

Press Conference

3 June 2008

London



Münchener Rück
Munich Re Group



Agenda

1. Introduction: Global Leader in Health Insurance Solutions - Peter Choueiri
2. Obesity: Epidemic trends and its impacts on health - Achim Regenauer
3. Solutions and selected projects - Franz Benstetter
4. Conclusion - Peter Choueiri

Today's News ... are Tomorrow's Risks

Current worldwide count of overweight adults stands at 1.6 billion and is projected to grow by 40% over the next 10 years.

(WHO, 2007)

A 60% increase in prevalence of hypertension is predicted by 2025.

(Kearney et al, Lancet, 2005)



Elevated BMI is a major risk factor for heart disease, stroke, type 2 diabetes and other chronic disease.

(Grundy, Medscape CME, 2008)

Direct health care costs of diabetes range from 2.5% to 15% of annual health care budgets.

(WHO, 2007)

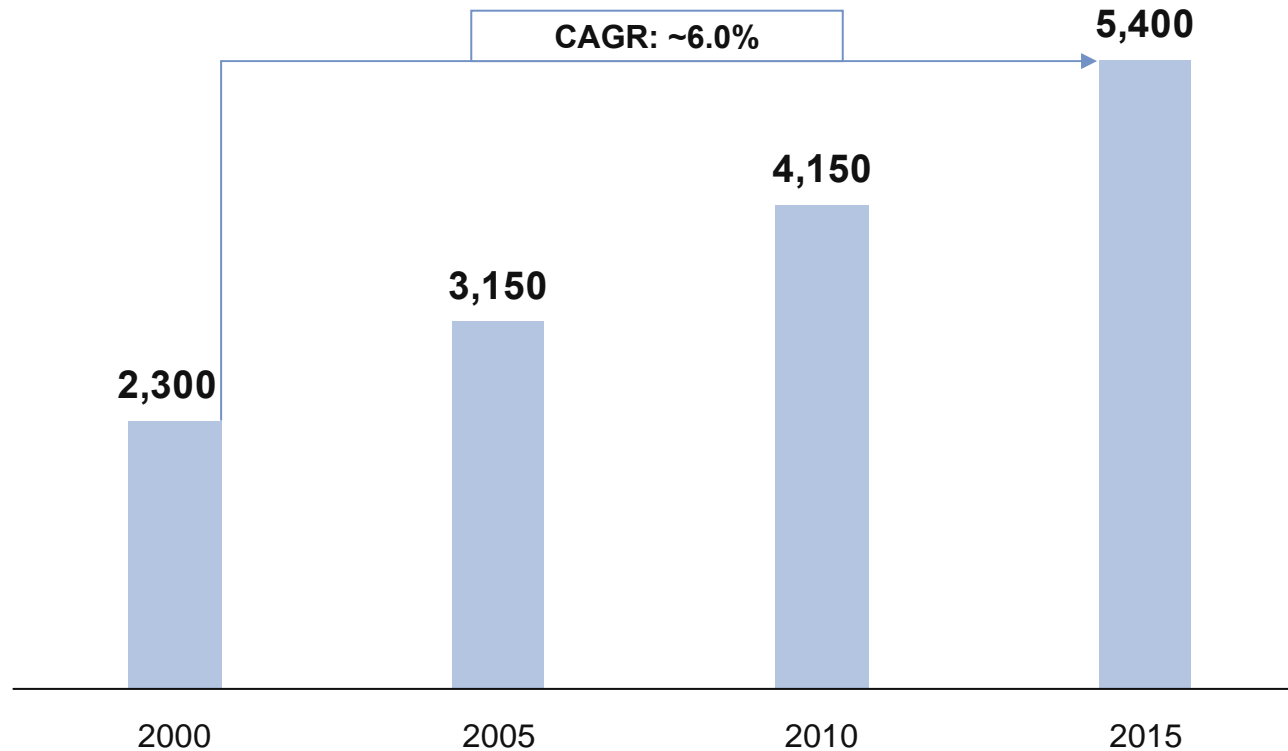
About 2% of capital in the workforce is lost to disability, absenteeism and presenteeism related to chronic diseases.

