

From Food Composition to better Policies and programmes
in Nutrition and Agriculture



12th INTERNATIONAL FOOD DATA CONFERENCE

October, 11th-13th 2017

Cultural Center Of Science (C3) - Godoy Cruz 2270

Buenos Aires - Argentina

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Sodium content and compliance with regulation of processed foods and preparations of Costa Rica

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COSTA RICAFOODS/LATINFOODS

Buenos Aires, Argentina

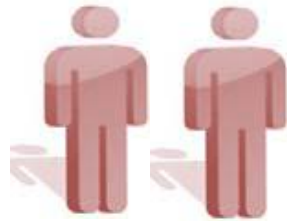
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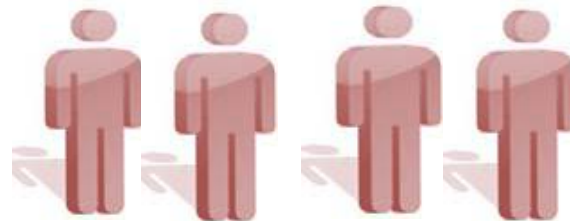


Introduction

Population over 20 years at risk and with high pressure in Costa Rica. 2014 (%)



Pre-hypertension
(120-139/
80-99 mm Hg)



Hypertension
(\geq 140/90 mm Hg)

