



Estimation of indicators for monitoring the socioeconomic impact of non-communicable diseases: A pilot Study in Chile

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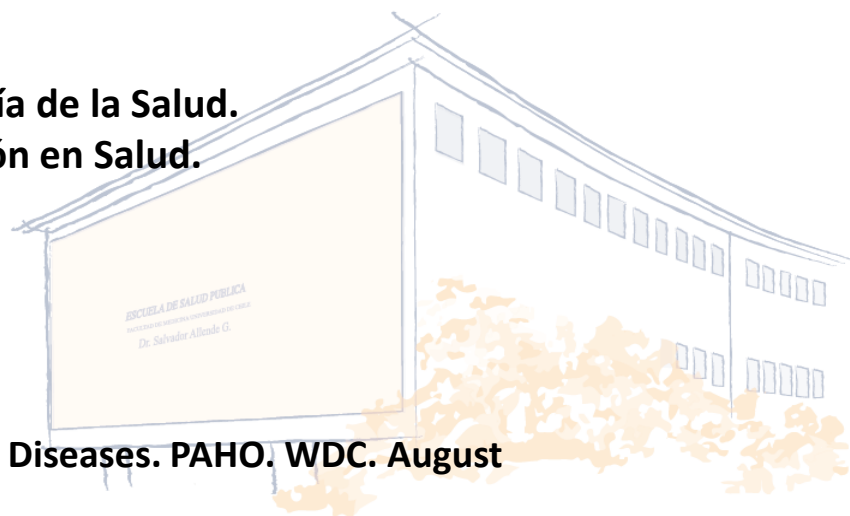
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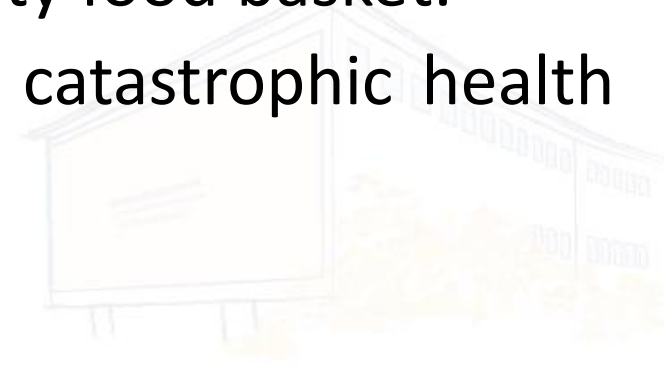
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Background

- PAHO Study Group proposed to include three new indicators in the framework of regional surveillance on NCD:
 - Percentage of Gross Domestic Product (GDP) invested by the public sector in the prevention of noncommunicable diseases.
 - Percentage of population below the national poverty line who can afford buying a quality food basket.
 - Percentage of households facing catastrophic health expenditures due to NCDs.



INDICATOR 1. PERCENTAGE OF GDP SPENT BY THE PUBLIC SECTOR IN THE PREVENTION OF NONCOMMUNICABLE DISEASES.



Definitions

- The study limits the problem to:
 - NCDs: cancer, cardiovascular, diabetes and chronic respiratory diseases. Their main risk factors are included: tobacco and alcohol consumption, unhealthy diets and physical inactivity.
 - Health promotion and primary prevention.
 - A intersectoral approach to the problem (health, education, sports, transport, etc.).



Methods

- Emphasis placed on calculating the numerator of the indicator, Multiple possible denominators.
- Active search for information to identify actions and public spending on primary prevention of NCDs.
 - Electronic contact and meetings with representatives of offices and / or departments of different ministries.
 - Review the official websites of each institution.
- Attributable fraction in aggregate expenditures within complex programs were defined by agreement with sectorial experts.

$$(1) = \frac{PE_{NCD}}{GDP} * 100$$

$$(2) = \frac{PE_{NCD}}{CPE_T} * 100$$

$$(3) = \frac{PE_{NCD}}{CPE_H} * 100$$

PE_{NCD} = Public expenditure in health promotion and primary prevention of NCD.

GDP = Gross Domestic Product

CPE_T = Central Public Expenditure

CPE_H = Central Public Expenditure in Health Sector.

Methods

GENERAL GOVERNMENT INSTITUTIONS RELATED TO THE COMPONENTS OF PUBLIC SPENDING IN PREVENTION OF NCDs AND THEIR RISK FACTORS.

