



# Social inequalities in salt consumption

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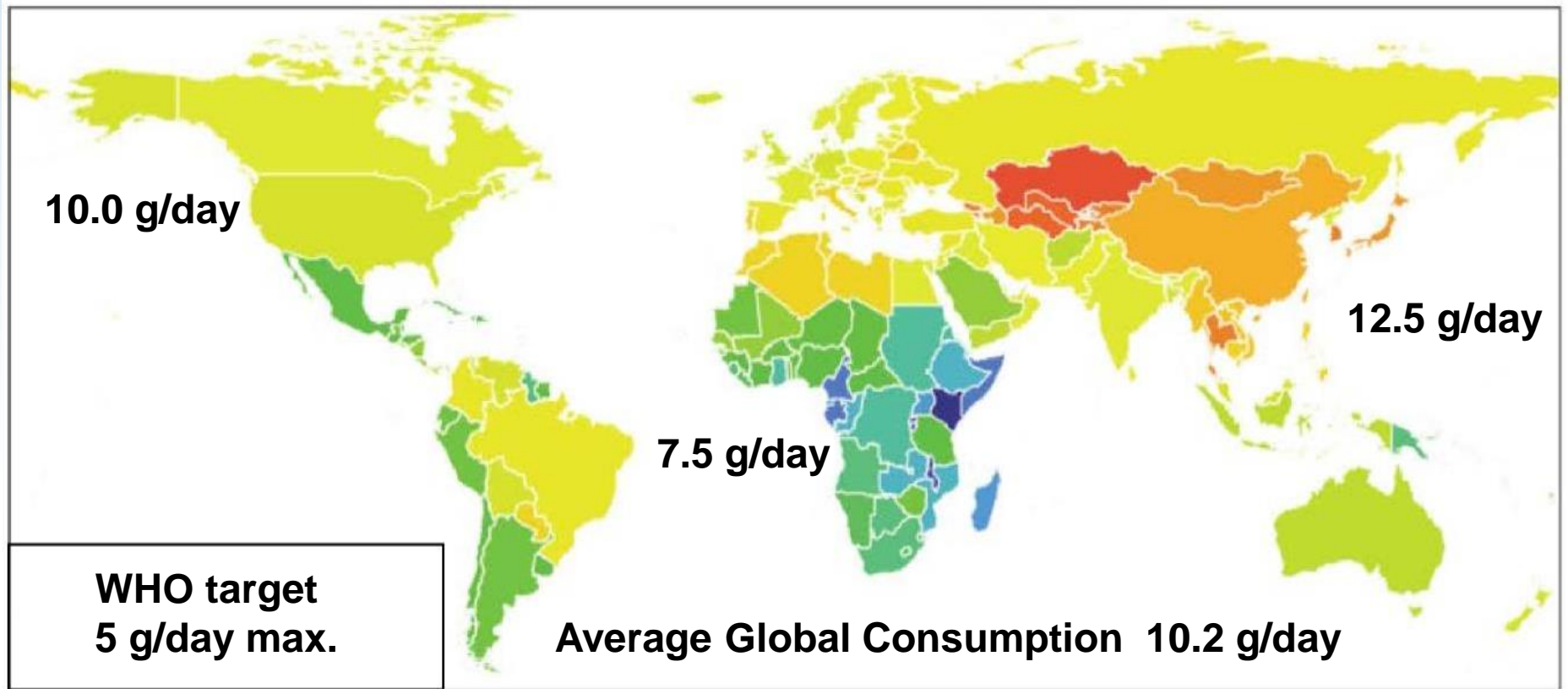
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**University of Warwick, Coventry, UK**

***Disclosures:** Technical Advisor to the World Health Organization, the Pan American Health Organization, Member of C.A.S.H., W.A.S.H., UK Health Forum and Trustee of the Student Heart Health Trust – all unpaid.*