(PricewaterhouseCoopers and National Business Coalition of Washington DC)

Obesity: One of the growth drivers in the global health market

Global health market – Market volume

in €bn



Quelle: OECD Health Statistics, Compustat, Bloomberg

Main growth drivers

Demographic
development

Medical
improvements

Lifestyle
changes

Economic
situation

Global activities build strong position in health insurance

Our setup

- Combining the world's No 1 health reinsurer and Europe's No 1 health insurer (DKV)
- Health as core business segment within Munich Re Group
- Health risk expertise in over 40 countries
- More than 3.500 healthcare professionals in 25 locations around the globe

Our strengths

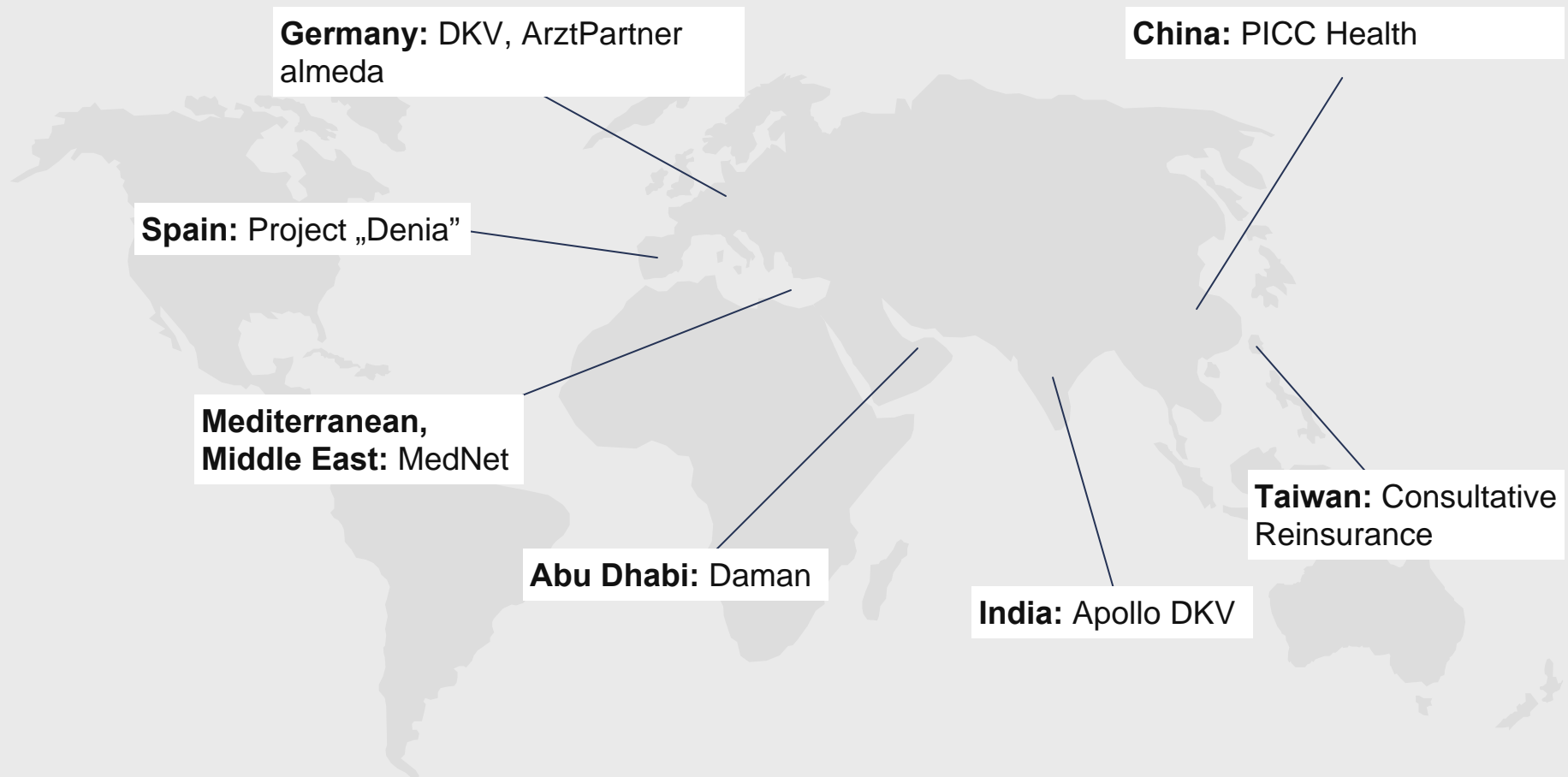
- Flexible combination of business models and products as unique selling proposition
- Outstanding knowledge and experience in health insurance and reinsurance gained in two decades of global presence
- Strong market presence in insurance and/or reinsurance as solid platform for further growth

