



**AALBORG UNIVERSITET**  
**KØBENHAVN**

# **Smart assessment of patient food intake and plate waste using Dietary Intake Monitoring System (DIMS)**

**Presentation by Kwabena Titi Ofei**

# Introduction

Malnourished  
patients

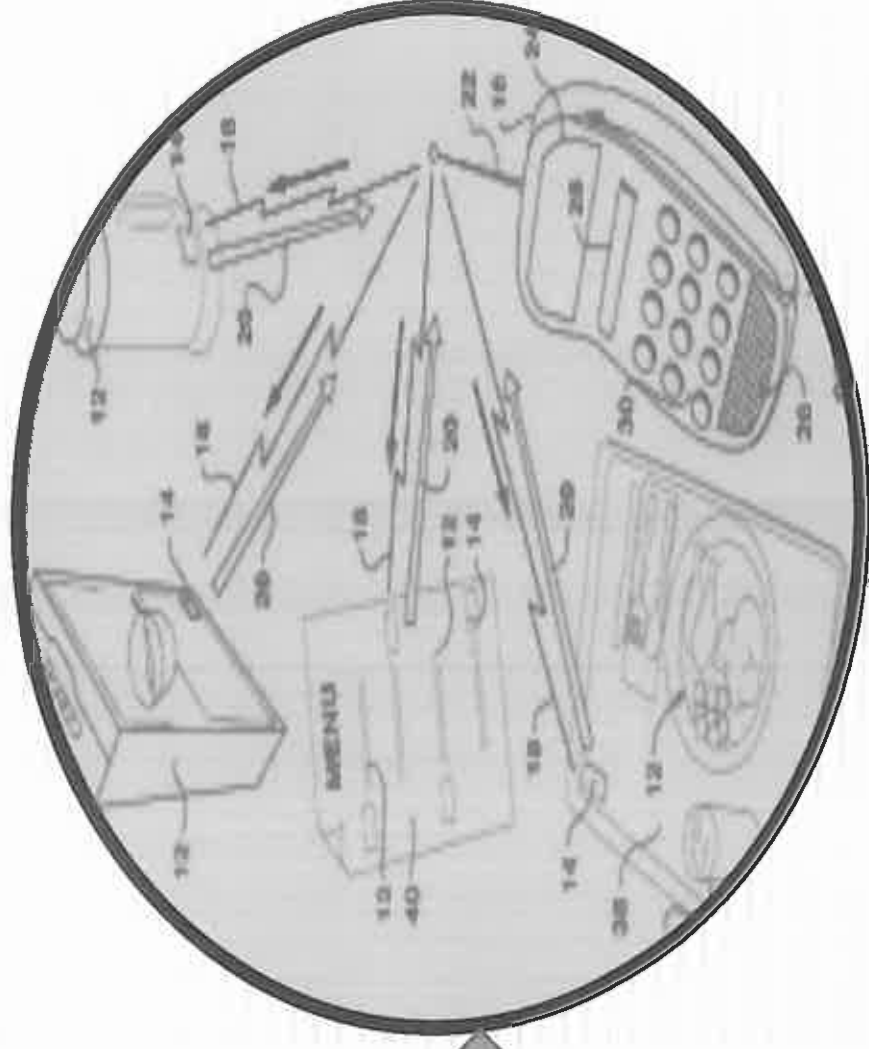


Food  
Waste

# Challenges with the current patient dietary intake assessment

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- Nutritional screening tool
- Dietary recording tool

