Deliverable 2: Equity and social determinants of health (SDH) report- international and national experiences on monitoring and visualising equity and SDH

Submitted to: Spanish Ministry of Health and Directorate General for Structural Reform Support

Project: Improving public health actions through better information on equity and social determinants of health and improved tools for evaluating health promotion interventions

Deliverable 2: Equity and social determinants of health (SDH) report- international and national experiences on monitoring and visualising equity and SDH

A report submitted by ICF S.A.

In collaboration with the Spanish Ministry of Health

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Task 2.1 - Identify best practices on monitoring and visualising data on equity and social determinants of health

1.1 Introduction

The Spanish MoH (Ministry of Health) is in the process of defining the National Public Health Surveillance Network, including surveillance of equity and SDH. As part of this network, a surveillance system providing the appropriate and timely information, in an accessible format for different stakeholder groups is being developed. At the time of writing, such a system is still under construction and no decision has been taken on indicators or final stratifiers.

Against this backdrop, the objective of this report is to gather best practice examples on monitoring and visualisation of equity and social determinants of health in different countries which have been successfully implemented internationally. This can help the Ministry define what kind of monitoring and visualisation tool should be implemented, and which basic criteria an ideal equity data visualisation tool should include.

This report starts by presenting 16 potential best practice examples on monitoring equity and social determinants of health that were initially pre-selected for further research (section 1.2). They have been informed by the results of a thorough desk research at international, European, and national levels, interview consultations with Health Equity experts involved in these practices and written inputs from our senior study experts (Task 2.1.1 and 2.1.2). After these examples were identified, the information on each of the potential best practices was collected, compiled, and analysed by the core study team following a common template (in excel) to ensure comparability and comprehensiveness of available information. Following on from this, a selection of six best practices was agreed with the OWG (Operational Working Group) and DG REFORM (Directorate-General for Structural Reform Support), the details of which are presented in this report (section 1.3). They have been selected given their relevance for this study and potential for transferability into the Spanish context.

Following the discussion held with the OWG on 12th March, a final list of four best practices have been selected and are presented in detail further below in this report (section 1.3). These selected best practices have been discussed and validated with key stakeholders in the workshop that has been organised as part of this deliverable (section 2, Task 2.2).

Finally, this report concludes with a number of overarching issues to be considered for the development of monitoring and visualisation tools. These issues stem out of learning captured in the best practices and insights from the study team and can be useful points to consider in any future work conducted by the MoH.

1.2 Initial long list of good practices (pre-selection)

The following examples were found during the desk-research phase, with more details on each practice included in the accompanying excel document.

Table 1.1 Identification of best practices

Potential Best practice	Geographical scope	Country	Lead Organisation
WHO's- Health Equity Assessment Toolkit (HEAT)	Non-EU	Worldwide	World Health Organisation (WHO)
EC - DG SANTE's ECHI Data Tool (European Core Health Indicators)	EU	EU 28	European Commission - DG SANTE
Finland - National Institute for Health and Welfare's Sotkanet	National	Finland	Finnish Institute for Health and Welfare (THL)
UK - Public Health England's Public Health Outcomes Framework	National	UK	Public Health England
Asturias (Spain)Health Observatory of Asturias. Health Situation Ranking	Regional	Spain-Region of Asturias	Health Observatory of Asturias
US - National Center for Health Statistics' Healthy People's Health Disparities Tool	Non-EU	USA	Office of Disease Prevention and Health Promotion (ODPHP) partnered with the National Centre for Health Statistics (NCHS) and the Office of Minority Health (OMH).
US - HealtheCNY (NGO)'s Community Dashboard	Non-EU	USA	US - New York State/HealtheConnections
Canada - Government of Canada's Health Inequalities Data Tool	Non-EU	Canada	The Public Health Agency of Canada
TEAviisari	National	Finland	Finnish Institute for Health and Welfare (THL)
Gut Leben in Deutschland / Wellbeing in Germany	National	Germany	The Federal Government of Germany
Our World in Data	National	UK	Global Change Data Lab, England and Wales
Welfare compass/hyvinvointikompassi	National	Finland	Finnish Institute for Health and Welfare (THL)
The National Equity Atlas	Non-EU	USA	PolicyLink and the Program for Environmental and Regional Equity (PERE).
The Institute for Health Metrics and Evaluation (IHME): the Social Determinants of Health Visualisation tool	Non-EU	USA	The Institute for Health Metrics and Evaluation (IHME)
OECD Better Life Index	Non-EU	Worldwide (OECD	OECD

Potential Best practice	Geographical scope	Country	Lead Organisation
		countries)	
[NYC Health](#)	Non-EU	USA	NYC Health (government department)

In the accompanying excel document, in-depth research has been compiled on the following components of each practice:

Box 1.1   Components identified on each best practice

1. Availability and quality of data

2. Type of Health Equity and SDH Indicators

3. Information on the development of indicators

4. Information on how indicators have/can trigger policy actions

5. Sophistication of visualisation tools

6. Potential transferability to the Spanish context

7. Quality of analysis

8. General information: additional resources, information on interviewees

9. Senior study experts' feedback on quality and assessment for pre-selection.

This information has been used to propose a pre-selection of best practices, but also contains useful information to inform the MoH in their reflections on Outcome 1 of this study.

1.2.2   Pre-selection criteria

After assessing the research found and outcomes of each of the 16 practices, the study team reflected upon the crucial aspects that may differentiate practices and may support the MoH to determine what interventions would be most useful and where resources could be best allocated to reduce inequities. These aspects, outlined below, were seen to be the most relevant principles considered to inform the current pre-selection:

■ **Well curated set of indicators:** *Too much data is as bad as too little.* The proposed best practice examples include a number of *key* domains with a *limited number* of indicators within each.

■ **Allows meaningful comparisons with national, regional or similar areas:** Comparing with a national average is the minimum needed but other comparisons are also helpful, in particular comparisons with other similar areas. *The most meaningful comparison units are context specific.* For example, in England, local authorities compare themselves against 'statistical neighbours' – i.e. other areas with similar population, demography, level of deprivation etc. Such comparators are crucial for making the information meaningful. *This feature is key to the Spanish Context;*

- **Allows stratification in meaningful ways:** The right equity stratifiers may be context-specific but could also include more general ones such as sex, income, deprivation level, ethnicity, nationality or migrant status etc. to have an overall picture and understanding of the situation in any given area;

- **Includes measures of statistical uncertainty in a user-friendly way to show if differences are significant:** This can include colour coding (though good to make it accessible to the colour-blind), arrows etc. Such measures should allow users to distinguish between differences which are significant and those which are not, and be very clear about whether that difference is desirable (e.g. sometimes a higher number is good, sometimes bad);

- **Shows trends as well as most recent values:** Ideally it should also allow trends to be shown with comparators, by stratifiers and with measures of statistical uncertainty, aside from the most recent values;

- **Meaningful explanations of what the indicators are and, ideally, make it clear 'why it matters'** (e.g. on HealtheCNY): This is a 'nice to have' feature rather than essential, however it adds a lot of value to researchers and other advanced users. *It increases the likelihood that the site will be heavily used in policy making.* To some extent this feature may also allow for the general population to have a level of understanding of the data being presented, and why it is important;

- **Must be user-friendly and easy to navigate:** Important to avoid huge lists of indicators and/or complex tools requiring expert knowledge of software. This also includes visualisation tools such as interactive tables, maps, and dashboards: although interesting visually, they should not be complex to use.

Table 1.1 below provides a summary of how each of the 16 practices meets these criteria. Additional analysis is provided in the subsequent sections below and the accompanying excel document.

Table 1.2   Good practices mapped against the pre-selection criteria

Potential Best practice	Well curated list of indicators	Allows meaningful comparisons with national, regional or similar area	Allows stratification in meaningful ways	Includes measures of statistical uncertainty in a user-friendly way	Shows trends as well as most recent values	Allows data to be downloaded in raw/easy to use formats for further analysis to be done.	Meaningful explanations of what the indicators are and why it matters	User-friendly and easy to navigate
WHO's Health Equity Assessment Toolkit (HEAT)	x		x	x	shows recent values	x		x
EC - DG SANTE's ECHI Data Tool	x			x	x	x	x	x
Asturias-Spain- Health Observatory of Asturias. Health Situation Ranking	x	x		x	shows recent values	x	x	x
Finland - National Institute for Health and Welfare's Sotkanet		x		x	x	x	x	
UK - Public Health England's Public Health Outcomes Framework	x	x	x	x	x	x	x	x
TEAviisari / THL	x	x						
Gut Leben in Deutschland / Wellbeing in Germany	x	x			x	x	x	x
Welfare compass/hyvinvointikompassi	x	x	x		x		x	x
US - National Center for Health Statistics' Healthy People's Health Disparities Tool	x	x	x	x	x			x
US - HealtheCNY (NGO)'s Community Dashboard	x	x	x	x	x	x	x	x
Canada - Government of Canada's Health Inequalities Data Tool	x	x	x	x		x		x
NYC Health Data [1]	x	x	x				x	X[2]
Our World in Data								
The National Equity Atlas	x	x	x		x		x	x
The Institute for Health Metrics and Evaluation (IHME): The Social Determinants of Health Visualisation tool		x		x[3]	x			
OECD Better Life Index	x						x	x

   ■ **Pre-selected best practices**
   ■ **Examples that despite not being the most relevant to this study bring something "new" worth exploring**

[1] This is made up of three tools - community health profiles, environment and health data portal, and epiquery.

[2] Takes a while to load when selecting new indicators.

[3] Includes the option to see the uncertainty but isn't clear how to interpret it.

As part of this task, the study team explored the type of visualisation tool used for each practice to better understand the type of tools used. It is important to note that the most "visual" tools are not always the most effective in the sense of being used in practice and contributing to policy making. A balance must therefore be found between pure "visualisation" (maps, colours, tables, etc.) and the content being presented.

Table 1.3 below provides information on the type of tools used for each of the 16 good practices, with additional analysis provided in the subsequent sections below and the accompanying excel document.

Table 1.3 Types of visualisation tools used

Potential Best practice	Interactive charts	Interactive tables	Interactive maps	Interactive dashboard
WHO's Health Equity Assessment Toolkit (HEAT)	x			
EC - DG SANTE's ECHI Data Tool	x	x		
Asturias-Spain- Health Observatory of Asturias. Health Situation Ranking		x	x (very visual but not so interactive)	
Finland - National Institute for Health and Welfare's Sotkanet	x	x	x	x
UK - Public Health England's Public Health Outcomes Framework	x	x	x	x
TEAviisari / THL				
Gut Leben in Deutschland / Wellbeing in Germany	x	x	x	x
Welfare compass/hyvinvointikompassi				x
US - National Center for Health Statistics' Healthy People's Health Disparities Tool	x	x	x	x
US - HealtheCNY (NGO)'s Community Dashboard	x	x	x	x
Canada - Government of Canada's Health Inequalities Data Tool	x	x		x
NYC Health Data	x (but very basic)			
Our World in Data				
The National Equity Atlas			x	
The Institute for Health Metrics and Evaluation (IHME): the Social Determinants of Health Visualisation tool	x	x	x	x
OECD Better Life Index	x			x

Pre-selected best practices

Box 1.2   ECHI Data Tool

ECHI Data Tool

The ECHI Data tool has not been selected as a potential best practice for the Spanish context. A description and usefulness of tool, together with the rational of its exclusion is presented below.

The European Core Health Indicators (ECHI), is the result of long-term cooperation between EU countries and the European Commission. Three ECHI projects (1998-2001, 2001-2004, 2005-2008) established the first lists of ECHI indicators, aiming to provide comparable health information and knowledge system to monitor health at EU level.

The Joint Action (JA) on European Community Health Indicators Monitoring (ECHIM) resulted in a shortlist of 88 health indicators. Of these, definitions and data collection mechanisms are in place for over 60 and where appropriate, data is disaggregated by sex, age, socio-economic status, and region. ECHI are grouped under the following categories:

- Demographic and socio-economic situation,

- Health Status,

- Health determinants,

- Health interventions: health services,

- Health interventions: health promotions.

The ECHI data tool provides data on both ECHI indicators and other European health indicators, which are available in different formats ranging from line or bar charts, to maps or tables. It can be converted into an image or downloaded as a data file. The tool allows the multiple selection of indicators.

The ECHI data tool is already available for Spain to be used for a national level analysis. However, limitations exist in generating an understanding of the local setting and driving policy action at the very local/regional level. In addition, the tool does not present the information by stratifiers, therefore it is not very useful for an equity surveillance system.

In summary, the list of indicators in the tool are valuable and useful for the EU and National levels, and should continue to be used for such purposes, but the scale is more appropriate for context diagnosis rather than generating policies and impact at the local level.

1.3   Selected best practices and analysis

This sub-section of the report provides information on the rationale behind the selection of six best practices and provides detailed information on each.

1.3.1   Selection process

Six best practices have been selected out of the initial 16 examples after discussion and agreement with the OWG. The selection process has been as follows:

1- The study team assessed how every tool matches the key features of a best practice (pre-selection criteria detailed in Section 1.2. above) and completed the data collection tool (accompanying excel document);

2- Following this, key informant interviews with institutions and experts responsible for the design and implementation of the most interesting best practice examples were conducted. The aim of the interviews was to fill any gaps in the information collected with regard to the selected best practice examples; gather

interviewees' opinions on successes and limitations of the selected best practice examples and understand key design principles underpinning the practice.