Our Ambition: “Global leader in health insurance solutions”

International Health Selected Projects



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1. How is overweight and obesity defined ?



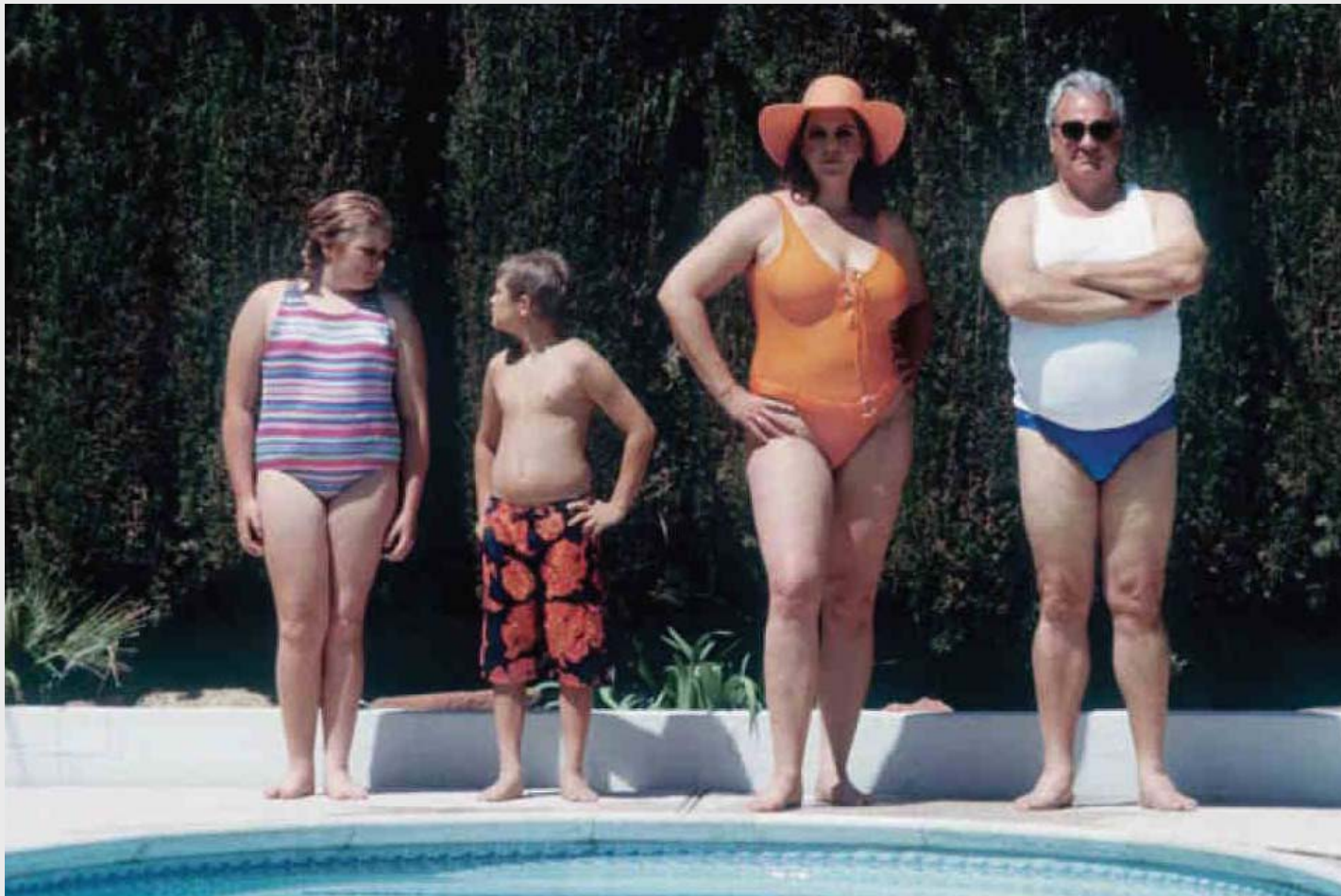
Obesity – the **medical** view

BMI	Weight (kg) Height (m) ²	Classification	Degree of obesity	Example 174 cm
18.5 or less		Underweight		56 kg
18.5 – 24.9		Normal weight		77 kg
25.0 – 29.9		Overweight	0	92 kg
30.0 – 34.9		Obesity	I	107 kg
35.0 – 39.9		Obesity	II	120 kg
40 or greater		Extremely obese	III	