# Outline

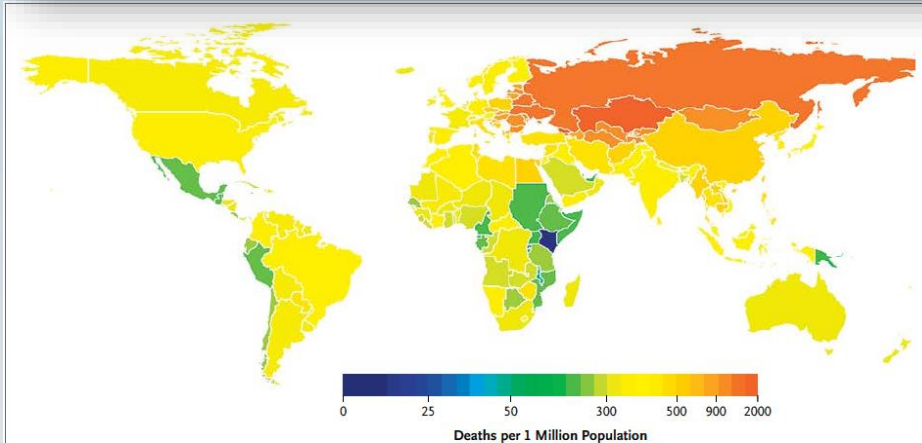
- What is normal salt consumption?
- Is eating too much salt harmful?
- Will salt reduction protect?
- How big is the problem?
- How large might the benefits be?
- Can we do it and how?
- Is it feasible for populations to reduce salt intake?
- What are the next steps?

# High salt consumption all around the world

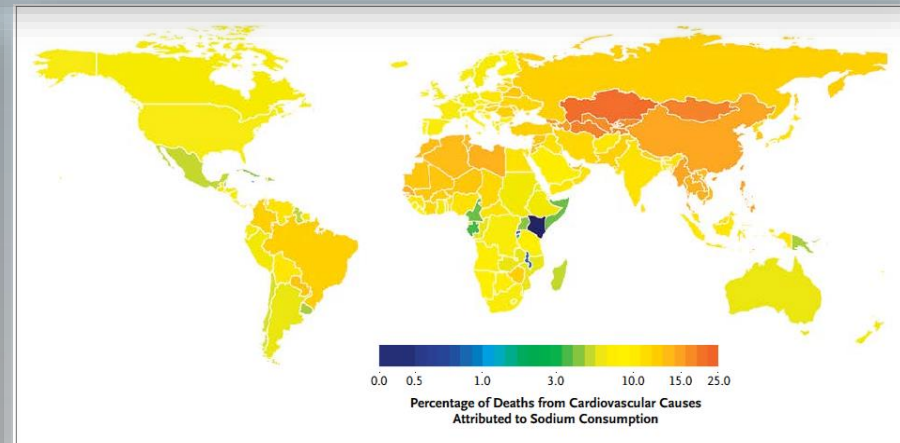


Powles J et al. BMJ Open 2013;3:e003733

# Global Sodium Consumption and Death from Cardiovascular Causes



**Figure 3.** Absolute Cardiovascular Mortality Attributed to Sodium Consumption of More than 2.0 g per Day in 2010, According to Nation. The scale is based on the number of deaths from cardiovascular causes (per 1 million persons) in 2010 that were attributed to sodium consumption of more than 2.0 g per day.