3- The completed data collection tool was shared with our senior study experts for the assessment of the adequacy and quality of each tool together with the potential transferability to the Spanish context;

4- The pre-selection was discussed between the full study team and the senior study experts and presented to the OWG (12th March 2020).

It is important to highlight that during this process, comments from senior study experts were not only an exhaustive review of the tools themselves, but also, considered their points of view as public health practitioners, local leaders or MoH representatives tasked with improving equity in communities in Spain. *Therefore, the comments focus not only on the types of data, but also how the data could be accessed, analysed and used*. This means not just the types and visualisation itself, which are very important, but for instance the options to link the indicators to reports, fact sheets or other information that can be used to inform action and policy.

1.3.2   Best practices

Comprehensive information on each of the selected best practices is presented below, using a defined structure:

Box 1.3   Information presented per best practice

Basic information (Geographical scope, lead organisation)

Type of data used:

- ■ Indicator selection,

- ■ Types of indicators,

- ■ Data sources,

- ■ Visualisation of the tool,

- ■ How the data has triggered policy actions,

- ■ Other relevant considerations.

Relevance and considerations for the Spanish context:

- ■ Researcher judgement on adequacy and transferability to the Spanish Context,

- ■ Senior study expert's judgement on adequacy and transferability to the Spanish Context.

1.3.2.2 UK - Public Health England's Public Health Outcomes Framework

Link: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/10/gid/1000049/pat/6/par/E12000004/ati/202/are/E06000015/iid/92901/age/1/sex/2

Basic information (Geographical scope, lead organisation)

Public Health England's (PHE) Public Health Outcomes Framework (PHOF) seeks to "*improve and protect the nation's health and improve the health of the poorest fastest*"[4]. It covers health inequality data for England only, as health is devolved to the four nations of the UK. Data visualisation is provided using an online tool called Fingertips. PHOF was designed during "*the transfer of public health responsibilities from the NHS to local authorities*". Therefore, it is primarily designed for local authorities to benchmark against regional and national averages, but is also accessible to researchers, the private sector and the general public.

Type of data used

■ **Indicator selection**

PHOF was originally developed by the Department for Health (UK). A consultation was organised, which gathered feedback from local authorities, topic leads, policy leads in government departments, and voluntary organisations to understand which indicators should be included. This was alongside technical work carried out to understand which topics to cover and to develop indicator definitions. In 2013, the Digital Team within PHE worked to build and maintain the fingertips tool which presents PHOF data.

As part of the technical work discussed above, the following criteria were developed by PHE with input from expert stakeholders, to assess the final set of indicators which were then published in 2012 as the first PHOF. For an indicator to be selected, it has to meet the following criteria:

Table 1.4 Selection criteria for indicators in PHOF

Selection criteria	Explanation	Essential	Desirable
Clarity	It is clear what it measures, outcomes or activities	Y	
Rationale	It addresses a specific policy issue or draws attention to a particular outcome	Y	
Relevance	It is relevant to the policy and action available to improve	Y	
Attributable	It measures progress attributable to the interventions/activities	Y	

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[4] https://fingertips.phe.org.uk/profile/public-health-outcomes-framework

Selection criteria	Explanation	Essential	Desirable
Interpretation	It is meaningful to the intended audience(s)	Y	
Validity	It has an unambiguous definition, is methodologically and technically sound from a reliable data source which is available at an appropriate level (e.g. Local Authority / Clinical Commissioning Group) to make it meaningful and sustainable	Y	
Construction	The methods used support the stated purpose of the indicator and there is transparency about how they have been tested and justified	Y	
Risks	Any limitations, risks or perverse incentives are identified and stated with any mitigating actions	Y	
Availability	It is collected at sufficient level of geographical or organisational split	Y	
Affordability & value for money	It benefits without disproportionate costs and where new burdens are created these will be estimated and sustainable funding identified	Y	
Timeliness	It is possible to update with sufficient frequency (ideally can be reported quarterly) and data time lag (ideally less than one year but may vary for surveys)		Y
Comparable	Suitable UK or international metrics are available for making meaningful direct or proxy comparisons		Y
Disaggregates	There is potential to break down by equalities / inequalities characteristics to measure impacts on different groups		Y
Supports alignment	It is used across the health and care system via the other outcome frameworks		Y

Table Adapted from: PHE (2019) *Indicator* Selection [online][5].

When published, PHE stated that they would not make any changes to the indicators for the first three years to allow the indicators to become embedded. Indicators are now updated every three years. The most recent update was in 2019/20 after a consultation which ran in early 2019. On 2 August 2019, PHE published the 'Public Health Outcomes Framework from 2019/20: a consultation. Government response' detailing the update from the previous number of 66 high level indicator categories and 159 individual indicators. To maintain a manageable number of indicators, PHE anecdotally have a 'one in, one out' rule for indicators during the updates every three years. Where a new indicator is added, trend data is added retrospectively if available. New data for each indicator is added annually.

■ **Types of indicators**

The tool is organised into four overarching indicator domains:

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[5] Available at: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/supporting-information/further-info#indicatorselection

1. **Wider determinants of health** e.g. children in poverty, domestic abuse, statutory homelessness,
2. **Health improvement** e.g. breastfeeding, smoking,
3. **Health protection** e.g. air pollution,
4. **Healthcare and premature mortality** e.g. excess winter deaths.

Under each of these domains is a supporting set of 75 high level indicator categories which include 161 individual indicators.

■ **Data sources**

The following data sources feed into the PHOF tool:

– Central government data sets (e.g. Ministry of Housing Community and Local Government data on deprivation; Department for Education data on school readiness),

– Population level data collection programmes such as Early Years Foundation Stage[6] (EYFS); National Child Measurement Programme[7] (NCMP),

– NHS digital data (e.g. on excess winter deaths),

– Office for National Statistics data (e.g. under 18 conception rate/1,000),

– PHE reporting (e.g. Proportion of new birth visits completed within 14 days, population vaccination coverage).

■ **Visualisation of the tool**

Data visualisation is provided through the 'Fingertips' tool. This tool is used to present multiple datasets, providing added value for PHE as they are able to reuse the tool for other purposes.

The visualisation used is clear and easy to understand for a variety of technical abilities. Visualisation includes:

– Colour codes to show when a data point is 'better', 'similar', or 'worse' than a comparative data point (usually compared against the national average) in table and map format;

– Trend data shown in line graph with corresponding data table showing confidence intervals;

– Trend data shown in table format with arrows to depict where there is 'no significant change', 'increasing/getting worse', 'increasing/getting better', 'decreasing/getting worse', 'decreasing/getting better', 'increasing', or 'decreasing' compared to previous years;

– The age and gender profile of a geographic area is shown;

– Box plot of indicator is shown;

– Inequalities shown through colour coded bar graphs.

During the development of the tool, the 'inequalities' tab of the tool was introduced. This is a separate data set which is integrated within the fingertips tool. However, users are not aware of this separation as it is presented in one unified format. PHE also introduced new geographies to the tool so that they now disaggregate data at local authority and CCG level.

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[6] https://www.gov.uk/early-years-foundation-stage

[7] https://digital.nhs.uk/services/national-child-measurement-programme

- **How the data has triggered policy actions**

The tool has become the 'go to' place for local authorities to assess health inequalities and is largely used by analysts in local authorities. However, PHE are committed to widening access to the tool through training sessions, and their local teams deliver training to help local authorities and others (voluntary organisations, local councillors) to use the tool as they recognise that not everyone in a local authority will have a background in data science.

Due to the large number of indicators, local authorities at times struggle to know which indicators to prioritise in terms of policy, for example, in the cases where they are below the benchmark for a number of indicators, uncertainty arises for where money or resources should be placed to address the problem. PHE have not found a solution for this but have flagged this as a point for consideration for the Spanish context.

An impact analysis of PHOF is available online[8] detailing information on the implementation costs of PHOF and the justification for the need for a tool:

- **Other relevant considerations**

Alongside the formal indicator review carried out every three years, feedback on the tool is ad-hoc and the tool is updated regularly in an iterative way. Suggestions for improving the tool are gathered through queries sent through their website, and queries to local PHE teams. A working group reviews the comments from users and consolidates them into common themes. These are then used to adapt the tool to add new functionality as and when needed.

Relevance and considerations for the Spanish context
- **Researcher judgement on adequacy and transferability to the Spanish Context**

The data visualisation tools are easy to use and understand by a range of stakeholders including policy-making bodies, clinicians and the general public. The indicators and the tool are clearly explained in the user guidance and through the accompanying YouTube video. Health equity is sufficiently tackled by allowing users of the tool to compare the performance of their area to their region and to England benchmark. Suitable for the Spanish context due to the following considerations:

– The indicators are freely available / openly accessible;

– Data visualisation is simplistic and only involves conditional formatting to compare data against benchmarking;

– Allows users to filter data by different geographic locations/scope.

- **Senior study expert's judgement on adequacy and transferability to the Spanish Context**

One of the most important features of this framework is the ability to make meaningful comparisons. It allows comparisons to be made to national averages, geographical neighbours and to 'statistical neighbours' using *CIPFA comparators* - these are groups of local authorities which are statistically similar in terms of size and population composition. Confidence intervals are also available in some places and colour coding allows people to see at a glance whether differences are meaningful. These comparison features add a huge

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[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/485100/PHOF_IA_acc.pdf

amount of value to the tool and it is suggested that any good tool used by Spain should allow these kinds of comparisons.

The concept behind the tool is very good and offers many different uses for the data, but it needs to be streamlined, as it is rather cumbersome and overwhelming in this current format. It is also useful to distinguish between the indicator set (PHOF) and the data visualisation tool (Fingertips). Fingertips is used for lots of datasets, not just the PHOF. In addition, there is an R plug-in to allow researchers to download data for further statistical analysis. The R-package was developed and made available online by PHE.[9].

Box 1.4   Feedback from MoH

This is the tool that best fits the MoH´s needs. It is very interesting that using one database (PHOF), different types of visualisations for different types of audiences can be generated: tables, charts, reports, ranking, and also has a specific website for the local context.

It would be very interesting if the professionals who have developed or oversee this tool could participate at the workshop to present best practices on monitoring and visualisation of equity and social determinants of health, or give some clues about the tool development and management as:

- Selection of indicators: selection process in detail, particularly of Marmot indicators https://fingertips.phe.org.uk/profile-group/marmot;
- The design of the website and the different types of visualisation provided by the tool. Especially which are, in their opinion, the most suitable types of visualisation for each target audience (citizenship, professionals, politicians);
- Comparisons between similar municipalities: how they make the index for this comparison (CIPFA) https://fingertips.phe.org.uk/profile/guidance;
- Policies and actions triggered by the data, strategies to promote these actions;
- How they maintain and update data, especially if it is an automatic process.

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[9] https://cran.r-project.org/web/packages/fingertipsR/fingertipsR.pdf

1.3.2.3   Canada - Government of Canada's Health Inequalities Data Tool

Link: https://health-infobase.canada.ca/health-inequalities/data-tool/index

Basic information (Geographical scope, lead organisation)

The Health Inequality Tool was designed to measure and report health inequalities across different groups at national and provincial level. The tool is led by the Public Health Agency of Canada (PHAC). This resource is the result of a collaborative effort between the Public Health Agency of Canada, the Pan-Canadian Public Health Network (PHN), Statistics Canada and the Canadian Institute for Health information.

It was launched in 2017 although its development started in 2012 following the endorsement of the Rio political declaration on Social determinants of health. In this declaration there was a pledge to take action to promote health equity and to put in place a system to monitor health.

The Health Inequalities Data Tool supports Canada's national and international commitments in strengthening the capacity to monitor, measure and report health inequalities. Hence, this tool helps identify where health inequalities exist across different groups at national and provincial/territorial levels, and the magnitude of inequalities in Canada.

Type of data used
■   Indicator selection

The selection of indicators in the Health Inequality tool is the result of the work of the Pan-Canadian Public Health Network in 2010. This Network published a report including a list of about 50 indicators setting how Canada should be monitoring health inequality.

In 2012, the team developing the Health Inequality Tool-put into place a monitoring system for health inequity based on this list of indicators. Not all the indicators collected in the report were analysed as some of the information was not yet collected in Canada (e.g. homelessness, climate change) or the sample size was too small. To develop this monitoring system further, the team organised a Pan-Canadian working groups of experts to advise on the type of indication and other operational issues. These groups were also decisive in discussing new indicators to include in the list at the time of the launch. The original list that included 50 indicators was increased by twenty indicators.

■   Types of indicators

The different indicators included in the tool are updated as different health priorities emerge which has led to an increase on the number of indicators utilised, nowadays over 100. These indicators focus on health status and health determinants and are grouped into twelve framework components (indicators associated in groups):

1. Health Status:
   – Mortality and Life Expectancy,

   – Morbidity and Disability,

   – Mental Illness and Suicide,

- – Self-Assessed Physical and Mental Health,
- – Disease/Health Condition.
2. Health Determinants:
   - – Health Behaviours,
   - – Physical and Social Environment,
   - – Working Conditions,
   - – Health Care,
   - – Social Protection,
   - – Social Inequities,
   - – Early Childhood Development,
   - – Interactions with Justice System,
   - – Socioeconomic Conditions.