Obesity – the **cosmetic** view

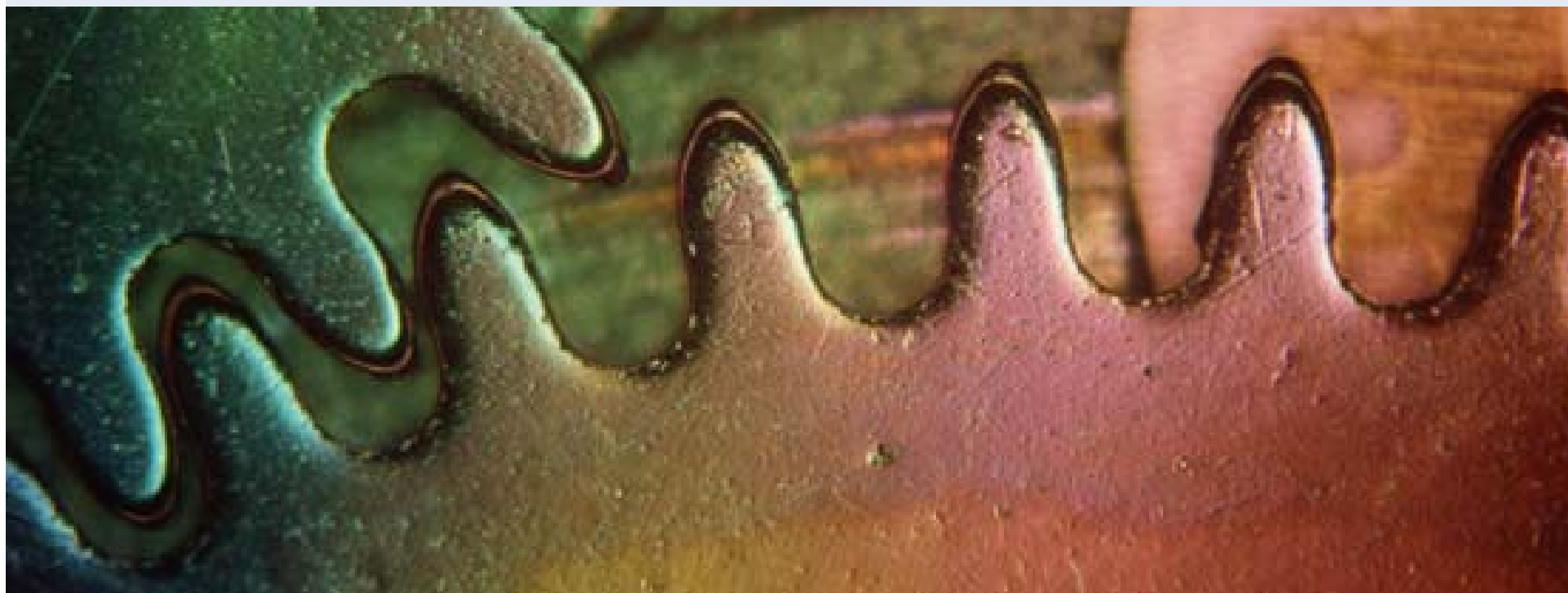


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