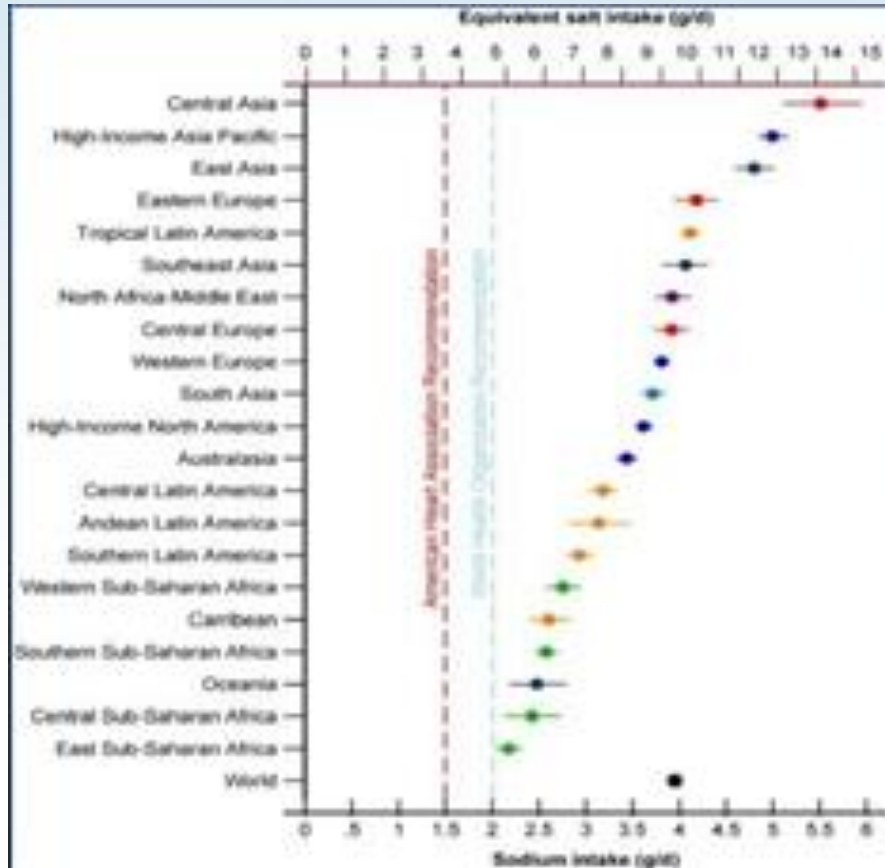


**Figure 4.** Proportion of Deaths from Cardiovascular Disease Attributed to Sodium Consumption of More than 2.0 g per Day in 2010, According to Nation. The scale is based on the percentage of all deaths from cardiovascular causes in 2010 that were attributed to sodium consumption of more than 2.0 g per day.

- In 2010, global sodium consumption estimated at 3.95g per day (9.875g salt per day)
- Globally, 1.65m annual CV deaths attributed to sodium intake >2g per day (>5g salt per day)
- These deaths accounted for nearly 10% of CV deaths
- 85% of these deaths occurred in LMICs and 40% were premature (<70 years)

*Mozaffarian D et al. NEJM 2014;371:624-34*

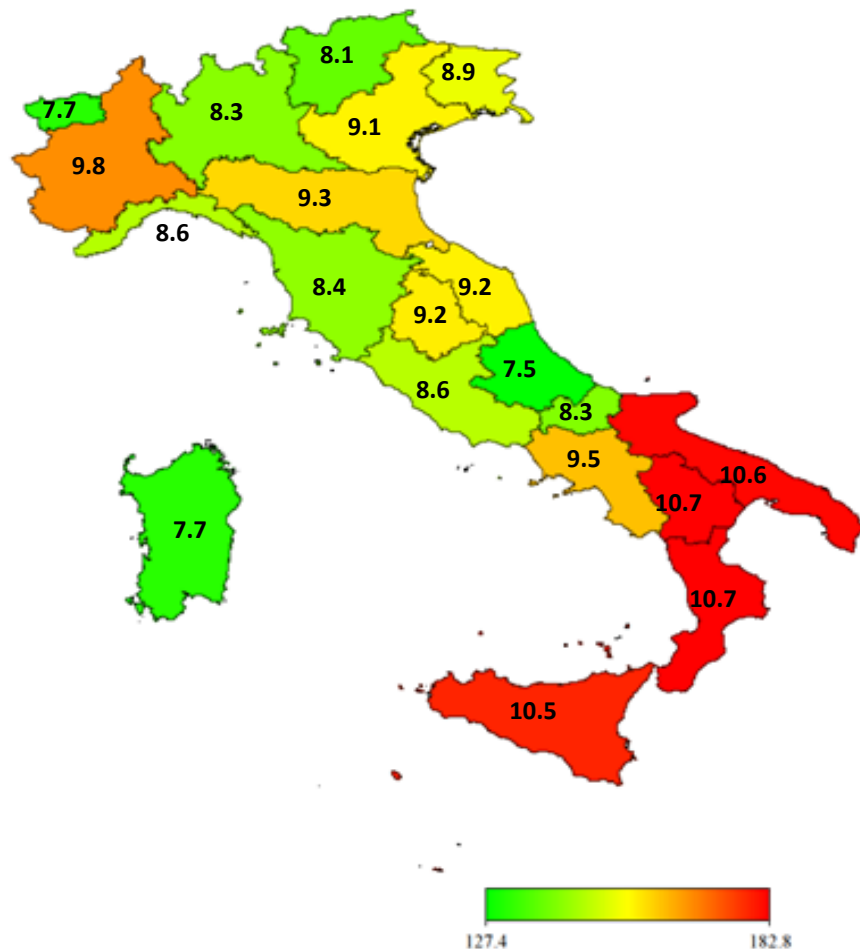
# Salt intake is at least twice the maximum recommended level in most countries of the world



8.5M deaths in LMICs could be prevented over 10 years if sodium intake were reduced by 15%