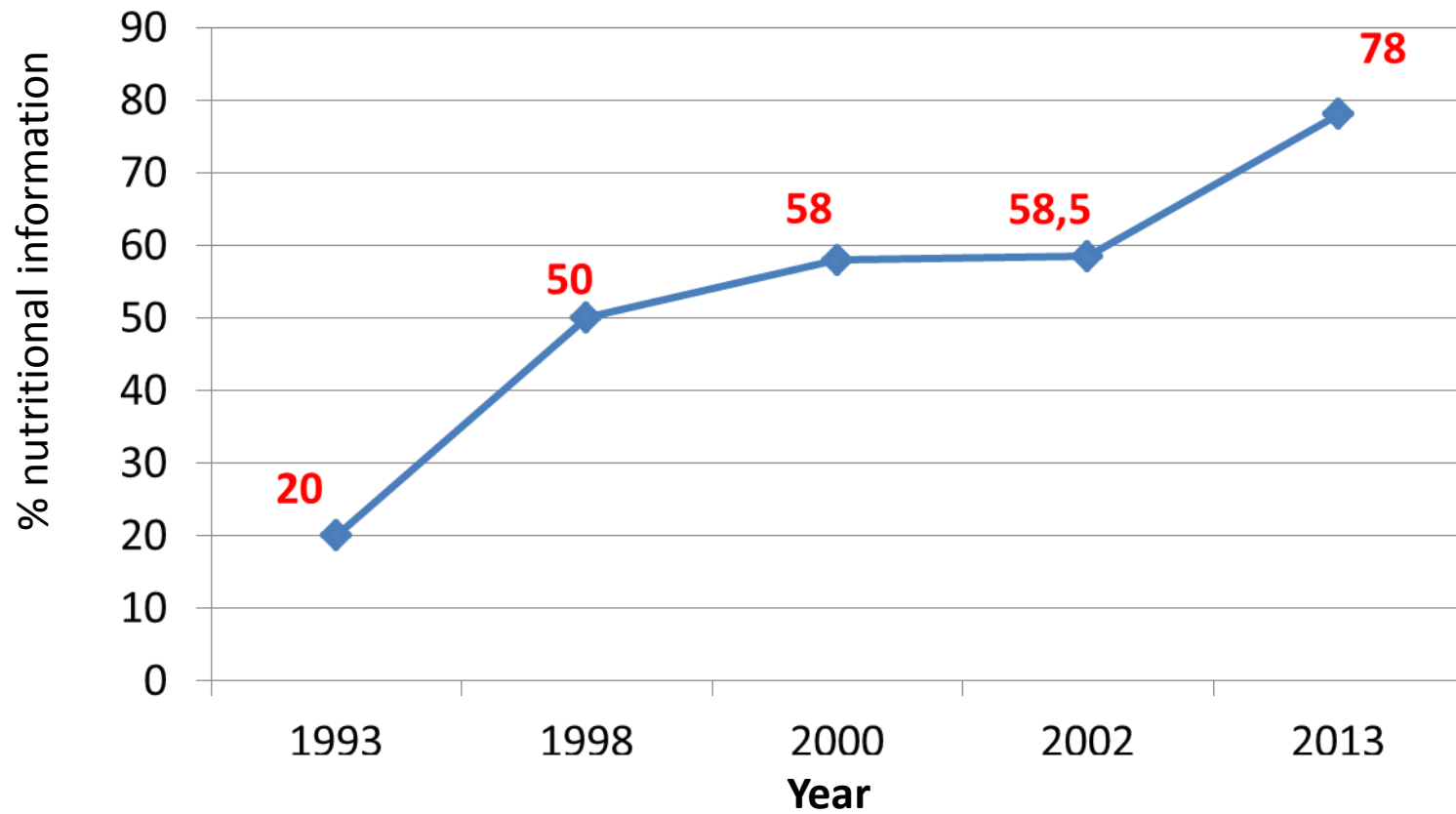


Normal
($<$ 120/80 mm Hg)

CCSS. Vigilancia de los factores de riesgo cardiovascular 2015.
http://portal.ccss.sa.cr/portal/page/portal/Gerencia_Medica/Vigilancia_Sindromica/Publicaciones/Documento%20Final%20Cardiovascular%20Cronicas.pdf



Trend of nutritional labeling in packaged foods in Costa Rica





Objetive

To determine by direct analysis the sodium content in foods of high consumption by the population of Costa Rica and verify compliance with current legislation.



Methodology: Preliminary analysis

1. Analysis of inter-comparison between laboratories
2. Analysis of performance test
3. Definition of parameters

Parameters	Data
Limits of detection	<1mg/l
Limits of determination	12%
Slope, Intercept	m= 0.2794, b=0.0057
Coefficient of determination	$r^2 = 0.9997$
Calibration standards	0.25, 0.50, 0.75, 1.00, 1.25, 1.50
Lamp	Na, 93 A
Wavelength	598 nm



Methodology

- Sampling of 810 products from 94 brands in supermarkets, convenience stores, corner shops, local bakeries .
- Sample preparation: drying, grinding, freeze drying.
- Direct analysis: humidity, ash, sodium (AOAC)
- Compliance of sodium declaration with the regulation RTCA 67.01.60.10 (comparison of the sodium content obtained by direct analysis with the nutritional labelling)



Types and number of foods studied classified by category

I- Processed foods:

- Condiments (2)
- Crackers and cookies (2)
- Sausages (4)
- Sweetened cereal(1)
- Canned tuna(1)
- Cheese (processed, tender, to fry) (3)
- Soups (dehydrated and instant) (2)
- Tomato sauce (ketchup, ranch, for pasta) (3)
- Consommé chicken and beef (2)
- Mayonnaise (1)
- Classic English sauce (2)

II-Prepared foods:

- Gallo pinto (rice and beans, onion, pepper and cilantro) (1)
- Pizza ham and cheese(1)
- Bread baguette with cheese (1)
- Chicken rice (1)
- Cantonese rice (1)
- Casado “ (meat or chicken with rice, beans and vegetables) (2)



Methodology Sampling

<u>Foods</u> (n)	<u>Type</u>	<u>Brands</u>	<u>Batches</u>	<u>Analysis</u>
810 Primary ↓ 576 Analytical	23 Processed foods (3 x 3 x 3)	66	198	396
	7 Prepared foods (3 x 4 x 3)	28	84	168
	30 Total	94	282	576



