Prevention is better than cure
Examples from the Medical Sector

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Outline presentation

- CPME Commitments on Prevention
- Diet and Physical Activity in Prevention
- Workload and Functional capacity: a tool in prevention
CPME Commitments on Prevention

- Declaration on preventive medicine (cpme 84/41)
- Specific recommendations on preventive medicine (cpme 93/128)
- Motion on the prevention of infectious diseases (cpme 2000/167)
CPME Commitments on Prevention

- Declaration on preventive medicine (cpme 84/41)
  - The fully support of the medical profession
    - A considerable reduction in prenatal and perinatal mortality
    - A spectacular reduction in infectious diseases
    - An improvement in the chances of a cure for certain diseases
    - An improvement in working conditions
CPME Commitments on Prevention

- Specific recommendations on preventive medicine (cpme 93/128)
  - Doctors in prevention
  - Lifestyle
  - Cardio-vascular diseases
  - Cancer
  - Infectious diseases
  - Sexually transmitted diseases
  - AIDS
  - Tobacco
  - Alcohol
  - Medication and drug abuse
CPME Commitments on Prevention

- Specific recommendations on preventive medicine (cpme 93/128)
  - Suicides
  - Physical violence
  - Road traffic accidents
  - Domestic accidents
  - Mental disorders
  - The disabled
  - Hereditary, congenital and neo-natal diseases
  - Elderly persons
CPME Commitments on Prevention

- Motion on the prevention of infectious diseases (cpme 2000/167)

Where cases of Legionella infection can be traced in public places it is unethical not to make that information available to the public, if the decontamination procedures have not been initiated.
Diet and Physical Activity in Prevention
Summary on key facts on obesity and the economics of preventions

- At least **one in two people are now overweight** or obese in over half of OECD countries – increasing to 2 out of 3
- An obese person **incurs 25% higher health expenditures** compared to a normal weight person
- Obesity is responsible for **1-3% of total health expenditures**
- Obese persons **earn up to 18% less** than non-obese
- Poorly educated women are two to three times more likely to be overweight
- A **comprehensive prevention** strategy would avoid
  - 75000 deaths in Italy – 70 000 in England
- The annual cost of such a strategy would be between **12 euro’s and 32 euro per capita**
- **Maximal 3% of the healthcare cost is spend on prevention !!!**
Appendix: obesity rates in the OECD and beyond

Obesity rates among adults, 2009 (or nearest year)

Source: OECD Health Data 2011; national sources for non-OECD countries.
The challenge of obesity

- Worldwide prevalence doubled between 1980 and 2008
- 23% of women/20% of men were obese
- Childhood obesity rose steadily from 1990 to 2008

- WHO’s recommendation emphasize the need for early prevention to ensure **lifelong healthy eating and physical activity patterns**
### Diet and Physical Activity in Prevention

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
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<tbody>
<tr>
<td>Height, in or cm</td>
<td></td>
</tr>
<tr>
<td>Weight, lb or kg</td>
<td></td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td></td>
</tr>
<tr>
<td>Waist circumference, in or cm</td>
<td></td>
</tr>
<tr>
<td>Weight at age 18-20</td>
<td></td>
</tr>
<tr>
<td>Weight gain since 18-20</td>
<td></td>
</tr>
<tr>
<td>Blood pressure SBP/DBP, mm Hg</td>
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<tr>
<td>Serum triglyceride, mg/dL or mmol/L</td>
<td></td>
</tr>
<tr>
<td>Serum Hdl-cholesterol, mg/dL or mmol/L</td>
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<tr>
<td>Fasting blood glucose, mg/dL</td>
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<tr>
<td>Are there symptoms of sleep apnea?</td>
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<tr>
<td>Are there medication(s) that increase body weight?</td>
<td></td>
</tr>
<tr>
<td>Is there regular physical activity?</td>
<td></td>
</tr>
<tr>
<td>Are there other etiologic factors?</td>
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</table>
Diet and Physical Activity in Prevention

BMI
Waist circumference
## Body Mass Index (BMI)
Weight / Height$^2$

### WHO Guidelines

<table>
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<tr>
<th>BMI</th>
<th>Classification</th>
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<tr>
<td>&lt; 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 - 24.9</td>
<td>Normal</td>
</tr>
<tr>
<td>25.0 - 29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>&gt;30</td>
<td>Obese</td>
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</table>
Body Mass Index

- Height: 188cm (74in)
- Weight: 117kg (257lbs)
- BMI = 33
- By WHO Definition, this person is Obese
- BUT, BMI does not account for % Body Fat
Waist to Hip Ratio (WHR)