Powles J et al. BMJ Open 2013;3:e003733

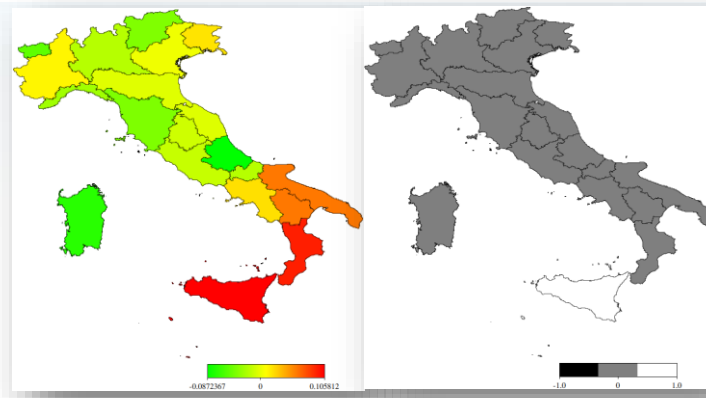
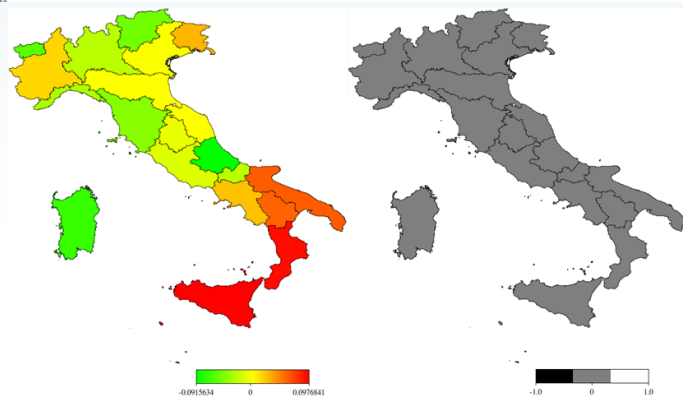
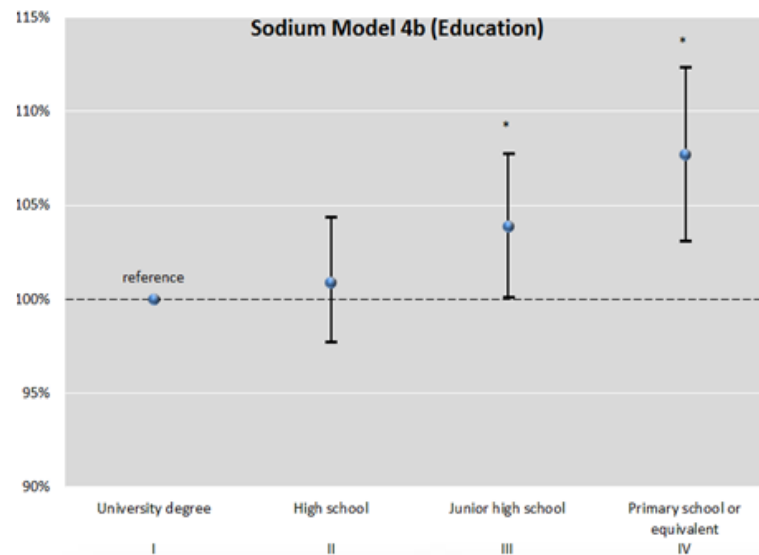
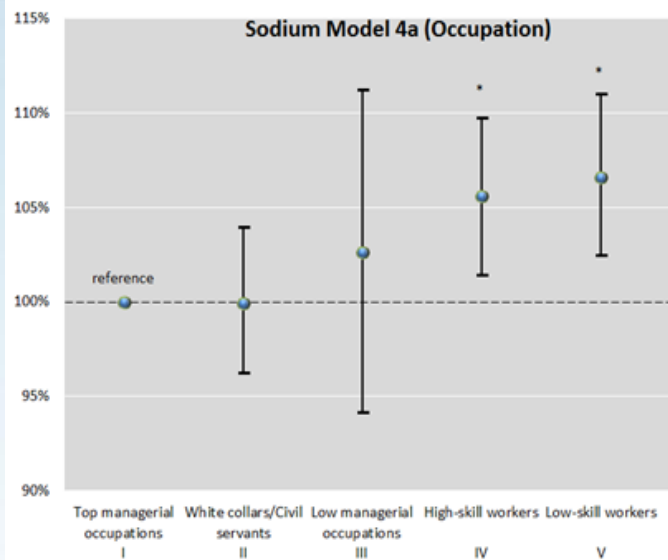
# Salt intake (g/day) in Italy: MINISAL-GIRCSI



