

# CleanMed Europe 2016 Pre-conference event “Sustainable and healthy food in healthcare workshop”

Food waste challenges and opportunities: examples of food waste prevention and reduction methodologies in healthcare

October 18, 2016 Joost Snels



# Joost Snels

- Background in
  - Logistics
  - Supply Chain Management
  - Business Economics
- Worked for private company (paper trading) and the government (Ministry of Transport, Public Works and Water Management)
- 14 years for Wageningen UR Food & Biobased Research (Fresh Logistics / SCM)



# Wageningen University & Research



# Partners

Wageningen  
University

9 research institutes  
of Wageningen UR



- 8.000 BSc/MSc-students > 100 countries
- >1.700 PhD
- 2.475 fte
- Turnover €315 miljoen



# Partners

## Wageningen University

9 research institutes of Wageningen UR



- 2.825 fte
- Turnover €343 miljoen

# Sneek preview





Investing instead of saving  
in food leads to lower cost  
and better healthcare

# Food waste: world problem in 4 numbers





# Food produced but not eaten

654

Millions tons of food production

205

Million tons of food waste

Source: Wageningen UR

# Growing demand for food

10

Billion people in 2050

70

% more food is needed

Source: FAO

# Food waste in the Dutch healthcare



# Annual food spending in Dutch Hospitals

Source: CBS Statline

General  
Hospitals

University  
Hospitals

14

Million net turnover  
per year

1,7

% of net turnover  
per year

7

Million net turnover  
per year

1,6

% of net turnover  
per year



# Patient meals per day in Dutch healthcare

Source: CBS

350

Thousand patient meals  
per day

1

Million meals per day  
in total

# Why measuring food waste?

Understanding the extent of food losses (kg, €, %)

inventory of bottlenecks

Finding improvement measures

Understanding effects of adjustments

Food intake goes up

Improving patient satisfaction through the meal



# Food waste in Dutch Healthcare

Figures for the Dutch Healthcare in total are not available (yet)

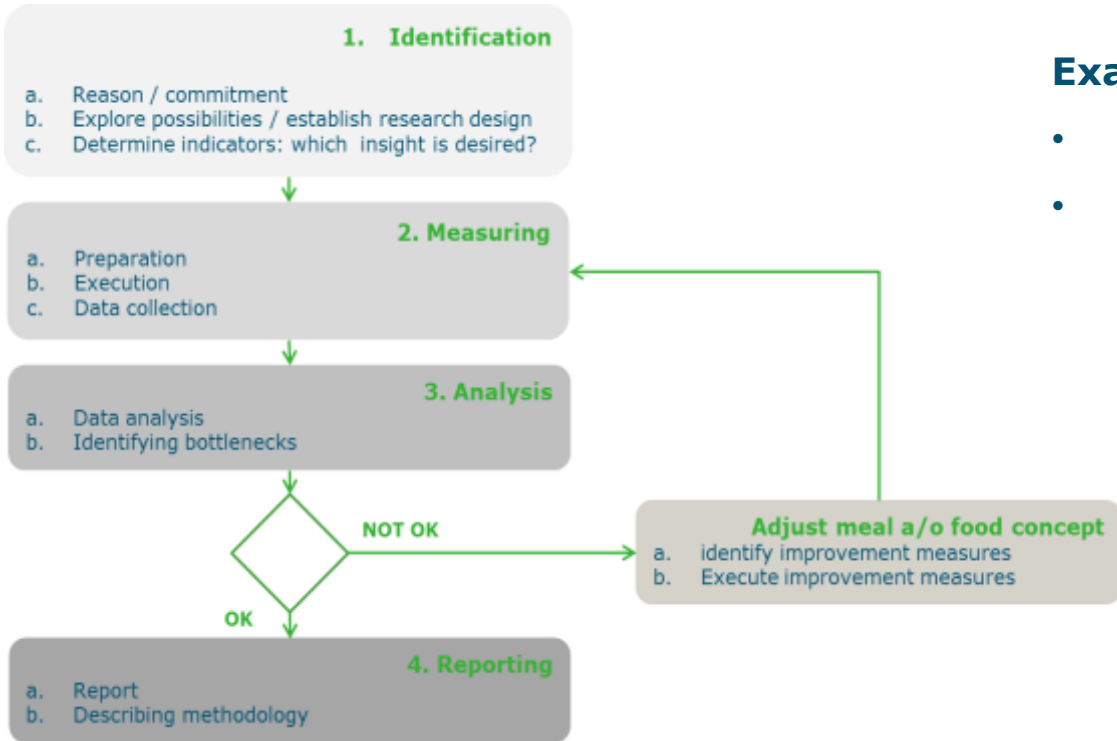
→ Wageningen UR: general and university hospitals