- Obesity and the risk of myocardial infarction in 27,000 participants from 52 countries: a case controlled study.
  Lancet Vol 366, November 5, 2005

- “Waist-to-hip ratio shows a graded and highly significant association with myocardial infarction risk worldwide. Redefinition of obesity based on WHR instead of BMI increases the estimate of MI attributable to obesity in most ethnic groups.”
Resting metabolic rate
Body Composition Methods

Direct

Imaging (CT, MRI)

Hydrodensitometry

Plethysmography

DXA

NIR

BIS

Indirect

Anthropometry

BIA

Direct

Indirect
Body composition

<table>
<thead>
<tr>
<th>Region</th>
<th>Tissue (%Fat)</th>
<th>Centile</th>
<th>T_Mass (kg)</th>
<th>Region (%Fat)</th>
<th>Tissue (g)</th>
<th>Fat (g)</th>
<th>Lean (g)</th>
<th>BMC (g)</th>
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<td>-</td>
<td>-</td>
<td>28.9</td>
<td>7 822</td>
<td>2 387</td>
<td>5 435</td>
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<td>-</td>
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<td>2 152</td>
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<td>-</td>
<td>-</td>
<td>22.6</td>
<td>21 697</td>
<td>5 178</td>
<td>16 519</td>
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<td>-</td>
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<td>2 009</td>
<td>404</td>
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<td>Right Leg</td>
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<td>-</td>
<td>28.9</td>
<td>7 436</td>
<td>2 272</td>
<td>5 164</td>
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<td>-</td>
<td>20.5</td>
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<td>1 989</td>
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<tr>
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<td>4 880</td>
<td>15 592</td>
<td>1 190.7</td>
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<tr>
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<td>840</td>
<td>3 320</td>
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<td>3 642</td>
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<tr>
<td>Legs</td>
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<td>-</td>
<td>28.9</td>
<td>15 258</td>
<td>4 669</td>
<td>10 599</td>
<td>971.3</td>
<td>11 471</td>
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<tr>
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<td>36.8</td>
<td>6 938</td>
<td>2 638</td>
<td>4 301</td>
<td>211.3</td>
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<td>-</td>
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<td>42 159</td>
<td>10 058</td>
<td>32 101</td>
<td>2 395.1</td>
<td>34 496</td>
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Metabolic syndrome
CoreScan: Accuracy

- Validated in clinical trial*
- High degree of correlation with CT
- On average difference between iDXA and CT ~60g
- 95% of subjects were within a range of 16-96cm³ difference between measuring with CT and iDXA

CT image of visceral fat from subject (42 year old male; BMI = 26.2 kg/m²)

Image courtesy of Dr. Sanjiv Kaul

CoreScan: Practical

- Displayed in volume & mass
European Health villages

To conquer the burden of obesity and related diseases the EU should focus on:

- Unhealthy diets
- The physical inactivity
- A healthy lifestyle (lifestyle remodelling)
European Health villages

- **Awareness** creation towards policy makers and general public regarding health related topics (obesity)
  - several tents covering different items relating to the general health topic of the village.
  - mobile sports medical laboratory

- **Personalised health passport**
  - physical testing
  - determination of the body composition
  - personalised information regarding
    - nutritional aspects
    - the importance of physical activity

- **Medical information**
  - a medical doctor is always present to provide the necessary medical information
  - important to know is that no diagnosis of any pathology will be made.
European Health villages
Commitment of CPME 2011-2013

the “Health village” toolbox

- background information on the rationale and context of the intervention
- Details on necessary resources and planning guidance
- Description of possible activities and their set-up
- Templates for the creation of information and promotional material
- Evaluation and report sheets
Commitment of CPME 2011-2013

the “Health village” toolbox

- Templates for feedback and evaluation material
  - Collecting feedback from “visitors” on “health village”
  - Collecting feedback from “organisers” on “health village”
  - Collecting feedback on the “Toolbox”
European Health villages
Diet and Physical Activity in Prevention

- Priorities to aimed at school-age children
  - Changing school meals
  - Content of vending machines – more healthy
  - Better facilities for physical activities
  - Better health education
  - Nutrition guidelines
  - Health promotion campaigns

- National – regional and local governments start up awareness programs

- Triple helix cooperation (partnership alliances)
  - Government – Industry – Healthcare
  - Reducing fat – salt - portions
  - Providing healthy alternative
  - Limiting advertisement towards children
Workload and Functional capacity: a tool in prevention of low back pain