Cappuccio FP et al. BMJ Open 2015; in press

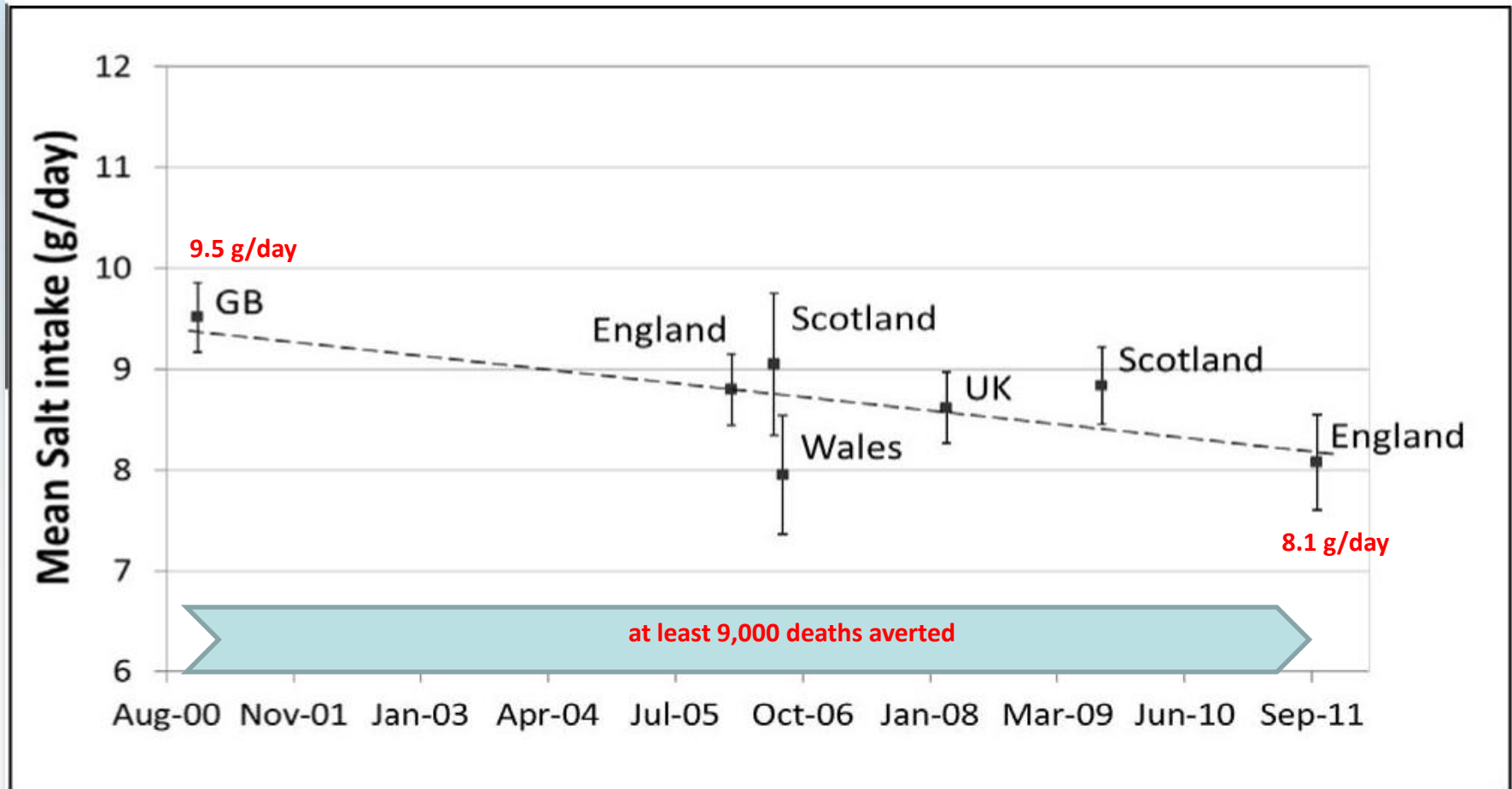


# Effects of SES by occupation (L) and education (R)



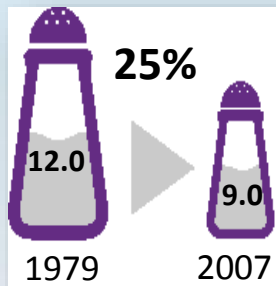
Cappuccio FP et al. *BMJ Open* 2015; in press

