain?
- Do you think other indicators should be introduced that would be more relevant to improve practice?

2. Implementation/Monitoring & evaluation

2.1. How do you find the current system for reporting health information against existing indicators?

- For example, do practitioners say it easy to use?
- Is the frequency of reporting about right?
- How easy has it become with time to use the system? (computers, type of information?

2.2. What do you think about the kind of health information you receive (more broadly)?

- Do you think it is relevant, accurate and adequate?
- Do the reports you get help you to plan and revise the indicators in use? / Do they help you make commissioning or budget allocation decisions?
- Is there other information you think would be best to report on?

3. Results of the scheme

3.1. To what extent do you think the indicator system has improved health service?

- For example, do you think the scheme has improved utilization of services covered?
- In what ways has it improved the service?
- Have there been other schemes in the period the indicators have been used which you think had more impact?

Appendix G

List of official sources of health information in Mexico (provided by DGCES)

NAME (SHORT)	OFFICIAL NAME OF INFORMATION SOURCE		OBJECTIVE
LESIONES y VIOLENCIA	Subsistema de Lesiones y Causas de Violencia	*Subsystem of Injuries and Causes of Violence*	*To generate information of care for injuries and violence, provided by medical units to assess the health situation and the demand for treatment.*
PGS	Padrón General de Salud	*General Register of Health*	*To integrate basic information concerning people who interact with the health sector in Mexico. (members, users, health professionals, etc.)*
SAEH	Subsistema Automatizado de Egresos Hospitalarios	*Automated Subsystem of Hospital Discharge*	*To generate information of the care provided during the stay of the patient in the hospital.*
SEED	Subsistema Epidemiológico y Estadístico de Defunciones	*Epidemiological and Statistical Subsystem of Deaths*	*To integrate the national mortality information with the timeliness and quality that the health sector needs in order to provide a framework for surveillance and evaluation of services.*
SICUENTAS	Subsistema de Cuentas en Salud a nivel federal y estatal	*Health Accounts Subsystem*	*To integrate information about financial, public and private resources invested and consumed in the production of health. Generates information on financial flows and creates the necessary information for the analysis of health spending.*
SINAC	Subsistema de Información sobre Nacimientos	*Births Information Subsystem*	*To integrate information of live births occurred in the country and the conditions at the moment of birth, to support the protection of children's rights and planning, resource allocation and evaluation of programs for maternal and child population.*
SINERHIAS	Subsistema de Información de Equipamiento, Recursos Humanos e Infraestructura para la Salud	*Information Subsystem of Equipment, Human Resources and Infrastructure of Health*	*To integrate information about the physical medical equipment, human resources, and functional materials that have medical units in operation.*
SIS	Subsistema de Prestación de	*Provision of Services Subsystem*	*To generate information about services related to Federal Health Programs.*

NAME (SHORT)	OFFICIAL NAME OF INFORMATION SOURCE		OBJECTIVE
	Servicios		*(vaccination, Oral Health, Sexual and Reproductive Health Adolescent Family Planning, etc.)*
URGENCIAS	Subsistema Automatizado de Urgencias Médicas	*Automated Subsystem of Medical Emergencies*	*To generate information of the care provided during the patient's stay in the emergency department.*
SUAVE	Sistema Único Automatizado para la Vigilancia Epidemiológica	*Single Automated System for Epidemiological Surveillance*	*Weekly reports of new cases of diseases.*
SISVEA	Sistema de Vigilancia Epidemiológica de las Adicciones	*Epidemiological Surveillance System of Addictions*	*To generate updated information about the epidemiological behavior of addiction to illicit or licit psychoactive substances.*
RHOVE	Red Hospitalaria de Vigilancia Epidemiológica	*Hospital Epidemiological Surveillance Network*	*To generate information about hospital-acquired (nosocomial) infections.*
SIVEPAB	Sistema de Vigilancia Epidemiológica de Patologías Bucales	*Epidemiological Surveillance System of Oral Pathology*	*To generate information regarding the state of oral health of the Mexican population.*
SINAVE	Sistema Nacional de Vigilancia Epidemiológica	*National Epidemiological Surveillance System*	*Program that performs a set of strategies and actions enabling the identification and detection of harms and risks to health. (SUAVE, RHOVE, SEED)*
SUIVE	Sistema Único de Información para la Vigilancia Epidemiológica	*Single Information System for Epidemiological Surveillance*	*To generate information on health damage, screening tests and laboratory diagnosis of the 114 most important diseases in the population.*
Tools and systems drawing on existing databases			
INDICAS	Sistema Nacional de Indicadores de Calidad en Salud	*National System of Health Quality Indicators*	*Tool to record and monitor quality indicators in units of health services.*
SINAIS	Sistema Nacional de información en Salud	*National Health Information System*	*National information system that gathers information of other subsystems and it is classified in 4 categories: 1) population and coverage; 2) resources; 3) granted services, and 4) health damage.*
IMSS, ISSSTE	Sistemas Institucionales de Información en Salud	*Institutional Information Systems*	*Information systems of public institutions of social security.*

NAME (SHORT)	OFFICIAL NAME OF INFORMATION SOURCE		OBJECTIVE
Institutions			
INEGI	Instituto Nacional de Estadística y Geografía	*National Institute of Statistics and Geography*	*To generate socio-demographic information.*
CONAPO	Consejo Nacional de Población	*National Population Council*	*To generate socio-demographic information.*
DGED	Dirección General de Evaluación del Desempeño	*General Directorate of Performance Evaluation*	*Coordinate the evaluation of public healthcare services provided by the Ministry of Health and the states in collaboration with the relevant administrative areas of different levels of government.*