- F-Camp
  Functional Capacity Management Platform
  CPME  EIPAH
Capacity

Workload

Employee

environment

?
Key facts on back pain

- Back pain is very common;
  - almost half the adult working population of the UK (49%) report low back pain lasting for at least 24 hours at some time in the year

- It is estimated that four out of every five adults (80%) will experience back pain at some stage in their life

- Although in most cases back pain is nothing serious and disappears spontaneously, the sheer number of people affected makes it a very costly condition imposing a considerable burden on the individual and society

- Simple measures can be taken to reduce the chances of developing back pain and thereby reducing the impact of existing back pain

- The number of people with back pain increases with advancing age, starting in school children and peaking in adults of 35 to 55 years of age. Back pain is just as common in adolescents as in adults.
Work – related back pain

- In most cases it is very difficult to identify a single cause for back pain. In about 85% of back pain sufferers no clear pathology can be identified.

- The following factors could contribute to back pain:
  - Having had back pain in the past
  - Smoking
  - Obesity
  - Physical factors such as
    - heavy physical work - frequent bending - twisting
    - lifting - pulling and pushing
    - repetitive work
    - static postures
    - vibrations
  - Psychosocial factors such as
    - stress, anxiety, depression,
    - job satisfaction
    - mental stress
Costs of back pain

- Back pain is, in most cases, a self-limiting condition and 90% of people with acute back pain will recover within 6 weeks.

- Up to 7% of people with acute back pain will develop chronic back pain. These chronic patients have considerable discomfort and account for approximately 80% of the social and health care costs.

- The National Health Service spends more than £1 billion per year on back pain related costs, this includes:
  - £512 million on hospital costs for back pain patients.
  - £141 million on GP consultations for back pain.
  - £150.6 million on physiotherapy treatments for back pain.

- The private healthcare sector £565 million is spent.

- This brings the healthcare costs for back pain to a total of **£1.6 billion per year**.

- In addition there are other (indirect) costs.
Active and healthy workers

Adapting work and the work environment

- Good workplace design
  - benefits all age groups
  - while targeting older workers.
Active and healthy workers: Work ability

- Work ability is the balance between work and individual resources;

- The core factors affecting individual work ability are:
  
  - health and functional capacities
  
  - competence
  
  - values, attitudes and motivation
  
  - different aspects of work including work environment, work content and demands, work organisation, work community, and leadership.
Active and healthy workers

- Adapting work and the work environment

Reduced *physical functional capacity – performance* can be addressed for example through:

- Job re-design
- Job *rotation*
- Use of *equipment* and other assistive technologies
- *Restrictions on heavy lifting* and physically demanding tasks
- Training in appropriate lifting and carrying techniques
- Good *ergonomic* design of tools, equipment and furniture
- Good *workplace design to minimise the likelihood of falls*
- Allowance for *recovery*, e.g. through short and more frequent breaks
Active and healthy workers

Return to work

- evidence of the **beneficial effect of work on the recovery** of people on sick leave.

- **Occupational rehabilitation**, and **facilitating return to work** after sick leave due to illness and injury, are also crucial.
Multi-stakeholder approach
Prevention strategy: CPME – F-CaMP

1. Strategic focus on **Functional Capacity – Functional Performance**
   - Physical – Mental

2. Establishing and providing a PAN- EU **multidisciplinary – interprofessional federated platform** with all EU associated stakeholders (academicals – medical – occupational – applied – industry – prevention)
   - Improving communication
   - to share knowledge and best practices
   - to advice policy makers
   - initiating Pan European policies regarding legislative issues
Prevention strategy: CPME – F-CaMP

3. Initiating a Pan European strategic **mission and vision**
4. Developing socio-economical work related **outcome indicators**
5. Establishing EU guidelines
6. Establishing a **webbased** Functional capacity and **performance** management tool
7. Establishing an effective and practical **dissemination**

8. Developing, implementing and promoting an innovative, embedded (academic- applied – medical – business accepted) multileveled and easy and widespread **functional capacity and performance** management **tool**, based on EU normative standards
Multi-stakeholder approach

- Need for new systems
- EU norm database
- User friendly
- Outcome indicators ?
- Capacity and performance
  - Physical
  - Mental
- Prognostic value !!!!

Prevention
Prevention strategy: CPME – F-CaMP

Possible EU instruments to establish F-CaMP

2 possible EU endorsed types of multi-stakeholder platforms

1. The Digital Social Platform (DSP)
2. The European Technical Platform (ETP)

Both types of platforms have there typical approach

!!! Absence of Medical Input !!!
!!! no medical oriented platforms at this moment !!!!