# Salt intake reduced by 1.4 g/day in the UK between 2000 and 2011

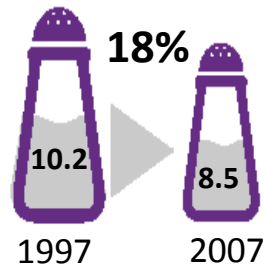




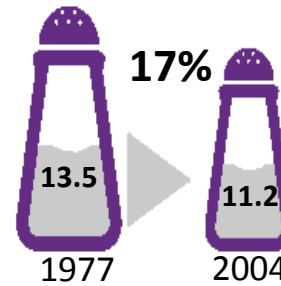
# Salt intake reduction (g/day)



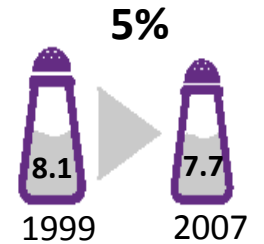
Finland



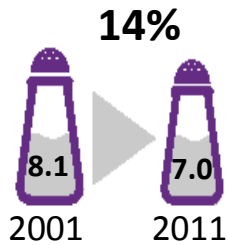
Lithuania



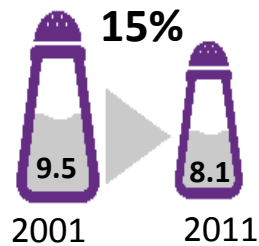
Japan



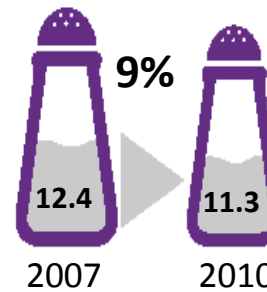
France



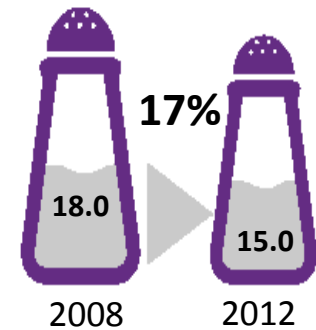
Ireland



U.K.



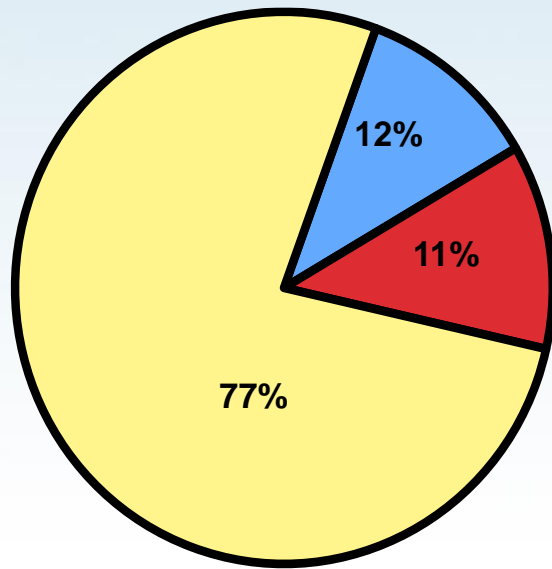
Slovenia



Turkey

# Where in our diet does salt come from?

In regions where most food is processed or eaten in restaurants



- Occurs Naturally in Foods
- Added at the Table or in Cooking
- Restaurant/Processed Food

- 12% natural content of foods
- “hidden” salt: 77% from processed food – manufactured and restaurants
- “conscious” salt: 11% added at the table (5%) and in cooking (6%)

*J Am College of Nutrition. 1991;10:383-93.*

# The food industry and self-regulation

- **Benefits of self-regulatory system**
  - conserves government resources
  - less adversarial
  - more flexible
  - timelier than government regulation.
- **Risk when promises not fulfilled due to weak standards or ineffective enforcement.**
- **Proposed standards for the Food Industry**
  - Transparency
  - Meaningful objectives and benchmarks
  - Accountability and objective evaluation
  - Oversight
- **Why does industry engage in self-regulation?**
  - Little government involvement, scarce natural resources (e.g. forestry, fisheries)
  - Government perceived as a threat, hence to prevent or forestall, to deflect government regulation (e.g. alcohol, tobacco, food industry?)

