

# SESSION 1: IMPROVING QUALITY of LIFE

## PANEL 1.1A: Essential elements of well-being



Ricardo UAUY  
Chile

### **Professor of Public Health Nutrition, University of Chile/London School of Hygiene and Tropical Medicine**

Ricardo Uauy has served as an expert on multiple WHO/FAO committees, and has received several awards, including the McCollum Lecture award ASN (USA) in 2000, the National Applied Science Award from the Government of Chile in 2012, and the Doctor Honoris Causa by the University of Granada in 2014; he has written more than 350 scientific journal publications and has edited 10 books



# Nutrition – the role of nuclear techniques for health and disease

Ricardo Uauy MD PhD

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## WHERE ?

### MALNUTRITION AFFECTS ALL REGIONS WORLDWIDE



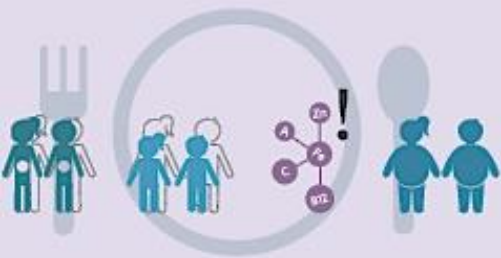
WHO. The double burden of malnutrition. Policy brief. Geneva: World Health Organization; 2017.





# WHAT ?

THE DOUBLE BURDEN OF MALNUTRITION IS CHARACTERIZED BY THE COEXISTENCE OF:



Undernutrition (wasting, stunting and micronutrient deficiencies) along with overweight and obesity



and diet-related noncommunicable diseases



within individuals, households and populations



throughout life

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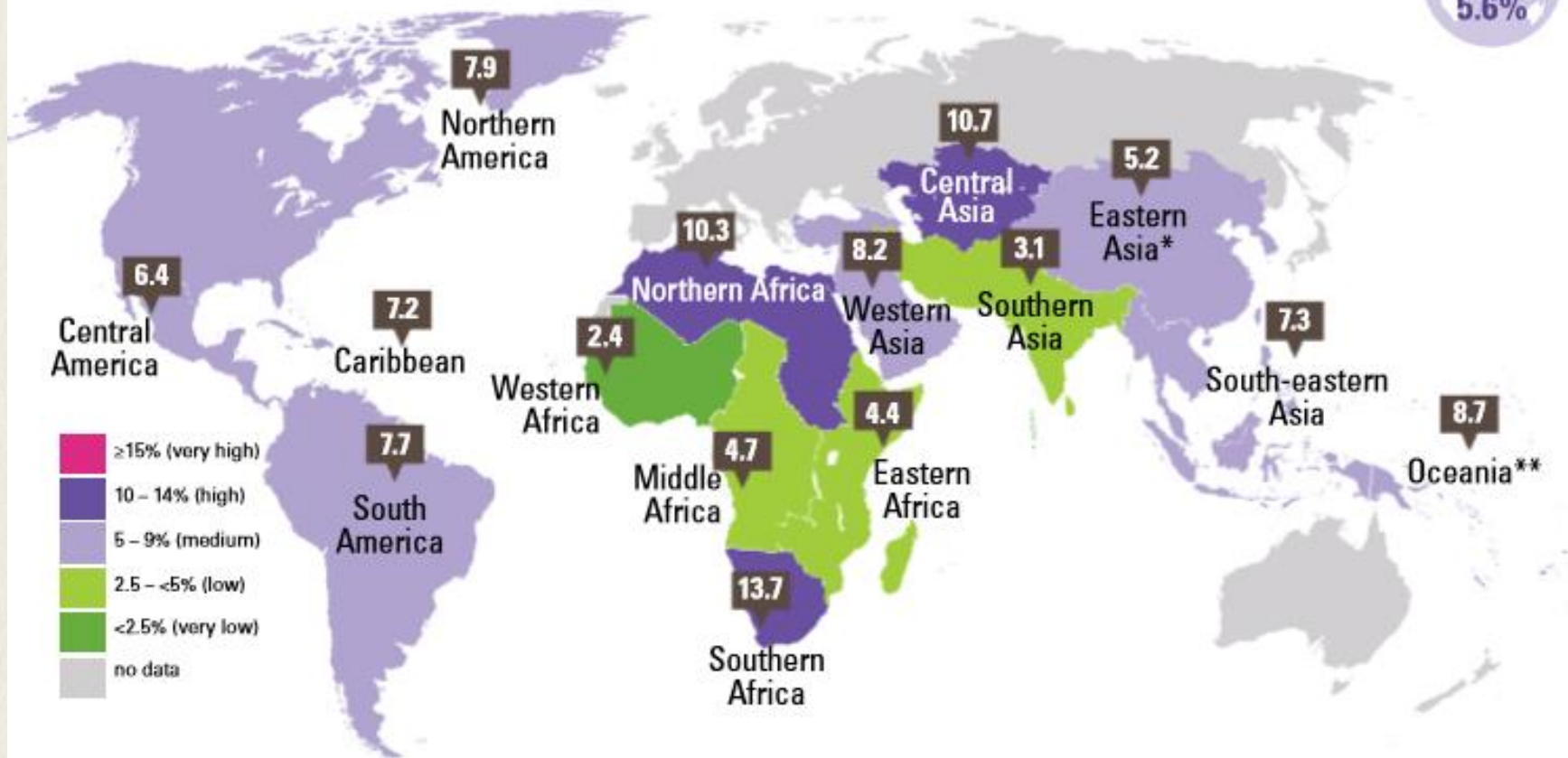