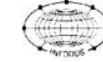
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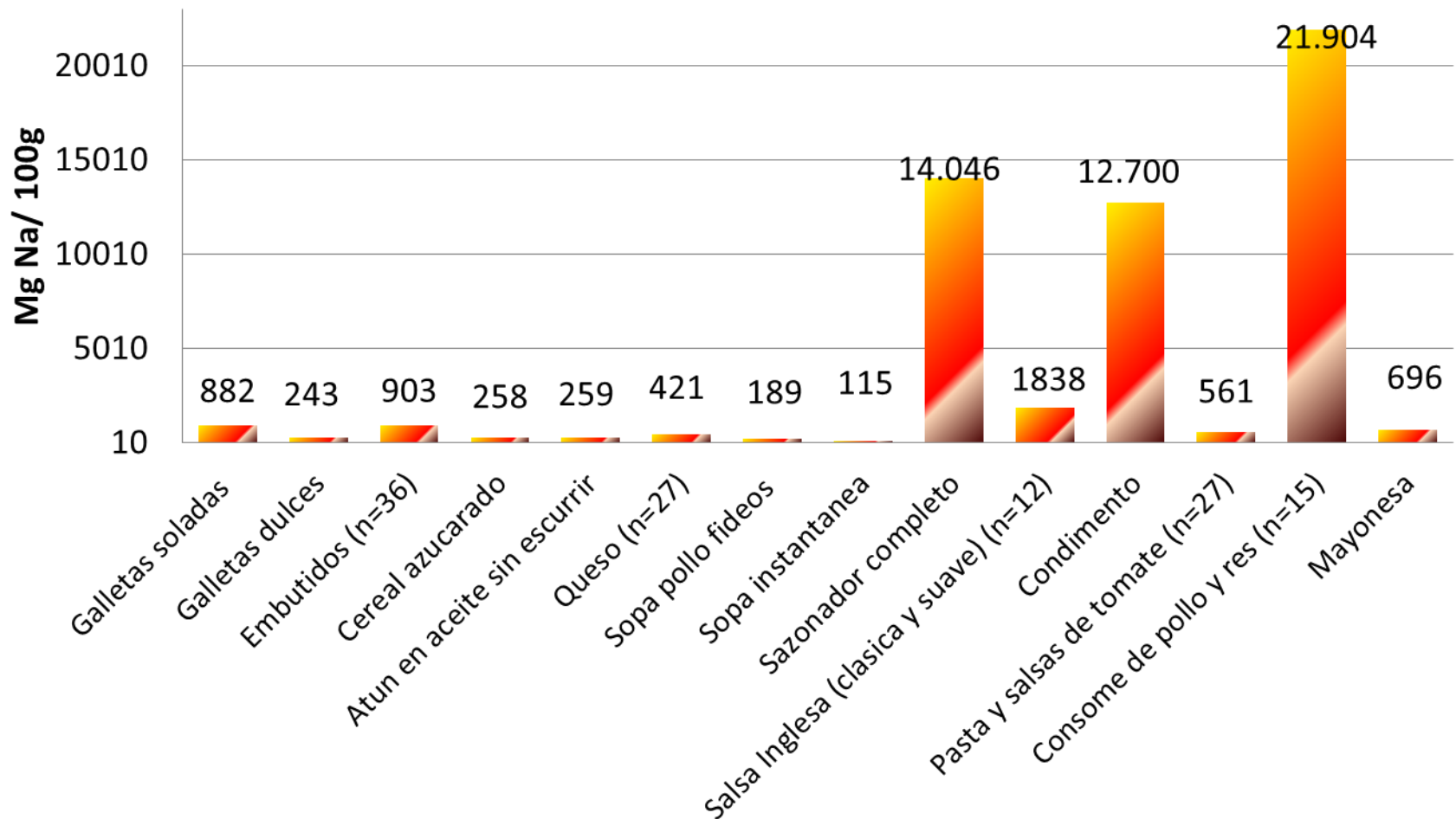
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RESULTS