Sharma LL et al. Am J Public Health 2010;100:240-6



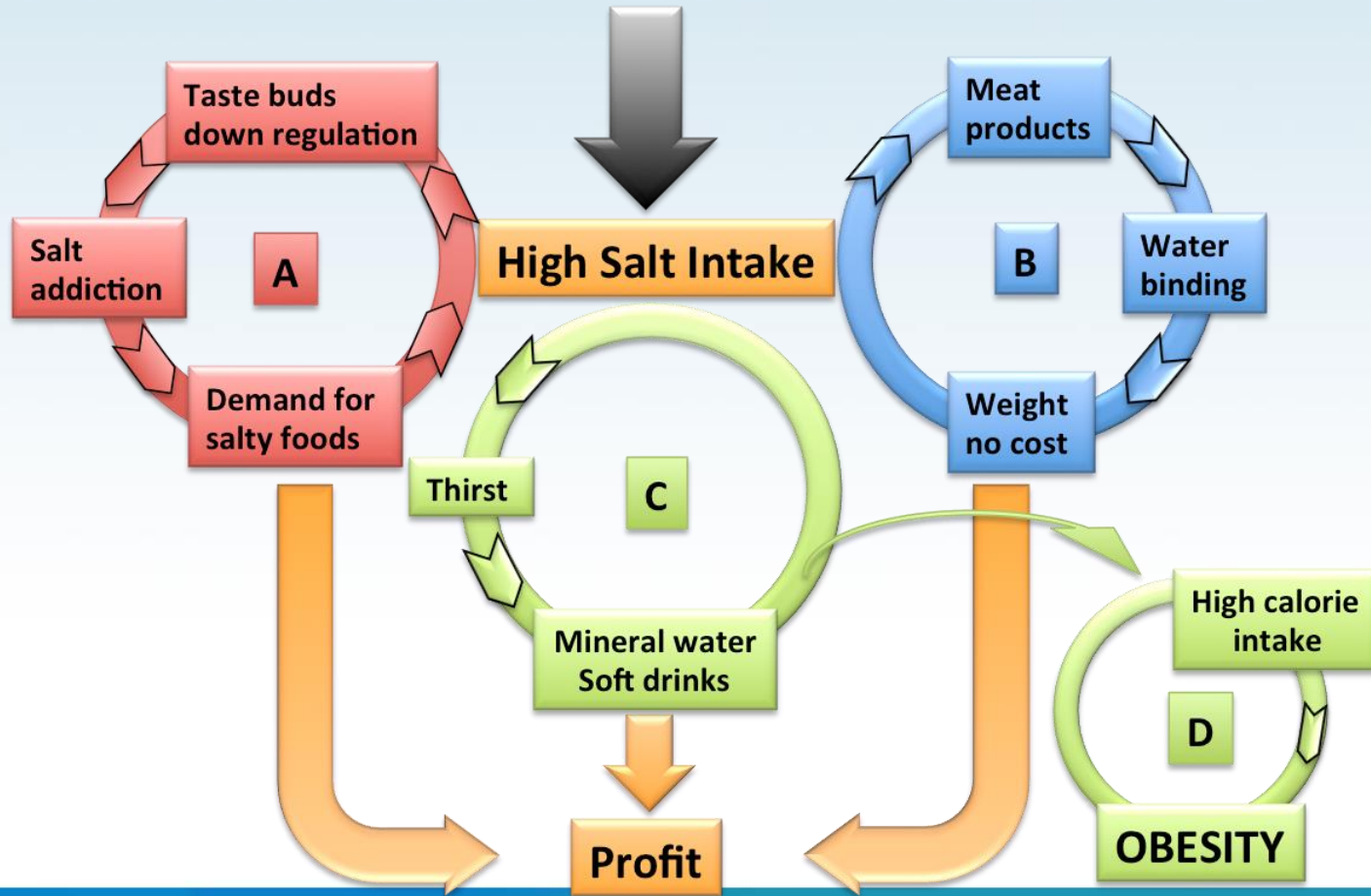
WARWICK

# Industry vs Public Health Priorities

- Salt contributes to food safety
- Salt increases shelf-life
- Salt makes unpalatable food edible at virtually no cost
- Habituation to high salt foods increases demand – Profit on these foods tends to be greater
- Increasing salt concentration in meat products increases water binding capacity by up to 20%
- Salt intake is the main drive to thirst and thereby increases soft drink, beer and mineral water consumption
- High salt intake increases preventable ill-health (CV and non-CV)
- High salt intake increases the consumption of sugar-containing drinks, alcohol, hence calories.
- High salt intake is economically costly to society (healthcare costs)
- High salt intake creates addiction
- Moderate population reduction in salt intake is feasible, efficacious, cost-effective.