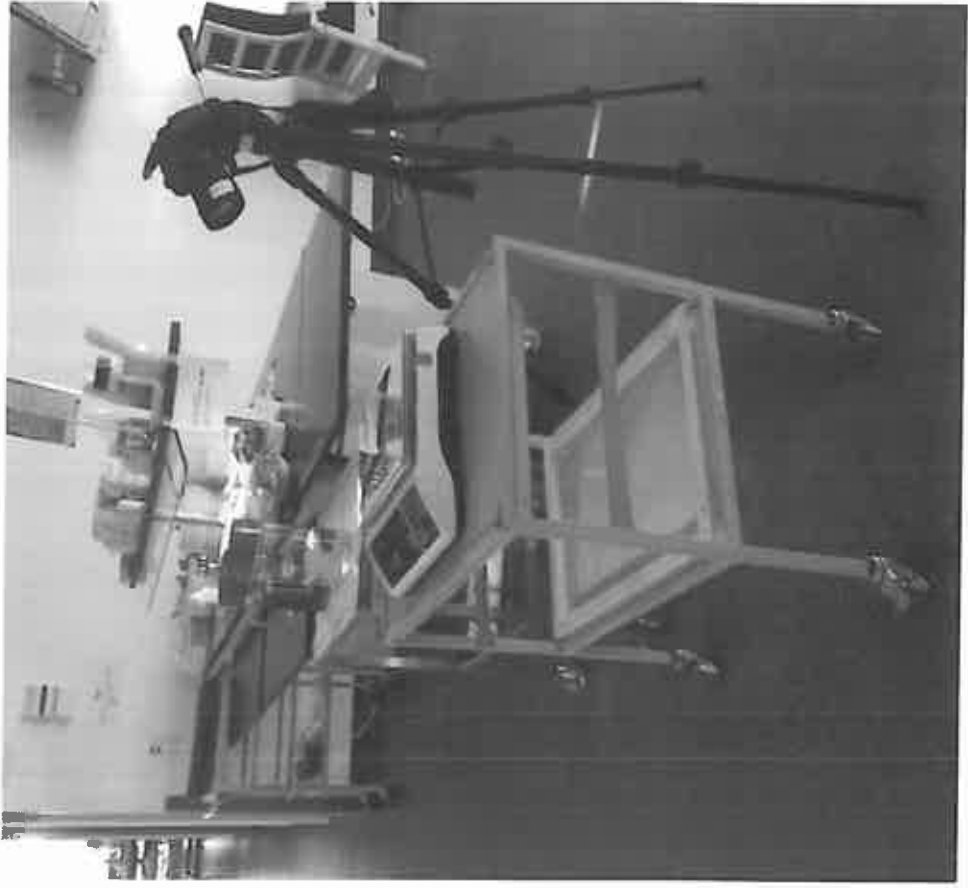


# Objective

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- The DIMS is developed for the purpose of determining patient's food intake and plate waste at each meal from the trolley service.

# Low tech food waste monitoring tool



# Patient food Intake and plate waste

## -Low tech monitoring tool

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Plate ID

Dinner /08/04/2013

Lunch/09/04/2013

Dinner/09/04/2013

	Weight of plate content before/g	Weight of plate content After/g	% plate waste	Weight of plate content before/g	Weight of plate content After/g	%Plate waste	Weight of plate content before/g-	Weight of plate content after/g	% Plate waste
01	0.310	0.068	21.9	0.326	0.000	0.00	0.224	0.068	30.00
02	0.230	0.030	13.0	0.542	0.388	71.00	0.302	0.000	0.00
03	0.350	0.000	0.00				0.600	0.262	44.00
06	0.179	0.010	5.50	0.260	0.060	23.00			
07	0.300	0.096	32.00	0.246	0.136	55.00	0.244	0.024	1.40
08	0.204	0.104	50.10	0.212	0.096	45.00	0.328	0.175	53.00
09	0.370	0.00	0.00	0.434	0.000		0.344	0.000	0.00
10							0.386	0.192	48.00
11	0.354	0.00	0.00				0.424	0.000	0.00
12	0.322	0.00	0.00	0.320	0.000	0.00			
13				0.102	0.000	0.00			
14				0.302	0.00	0.00			
15	0.256	0.00	0.00	0.342	0.00	0.00	0.510	0.182	35.7
16	0.370	0.00	0.00	0.328	0.000	0.00	0.368	0.00	0.00
17				0.242	0.136	40.00	0.206	0.120	58.20
18	0.360	0.00	0.00	0.354	0.00	0.00			
19	0.256	0.00	0.00	0.284	0.041	14.40	0.264	0.000	0.00
20	0.564	0.146	25.90	0.294	0.00	0.00	0.644	0.184	28.60
21	0.204	0.048	23.50	0.108	0.010	9.50	0.104	0.020	19.20
22	0.560	0.158	28.20				0.756	0.266	35.2
24				0.180	0.00	0.00	0.418	0.020	4.70
25				0.394	0.080	20.00	0.686	0.244	35.60
Total	5,189	0,660	12.72	5,270	0,947	17.96	6,808	1,757	25.81

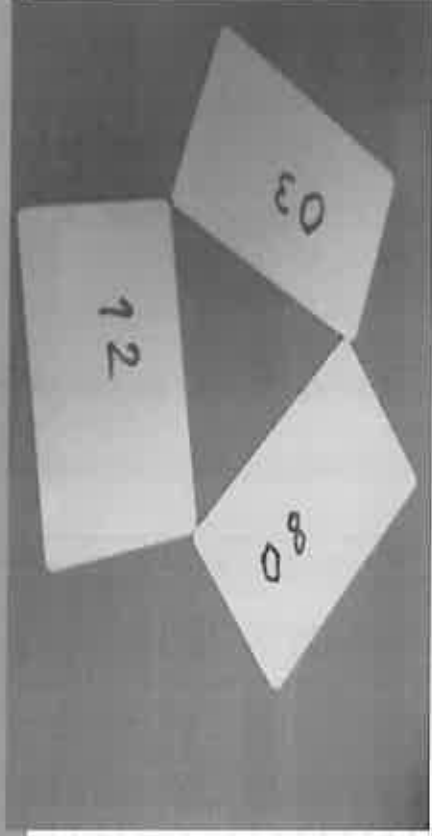
# Trolley food waste from 2 meal sessions