# Regional perspective

In three sub-regions, at least one in every ten children under five is overweight

Percentage of overweight children under 5, by United Nations sub-region, 2017

GLOBAL  
5.6%



Source: UNICEF, WHO, World Bank Group joint malnutrition estimates, 2018 edition. Note: \*Eastern Asia excluding Japan; \*\*Oceania excluding Australia and New Zealand. There is no estimate available for the sub-regions of Europe or Australia and New Zealand. These maps are stylized and not to scale and do not reflect a position by UNICEF, WHO or World Bank Group on the legal status of any country or territory or the delimitation of any frontiers. The legend contains a category for >15 per cent (pink) but there is no sub-region with a rate this high.





# Nuclear techniques are needed to address the double burden of malnutrition

Measuring  
Fat and  
Fat free mass

**BMI  $\neq$  fatness!**

- Big and muscular
- Thin and fat



Fat Free Mass:

- Organs
- **Muscles**
- Bone
- Fluids

Fat

Mineral

Protein

Water

Courtesy: SJRI, Bangalore, India

# Example from Chile: How the IAEA contributed to address the challenges and inform the actions

**1997**

IAEA started working with University of Chile, Institute of Nutrition and Food Technology (INTA) to address malnutrition

**1998**

Energy Metabolism and Stable Isotopes Laboratory (EMSIL) was established with support from IAEA

**1999 – 2004**

- Impact of iron fortified food on anaemia in children (RLA7008)
- Body composition and energy expenditure in children attending day care centres (RLA7008)

**2005 – 2009**

- Reduction of childhood malnutrition (RLA6052)
- Early diagnosis of *Helicobacter pylori* infection (RLA6054)

**2014 (ongoing)**

Early diagnosis of sarcopenia (RLA6073)

**2012 – 2015**

Breast milk intake and body composition (RLA6071)

**2009 – 2015**

Double burden of malnutrition (RLA6064)

**2007 -2012**

Prevent and control obesity in Latin America (RLA6059)



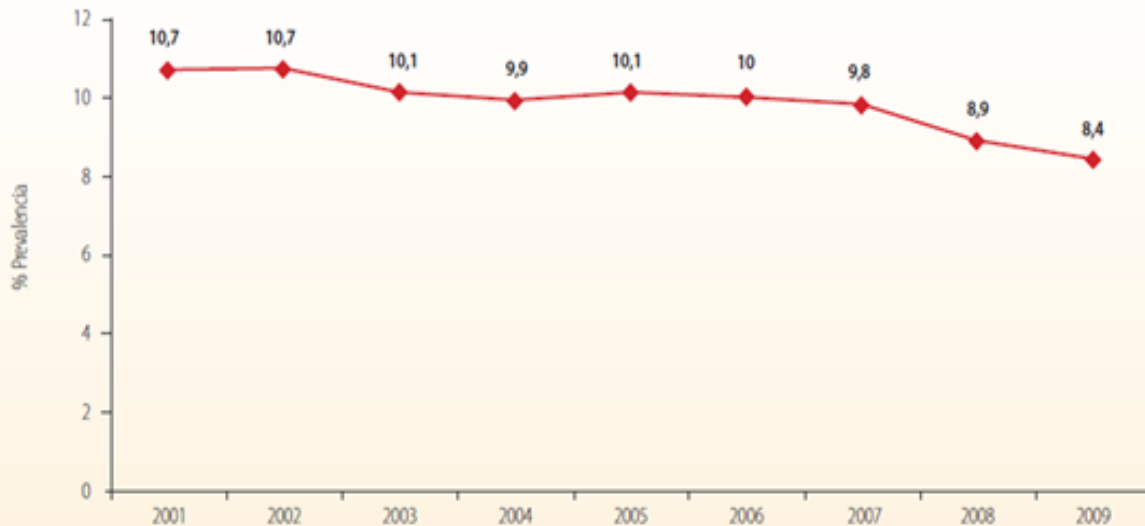
# Day Care Centres for pre-school children

IAEA nuclear techniques identify high energy intake and physical inactivity

Provision of nutritious foods and early stimulation

Physical activity programme was designed and included into the curriculum

Obesity rate in preschool children was reduced from **10.7% in 2001** to **8.4% in 2009**



Fuente: Sistema de Información del Estado Nutricional de la Junta Nacional de Jardines Infantiles (JUNJI)





Thank you

