

# Economic evaluations of workplace health promotion

### Introduction

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#### Economic evaluations of lifestyle interventions

- Primary care, e.g. general practitioner
- Secondary care, e.g. obesity clinic for adolescents
- Occupational health care

Workplace Health Promotion

# Workplace Health Promotion (WHP)

#### the combined efforts of employers, employees and society to improve the health and well-being of people at work







### Workplace Health Promotion (WHP)





# Why WHP?



Source: World Population Aging, DESA/United Nations, New York, 2009.

# Why WHP?



\*\*Urban population \*\*Self-reported data

Source: International Association for the Study of Obesity

### **Obesity consequences**

- Health problems Short/medium term: a.o. osteo-arthritis, sleepapnea Long term: a.o. diabetes-2, cardiovascular disease
- Construction workers, OR=2 for falls (Chau et al., 2004)
- Increased risk for disability with increasing BMI
- Increased absenteeism

# Economic burden of obesity UK

Estimated costs	1998 (£ millions)	2002 (£ millions)	
Treating obesity	9.4	45.8 – 49.0 <sup>c</sup>	
Treating consequences of obesity	469.9	945 – 1,075 <sup>d</sup>	
Total direct costs	479.3	990.8 - 1,124	
Lost earnings due to premature mortality	827.8	1,050 - 1,150	
Lost earnings due to attributable sickness	1,321.7	1,300 - 1,450	
Total indirect costs	2,149.5	2,350 - 2,600	0,33%
Total economic cost of obesity	2,628.9	3,340 - 3,724 🥢	GDP

Source: Morgan E. and Dent M. The economic burden of obesity. Oxford: National Obesity Observatory, 2010.

# Simple model



#### PREVENTION

By Katherine Baicker, David Cutler, and Zirui Song

#### Workplace Wellness Programs Can Generate Savings

doi: 10.1377/hthaff.2009.0626 HEALTH AFFAIRS 29, NO. 2 (2010): -©2010 Project HOPE— The People-to-People Health Houndation, Inc.

ABSTRACT Amid soaring health spending, there is growing interest in workplace disease prevention and wellness programs to improve health and lower costs. In a critical meta-analysis of the literature on costs and savings associated with such programs, we found that medical costs fall by about \$3.27 for every dollar spent on wellness programs and that absenteeism costs fall by about \$2.73 for every dollar spent. Although further exploration of the mechanisms at work and broader applicability of the findings is needed, this return on investment suggests that the wider adoption of such programs could prove beneficial for budgets and productivity as well as health outcomes. Katherine Baicker (Kbaicker@ hsph.harvard.edu) is a professor of health economics at the School of Public Health, Harvard University, in Boston, Massachusetts.

**David Cutler** is a professor of economics at Harvard University.

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#### Amsterdam Lifestyle Intervention on Food and Exercise at Work



#### Economic evaluaton of distance lifestyle counseling



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### ALIFE@Work

- economic evaluation
- of a 6-month lifestyle programme in comparison with general lifestyle information
- in overweight (BMI  $\geq$  25) workers
- two year follow-up
- societal perspective and employer perspective

### Intervention



# Study flow



### Measurements

#### **Clinical outcomes**

- change in body weight
- Quality Adjusted Life Years

#### Costs from societal perspective

- intervention costs
- health care costs and out-of-pocket costs: self reported utilisation
- sick leave: self reported & company registries

### **Baseline characteristics**

	All
	n=1386
Men (%)	67
Age (y), mean (SD)	43 (8.6)
BMI (kg/m <sup>2</sup> ), mean (SD)	29.6 (3.5)

# Weight loss



# Societal costs (€)

	Control	Internet	
	(n=448)	(n=450)	
	Mean (SD)	Mean (SD)	<i>Mean difference (95% CI)</i>
Intervention	0	177 (112)	177 (NA)
Health care	656	819	163
	(833)	(1285)	(10 to 344)
Sick leave	1824	1498	-326
	(5014)	(4663)	(-1019 to 419)
Total	2480	2494	14
	(5461)	(5691)	(-790 to 817)



Incremental Cost-Effectiveness Ratio

Costs<sub>I</sub> – Costs<sub>C</sub>

 $Effects_{I} - Effects_{C}$ 

### ICER body weight internet

#### ICER = $\Delta C / \Delta E = 14 / 0.9$



#### €16 / kg weight loss

# CE plane body weight internet



Incremental effects pooled datasets



# CE plane body weight internet



Incremental effects pooled datasets

# Employer costs / net benefit (1 year)

	Control	Internet	
	(n=448)	(n=450)	
	Mean (SD)	Mean (SD)	Mean difference (95% CI)
Intervention	0	177 (112)	177 (NA)
Sick leave	3228 (435)	3098 (465)	-130 (-1233; 1364)
Total	3228 (435)	3276 (465)	48 (-1107; 1417)

# Conclusions

#### Internet

- no effects body weight
- no solid proof of cost-effectiveness from societal perspective

• no cost benefit for employer

# An ounce of prevention...



"Always remember, there is no such thing as a free lunch - will you pick up the bill?"

### But...



### Coming soon...











# Questions?

### Economic burden of obesity



Source: Müller-Riemenschneider et al. Eur. J. Epidemiol. (2008) 23:499-509

# Bouwen aan Gezondheid

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# Study aims

- economic evaluation
- of a 1 year lifestyle programme in comparison with usual care
- in workers in the construction industry with elevated CVD-risk
- one year follow-up
- societal perspective and employer perspective

#### Intervention

- 3 x face to face, 4 x phone
- occupational physician or occupational nurse
- motivational interviewing



Miller WR & Rollnick S. 2002. Motivational Interviewing 2<sup>nd</sup> ed. Rubak, S et al. J Gen Pract. 2005. 55;513: 305-312.

#### Timeline



### Measurements

#### **Clinical outcomes**

• change in body weight

Costs from societal perspective

- intervention costs
- out of pocket costs employees: self reported
- health care costs: self reported utilisation
- sick leave: self reported

### Effects after one year

• Effect: Body weight -2.0 kg (95% CI -3.0; -1.1)

### Societal costs

	Intervention (n=293)	<i>Control</i> (n=280)	<i>Difference (95% CI)</i>
Health care	817	279	539 (472; 605)*
Intervention	605	0	605 (572; 629)*
Other	212	279	-67(-126;-9.4)*
Out of pocket	390	333	57 (-35; 146)
Sickness absence	3,302	3,604	-302 (-1,651; 1,021)
Totaal	4,508	4,215	293 (-1,084; 1,670)

#### ICER body weight intervention-control

#### ICER = $\Delta C / \Delta E = 293 / 2.0$



#### €145 / kg weight loss

# CE plane

Incremental costs pooled dataset



Incremental effects pooled datasets

# Employer costs / net benefit

	Intervention (n=293)	<i>Control</i> ( <i>n=280</i> )	<i>Difference (95% CI)</i>
Intervention	605	0	605 (572; 629)*
Sickness absence	3,302	3,604	-302 (-1,651; 1,021)
Total	3,907	3,604	303 (-1,084; 1,670)

# Conclusion

• Effective for producing weight loss after one year

• Cost-effective from the societal perspective?

- depends on willingness to pay for weight loss

• No cost-benefit from the employer perspective