Where possible/applicable, indicators are stratified at the individual level by socioeconomic and sociodemographic characteristics that are meaningful to health equity. For example: individual/household income, education level, immigration status; First Nations/Inuit/Métis identity; employment status; occupation; rural/urban geography; cultural/racial background; sexual orientation; functional health; participation and activity limitation; and impact of health problems. When an indicator and stratifiers are crossed, the age interval is limited to that available in both the indicator and the stratifiers.

■ **Data sources**

The information that feeds in the tool uses 13 different datasets. However, the main data custodians are the following: Statistics Canada which collects most of the (health) information for Canadians; the Canadian Health Institute for Health Information that mostly collects information on hospitalisation; and PHAC that collects information on infectious and chronic diseases. In addition, there are other partners collecting relevant information (not yet collected by the main data custodians). For example, the early childhood development data is collected by one Canadian University. Another example is the National Indigenous Organisations representing First Nations and Native Inuit people. Each of these organisations are or are becoming to be data custodians of their own house information.

Several summary measures are used in this tool to access health inequalities. This tool uses relative and absolute measures. Some measures look at the inequality between two groups, or measures on how inequality impacts the population as a whole. And for all the results the tool looks at the differences between sex and gender.

To provide as much information as possible up to five years of data have been combined to be able to disaggregate the data by different socioeconomic indicators and/or population groups and men/women.

■ **Visualisation of the tool**

The tool is interactive in a way that it allows to select different items to customise data to be presented. Five items can be selected:

- – Geography level,
- – Framework components: which are the twelve groups in which indicators are associated,
- – Indicator,

- Life course: depending on each indicator: General Population; Adults; Infants, Children, Youth & young Adults; Seniors,

- Stratifiers: Where available the indicators are stratified by a range of Socio-demographic and economic populations groups: Including: Income, Education, Employment, Occupation, Material and social depravation (Social status). First Nations, Metits, Inuit (Indigenous Peoples, Rural/Urban (Place of Residence) Age, Immigrant Status, Sexual Orientation, Functional Health, Cultural/racial background, living arrangement, first official language spoken,

- Measure: Numerator, Rate Ratio, Crude Rate, Rate difference (RD), Population Impact Number, Population attributable rate (PAR), Population attributable fraction, attributable fraction, age-standardised rate

The selected information is then presented in a chart and a summary table. The information is also presented by sex, this stratification can also be customised. The same data is also presented by province/territory level in a second tag. In addition, the tool allows for the presented charts and maps to be downloaded. Both presentations of the data (by inequality measure and provincial territory level) include guidance on how to interpret data. The usefulness of the information presented depends on the measure selected. Some measures can help a more technical audience to understand whether there is a problem needing action.

■ **How the data has triggered policy actions**

The information gathered by this Agency and within this tool has allowed to input health information on equity for many related policy papers, conferences, etc.

Within their own centre (PHAC) and based on the evidence generated thanks to the tool the Agency has been able to shift the solicitation of publicly funded projects across Canada to different-more vulnerable-population groups. An example of this is the Mental Health for Black Canadians project.

■ **Other relevant considerations**

Before launching the tool, the PHAC ran multiple tests in front of different audiences (first with more technical audiences) and across varying provinces. The idea of these exercises was to test the level of understanding of the tool. In addition, other trainings have been offered to those who wanted to refresh their knowledge/learn on how to interpret the available information. For this, the PHAC has implemented a trainer approach: multiple colleagues are trained across the country within the provincial representations of the Agency to become experts in using the tool and to being able to teach others on how to use the available data for policy-making.

Relevance and considerations for the Spanish context

■ **Researcher judgement on adequacy and transferability to the Spanish Context**

The tool provides geographical breakdown of indicators, health status, health determinants, indicators and measures to help inform evidence to practice. It also contains a lot of equity stratifiers. In addition, it informs surveillance and research activities, as well as program and policy decisions to reduce health inequalities more effectively in Canada.

The data is visualised in a simplistic way, presented in charts. It does not show maps although data can be displayed for different regions. The visualisation tools are maybe too simplistic and would need to be more visual. That said, the tool can be accessed online, free of cost and in two languages English and French.

- **Senior study expert's judgement on adequacy and transferability to the Spanish Context**

There is a good selection on indicators and many stratifiers available for some indicators-possibly giving too much choice. However, the range of measures available for some indicators seems too many and the terminology is sometimes too technical for the general public and untrained professionals.

Overall, it is visually good and fairly easy to understand. It includes confidence intervals which is good but overall, not as sophisticated as some others - e.g. no maps available or trends.

Box 1.5   Feedback from MoH

This tool has, in favour, many stratifiers although they cannot be simultaneously used. It would be very interesting to know how the information on each stratifier (socioeconomic level, educational level, etc..) is collected for each indicator.

Visualisation is very simple, but it could be a basis for adding other types of charts and tables, and even reports.

It offers different types of measurements for each indicator, but it is better to define the appropriate measurement for each indicator.

1.3.2.4 US - The National Equity Atlas

National Equity Atlas

Link: https://nationalequityatlas.org/

Basic information (Geographical scope, lead organisation)

The National Equity Atlas is a data and policy tool for community leaders and policymakers. It was initiated as a result of a long-term partnership between Policy Link and the Program for Environmental and Regional Equity (PERE). Policy Link is a non-profit national research and action institute advancing economic and social equity. PERE is a research unit that conducts research and facilitates discussions on issues of environmental justice, regional inclusion, and social movement building.

The service provides data on demographic change, racial inclusion, and the economic benefits of equity for the 100 largest cities, 150 largest regions, all 50 states, and the United States. The service provides data of changes happening in the US, where major demographic changes are a root reason for many equity, economic and political issues. It is estimated that by 2044, the majority of the population in the US will be non-white Americans.

As people of colour continue to grow as a share of the workforce and population, their social and economic well-being will determine the country's success and prosperity and there is a need to minimise the racial/ethnic gaps between the population. The National Equity Data provides easy-to-share data on economic metrics that resonate with the local users, such as policymakers.

Type of data used

■ **Indicator selection**

The selection of indicators emerged from the Equity Profiles that the developers of the National Equity Atlas created in specific regions, for example in Rhode Island and in Kansas City. Before that, a Framing paper of Equity in the US was published, and the indicators were also discussed in the committee groups. The service was also presented in a series of webinars and in conferences and modified indicators based on the feedback received. The first version of the service included around 20 indicators, and more was added gradually over time.

In addition, the National Equity Atlas uses an indicators framework developed for measuring equitable growth in regions. The service describes an 'equitable region' as one where all residents — regardless of their race/ethnicity or nativity, neighbourhood of residence, or other characteristics — are fully able to participate in their region's economic vitality, contribute to their region's readiness for the future, and connect to their region's assets and resources. In order to measure this, the service uses the following three types of indicators presented below.

■ **Types of indicators**

The Atlas contains data on demographic change, racial and economic inclusion, and the potential economic gains from racial equity for the largest 100 cities, largest 150 regions, all 50 states, and the United States as a whole:

– **Data on demographics** describe who lives in the region and how it is changing,

- **Equity indicators** are divided into three following categories: *economic vitality* (sample indicators include GDP, job growth and Gini), *readiness* (sample indicators include educational attainment in relation to job skills requirements in 2020 and disconnected youth and for health diabetes, overweight and asthma), and *connectedness* (indicators include housing burden, vehicle access and commute time),

- **Economic benefits of equity.** These indicators quantify the benefits of racial and economic inclusion to the broader economy, including indicators such as the potential GDP and income gains from closing the racial income gap.

It is important to note that the National Equity Atlas has a strong focus on racial equity and inclusion, providing insight on how well diverse groups can access the resources and opportunities. However, the tool does not provide data on income, gender, age, ability, sexual orientation or neighbourhood. Developers of the service envisage revising the tool so that it encompasses these other dimensions of inequality too.

- ■ **Data sources**

The National Equity Atlas draws its data from a unique equitable growth indicators database developed by Policy Link and PERE. This database incorporates hundreds of data points from public and private data sources for the 100 largest cities, the 150 largest metropolitan regions, all 50 states, and the United States overall. It includes historical data for several economic indicators as well as demographic projections until 2050. The database has several defining attributes: it incorporates measures of economic growth and social equity, it provides several decades of data for cities and metropolitan regions that are geographically consistent over time, and it includes data disaggregated by race/ethnicity for most indicators.

The data sources include the Integrated Public Use Microdata System (IPUMS), U.S. Census Bureau, Geolytics, Woods & Poole Economics, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, Centers for Disease Control and Prevention, and the National Center for Education Statistics. The tool also includes the George on Education and the Workforce's state-level projections of the educational requirements of jobs in 2020. Most of the datasets underlying the indicators in the tool are updated annually.

- ■ **Visualisation of the tool**

The tool uses bar and line charts and interactive maps as visualisation tools. Visualisations are easy to use and visually appealing. The tool also has good "why it matters" explanations for each indicator included. All of the tools are open access.

The tool allows to compare a certain municipality, hospital district, or region with the region of your choice. The tool is targeted for the community leaders and policymakers, for example, working in county planning departments who are working to build a new economy that is equitable, resilient, and prosperous and who may not have the capacity and the resources to put all the necessary data together.

- ■ **How the data has triggered policy actions**

There are some examples on how the service and its indicators have triggered policy actions. For example, in 2013, Policy Link and PERE worked with local partners to produce an Equity Profile of Rhode Island which provided data underpinning an executive order to increase diversity among government employees and contractors. The order led to the creation of the state's Office of Diversity, Equity, and Opportunity, with a goal of ensuring fair-hiring and inclusion in all aspects of government.

Relevance and considerations for the Spanish context

- **Researcher judgement on adequacy and transferability to the Spanish Context**

The tool provides easy to access information to measure progress in different aspects of equity, although the focus is not on health. The features of the tool that address the relevance of following certain trends or taking concrete actions to improve performance are well developed and informative.

The data tool and policy are targeted for the community leaders and policymakers who are working to build a new economy that is equitable, resilient, and prosperous and do not have the capacity and the resources to put the necessary data together.

The potential for transferability is good, given the types of indicators, and the geographical disaggregation of data from national to municipal which could be implemented in the Spanish context according to their needs. The indicators used also provide a good overview of different societal aspects that impact equity, although it is important to acknowledge that the focus of the tool is not health.

- **Senior study expert's judgement on adequacy of the tool and transferability to the Spanish Context**

The tool provides a good range of indicators. Stratification is mostly by ethnicity/race, nothing by socioeconomic status. It has good 'why it matters' explanations which are useful for policy makers and the general public. The tool is, however, limited on trends and maps but easy to use and visually appealing.

This tool is particularly interesting because it is specifically designed to look at equity and includes various levels of stratification. Although because of the US context much of the stratification is based on race, to some extent the ethnicity and race variable is increasingly relevant in the Spanish context, and yet perhaps under accounted for, as it is still considered a more recent phenomenon.

Box 1.6   Feedback from MoH

This tool has two visualisation modes: an interactive indicator search format and a trending reporting format. Each indicator has its own stratifiers according to availability.

In addition to the "why this matter?" section, it includes policies proposals, as well as examples in which the data have led to action.

The methodology to select indicators through working groups, webinars and conferences is interesting and relevant (it seems that the selection is made at technical level).

1.3.2.5 Finland - Welfare compass / Hyvinvointikompassi

Link: https://hyvinvointikompassi.fi/en/web/hyvinvointikompassi/etusivu

Basic information (Geographical scope, lead organisation)

Welfare Compass Online Service is a tool that is designed for monitoring regional welfare led by the Finnish National Centre for Health and Welfare (THL). It aims to support the promotion of the health and well-being of residents in the Finnish municipalities, regions, throughout hospital districts, hospital special responsibility areas and on a national level. The service is primarily designed to help the work of municipal managers, sector managers and welfare co-ordinators. It helps users to get an overview of the development of health, welfare, and social and health services in selected area and compare it with a region of the users' choice.

Type of data used

- **Indicator selection**

The selection of indicators in the Welfare Compass is the result of a broad-based co-operation project co-ordinated by THL in 2009 - 2012. 17 key expert and stakeholder organisations participated in the project. In addition, all municipalities were invited to answer an electronic survey and describe their experience and views concerning the importance, use, and problems of the indicators for health, well-being and the service system.

- **Type of indicators**

The service contains about 100 relevant indicators on health, wellbeing and social and healthcare services. Indicators on health and welfare are divided under six categories:

- Living conditions,
- Distribution of welfare,
- Perceived welfare and participation,
- Lifestyles,
- Health status,
- Functioning and work ability.

For relevant variables the user can filter data by gender or total population.