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Name of menu item	Weigh of menu item on buffet before serving/kg	Weight of menu item on buffet after serving/kg	% of menu item wasted
Kyllingeoverlår med coleslaw	2,109	1,134	53.80%
Salat af kinakål, ærter og ananas	0,590	0,520	88.10%
Oksesteg, tyttebærfløde	0,800	0,478	59.80%
Rullepølse, sky, løgringe karse	0,546	0,258	47.20%
bread	0,914	0,508	55.60%
<b>Total</b>	<b>4,959</b>	<b>2,898</b>	<b>58.4</b>

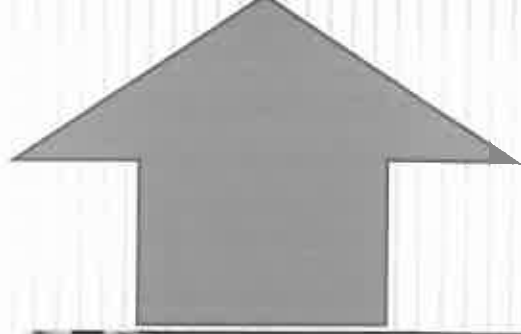
Name of menu item	Weigh of menu item on buffet before/g	Weight of menu item on buffet after/kg	% of menu item wasted
Løse ris	2,628	2,228	84.78%
Kartoffel mos	3,606	2,106	58.40%
Krydderkartofler	0,600	0,112	18.66%
Laksemousse	0,48	0,11	22.9%
Broccolisalat	0,800	0,624	78.00%
Kold sauce m/basilikum	0,240	0,186	77.50%
Ymerfromage	3,300	2,208	47.00%
Jordbærsauce	1,100	0,842	75.50%
Sennepssauce m/champ	4,958	3,528	71.00%
<b>Total</b>	<b>17,712</b>	<b>11,944</b>	<b>67.42</b>