Insiders / experts indicate that the figures lay between 30 and 50%

Figures are related to the prepared **hot meals** that end up in the bin



# Methodology

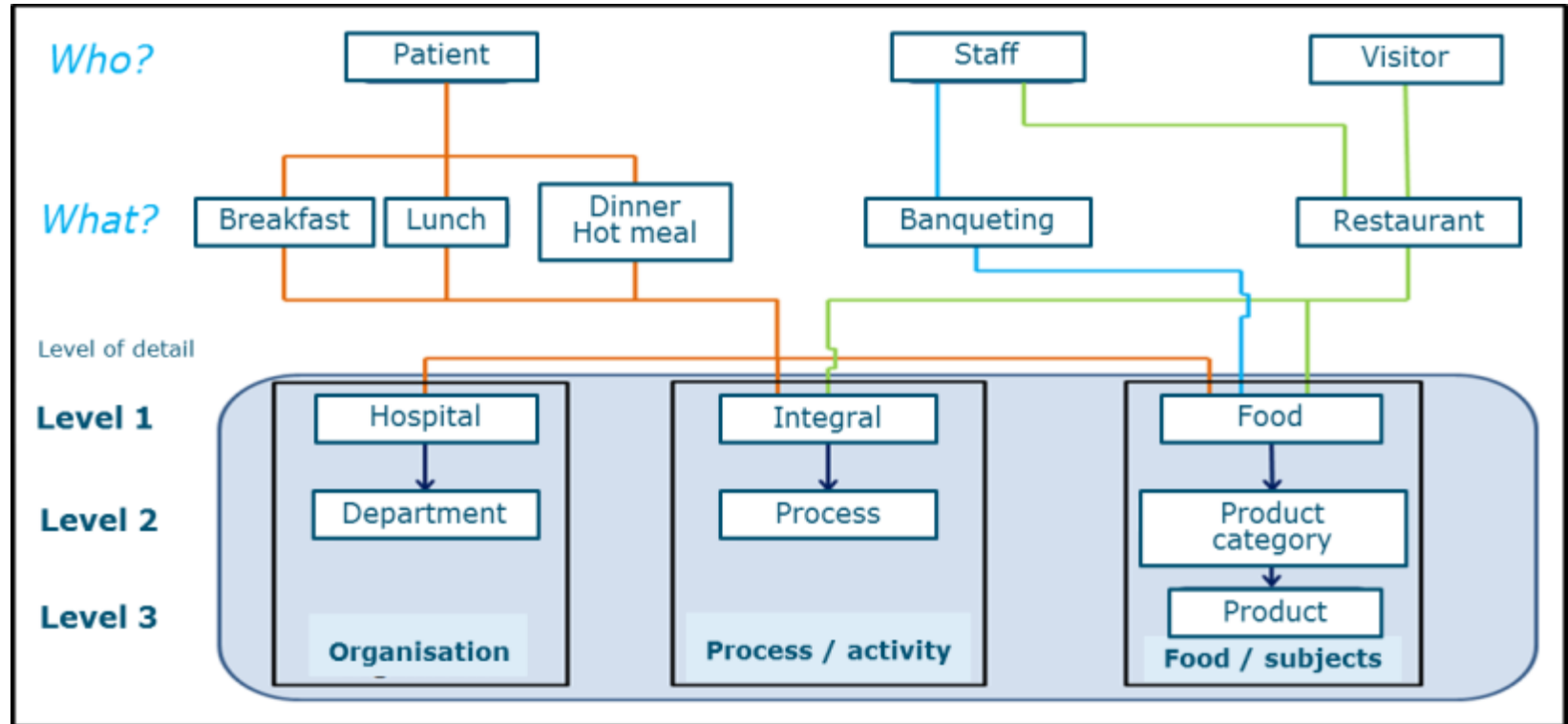


## Examples of performance indicators:

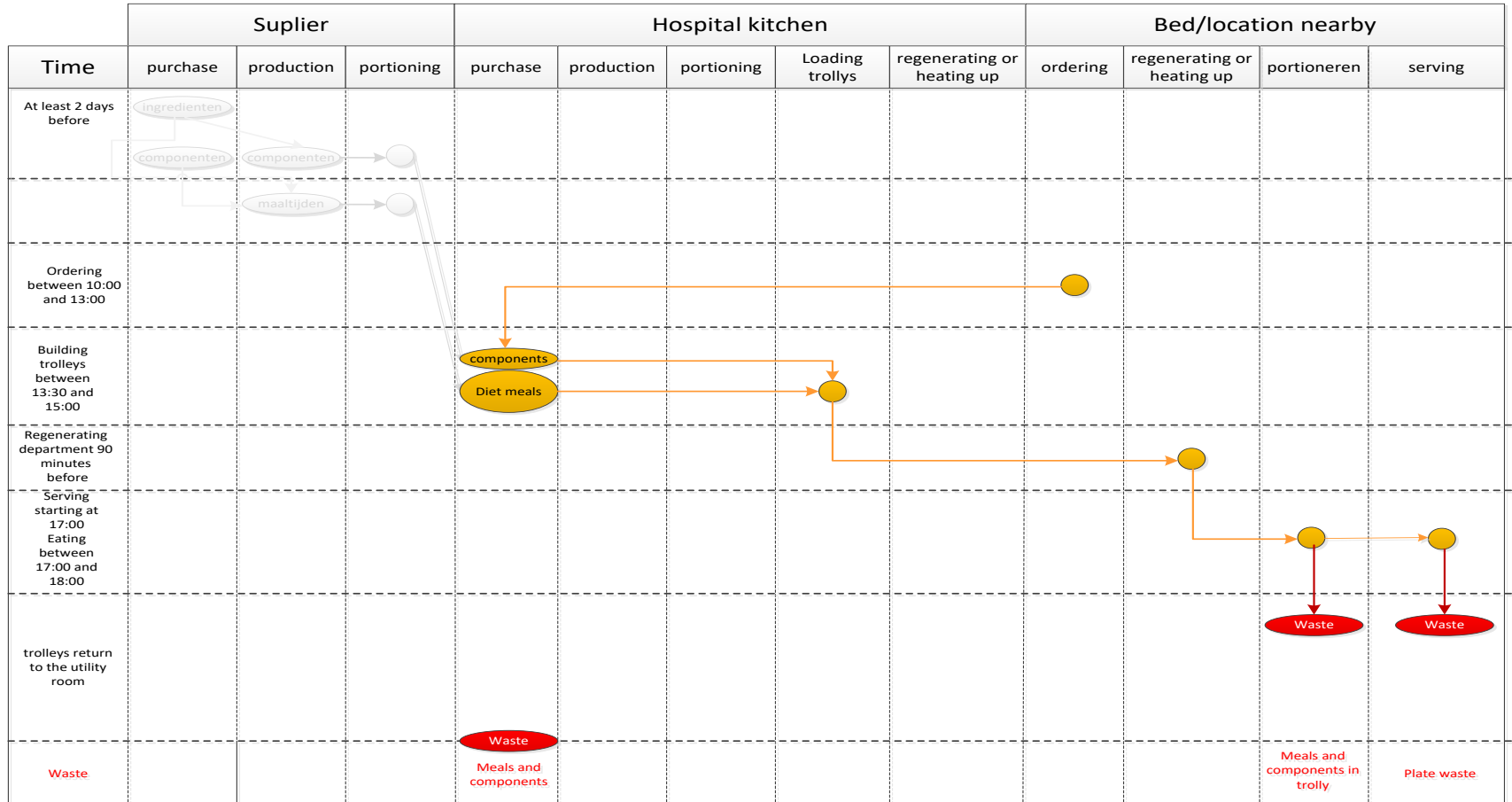
- Total kg a/o € per day
- Total kg a/o € per day:
  - as a % of the amount of food offered
  - per main process (portioning, ...)
  - per department (oncology, maternity ward, ...)
  - looked at differences per day
  - per patient