**Food & Beverage Industry**  
(promotion and production)

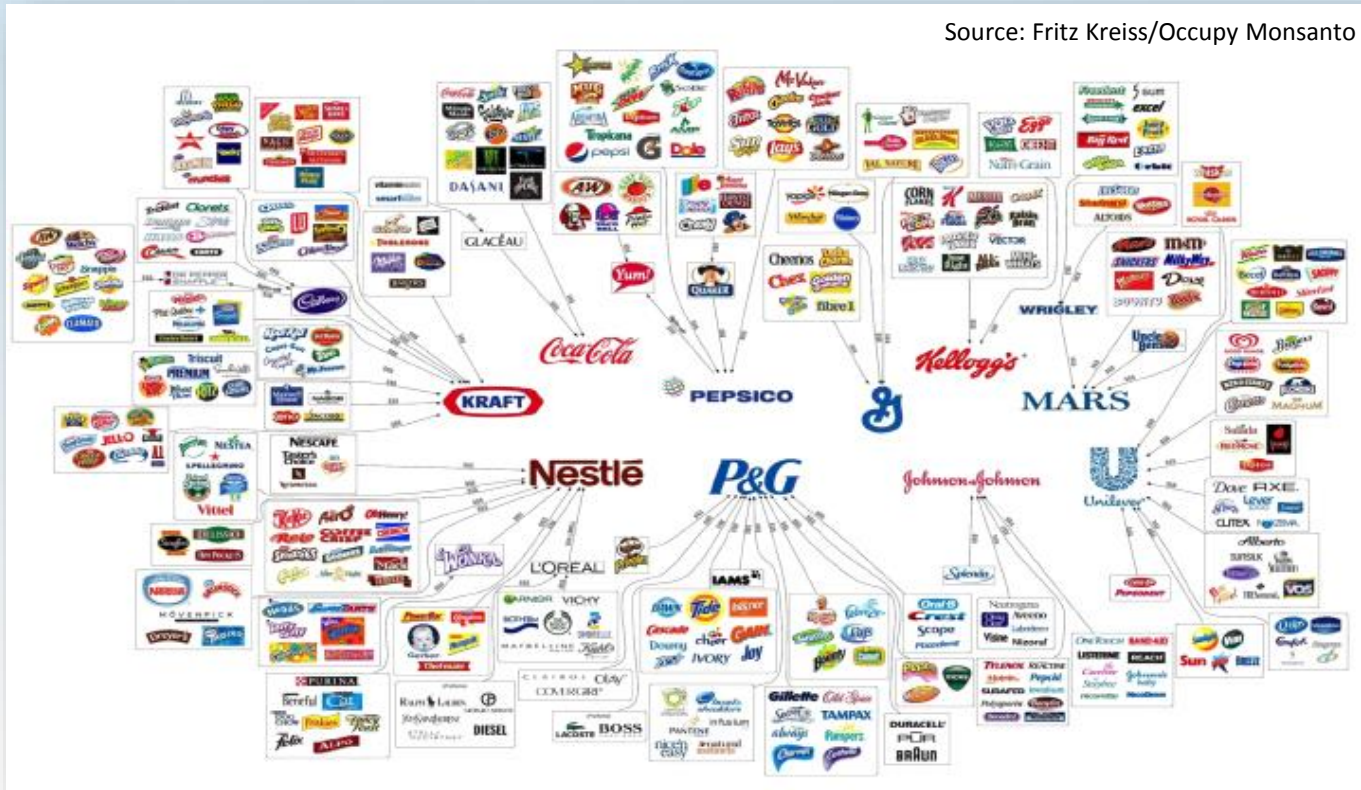
**Highly salted processed food**  
70-80% of daily salt intake





# Who owns what in the food industry?

Source: Fritz Kreiss/Occupy Monsanto



“The world’s 10 largest food and non-alcoholic beverage companies feed daily an estimated global population of several hundred million in >200 countries, generating a combined annual revenue of >\$422b” (Source: IFBA, 2012)



# Conclusions

- Average salt intake around the world is too high.
- It is responsible for avoidable ill-health with associated healthcare and social costs
- A moderate reduction in salt intake is feasible, achievable and cost-effective for society.
- Different economies around the world have different sources of dietary salt (from processed food and industrial food production to social and cultural behaviour in salt use).
- Strategies to reduce population salt intake include public awareness campaigns, comprehensive reformulation programmes and surveillance of salt intake and food salt content.
- The food manufacturing and retail industries have the capability and the responsibility to contribute substantially to these aims given their outreach.
- Voluntary and effective food reformulation is the preferred choice.
- Where ineffective, mandatory actions and state-led market interventions are available.