The indicators in the Welfare Compass have been grouped into three profiles to help users find the most relevant data and get an overview of the situation in the region. The three profiles are: welfare, services and population:

- **The welfare profile** has been the most popular among the service users. It gives an overview of the health and well-being of the population and society as a whole. The choice of indicators takes into account the well-being of individuals and its different dimensions as well as the well-being in society and communities;

- **The service profile** includes the key indicators for the use and availability of health and social services. Even indicators on specialised health care outcomes are available. The services covered are divided into key sections in

the municipal health and social sector: primary health care, specialised health care, mental health and substance abuse services, social services for adults, services for children, adolescents and families, and services of older people;

– **The population profile** contains the key figures describing population structures and demographic change. Regional planning is based on population age structure and age dependency ratio as well as on net migration and natural population growth that regulate the total population. Also, industrial, educational and family structures, as well as ethnic and language distribution among residents in an area have impact on service needs.

■ **Data sources**

THL runs several statistics and registers (see box 1.4 below), of which Sotkanet is an information service that offers key population welfare and health data from 1990 onwards on all Finnish municipalities. Welfare compass uses Sotkanet interface and all indicators in the service are also found in the Sotkanet database. Indicators are updated every 1 to 2 years. National registers provide municipality-specific information mostly about material living conditions, mortality, some diseases, use of services, and benefits. Information on, for example, lifestyles and perceived welfare and health must be collected through surveys and interviews. The FinSote National survey of health, well-being and service use provides comparable data on population health and well-being at municipal level. It is possible to compare trend over time (2000-) and benchmark different areas with Welfare compass. Some key indicators have map-based data presentations and data by population groups.

Regarding services, the Welfare Compass lacks information especially on service quality and service outcomes. Data on service outcome, productivity and costs are available chiefly on specialised health care. No similar, regularly updated and nationwide data is available on services for children and young people (e.g. maternity and child welfare clinics, day care, school health, child welfare, family services), social work, primary health care, services for substance abusers, and services for older people (e.g. home-help services, service housing).

■ **Visualisation of the tool**

The visualisation of the tool is not very sophisticated, yet it is relatively easy to use. The most important aspect is that the user can enter one of three abovementioned profiles: welfare, services or population. Users can compare data from chosen areas and the data is presented with sparklines or yardsticks or graphs. According to the service developers, the sparkline is the most used visualisation. Tools are not interactive, and this is one of its development needs according to the THL. However, it is not possible to compare data to more than one comparison area and to the whole country. THL has gotten feedback that this should be developed.

■ **How the data has triggered policy actions**

There are incentives for municipalities to use the tool. Data describing the well-being of municipal residents and the monitoring system that generates that data are, under section 12 of the Health Care Act in Finland, a statutory foundation for strategies, management, planning and decision-making concerning health and well-being promotion. There can be great differences between municipalities in terms of residents' health and well-being and the associated costs which are not exclusively explained by the demography, size or geographic location of the municipality. The measures adopted in the municipality can also explain differences. Therefore, it is important to know which measures are effective in order to create positive health and well-being outcomes. With the tool the municipalities are able to easily select information for municipality's welfare report and do informative presentations using

data from the tool. The tool has been used to e.g. to justify financial investments on certain welfare related projects.

■ **Other relevant considerations**

The Welfare compass was initially designed to provide an easy to use tool, including the most important indicators from Sotkanet to e.g. support municipal managers and other users to prepare the Welfare report. According to the users, one of the most valuable features of the service is that it allows the user to download high-quality presentations (excel, ppt, CSV) including all the relevant graphs from the sites in less than a few minutes.

The aim of this tool is to collect information in a meaningful way to monitor regional development of welfare and health, service use and population changes. The tool does not provide analysis on stratifier level (for example "primary health care") but compares values of different indicators under the broader headlines both numerally and visually. The user can have an excel sheet the numbers or readymade power point with the graphs by clicking one button on the site.

Relevance and considerations for the Spanish context

■ **Researcher judgement on adequacy and transferability to the Spanish Context**

The tool is quite simple and user-friendly and provides quick access to information on development of regional welfare and health. It is a good starting point for a multitude of actions to address health inequalities as it combines individual and society level indicators.

The tool is primarily designed to help the work of municipal managers, sector managers and welfare co-ordinators. Members of Parliament, experts, teachers and journalists can also benefit from the service.

This transferability of the tool is dependent on available data in Spain. However, this tool is aiming at monitoring regional welfare and should be restructured according to the Spanish regional and service structure.

■ **Senior study expert's judgement on adequacy of the tool and transferability to the Spanish Context**

Stratification capabilities are limited but it effectively displays data in a flexible way with meaningful comparisons and with confidence intervals. Data and charts can be downloaded quickly. This tool does offer something a bit different from some of the other sites by focusing on regional-level comparisons (rather than comparisons between different population groups). It may be, however, less useful for understanding how different population groups are affected by health inequalities. This tool is a suite or package of tools. The interface designs are appealing for a broad range of users and probably user friendly for those who are familiar with the country, but not so easy to understand as an outsider or new user. It covers a wide range of variables that are certainly relevant to equity, such as participation, however, are probably beyond the scope of our current project (and not as well ingrained into the Spanish governance context). They are also limited to producing comparison and graphs, without much explanation or context, which makes them seem simpler, but also may limit their usage.

The biggest concern with this tool is the potential replicability of this to the Spanish context, which might be limited. These tools are possible in Finland because it seems there is a very reliable, robust, and interconnected system of data collection about a very large number of variables and indicators. Finland is a smaller country and its data collection sources and integration of them is just at a very different point in history and time than Spain. Therefore,

these types of tools may have a limited effect in Spain due to the regional differences in data collection systems and lack of standardisation in many aspects.

Box 1.7   THL statistics and registers

Finnish National Institute for Health and Welfare (THL) provides a wide range of data through different services – the Sotkanet Indicator Bank is the basis to all

Our list of potential best practices highlighted three different tools from the Finnish Institute for Health and welfare (THL), namely Sotkanet, TEAviisari and Welfare compass. In fact, THL maintains up to eight different open access online services to support planning and evaluation of municipal and regional well-being and health promotion, all of them providing information for a variety of purposes and in slightly different formats.

The Sotkanet Indicator Bank, managed by the THL, with entails 1000 indicators and works as a basis for many of the services. Sotkanet offers key population welfare and health data from 1990 onwards on all Finnish municipalities, based on the current administrative division into municipalities and produces significant part of the indicators found from the other   services   administrated   by   the   THL.

The Welfare compass has 100 indicators and all of these indicators can also be found in the Sotkanet database, named as "THL's key indicators". The tool helps its users to get an overview of the development of health, welfare, and social and health services in Finland.

TEAviisari, including 800 indicators, focuses on municipal health promotion of residents in municipalities and uses the Sotkanet interface.

THL works as one of the statistics authorities in Finland and runs extensive data collection. Based on the feedback from the service users, THL is about to develop its service portfolio to become more user-centric. The aim is to harmonise the eight current services so that in the future THL could provide a vast amount of information on well-being and health promotion from a single service.

Box 1.8   Feedback from MoH

The visualisation is simple, and it only compares municipalities in pairs and with the national average.

In addition, it only performs stratification by place and gender. It has another tool with a pre-defined combination of stratifiers that could be a way to cross stratifiers[10].

It is interesting, as the UK tool, that from a single database (Sotkanet) they extract different visualisation tools according to the different objectives (Welfare compass, TEAviisari,...).

The selection of indicators was carried out in a 4 years long participatory process and, at the technical level, which included conducting surveys at the local level about their specific needs.

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[10] http://www.terveytemme.fi/kuolleisuuserot/index.html

1.3.2.6 Spain - Health Observatory of Asturias. Health Situation Ranking

Link: https://obsaludasturias.com/obsa/determinantes/

Basic information (Geographical scope, lead organisation)

In 2010, the Health and Healthcare Services Counsel of Asturias initiated the development of the Health Observatory of Asturias. The Health Observatory of Asturias is an instrument for organising health information in Asturias, that has been designed to support the development of health strategies to guide community health actions carried out by different professionals, organisations and institutions. The main objective of the Observatory in its inception was the development of the Health Situation Ranking. This ranking aims to provide a general picture of the state of health in the region of Asturias.

During the development of the Health Situation Rankings, the Counsel of Asturias was inspired by the University of Wisconsin's "County Health Rankings". Both organisations took a collaborative approach to adapt the County Health Ranking to the Asturian needs, the reality in Asturias and the available sources of data/information.

The tool shows inequity by presenting the information by geopolitical divisions. Hence, this allows to compare how different municipalities are performing per set of determinants, per indicator and in the general result of the status of health.

The indicators included in the tool were selected as they can potentially represent the different health problems in Asturias. By representing problems, this tool aims to illustrate reality closer to the individual and seeks to trigger policy action to achieve a better future result of the health status of the municipality. The intent is to make this information easily accessible to the local policymakers and the general population as socioeconomic determinants are rooted at the most granular level of society. To this aim, the tool utilises the municipalities/councils as they are the closest geopolitical division where data is collected in Asturias.

■ **Indicator selection**

In order to select a specific set of indicators, a collaborative approach was taken: the list of indicators included in the County Health Rankings (Wisconsin) was used as a starting point. Afterwards, they were adapted to the Asturian context following a series of discussions.

Part of the process when selecting the set of indicators was also to establish the weight each indicator had in their overall impact on the state of health.

To support this development, focus groups were also established. These focus groups were comprised of about 15 people including the Wisconsin team- who were key in guiding the Observatory in the selection of the final set of indicators.

■ **Types of indicators**

In order to present the overall state of health in Asturias (per municipality/council) a set of 25 indicators is listed. These indicators are split in two ranks: determinants of health and health outcomes. Different weights are given to the set of indicators according to the influence they have on the overall health status within each rank. This means that the rankings are

composite results, made by different magnitudes. The weight of each indicator is aggregated and represents the result of the status of health in the different municipalities.

The indicators are listed by set of determinants:

- – Quality of care: surgical waitlist delay, inadequate care in diabetes, absence of mammographic control, avoidable hospitalisations,

- – Lifestyle: smoking prevalence, prevalence of weight overload, sedentary behaviour, inadequate diet, excessive alcohol intake, fast food and soft drink consumption, teenage pregnancy, vehicles without roadworthiness certificate,

- – Socioeconomic factors: low education level, unemployment, people in lower social class VI + VII, people receiving basic social salary, adults without social support, single parent families, social exclusion,

- – Environment quality: air pollution level, people living in a bad residential environment quality,

- – Mortality: potential years of life lost,

- – Morbidity: Poor health self-perception, prevalence of chronic patients, treatment of anxiety/depression.

■ **Data sources**

There are different data sources used to feed information into this tool. Some indicators feed from the information provided by the Health Survey carried out in Asturias, which is conducted every four to five years. Other data sources are also public and include:

- – Surgical Waitlist- Asturias Health Services,

- – Asturias Health Council databases and information,

    - i. Hospital registry (Registro de Actividad de Atención Especializada, CMBD)
    - ii. Data from the Ministry of Health (MSCBS)
    - iii. Diabetes mellitus atlas
    - iv. Asturias Health and Environment Plan (PASYMA)

- – Spanish State Traffic Office,

- – Health Survey in Asturias,

- – Child Health Survey in Asturias,

- – Data on Healthcare personal card from the General Directorate of Health Planning in Asturias,

- – Public Employment Services,

The data presented in this tool is the outcome of a continuous exercise. Indicators are reformulated as needs emerge and data from repositories change. The data is presented in a clear and transparent way so to make it easy for the user to understand what they see.

Accessibility to the source of information that was reliable, available and regularly updated was an important factor when deciding what indicators to include in the tool. Data availability depends on the indicator and the source of the information. For some indicators that have a small sample data has been aggregated from a number of years in order to make meaningful assumptions.

■ **Visualisation of the tool**

The tool is easy to use and understand although the visualisation is not very sophisticated. Best and worst performing municipalities are presented per indicator in a heat map, this shows a ranking in a colour scheme. The same map is repeated for the result of the two rankings (determinants of health and health outcomes). These two maps are interactive in a way that the user can select a municipality in either map to retrieve the name and position in the rank. By selecting the municipality, one can visualise all the indicators' information for that selected municipality. This information is presented in a table that includes the position and value per indicator. This table also includes the provincial value per indicator, and this allows comparison from the municipality perspective. Hence, this can motivate local governments to act in the worst performing areas.

For each indicator, information is included below the heat map. This includes description of the indicator, explanation on the inclusion, source of the data, etc. This information also includes the percentage that each indicator impacts in the overall result of each rank. In addition, information about the provincial average and per municipality response are presented in a table to allow for comparison. The tool also allows to see previous years' results and allows comparison of position and results to the Asturias average which may motivate worst performing municipalities to trigger action.

- **How the data has triggered policy actions**

There is evidence that municipalities have been using the tool, and this has led to several activities aimed at promoting change. Local governments focus more on the position they have in the rank whereas local groups would look more into solving the issues or tackling them. The Health and Healthcare Services Counsel of Asturias has reported an increase in health promotion from 140 activities in 2009 to over 1.000 at the time of writing this report.

Relevance and considerations for the Spanish context

- **Researcher judgement on adequacy and transferability to the Spanish Context**

The data is very easy to search and extract, allowing to download the selected data. It seems very useful either for professionals or policy makers as a source of information. It is also a very visual tool easy to navigate for the general public. Particularly, in terms of visualisation of the results (heat maps) it shows a good potential for transferability to the Spanish context. Also, it is a tool built for one Spanish region which may ease the replicability to other regions. The data for some of the indicators is collected at national repositories.