# 1. Identification: options



## 2. Measuring: determining monitoring sites





### 3. Analysis: additional information

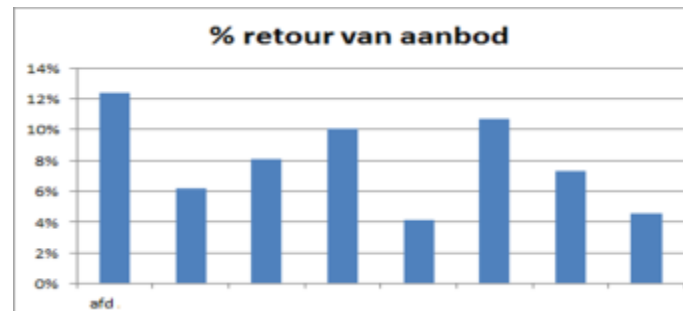
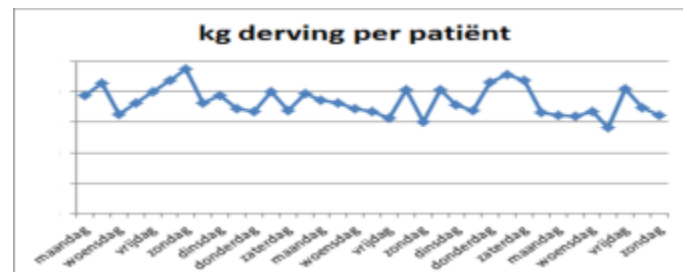
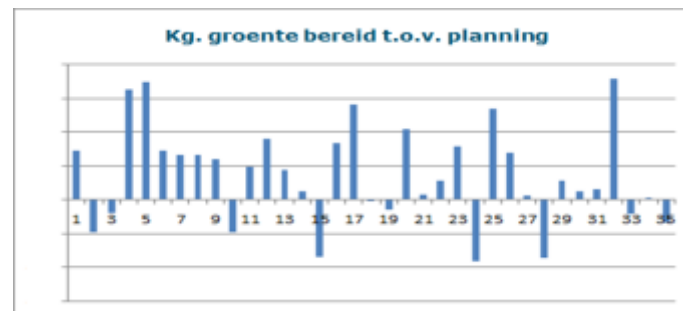
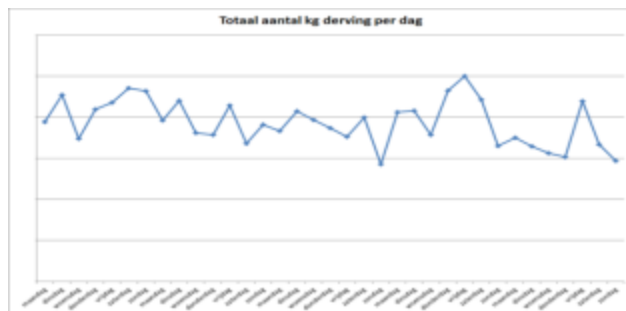
- Number of patients / ordered meals per day per department
- Cost of meals, including preparation
- Weight of different meals (note: the system most often displays anything other than the quantity that is actually cooked!)





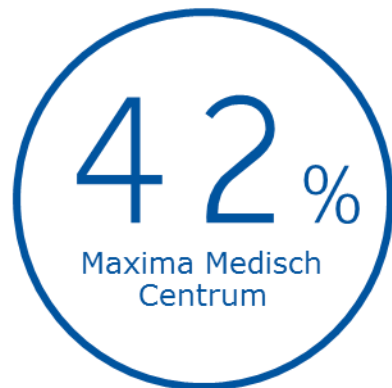
### 3. Analysis: results (example format)

Hospital A		Vegetables	Meat	Starch	Gravy	Remainder	Total
Traditional (before)							
Meal Weight	maaltijdgewicht	145	73	97	68	330	713
Food Waste	voedselverlies	97	56	68	48	88	356
Portioning	portioneren	12	12	13	14	23	72
Plate Waste	bordresten	40	21	25	15	20	121
Returns	retourstromen	45	23	30	19	45	162
Consumed	gegeten	105	52	72	53	310	592
New concept (after)							
Meal Weight	maaltijdgewicht	150	90	150	35	330	755
Food Waste	voedselverlies	49	28	41	13	11	142
Portioning	portioneren	0	0	0	0	0	0
Plate Waste	bordresten	49	28	41	13	11	142
Returns	retourstromen	0	0	0	0	0	0
Consumed	gegeten	101	62	109	22	319	613