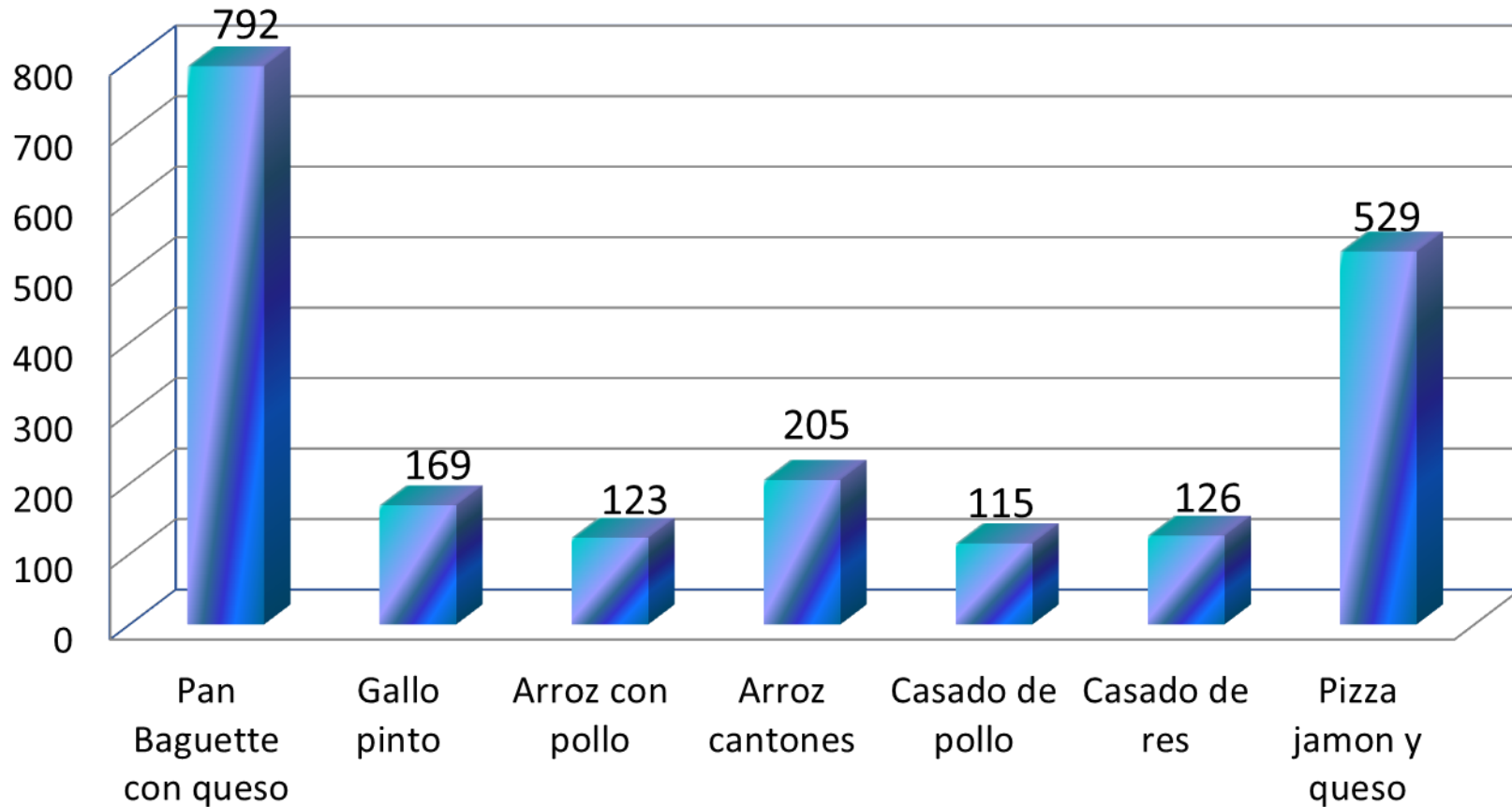


Sodium content in processed foods (mg %)





Sodium in prepared foods, mg Na/ 100g





Classification of foods with and without nutritional labeling by sodium content

	# Brands	High* (%)	Medium** (%)	Low*** (%)
Direct Analysis	41 with labeling	71	27	2
	53 without labeling	42	47	11
Total	94	51	36	7

(*) High: >600 mg/100g

(**) Medium >120<600

(***) Low <120 mg /100g

Fuente: <http://multimedia.food.gov.uk/multimedia/pdfs/frontofpackguidance2.pdf>



Compliance of nutritional labeling according to tolerance

Tolerance ($\pm 20\%$)	Number of products
Within tolerance	20 (49%)
Less than tolerance	12 (29%)
Greater than tolerance	9 (22%)



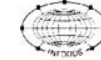
Conclusions and recommendations

- The population of Costa Rica is at risk of suffering hypertension due to the medium to high content of sodium in foods commonly eaten.
- Monitoring sodium content in Costa Rican foods should be a priority.
- Improvement of sodium labeling is needed in Costa Rica



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Acknowledgment



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