- **Senior study expert's judgement on adequacy and transferability to the Spanish Context**

The site seems to focus almost entirely on *rankings*. Rankings can be highly misleading as the difference between top and bottom may or may not be statistically significant and changes in rankings over time are very hard to interpret for health indicators.

The Asturias OBSA has been preselected, not as much for the robustness of the tool, but because it does take into account the local context and is a good example of a local starting point that should be taken into account for the Spanish context. It is also the only tool that includes a feature to evaluate programs, even though it is a more qualitative analysis, it is clearly designed to be raising awareness and informing actions. Although the tool was difficult to find and decipher, the presentation of the actual indicators is quite clear and useful for broad audiences.

Box 1.9   Feedback from MoH

This tool is very well known by the MoH and it is very comprehensive. There are aspects of this tool that are interesting such as the presentation of maps, the selection of indicators and the actions that data publication have triggered. At this moment, the ranking aspects are of less interest for the goals at national level.

1.3.2.7   Other tools explored during desk research which may contain interesting components

If an additional tool needs to be pre-selected, *NYC Health* is also a very good site. The only reservation about recommending it is that what it is presented is quite similar to some of the other preselected sites (which provided more relevant information and considerations relevant to the Spanish context). By contrast, both *Our World in Data tool* and the German site *(Well-being in Germany)* seem to be rather interactive reports than data portals. In addition, the *Our World in Data tool*, looks and presents different indicators in multiple ways (i.e. by asking different questions). It shows a category/indicator of maternal mortality but examines it not only by showing the rates and trends, but also asking why women die in childbirth and how many women we could save from dying in childbirth and pregnancy. That sort of multiple focus and analysis that is automatically included in this ¨tool¨ is very helpful to prompt policy action or thinking about interventions.

1.4   Overarching points for consideration

This sub-section provides a number of design principles/elements that should be taken into account when considering the development of any monitoring or visualisation tools for health equity. These have been gathered during the data collection exercise, discussed with the senior study experts and the OWG on 12th March.

1.4.1   Target group

As demonstrated by some of the tools identified above, it is possible for the tool to be accessible to both policy makers, and the general public (e.g. HealtheCNY, see also section 1.1.9 for example of Gut leben in Deutschland). Careful consideration should therefore be given to the main target group of a proposed tool, to ensure that there is a suitable balance between technical features (confidence intervals given, technical detail for indicators definitions etc.) and ease of use for a non-technical audience.

Defining the target group is also important to understand the extent to which support features are needed alongside the tool. For example, Public Health England's PHOF carry out training for policy makers (e.g. local councillors) who use the tool to set the local health policy agenda but who may not come from a data science background. This has implications for resource planning, including budget for staff members leading training sessions, travel to local authorities throughout country, and updates to training sessions when indicators or data visualisation are updated.

1.4.2   National vs Local context

There is the need to understand, evaluate, monitor and impact equity at the local level. Examining and understanding equity at the national level is useful, but really changing the variables and contexts that impact equity or have lasting impact for equity must be done through local/regional action.

Regions and cities are the ones who will need to lead the way with this, in synergy with the national government of course, but according to our Senior Experts, the real change has to happen locally. And so, data should be collected, analysed, and evaluated at the local level. Tools and best practices for examining equity at national level (and national comparisons among countries), already exist and are included in the excel file. Thus, if the MoH wants to understand the main indicators at national and provincial, they don´t need to develop a new tool or best practice for these levels. However, we understand that what we are aiming for is a best practice/tool that will identify and inform policies and action to improve equity.

In relation to this, the MoH has confirmed that their interest is to monitor equity at the local level, where most of the actions that have an influence on citizens' health and wellbeing take place. However, they have also reinforced the need to influence at the regional and more widely at national level to reach all sectors/polices that have an impact in health. The latter is indispensable to promote policies in which local actions can be framed.

At the moment, there is a working group on Health Equity and Social Determinants of Health Surveillance that is also developing a national framework and selecting indicators in the context of the development of the National Public Health Surveillance Strategy. Moreover, the Joint Action of Health Equity in Europe (JAHEE) is also working on identifying common indicators relevant for equity and SDH. Additionally, there are some regional and local initiatives developing health equity surveillance systems in Spain, such as the experiences in the city of Barcelona, that have already developed the conceptual framework for selection of a small number of indicators to follow over time and space and is designing a health equity surveillance system. The idea is to start from a conceptual framework (which they already have developed)[11], and choose a small number of indicators to follow over time and space. According to one of the Spanish experts in charge of designing this surveillance system, it is not recommended to include a high number of indicators. The expert, highlights that the Marmot Review proposes a key indicators (a total of 10) of the social determinants of health, health outcomes and social inequality [12]Urban Heart from WHO has also been used to inspire this surveillance system.

1.4.3   Maintenance of the tool

This is a key issue and barrier in working with public administrations and must be discussed at the design phase of any tool/system. Whatever best practice is chosen, the MoH must understand clearly what is required in terms of human and financial resources needs to be involved in order to keep it *updated and operational*. Often budgets are made basis of the creation and implementation alone, without adequate provision for the maintenance. Therefore, the degree of maintenance required is an important evaluation criterion in selecting the best practice. And in addition, the issue of maintenance should be addressed

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[11] Borrell C, Pons-Vigues M, Morrison J, et al. Factors and processes influencing health inequalities in urban areas. J Epidemiol Community Health 2013;67:389–91.

[12] Institute of Health Equity (2017) .Marmot Indicators Release 2017. Available at:
http://www.instituteofhealthequity.org/about-our-work/marmot-indicators-release-2017

openly and proactively by the project. Some of the best practices considered will be easy to maintain, but that might make them more limited. Others could be more useful and impactful, but only if there is acceptance, planning and budget for the maintenance for the long term, which is easily overlooked.

1.4.4 Evaluation

From the research gathered, we found that even when governments are willing to invest in data collection, analysis and diagnosis, and interventions to address health, they are much less likely to contemplate and invest in evaluation of these interventions. So, a best practice that could contribute to the monitoring and evaluation not only of basic indicators but of specific policies and actions to address inequity, would be very useful. However, we acknowledge that it might be beyond the scope of what is being sought after in this project.

1.4.5 Data

Where the data would come from, how it can be collected and how often are key issues to consider, as they will be the main determinant of indicators to be included. There is some data that might only be collected at national level and other data that is collected at the local level, but not reported regionally or nationally. It would be useful to understand the different data sources, especially those collected at a local level, such as at city council level, which might be collecting data on equity aspects that are never reported to higher levels. In relation to stratifiers, it is important to define which stratifiers are available for each indicator as well as the possibilities to cross between different stratifiers or indicators. According to the MoH, it is desirable to have some type of comparator between municipalities, as seen in the UK (CIPFA) or HealthNYC (SocioNeeds).

1.4.6 Ranking

There is much debate around rankings and the extent to which these can be useful triggers to improve action and policies. As previously referred to, the difference between top and bottom may or may not be statistically significant and changes in rankings over time are very hard to interpret for health indicators. A priori, there MoH has confirmed no interest in using rankings to incentivise change.

1.4.7 Support features

These include are aspects such as a user guide or video that might accompany the best practice. Ideally if the tool is well designed it should be easily usable without much support, however, tools that include some sort of tutorial or option for help are useful and can increase take-up. Again, this has real implications for maintenance, and depends on who will be using this tool, if they will receive training etc. There was a range of support features amongst those practices found during this research that can be used as inspiration/discussion.

1.1.9 User-centricity and user engagement

It is worth noting that, there is a notable variety in the possible levels of user engagement and user-centricity of the tools and their approaches to health equity and social determinants of health. The tools presented in this Summary Report were designed mostly for practitioners

and policymakers. Some tools were designed in co-creation with the end users from these groups.

One interesting example of the citizen-level user engagement mentioned in the long list of case examples is the Wellbeing in Germany interactive report[13]. Due to its restrictions related to limitations in data tools, this case example was left out of this summary report. However, it is worth to mention that the dimensions of wellbeing used in this German example were chosen by an ambitious national citizen dialogue process with over 200 citizen dialogues held. The indicators for these dimensions were then chosen along the lines of the citizen's insights, even though that meant lacking data for some indicators. Yet having a citizen-centric understanding as a basis for monitoring wellbeing means having an entity that is strongly communicative and comprehensible to all possible users of the tool.

To summarise, a wide variety of tools have been presented in this report that should inspire the MoH to move forward with the development of a health equity monitoring system. The purpose of this selection was to prioritise those tools that approximate the scope of the project, even though others might have interesting specific features.

MoH reflections

The selection presented in this report is very useful to learn about the variety of visualisation tools. In view of all of them, it is possible to establish what are the basic criteria that an ideal equity data visualisation tool should have.

Although the first option for the MoH is the development of an ad hoc tool, it would be very interesting to know if there are any commercial or open access tools that can meet the basic needs. In this regard, one commercial company has been identified as part of this study, Conduent. Conduent is a health data and technology company that specialises in designing and building platforms that meet the unique needs of each client. Pricing is based on geography and types of indicators. For estimated budgeting purposes, implementation starts at $35,000 and can increase based on platform specifications with annual maintenance fees averaging between $50,000 and $75,000. Any open access tools have been identified.

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[13] http://www.gut-leben-in-deutschland.de/en/

2 Task 2.2 - Workshop to present best practices on monitoring and visualisation of equity and social determinants of health

2.1 Background

2.1.1 Introduction

After task 2.1 was completed, the OWG agreed on a final list of **four** best practices to be presented to the Spanish authorities (in Task 2.2 workshop). These four best practices were chosen due to their quality and the potential transferability to the Spanish context. In addition, the workshop covered only international initiatives because they were less well-known in the Spanish context and also to make the most out of this international project, which allows exploring these international practices. The four selected practices are listed below:

– UK - Public Health England's Public Health Outcomes Framework

– Canada - Government of Canada's Health Inequalities Data Tool

– Finland - Welfare compass / Hyvinvointikompassi

– USA – HealtheConnections' HealtheCNY Community Dashboard

The online workshop was organised on 28th September 2020. It was initially planned as a physical meeting in Madrid, however due to the restrictions caused by the COVID-19 emergency, it was agreed with the MoH and the DG REFORMto organise the workshop virtually.

2.1.2 Objective

The aim of this workshop was twofold: to help the different Spanish authorities understand how different international monitoring and visualisation tools were developed and implemented; and to provide insights that serve the MoH to use this information to further develop an effective monitoring system for the Spanish context. Therefore, comments, discussions, and conclusions throughout the workshop focused on the presented best practices and their transferability to the Spanish context.

2.1.3 Method

The workshop was organised virtually, using the interactive tool "Zoom". To ensure the high quality of the workshop, new formats were created to make the online constraints work in favour of the original goals of the workshop. For example, a bidirectional Spanish/English simultaneous interpretation was provided. In addition, the team trained the workshop facilitators on how to use the tool, and provided comprehensive instructions to the participants. A description with the main elements of each Best Practice (in Spanish) was also shared with the participants four days in advance of the workshop.

To prepare the delivery of the workshop, several meetings were held during the weeks before the event to test the tool and the interpretation service. In addition, a drop-in session was organised just before the start of the workshop to test the online tool (Zoom) and support the participants in case any technical issues arose.

2.1.4   Participants

Participants at the workshop included:

– General Directorate of Public Health (MoH)

– Department of Information systems (MoH)

– Health Promotion Working Group (within the Public Health National Commission of the Interterritorial Council of the NHS)

– Members of the Expert Working Group on Equity and SDH surveillance.

– European Commission (Directorate General for Structural Reform Support (DG REFORM)

– ICF and Demos Helsinki (Contractors of this project, and facilitators of the event)

2.1.5   Structure of the Workshop

The workshop was divided into two main parts (**See Agenda in Annex 1 – separate document-** for full details) In the first part of the event, representatives from the organisations responsible for the development and maintenance of each tool presented the different best practices to the audience. In the second part of the workshop, the participants were divided into smaller groups (breakout rooms) where they had the opportunity to reflect and discuss on the potential of Spanish transferability of these selected best practices. Each group was supported by one member of the General Sub directorate of Promotion, Prevention and Quality of the Ministry of Health that was responsible of guiding the discussion. The organisation of the event was supported by a chat were participants could ask questions or raise any technical issues. The event concluded with a collective discussion to reflect on how the existing tools could be transferable to the Spanish context. Presenters of each best practice were also invited to join the final discussion.

2.2   Part 1: Introduction and presentations of best practices from Canada, UK, US and Finland

2.2.1   Welcome and opening words

Demos Helsinki (contractor of this project) opened the meeting and provided some technical instructions for the event. The floor was then given to Pilar Aparicio (Public Health General Director of the Ministry of Health) who opened the workshop by presenting the background of the project and thanking the support provided by DG REFORM (EU Commission), the subcontractors of this project, the colleagues from the Ministry of Health and all the participants. She also took the opportunity to reinforce the importance of this work given the current Covid-19 pandemic. The health emergency that we are facing has evidenced how the most deprived groups have faced and continue facing the strongest impact on their health (elderly and the lowest socioeconomic groups). Pilar Aparicio highlighted that it is crucial to continue working to understand and reduce the current and future socioeconomic disparities in health.