# Some examples

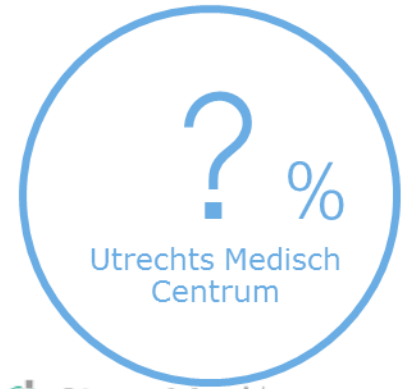
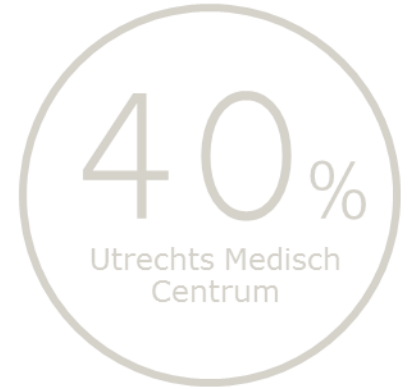
Bron: MMC



Bron: Wageningen UR

# Some examples (berfore and after)

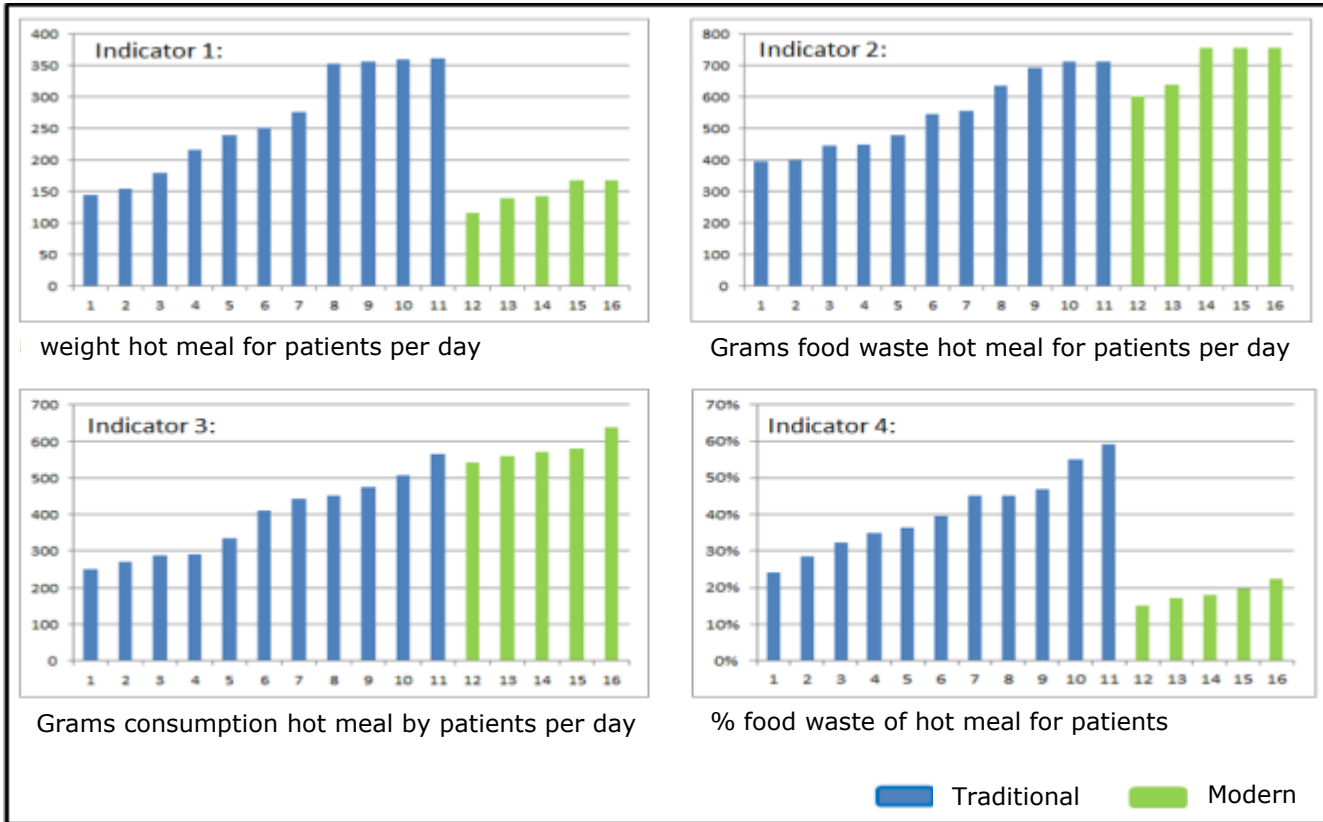
Bron: MMC