Categories of public expenditure	Institutions
Social (non health)	<ul style="list-style-type: none"> - National Council for Culture and the Arts - Ministry of Sports - Ministry of Social Development - Ministry of Education - Ministry of Interior and Public Security - Ministry of Justice - Ministry of Environment - Ministry of Labour and Social Welfare - Ministry of Housing and Urban Development. - National Service for Women
Non-social	<ul style="list-style-type: none"> - Presidency of the Republic - Ministry of Economy, Development and Tourism. - Ministry of Public Works. - Ministry of National Assets - Ministry of Transport and Telecommunications - Ministry General Secretariat of Government - Ministry of Mining - Ministry of Energy - Ministry of Agriculture
Health	<ul style="list-style-type: none"> - Ministry of Health

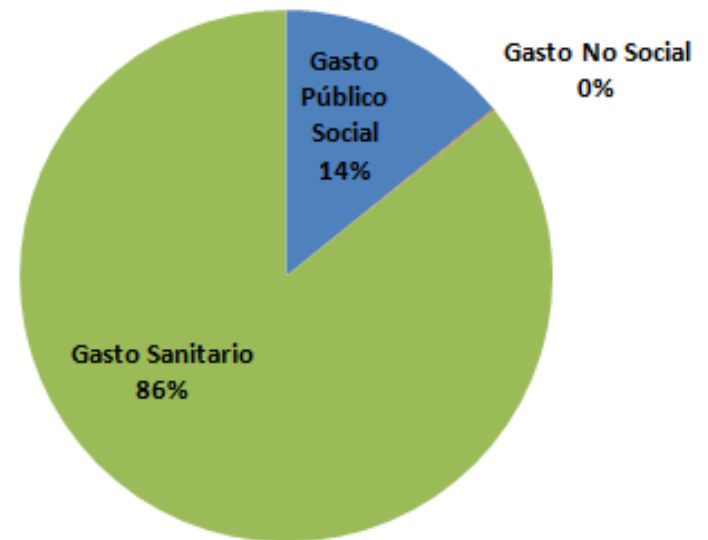
Results

Public expenditure in health promotion and primary prevention of NCD for 2013: M\$ 215.226.668 (CLP)

Spending on NCD prevention and promotion as a proportion of:

Gross Domestic Product	0,19%
Central Public Expenditure	0,7%
Central Public Health Expenditure	4,1%

DISTRIBUTION OF EXPENDITURE BY CATEGORY:



Results

NCD PREVENTION SPENDING AS PROPORTION OF TOTAL SPENDING BY MINISTRY, 2013 (M\$CLP)

Category	Ministry	NCD prevention expenditure	Total expenditure ^a	Proportion (%)
Social (Non Health)	Ministry of Social Development	3.645.846	489.602.802	0,7
	Ministry of Education	1.054.995	6.368.229.578	>0,1
	Ministry of Sports	18.243.742	79.892.816 ^b	22,8
	Ministry of Interior and Public Security	3.075.709	2.426.848.196	>0,1
	Ministry of Environment	4.518.686	38.241.216	11,8
Non Social	Ministry of National Property	47.180	44.109.613	>0,1
	Ministry of Transport and Telecommunications	150.913	738.657.797	>0,1
Health	Ministry of Health	184.489.617	5.224.724.000	3,5
	Total	215.226.688	15.410.306.018	1,4

^a Informe Ejecución Partida Cuarto Trimestre. FUENTE: Dirección de Presupuestos (www.dipres.gob.cl)

^b The ministry was created in 2013, for purposes of calculating the budget execution in 2014 was considered.

Discussion & next steps

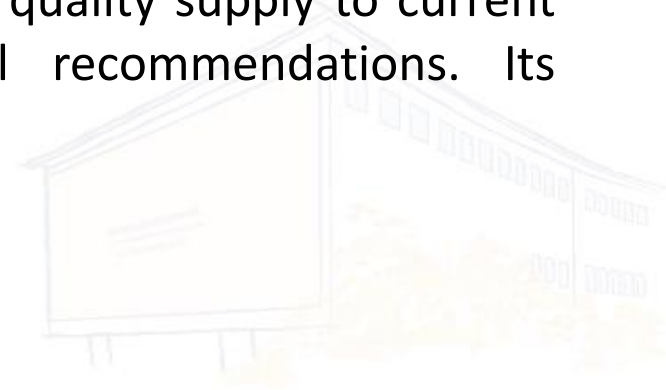
- During the study, the concept "NCD prevention" is identified as a sole responsibility of the MoH by other institutions.
- The definition used for health promotion and disease prevention is a key issue.
- Costly in terms of time and resources due to limitations of relevant registries.
- Special consideration should be taken to estimate local / municipal expenditures (f.e. PHC) and other program data with aggregate registers.