2.2.2 Presentation of the best practices

Following the introduction, representatives from the different organisations responsible for the development of the pre-selected tools took the floor. Each organisation had between 10 and 15 minutes to present the main characteristics of the tools to the audience.

All presentations were carried out in English and focused on the development and management of each tool. More specifically, each explored the 1) Selection of indicators 2) Types of indicators 3) Data sources 4) Visualisation of the tool 5) How the data has triggered policy actions 6) Other relevant considerations. Before the workshop, specific areas of interest for each tool were expressed by the Ministry of Health and were shared with the presenters to ensure such aspects were covered during the presentations. Those areas were (apart from the MoH reflections covered in each tool):

UK - Public Health England's Public Health Outcomes Framework

- Selection of indicators: selection process in detail, particularly of Marmot indicators
- The design of the website and the different types of visualisation provided by the tool. Especially which are the most suitable types of visualisation for each target audience (citizenship, professionals, politicians).
- Comparisons between similar municipalities: how the index for these comparisons (CIPFA) are made;
- Policies and actions triggered by the data, strategies to promote these actions;
- How they maintain and update data, especially if is an automatic process.

USA – HealtheConnections' HealtheCNY Community Dashboard

- The "*Why this matter?" is* very interesting for citizens and policy makers and the fact that it could be linked to the technical information for professionals.
- The SocioNeeds index as it has a colour-blind mode, to take into account when using colours.
- The two types of visualisation of the tool, reports and an interactive dashboard,

Canada - Government of Canada's Health Inequalities Data Tool

- How the information on each stratifier (socioeconomic level, educational level, etc.) is collected for each indicator.

Finland - Welfare compass / Hyvinvointikompassi

- How from a single database (Sotkanet) different visualisation tools are extracted according to the different objectives (Welfare compass, TEAviisari, etc.).
- The participatory process conducted to select the indicators (including surveys at local level) has been highlighted as interesting by the MoH.

All the presentations are available in Annex 1 (separate document).

In addition, during the event, some participants posed questions in the meeting chat to the presenters. Those questions were saved and circulated to the presenters to allow them to elaborate on their responses during and after the workshop. **The answers to those questions can be found in Section 2.4.1 of this report.**

2.3 Part 2: Group discussions to reflect the transferability of each best practice to the Spanish context.

After the presentations, all attendees were divided into smaller groups of around 5 people; each group was assigned to review one best practice. The discussions focused on the potential transferability to the Spanish context, looking at strengths and weaknesses of the assigned tool (**refer to Annex 1- separate document- to consult the outcomes of the discussion in each group**). Each group had a designated note taker and one expert from the MoH, who served as facilitator. Additionally, each group was provided with a guideline for the participation and organisation of the group discussions. These small group discussions lasted around 30 minutes and during this time, the facilitators of the workshop guided the participants in their discussions. Five minutes before the time was up, the small groups were contacted to let the participants know that discussions were about to end.

In the meantime, **the presenters of each tool held a conversation and exchanged experiences providing advice to each other. A summary of their discussion is provided in Section** 2.4.2 below. Following the small group discussions, the participants joined the final collective discussion. In this session, the speaker of each group provided a summary of their discussions on the assigned best practice. A summary of the participants' views and conclusions per best practice is provided below:

Note for the reader:

The assessment presented below takes into account the expectations of the Spanish authorities. This is not an assessment of the quality of the tool, but this is what the participants think it is relevant for the Spanish context. Indeed, the tools may be fit for purpose according to the needs of each country.

2.3.1 UK - Public Health England's Public Health Outcomes Framework

2.3.1.1 Strengths

Relevant number of indicators

This visualisation tool contains a lot of useful information while maintaining a defined but limited number of indicators. The selection process of indicators is also very clear, especially for public policy-related indicators.

Visually appealing

This tool was described as visually appealing and intuitive. It is considered to be useful to conduct statistical work as it includes a variety of representations (e.g. maps, box plots, comparison of indicators), colour coding, arrows and the overall display of the data. The MoH

highlighted that the possibility to show the main indicators at all times (being able to refer to the rest of the indicators when necessary) is a strong point, and a good aspect to transfer to the Spanish context.

Overall, the visualisation components allow the user to have an overview which can facilitate the micro and meso management of the different regions and it is very useful for benchmarking purposes. Indeed, the tool has a benchmarking option and the possibility to check relationships with other geographical areas.

In addition, the available reports are considered very useful.

Box 2.1   Display of the data

Strong equity dimension

Finally, a relevant aspect of this tool is that equity issues are taken into account in several indicators. Where possible, there are breakdowns by age, gender, deprivation and ethnicity. In that regard, the tool has a tab that allows to visualise inequalities (see Box 2.2 below).

Box 2.2   Inequalities tab
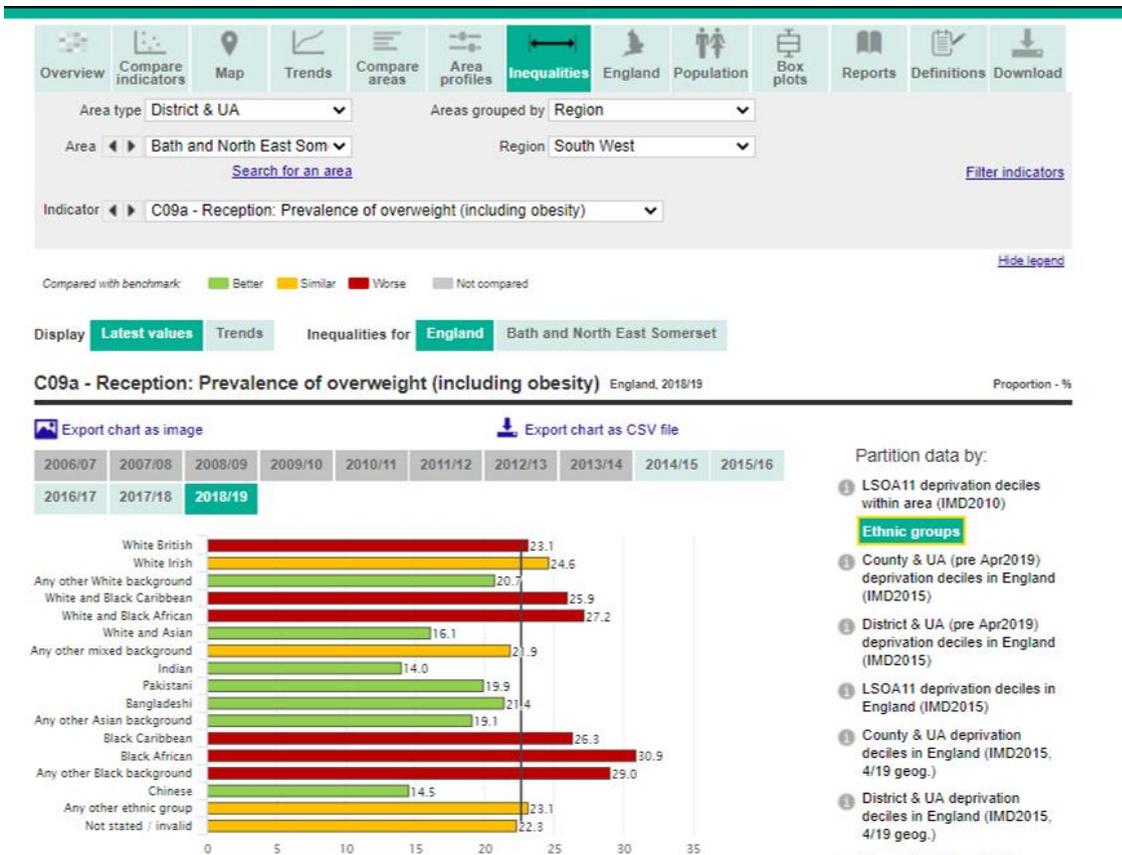
Level of disaggregation and updated very frequently

A great effort is made to collect data from different territorial levels. The tool is regularly updated, and the new features are very clearly displayed in the table and in the "news column".

Similar features already available in Spain

A similar tool is being developed in the Basque Country with positive results: it has been tested with primary healthcare professionals, who have found the tool very intuitive and useful. Moreover, professionals have fully understood the interest in monitoring the social determinants of health and the importance of Community Health Action as part of their work.

Additionally, this tool has some elements in common with the visualisation of 'Key indicators of the National Health System (Indicadores clave del Sistema Nacional de Salud INCLASNS). The current example could be used as an inspiration to include a more explicit approach on equity and social determinants of health in INCLASNS.

2.3.1.2   Challenges for implementation

Tool directed mostly at a technical audience

The participants stressed that the tool seems to be not user friendly for a non-technical user, e.g. citizens or political decision makers. The different reports could include the information in a more summarised way, for example with a selection of essential indicators. The tool could also include a repository of the best practices, and examples of how the best practices triggered policy action. In addition, graphs and gradients do not show the measure or the statistical significance. It is not evident whether data is available for statistical mining and download. More guidance on its use is needed.

Level of disaggregation and frequency of updates: comprehensive data collection requires investment and planning

If implemented in Spain, the level of disaggregation of the data needs to go more in detail, and when possible down to the lowest level possible municipalities and/or neighbourhoods. Moreover, although the frequent database updates are of great technical value, they may require extensive resources.

The tool needs to be accompanied by a strong intersectoral strategy

If this tool is not accompanied by an intersectoral strategy that ensures communication between the different sectors that have an impact on social determinates of health, only little impact in reducing inequalities can be expected.

2.3.2   USA – HealtheConnections' HealtheCNY Community Dashboard

2.3.2.1   Strengths

Collects data from different territorial levels

One of the most relevant aspects of the tool is that it includes data from different territorial levels which allows to link the action to the territory and use the territory as a starting point

(input). In addition, it includes a section defining the importance of the indicator and a link to best practices, strategies, and community resources.

Appealing visualisation

It has useful symbols and icons that allow comparing indicators between regions, trends, and attainment of objectives. Another interesting feature is that the data could be easily presented into different tables, presentations, or reports. Finally, the tool seems very attractive for citizens as the information is accessible and easily understandable by different audiences and it allows to easily download the data.

2.3.2.2   Challenges for implementation

Too many indicators and not fitted to assess certain social determinants of health

There are too many indicators, covering a wide spectrum of themes/topics. The tool seems to have a more detailed list of health/health behaviours/health services indicators than of social determinants of health.

Level of disaggregation: comprehensive data collection requires investment and planning

It is challenging to achieve the same level of disaggregation of the data presented by this tool. For some health indicators, the data coming from the different health services may be difficult to retrieve, as they do not provide them in a comparable or accessible way.

Equity

Moreover, it is very focused on geographic areas, but there are also other inequalities linked to other inequality axes that are more difficult to visualize.

2.3.3   Canada - Government of Canada's Health Inequalities Data Tool

Strengths

Relevant number of indicators and stratifiers

There are data for over 100 health related indicators disaggregated by each of 16 social and demographic stratifiers meaningful to health equity. In addition, the tool offers different types of measures for each indicator, some of them very complex.

Level of disaggregation

This tool has socio-economic indicators by small areas, which can facilitate the data collection.

Similar features already implemented in Spain

The theoretical model used is similar to the one discussed in the Expert Working Group on Equity and SDH surveillance.

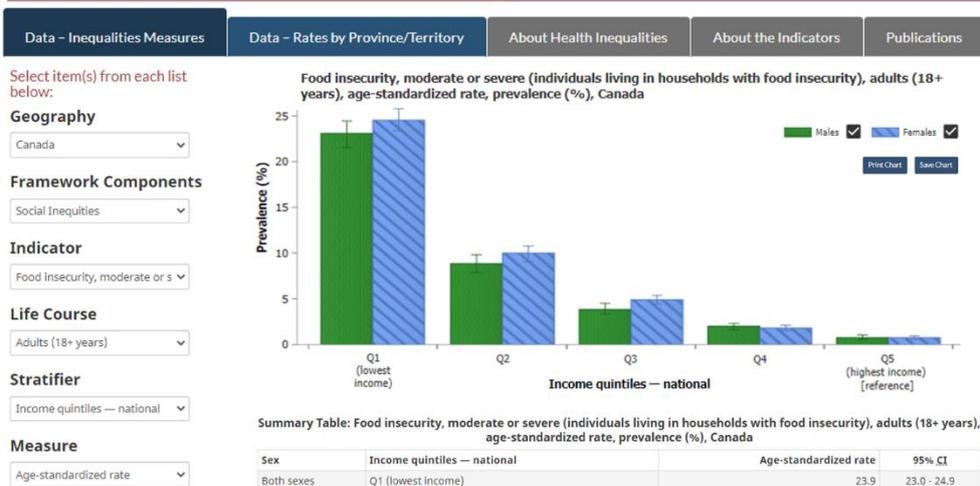#### 2.3.3.1   Challenges for implementation

Limited visualisation possibilities

The tool includes a limited number of charts and maps which makes it difficult to make comparisons between different territorial levels. In addition, the tool does not allow combining different stratifiers at once.