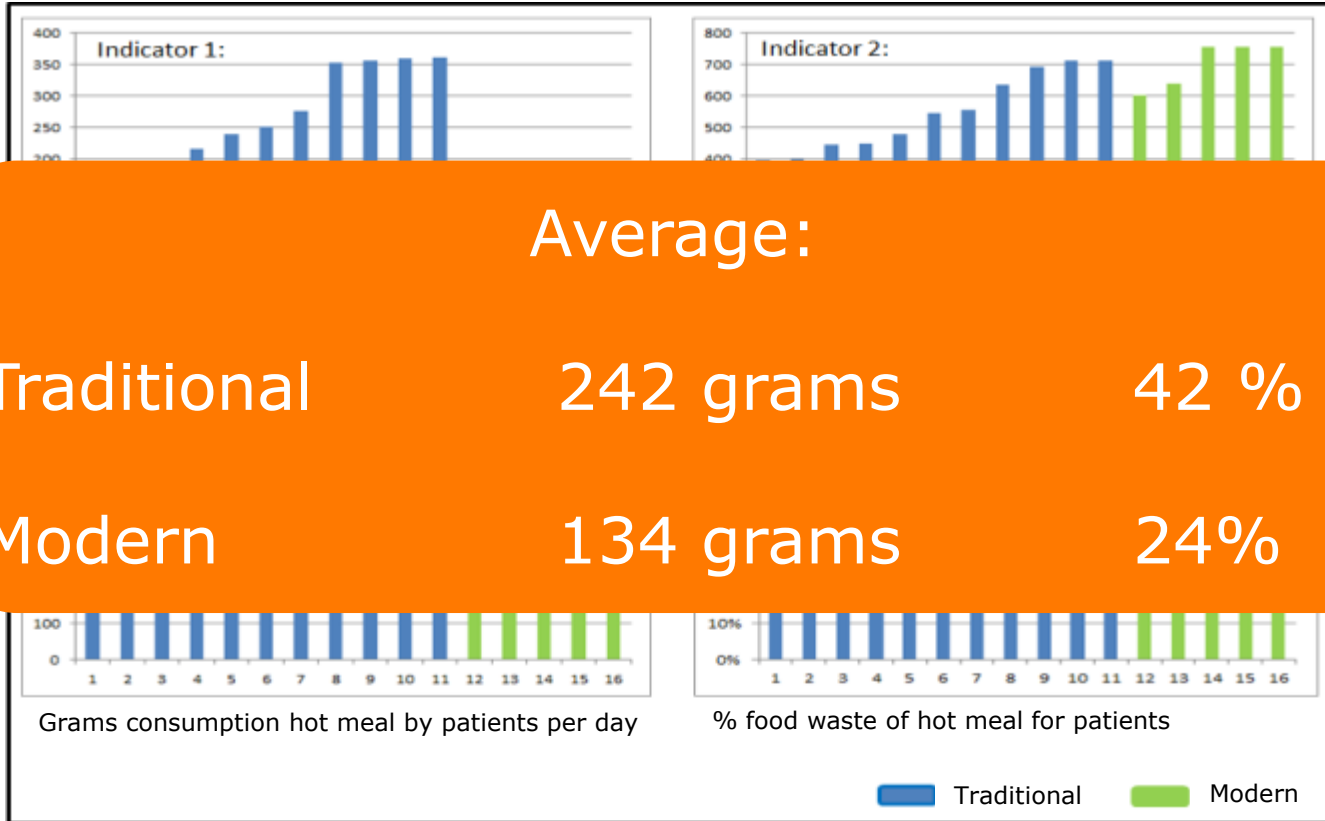
Bron: Wageningen UR



# Numbers: hot meals for patients



# Numbers: hot meals for patients



# Care: results

Seminar: **Slimmer eten en drinken in de zorg** 28 januari 2015,  
Radboud UMC, Nijmegen