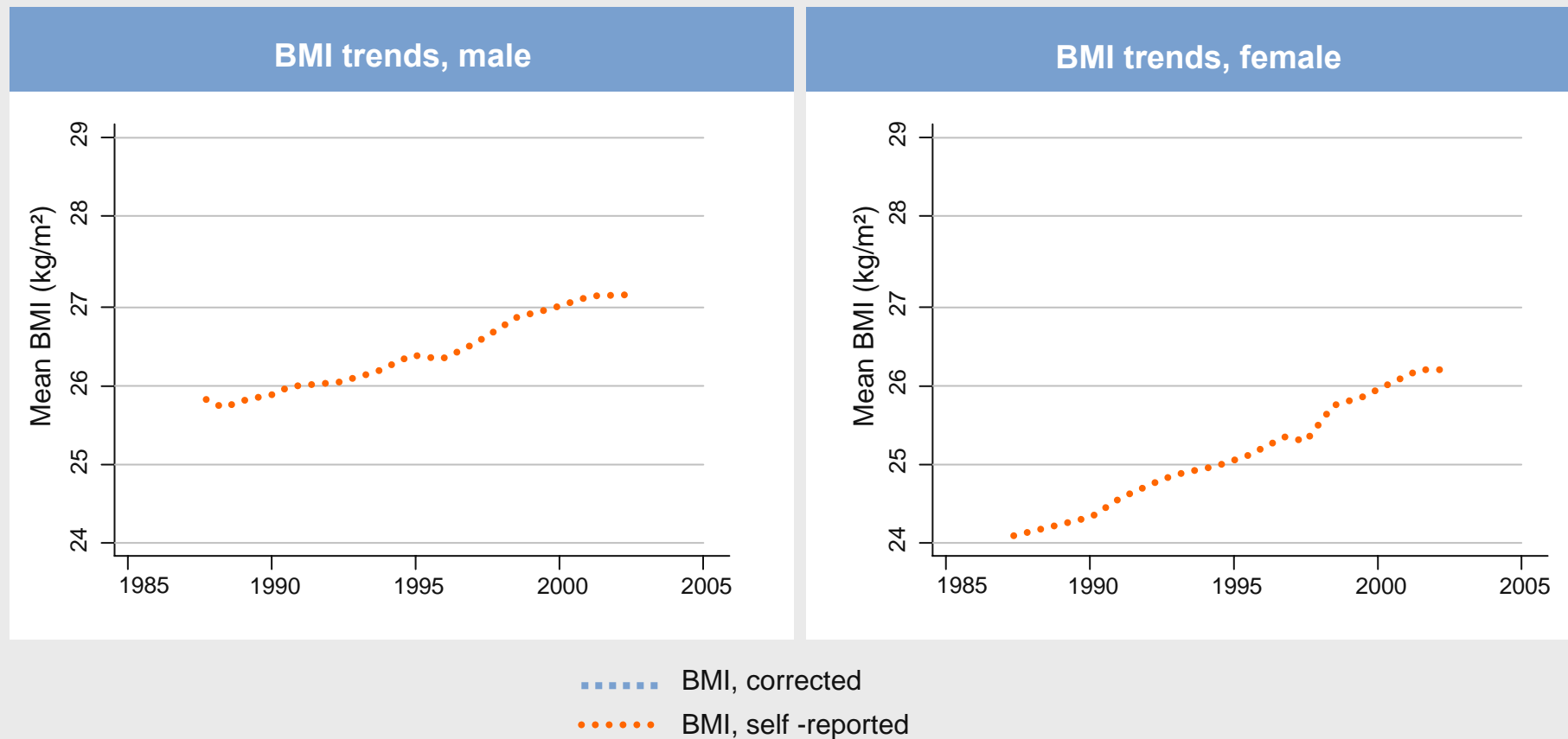
Estimated BMI for both adults on the slide: $\text{BMI} \approx 30$