INDICATOR 2. PERCENTAGE OF POPULATION THAT CAN ACCESS A QUALITY FOOD BASKET



Background

- **Basic food basket** (BFB) account to meet the minimum nutritional needs of the population (kilocalories), under a particular perspective (poverty, malnutrition). 1987-1988 (IVth Household Budget Survey) with recent modification (2015), but that doesn't meet more complex nutritional standards.
- **Healthy food basket** (HFB) seeks to respond to nutritional needs for healthy eating, imposing the highest nutritional standards.
- **Quality food basket** (QFB) account for a higher quality supply to current minimum standards, meeting the nutritional recommendations. Its considered an intermediate point between.



Methods

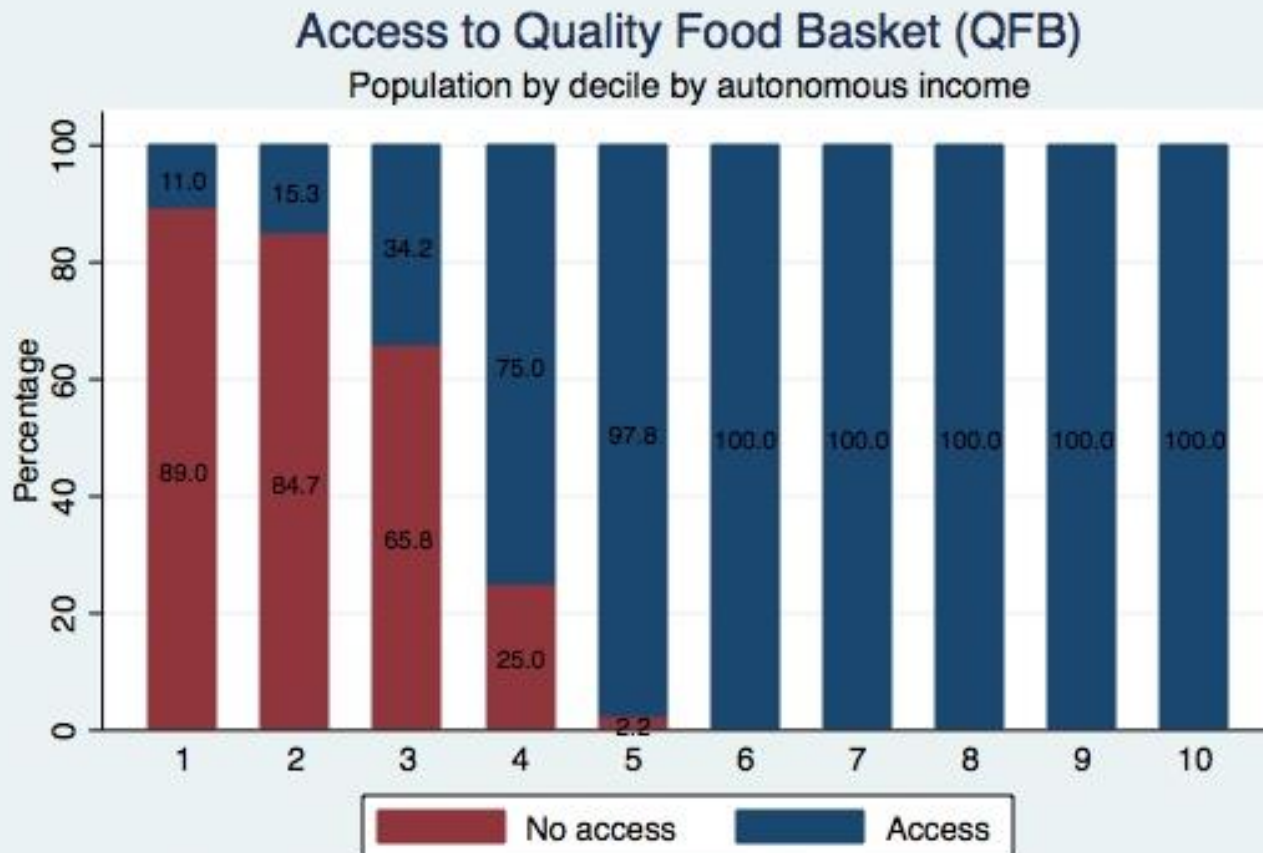
1. **Defining a quality food basket:** from the national BFB 2015 by making adjustments to the weights of each product reaching the recommendations of the 2013 Dietary Guidelines of Chilean MoH.
2. **Basket price:** using reference prices from basket VIIth Household Budget Survey adjusted by the Consumer Price Index observed in the monitoring of products.
3. **Determine the percentage of the population that can access the basket.**
 - Income data from National Socioeconomic Survey (CASEN) 2013 are used due to its national representativeness.
 - Affordability approach to the methods of the poverty lines based on baskets. Orshansky coefficient = 2.68 calculated from the last Household Budget Survey.
 - To observe the distribution of the accessibility, distribution of the population is constructed in deciles of autonomous household income per capita, with reference to the presentation of results from the CASEN 2013 by the Ministry of Social Development Chile.