# Automating Low tech to DIMS





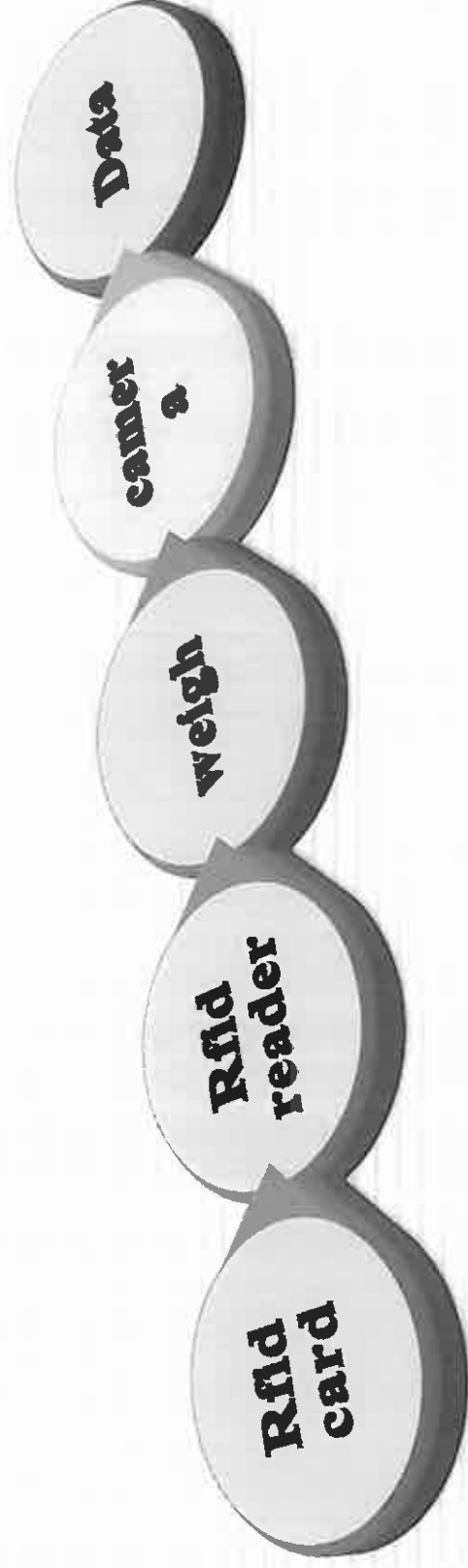
# Low tech to Automated DIMS



# Functionality of Dietary Intake Monitoring System (DIMS)

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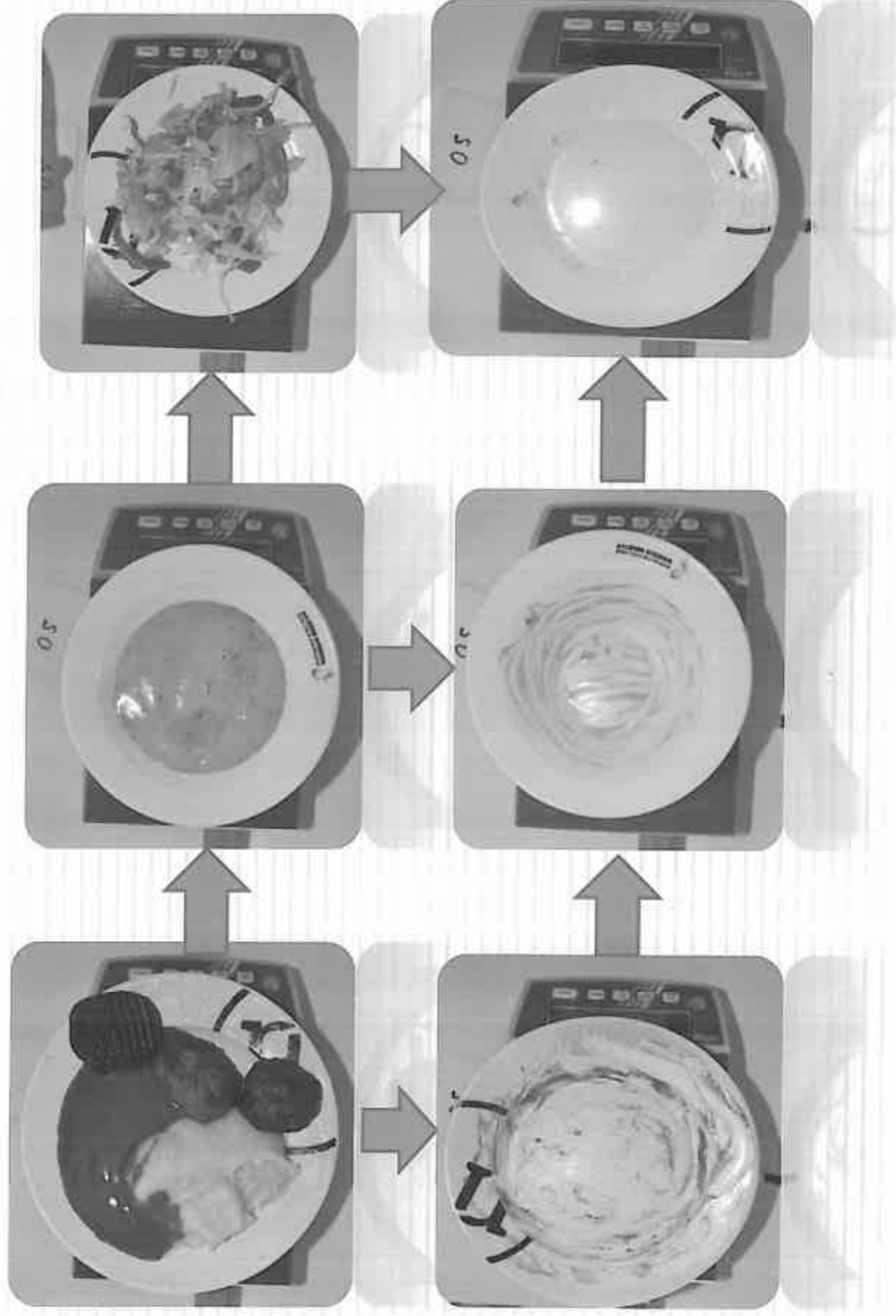


# Patient's intake and plate waste analysis - DIMS

Date	Time	Patient Id	Temp	Weight plate content (B)/g	Time	Weight of plate content (A)/g	Food Intake /g	Plate waste/g
18-06-2013	17:07:40	ID91FE8F	23.52	753	17:49:13	419	334	0.00
18-06-2013	17:08:20	ID91FE8F	23.56	448	17:48:59	305	143	0.00
18-06-2013	17:08:10	ID91FE8F	23.58	330	17:49:07	256	74	0.00

# Photos of patients plate contents before and after meal consumption

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# Real time monitoring of patients intake

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# Conclusion