*Before*  
*After*



# Some causes, in general

- **Predicting** number of meals is difficult, especially for 'short stay'
- Chefs cooking different **amounts** then system indicates. There are usually made far too many meals (Because there is too much? 'Blanco meals' ordered?)
- **Translating** ingredients to kg. finished product is difficult
- **Portioning** is done by people and hardly ever the same weight (preferring to serve something more than too little)
- **Portioning** is often not tailored to the needs of patient / client
- Order unit of a product is some times to large and **best-before-date** therefore sometimes is a problem

# Benefits of this standardized approach

- **Easy to implement:** all steps have been fully described
- **Flexibility:** choices regarding the level of detail, number of departments, type of meals, type of 'consumers', ...
- **Benchmark:** Results are comparable to other institutions
- **Trend analysis:** when the measurements are repeated the results are also comparable within the same institution
- **Accountability:** transparency and insight into how the measurement is handled and how the results have been achieved

# Less food waste = cost reduction?

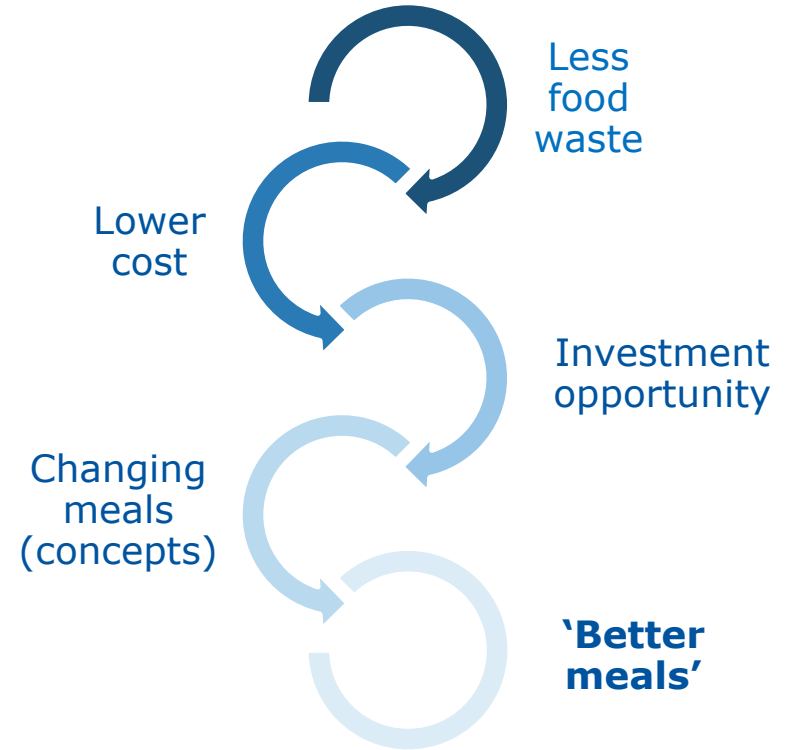
Reinvestment in the meal or  
the food concept



Bron: NHS patient under the pseudonym of Traction Man (2009)

# No, its is an investment opportunity

- Lowering food waste leads to cost reduction
- With constant budget this creates investment opportunities
- Investment opportunity to improve the meals for patients
- Investment opportunities for further and constant improvement





# Reinvest and reduce cost

Via prevention of  
malnutrition?



# Malnutrition: connecting care and cure

28

% prolonged hospitalization

17

% malnutrition in care and  
nursing homes

# Investeringsruimte

- Investment opportunities for further and constant improvement
- Changing meals or food concept
- More and better food, better absorption of nutrients (in particular, proteins)
- Reducing malnutrition
- Reducing hospitalization (cure)



# Investing in prevention of malnutrition

1

Euro (€) invested

1-4

Euro (€) return on investment

# Overall conclusions and recommendations

- Don't see reducing food waste just as a way to reduce cost, but as an option to better serve the patient (satisfaction, food intake, ...)
- Data get more value if they are placed in perspective of numbers of patients and production volume
- Create realistic objectives in line with the capacity (people, budget, ...)
- Involve not just the food (facility) department but also the people responsible for care in the measurements, sharing the results, and looking for possibilities to reinvest



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in food leads to lower cost  
and better health care

# Thanks

Questions?

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Download repots (in Dutch):

<http://www.wur.nl/nl/Onderzoek-Resultaten/Themas/Voeding-Gezondheid/Voedselinnovatie/Voedselverspilling-in-de-zorg.htm>