Results

COMPARISON OF BASIC FOOD BASKET (BFB) AND QUALITY FOOD BASKET (QFB)

Quality indicators		BFB	QFB	Dif
Fruits and vegetables grams / day		303	626	106,6%
% Proteins of animal origin		43,5%	47,5%	3,9%
% Healthy proteins		79%	98%	18,6%
Servings of fish a week		1,79	2,20	23,2%
Servings of dairy a day		0,82	3,04	271,8%
Servings of legume a week		1,73	2,52	45,6%
Servings of fruits and vegetables a day		3,66	7,37	101,6%
Milligrams of salt a day		1347	1393	3,4%
Added sugar		8,3%	4,5%	-3,8%
Total dietary fiber per day		16,8	24,3	44,9%
Total kilocalories		2025	2025	0
Macronutrients	Proteins	14,2%	16,1%	1,9%
	Lipids	27,9%	25,5%	-2,5%
	Carbohydrates	57,8%	58,5%	0,6%

Results



Source: Elaborated in base of the National Socioeconomic Survey (CASEN) 2013.

36.1% increase in cost
(in terms of BFB)
27.1% of the Chilean
population can not
access

QFB \$ 43,872 (CLP)
Access line \$ 117,576 (CLP)

Discussion & next steps

- An important part of national populations is unable to access to a Quality Food Basket in Chile.
- Define an international consensus methodology as a reference for the construction of national Quality Food Baskets.
- Strengthen institutions and the process in charge of registration and price monitoring (quality and transparency)
- Develop capacities and projects aimed to monitor price data in places of purchase by the final consumers of Quality Food products considered in national baskets.



INDICATOR 3. PERCENTAGE OF THE POPULATION WHO SUFFER CATASTROPHIC HEALTH EXPENDITURES DUE TO NCD.



Background

- **Definitions:**
 - **Out-of-pocket health expenditure** (OOP) refer to payments made by households to receive health services, usually directly at the point of contact with the health system.
 - **Catastrophic Health Expenditures** (CHE): Health expenditures are considered "catastrophic" when in a period of time determined Out-of-pocket spending exceeds the capacity to pay of the household in relation to a threshold, leading to a disruption of their living standards .
 - **Capacity to pay** (CTP) is defined as the effective income remaining after expenses, or after satisfaction of subsistence needs expenditures.
- **Problem:** estimate a CHE by specific group of diseases. CHE are usually determined by household survey data, in the case of Chile the Household Budget Survey, which doesn't record health information data from the patients. Other sources of information allow to address health expenditure cause (by CIE-10 f.e.) but is not possible to aggregate such data to household level.