Box 2.3   Health inequalities data tool

Tool directed at a technical audience

The tool does not allow downloading data into a document format.It seems to be designed for a more technical audience.

Note to the reader: it is important to mention that the Public Health agency of Canada has Resources to engage and mobilise non-technical audiences (e.g.: Youtube videos and Infographics).

Level of disaggregation and frequency of updates

The data aggregation is done for large regions. The Spanish tool should aim at obtaining data for smaller areas of health action, in order to visualise and point where the issues are and trigger action.

Data updates for smaller aggregation levels are done every five years. The latter could be difficult to transfer to the Spanish context since data at smaller territorial levels could be

missing or updates are not performed that regularly in Spain. In addition, the most complete socioeconomic and social data comes from the national census in Spain.

2.3.4   Finland - Welfare compass / Hyvinvointikompassi

2.3.4.1   Strengths

Relevant number of indicators and additional context variables

The Welfare compass also contains a good number of socioeconomic indicators and indicators about the industrial structure of the territories. The latter is not very common feature available in other tools.

Level of disaggregation

The indicators are presented by different intervention levels: national, hospital district, regional and municipal levels. This is interesting as different issues should be triggered at different levels.

Visualisation features

When analysing one indicator, the tool provides a trend by default. results and it also gives direct access to the related graphs. Finally, the tool allows to downloading information and use different formats (Excel, PowerPoint, CVS).

Box 2.4   Visualisation features
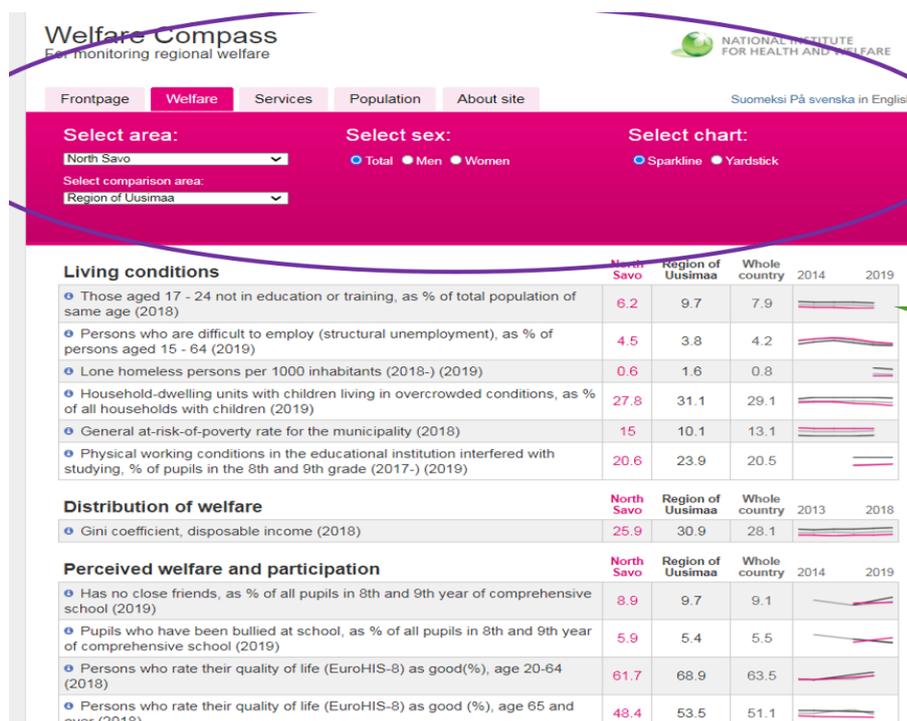
2.3.4.2   Challenges for implementation

Tool directed at a technical audience

This tool would need methodological support and technical guidance to facilitate the users/audience understanding of the indicators and its potential use.

While the tool allows for the downloading of information and usage in different formats (Excel, PowerPoint, CVS), the format of the downloadable information could be improved. For example, results could be presented for a specific area of indicators in a summary or report.

Greater integration of the indicators is needed (a more comprehensive view), which could be achieved, for example, by using maps within the tool itself.

2.4   Part 3: Additional information (factual) on the best practices

2.4.1   Questions and answers

Participants were invited to pose some questions during the presentations of the four Best Practices in Monitoring Social Determinants of Health and Health equity. All the questions asked during the presentations were collected in the chat box and shared with the

presenters. Presenters answered the questions during the week that followed the workshop. All the responses are captured below:

2.4.1.1 Question 1. Is it possible to provide an estimation of the budget required for the implementation and annual maintenance of the practices?

- **HealtheCNY and Conduent (US):** As a health data and technology company, the team specialises in designing and building platforms that meet the unique needs of each client. Pricing is based on geography and types of indicators. For estimated budgeting purposes, implementation starts at $35,000 and can increase based on platform specifications with annual maintenance fees averaging between $50,000 and $75,000.

- **Public Health Agency of Canada (Canada):** The pan-Canadian Health inequalities Reporting Initiative was launched in 2012; the data tool was made public in 2017. This initial phase costs were around: 400,000 CAD including publication of a large narrative report. The initiative was led by group of 3 employees. Currently it is supported by 2 full-time analysts and 2 part-time analysts. Students are often part of the team (up to 4 students each year); the budget for data maintenance is around 100,000 to 150,000 CAD,

- **National Institute for Health and Welfare (Finland):** Budget of the Welfare Compass: a) The development phase in 2009-2012 costed around 700,000 €; b) the annual maintenance is around 20,000€.

2.4.1.2 Question 2. How many employees are working full-time in the maintenance of these data tools?

- **Public Health England (UK):** There are approximately three full-time equivalents working on the public health outcomes framework tool (the analyst also works on other outputs). The Fingertips platform is supported by a team of two developers.

- **HealtheCNY and Conduent (US):** Healthy Communities Institute includes a staff of about 35 people to support the 100+ platforms. Healthy Communities Institute has a dedicated account manager and research staff to support each customised client platform. The clients typically designate one staff member to administer their platform.

- **National Institute for Health and Welfare (Finland):** For the maintenance of the tool there are 0.3[14] employees working with the Welfare Compass. This includes mostly client support and presenting regional results to local decision makers. In the national agenda, that a health and social services reform is under implementation. As a part of this reform, knowledge-based management systems are being renewed, which requires a lot of resources. A single web-based visualisation tool is not in the main focus at this point.

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[14] A person being employed a third of the day

2.4.1.3 Question 3. When did you start monitoring the indicators? Can you also explain the general trends in health inequalities since that date and how the reduction in health inequalities could be explained in the monitoring system?

- **Public Health England (UK):** The PHOF was first published in 2013. The trend data in the tool depend on the source data. It is able to present mortality data from 2001 - there are often changes in geographical boundaries that required the back series to be revised. Comparability were used for ratios when there were changes in ICD coding for mortality.

- **HealtheCNY and Conduent (US):** Healthy Communities Institute began offering data platforms in the early 2010s in the US. Since then, their indicator database has grown to over 5,500+ local, state, and national indicators. The [Demographics indicators](#) have been updated (including demographics, education, income, housing, and employment) on platforms annually, using both publicly available data and annual demographic survey data down to the postal zip code level. The Research team routinely checked data sources every few weeks, to see if new data was released or revised. The data is then cleaned and publish the data in the sites. The health indicators are matched to national and state tracking frameworks, such as the Healthy People framework or a specific state health improvement plan. This allows users to monitor and view their trend over time. A reduction in health inequalities takes time; however, many communities across the country have made great strides in addressing health inequalities through policy or action. A few examples from different client platforms:

  - Data showing higher diabetes and obesity rates in areas that had lower income and poorer educational outcomes, led to community action to advocate for School Wellness Policies in higher-risk school districts. This led to schools from a client's county being recognised nationally as healthy schools in 2018 for the first time. The following year, 25 of 40 schools in the state named "America's Healthiest Schools" were in the client's county.

  - Low breastfeeding rates and higher c-section rates led to working with hospitals in a county toward baby-friendly policies.

  - Identifying a growing older population and shortage of geriatricians led to creating an Annual Wellness Visit Toolkit, to help non-geriatricians with medical and social assessments of older adults.

  - Higher hospitalisations rates caused by opioid use in specific cities led to the development of prescribing guidelines/education programmes on opioids to providers in targeted areas.

  - Higher rates of alcohol and drug use in higher-income schools, led to targeted drug prevention programs in those cities.

- **National Institute for Health and Welfare (Finland):** Finland has extensive population-based data resources collected through administrative registers and population surveys, which provided a unique health monitoring and research opportunities. All administrative registers use a personal identification number system (since 1964) which enables health inequality monitoring between population groups.

  The general trend in health inequalities between socioeconomic groups is that over the last decades, the health of the Finnish population has improved in many indicators (mortality, self-rated health, morbidity, functional capacity, mental health, healthy life expectancy, health behaviours and biological risk factors) but socioeconomic health

inequalities have generally remained or even widened (reference: 'Health inequalities in Finland. Trends in socioeconomic health differences 1980–2005'). Socioeconomic disparity in life expectancy increased significantly during the years 1988−2007 in Finland. The gap in life expectancy between socioeconomic groups is still large despite the slight narrowing of the difference during the 2010s. A decline in alcohol-related mortality has been crucial in narrowing the gap particularly amongst men. Regional health inequalities, monitored by Welfare Compass and other web tools (Sotkanet.fi, Our Health), have remained large between eastern and northern regions (with poorer health) and southern and western regions (with better health) of Finland.

With regards to reporting health and welfare status of the Finnish population: 1) Annual reports are provided in Our Health website (available only in Finnish), 2) a publication titled "The welfare of the Finns" is published by THL in every four years (last version from 2018), 3) A large body of inequality research available, for example on mortality differences by social economic position.

2.4.1.4 Question 4. As most of the data on structural determinants of health do not come from health databases, what is the strategy for routinely passing data to public health units from other departments? Is there, for example. mandatory legislation?

- **HealtheCNY and Conduent (US):** Hospitals and health departments are required to provide data to their regulatory agencies quarterly or annually; the Healthy Communities Institute (HCI) is able to access this data publicly or through a data use agreement. Data sources outside of health that HCI uses are generally publicly available through national census surveys. The US national census agency became a permanent agency through legislation in the early 20th century. Additionally, many non-profit research organisations or academic institutions throughout the US administer surveys and provide data publicly that can be provided at a local or national scale.

- **Public Health Agency of Canada (Canada):** Data can be accessed from Statistics Canada.

- **National Institute for Health and Welfare (Finland):** Data can be accessed from Statistics Finland, which has produced the majority of Finnish official statistics for decades. Administrative registers in Finland cover a wide range of data over a person's entire life span. The registers are computerised, and they cover the whole country and all age groups. However, statistical information systems are not designed to generate, link or disseminate data and information to the public domain on structural determinants of health (especially SDH) and health outcomes. There have been major obstacles to routinely link register based structural data to outcome variables. However, some legislative steps have been taken and according to a new law, the Finnish Institute for Health and Welfare (THL) is now entitled to collect information directly from some vital statistics administered by other departments, such as the Social Insurance Institution and Statistics Finland.

2.4.1.5 Question 5. To what extent do other non-health departments use these indicators to advance the health in all policies strategy?

- **HealtheCNY and Conduent (US):** The platforms are used as a tool for collective impact and are often hosted by collaborations that include public and behavioural health departments, social services, hospitals, community clinics, school districts, local

governments, transportation, businesses, and non-governmental organisations. Health departments make up about one-third of clients and are key participants in collaborations. Data of particular interest to non-health departments include those related to poverty, educational outcomes, housing affordability, consumer expenditures, unemployment, commuting time to work, food insecurity, and land use. Additionally, each client may add, update, and maintain his own data (called local data) under any topic (health or other); this can include but is not limited to: air quality, motor vehicle collisions, specific local population characteristics, and/or regional business surveys. This local data still has the same visualisations available to each indicator, as other indicators maintained by the Healthy Communities Institute team (an example can be viewed here). Another way these platforms can be utilised to bring together non-health departments is the Resources Library, Funding Opportunities, and Promising Practices sections. In these sections of this platform, locally and nationally focused content has been added and maintained by the Healthy Communities Institute. Again, these sections include information, data, and funding resources outside of the health and disease field, and cover the economy, public safety, education and other fields.

- **National Institute for Health and Welfare (Finland):** Over the last few decades, the Finnish national health policy has relied on the Health in All Policies (HiAP) approach. The Finnish multi-sectoral Advisory Board on public health aims to ensure an effective dissemination of survey results, to develop concrete tools to implement public health policy, and to target resources to the areas or population groups with the most prevalent health problems. The group consists of representatives of a wide spectrum of health promotion organisations, ministries, universities, and other authorities and enables an active multi-sectoral collaboration. A dialogue between survey experts with comprehensive public health knowledge and the decision makers, on concrete health policy processes is important. The legislation also obligates municipalities and regions to recognise health in all their policies and utilise health impact assessment (HIA) to cooperate with other public and private bodies and non-governmental organisations in health monitoring and health promotion, and to prepare regular welfare reports.

- From the Finnish experience, intersectoral structures, processes, and tools for the identification of problems and solutions, and implementation across sectors are prerequisites for HiAP. It has been noticed that without permanent structures and processes, HiAP will not be systematic, only ad hoc and working case-by-case, and depending to a great extent on the expertise and will of the individuals. Legislative backing has proven to be useful, especially in providing continuity and sustainability.