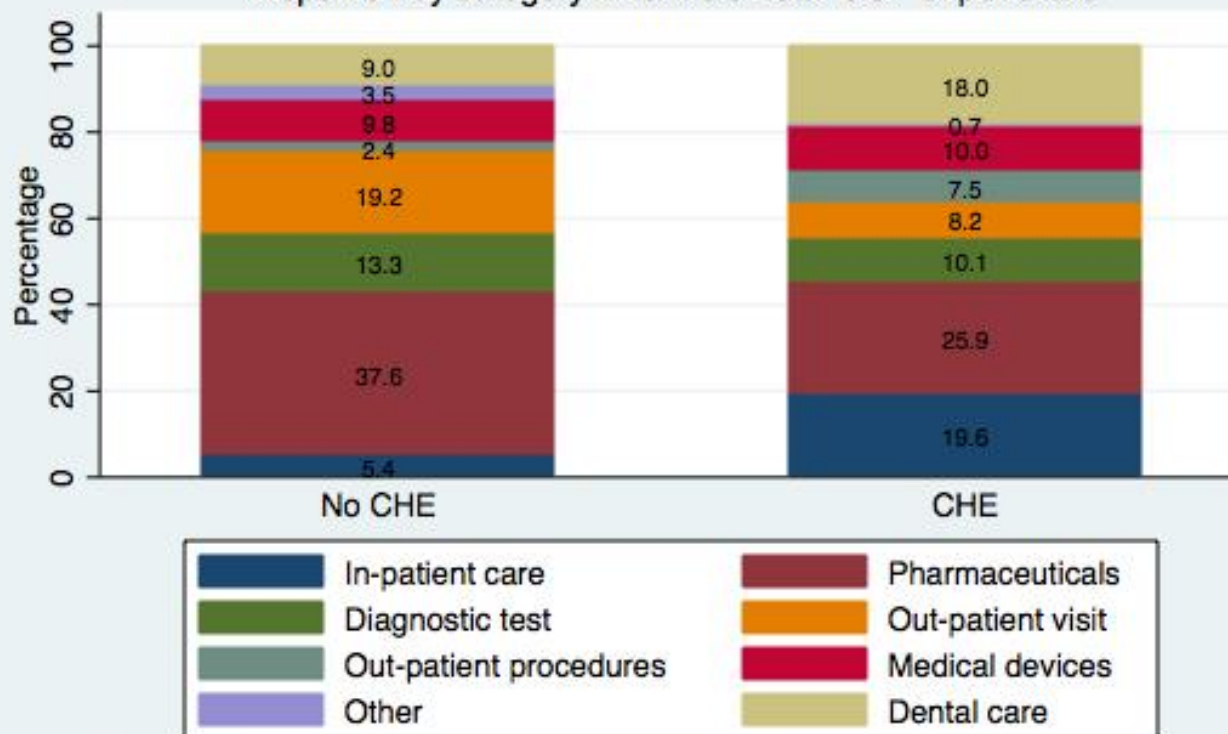
Methods

1. Calculation of households affected by CHE (Household survey data 2011-2012) using methodology of Xu – WHO.
2. Determine proportion of these households with CHE could be attributable to NCD.
 - Strategy 1: analysis of Household Survey Data health expending items.
 - Strategy 2: spending on catastrophic insurance (Additional Coverage for Catastrophic illnesses – CAEC) for hospitalizations.
 - Strategy 3: consumption of drugs in ENS2009 with cost allocation.

Results

CHE and distribution of household health expenditure

Proportion by category in terms of total OOP expenditure



Source: Elaboration in base to Family Budget Survey 2011-2012

Results

PROPORTION OF CATASTROPHIC EXPENDING ATTRIBUTABLE TO NCD

	% of health expenditure in households with CHE	Expenditure attributable to NCD	CHE attributable to NCD
Pharmaceuticals	25,90%	18,30%	4,74%
Inpatient care	19,60%	51,10%	10,02%
Others	55,50%	38%	21,09%
Total			35,85%

Estimation of the percentage of households with CHE attributable to NCDs, Chile. 2012.

CHE Threshold	% Households with CHE	% Households with CHE attributable to NCDs
40%	2,09%	0,75%
30%	4,09%	1,47%

Discussion & next steps

- This indicator face several limitations. Main one is access to data of household expenditure linked with health causeas of such expending.
- Work is required to adapt Housefold Expenditures Surveys to incorporate details of causes of utilization (ongoing in Chile). Regularity of this data source in each country limits the use of this indicator for monitoring.
- Countries with insurance expenditure data can estimate this indicator more easily if they are able to aggregate expenditures to household level data.



Thank you!

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