2.4.1.6 Question 6. What is your experience in statistical methods used to measure trends in inequalities (including changes in data collection methods)?

- **HealtheCNY and Conduent (US):** On each platform measuring trends, the Mann-Kendall Test for Trend is used. HCI has selected the Mann-Kendall test for trends over other statistical trend tests because it can be used for indicators with varying units and time periods and does not require confidence intervals (which are not available for all indicators). The trend icon is viewed on each indicator page by the upward or downward arrow that includes a technical note explanation. Alternatively, on the different platforms to compare between population groups for the same indicator, it is better to use the Disparities Dashboard or looking at a specific indicator. Depending on available data for confidence intervals, various subgroups will be highlighted in different colours, to easily show if the subgroup differs significantly worse or better than the overall value (for more information, it is helpful to utilise the legend guide – available at this link).

Additionally, for higher level analytics and/or adding to reports, HCI utilises the [Index of Disparity calculation](#), which has been used since the US Healthy People Framework was developed. This Index is a modified coefficient of variation used to measure disparity across populations defined on the basis of race/ethnicity, income, education, and gender. This can be applied across health indicators regardless of magnitude, over time to monitor trends, and across different populations.

The Healthy Communities Institute also produces and calculates predictive analytics for unique data projects and reports. One area of interest is utilising predictive analytics for severe COVID-19 outcomes. A collaborative work has aimed to build a free and publicly available website for identifying at-risk COVID-19 populations on a national scale (available at this [link](#)). Two interactive maps are shown here, the COVID-19 Vulnerability Index, which is updated frequently, and the SocioNeeds Index map, which was briefly shown during the presentation.

- **National Institute for Health and Welfare (Finland):** In health inequality monitoring, both register-based data and population survey data are used. In survey data, the biggest challenge is the decline in response rates over the last decades. In 1978, the response rate to the national health behaviour survey was 84 %, in 1990 it was around 60-70 %; whereas in 2019, the response rate to the corresponding national FinSote survey was 45 %. Compared to participants, non-participants have twice as high mortality, they have more health problems and functional disabilities, and the prevalence of smoking and other adverse health habits is higher. Thus, non-participation distorts the results. To take into account the effects of missing data, weights are used in survey data collected after 2010. The calculation of weights is based on the Inverse Probability Weighting (IPW) method. According to previous research, the IPW method has been found to improve the accuracy of studies made on the Finnish population. The weight variable values are calculated using register-based data for the whole sample on age, gender, marital status, language, education and geographical area. In regional level inequality monitoring a relative index of inequality has been used, both in mortality (potential years of life lost) and health care service use.[15]

The estimates are calculated for men and women separately and education is used as a measure of socioeconomic status. The purpose of the relative index of inequality is to quantify the relative disadvantage or health problem experienced by different population groups.

2.4.1.7 Question 7. Do you ever use cross individual data, for any anonymised unique identifier? How were issues with bordering of administrative regions which do not correspond with the educational, economic, health data available being solved?

- **HealtheCNY and Conduent (US):** The platforms are mostly publicly available, and the US personal health data privacy is highly regulated through the Health Insurance Portability and Accountability Act (HIPAA) (a few of their clients choose to keep their

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[15] Härkänen, T., Kaikkonen, R., Virtala, E. et al. 2015. Inverse probability weighting and doubly robust methods in correcting the effects of non-response in the reimbursed medication and self-reported turnout estimates in the ATH survey. BMC Public Health, 14 (1150). https://doi.org/10.1186/1471-2458-14-1150

platforms password protected for various reasons). If the Healthy Communities Institute Research Team receives a dataset with individual, de-identified records, analysts will generally aggregate data by postal zip code, county, or state to ensure stable values and personal privacy. Nevertheless, the platform is designed to track and trend any data point; therefore, if anonymised and unique identifier data was available to a client, the platform still helps visualise these data points through charts, mapping, and tables. Moreover, the platform has the functionality to make certain pages or sections password protected, this feature may be of interest if a data source includes anonymised individual data.

- **National Institute for Health and Welfare (Finland):** Yes, individual data crosses are also done. In Finland, the unique personal identification numbers enable record linkage across different registers. There have been worries that strict interpretation of the European General Data Protection Legislation (GDPR) may diminish the possibilities for collection Big data sets for research. Since GDPR does not concern anonymised data, this type of data can be used, as previously, for statistical and research purposes. In general, GDPR promotes the use of data for scientific research also in cases when data cannot be made anonymous. There is a special emphasis that data can be used for purposes of public interest, scientific or historical research purposes and statistical purposes.

2.4.2 Discussions between best practice presenters

While the participants were discussing the best practices in the breakout rooms, discussions between the presenters took place in the main room. The conversation versed around the issues the different organisations encountered with their tools and the data collection techniques:

- **Statistical methods**

Representatives from the Public Health Agency of Canada asked other organisations what statistical methods rules they normally used to calculate the trends- as Canada seem to have faced issues when they change their data collection method. Representatives from Conduent (HealtheCNY) tool responded that the Healthy Communities Institute selected 'The Mann-Kendall Test for Statistical Significance' which can be used for different units and varying time periods. The latter does not require confidence intervals (since these are not always available). The Mann-Kendall Test for Statistical Significance' is used to evaluate the trend over 4 to 10 time periods of measure.

For more in-depth statistical analysis, the HealtheCNY tool has used the index of disparity calculation, which has been used since the US National Healthy People's Framework was developed. This Index uses a modified coefficient, a variation used to measure disparity across populations defined on the basis of race, ethnicity, income, education, and gender. This Index can be applied across health indicators regardless of the magnitude, change over time or across different populations (gender, race/ethnicity). Hence, this is also applied to visualisation.

In addition, this tool gives the option to turn on and off confidence intervals. This option helps to show variation from a group when it is too different from the overall value. An indication of this variation is the colours used: red/green when subgroups are doing worst/better than the overall value (e.g., national average). This subgroup is highlighted in red, or if the subgroup is doing better than the overall value it is highlighted in green. If the platform easier for user to understand, as this platform is used by both more technical epidemiologists and general public users.

- **Data collection**

Representatives from the Public Health Agency of Canada explained they are in the process of switching from "door-to-door" type of data collection to a more virtual (and less costly) data collection technique. They believe this change to be positive and to have a big impact on the way inequities are monitored. However, this could cause breaks on the data collection and therefore in the trends. In this regard, Canadian representatives asked to the other presenters what techniques they used to account for the different ways that data is collected and for the breaks in the data collection.

Another representative from Conduent (HealtheCNY) mentioned that regarding their visualisation techniques they also experienced the same challenges as Canada. They faced changes in the methodology. For example: for hospitalisation data when hospital/medical/insurance coding[16] changed, this had an impact on the ability to show the trends. Their solution was to have a set of indicators around services: age-adjusted hospitalisation due to diabetes, death rates survey data that shows adult with diabetes. At the neighbourhood level they have data showing who were taking medicines for diabetes. Having different indicators around one disease allows them to see the trend for at least one of the indicators.

These discussions were very informative between organisations. Especially, for the US and the Canada tool due to the geopolitical similarities between them. E.g., federal level, provincial / State levels divisions.

2.4.3   Concluding remarks

DG REFORM concluded discussions by reinforcing that health equity monitoring is strongly needed to be able to find sustainable policies to improve the situation of the most deprived populations. It was highlighted that work conducted as part of this project should help the Ministry of Health to reflect on what is taking place on this topic "Spain can advance in having some systems like the ones we are presenting today".

DG REFORM concluded the presentation explaining that next tasks of this project will consist of giving support to evaluate and identify health promotion interventions at the local level. She explained that an evaluation framework tailored to the Spanish context will be designed and implemented. Finally, she confirmed that a Report containing the outcomes of this event will be circulated amongst all the participants.

Pilar Campos, Deputy Director of Promotion, Prevention and Quality of the MoH closed the event thanking everyone for the participation and summarising next steps.

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[16] Medical coding is the process of converting diagnosis, procedures and supply information provided by healthcare

3   Final conclusions

The objective of this report has been to present a wide variety of visualisation tools that should inspire the Ministry of Health to continue developing their own Health equity monitoring and visualisation tool as part of the Public Health Surveillance Strategy. It is clear from the tasks undertaken throughout this report that the objective is not to directly transferred a tool "in whole" to the Spanish context. However, the different tools have shown interesting elements that, if well adapted, could be used to create a complete and usable monitoring system.

There are several elements that need to be properly taken into account when building an equity monitoring and visualisation tool. The first two elements are the **selection of indicators and the type of indicators used.** We have seen throughout the best practices presented in the report that the indicators were chosen after *long term projects involving all relevant stakeholders across different sector*s. In addition, an important aspect is that indicators must be universal and agreed by all responsible actors so that they can be *obtained homogeneously at different territorial levels*. In some of the examples presented we could see how the organisations *continuously assessed the expansion of new indicators and updates* based on data availability and evolving population needs. Regarding the type of indicators, not only is the number important (with a limited number of indicators it is easier to take action) but also the type of indicators (it is crucial to select indicators for which data may be available).

The **visualisation of the tool** is another relevant aspect to be considered. The level of sophistication of the different visualisation tools presented in this report varies, however they all have in *common the use of maps, graphs, and visual tools to present the data*. The visualisation of the tool could have an important i*mpact on the type of audiences* that can access and really make use of the tool. It clear is that the best and most usable tools are more visually appealing (using graphs, line charts, interactive maps, bar). It is also important that the tool allows for comparing a certain municipality, hospital district, or region with the region of your choice.

In general, we could see that most of the tools presented in this report are at times **too technical and are targeted for the community leaders and policymakers.** However, several efforts are being made to make these databases more user friendly and accessible for all types of audiences (for e.g. Canadian example and British example).

In relation to the data collection, all tools presented in this report have in common that they **retrieve the data from different data sources** (mainly National Institutes of statistics national, hospital data, regional and local databases) and that as anticipated several **challenges exist to collect data for certain indicators**. Finally, something relevant to be taken into account is the *data disaggregation and the frequency of updates*. The tools presented in this report collect the data in almost all territorial levels and update data on the databases with a higher frequency, which could translate into important resources.

We have also seen how the data coming from most of the tools presented in this report (e.g. UK, Canada, Finland) has t**riggered policy actions.** For example, in UK the tool is the reference point for the local authorities to assess health inequalities and it is used by different analyst to elaborate reports. In Canada, thanks to the evidence generated by the tool, the Public Health Agency of Canada   has been able to shift the solicitation of publicly funded projects across Canada to different-more vulnerable-population groups. In Finland. the tool has been used to justify financial investments on certain welfare related projects. Also, they go beyond and give incentive to municipalities to use the tool.

Last but not least, there are other elements that should be taken into account, such as the significant budget required for the implementation and annual maintenance of the tool (including number of employees working full time) the long-time timeframe needed to set up this type of monitoring tool and also the important to have a strong legal framework that backs up and reinforces the creation of this tool (e.g. Health Care Act in Finland).

Reflections from the Ministry of Health of a future Health equity monitoring and visualisation tool

The Spanish authorities agree on some elements that should be considered when developing the new tool. Firstly, **it is crucial to define the objective of the tool, so that its development meets this objective**.

Secondly, **defining the users is as crucial as defining the objective**. It is very important that the surveillance of equity goes beyond the only use of the authorities, since they already can usually obtain the data. The future tool should be directed and accessible for professionals, citizens, and policy makers. It could be useful to provide different access profiles with different utilities. For professionals, the ideal tool could be similar to UK tool, with detailed information, more technical graphs and if possible, including impact measures with statistical significance. In this case the "Why this matter" and "What measures to take" sections should direct to reports or technical documents of interest. For policy makers and press/media, reports with very clear and relevant data and information on how to interpret and address inequalities could be included. It might be interesting to include a sector-by-sector perspective, to inform and increase awareness among different sectors on how their policies, strategies and activities impact on health.

Another key point is to **define the level of geographic disaggregation of the data**. For community action, it could be desirable to collect data at the local level as it easier to obtain and more transferrable and feasible in a short term. Additionally, regulations that facilitates disaggregation on the local level should be set.

Regarding the selection of indicators, **defining the indicators is as crucial as defining the objective**. It is necessary to maintain a defined and limited number of indicators. At the beginning a few quality, accessible, universal and consensus indicators can support well informed action.

The data and information must be shown in an open, easy and accessible platform. It must be attractive and enjoyable. Different formats can be used like charts, reports, tables, etc to show data. Dynamic visualisations of trends or maps are also interesting. Another important point is that the tools allow to download and extract the data. But above all, it should give a very clear vision of equity.

Finally it **is crucial to evaluate if the tool has triggered action**. If this tool is not accompanied by a cross-sectional strategy (health in all policies, inter-departmental collaboration, etc.) that enhances communication with decision makers from sectors responsible for different social determinants of health, it will have a very limited impact in tackling and reducing inequities.

With the completion of this Task (2) and the workshop discussions, the core study team is confident that the MoH has been exposed to the basic criteria that such a tool should have, and that is ready and more inspired to continue *moving forward Equity*, that will allow to have more equal and healthier societies.

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