2. Epidemiologic trends in the western world



Trends in mean BMI in USA

- Self reported versus examined NHANES
(Nat. Health & Nutrition Examination Survey) $n > 25,000$ -



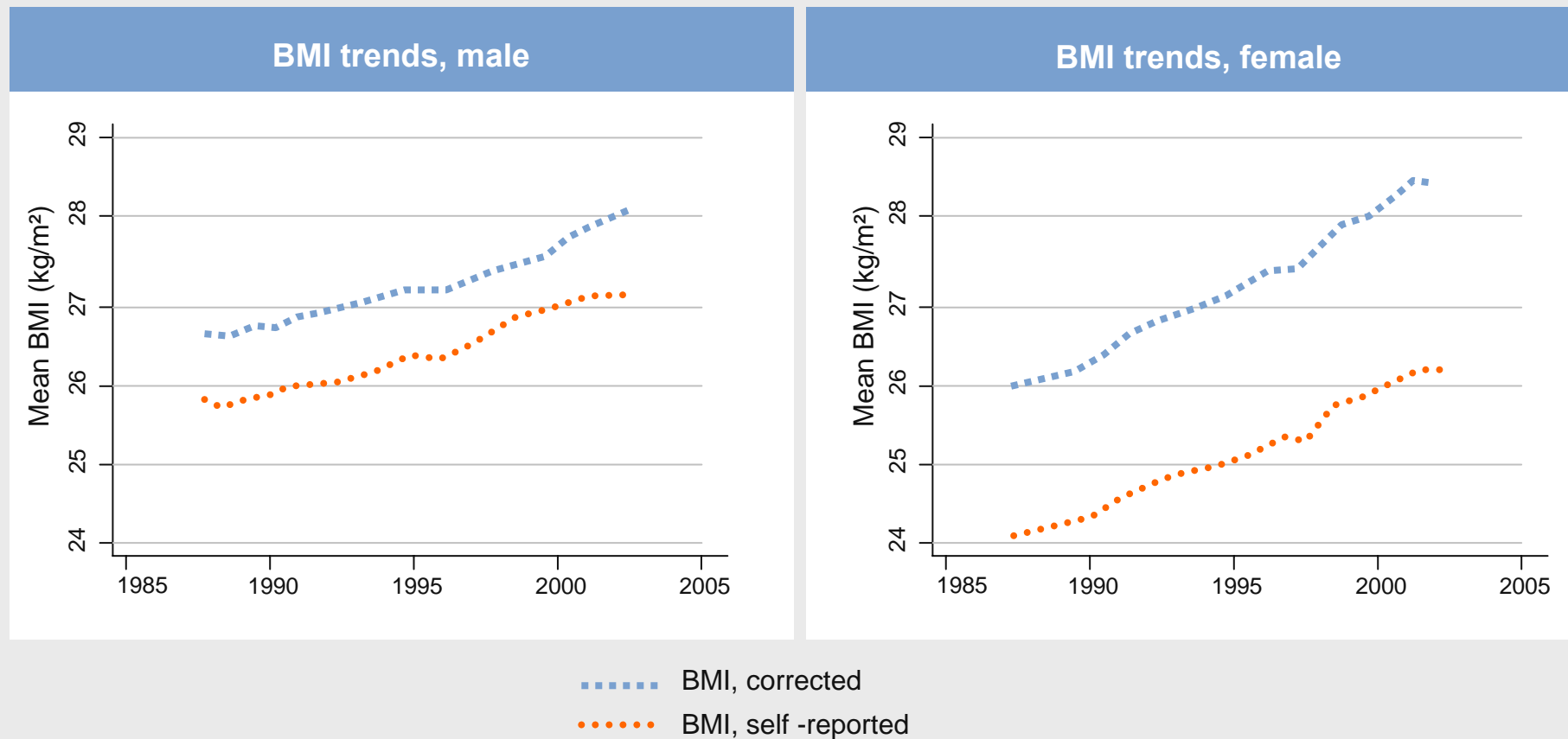
1985

[illegible]

12

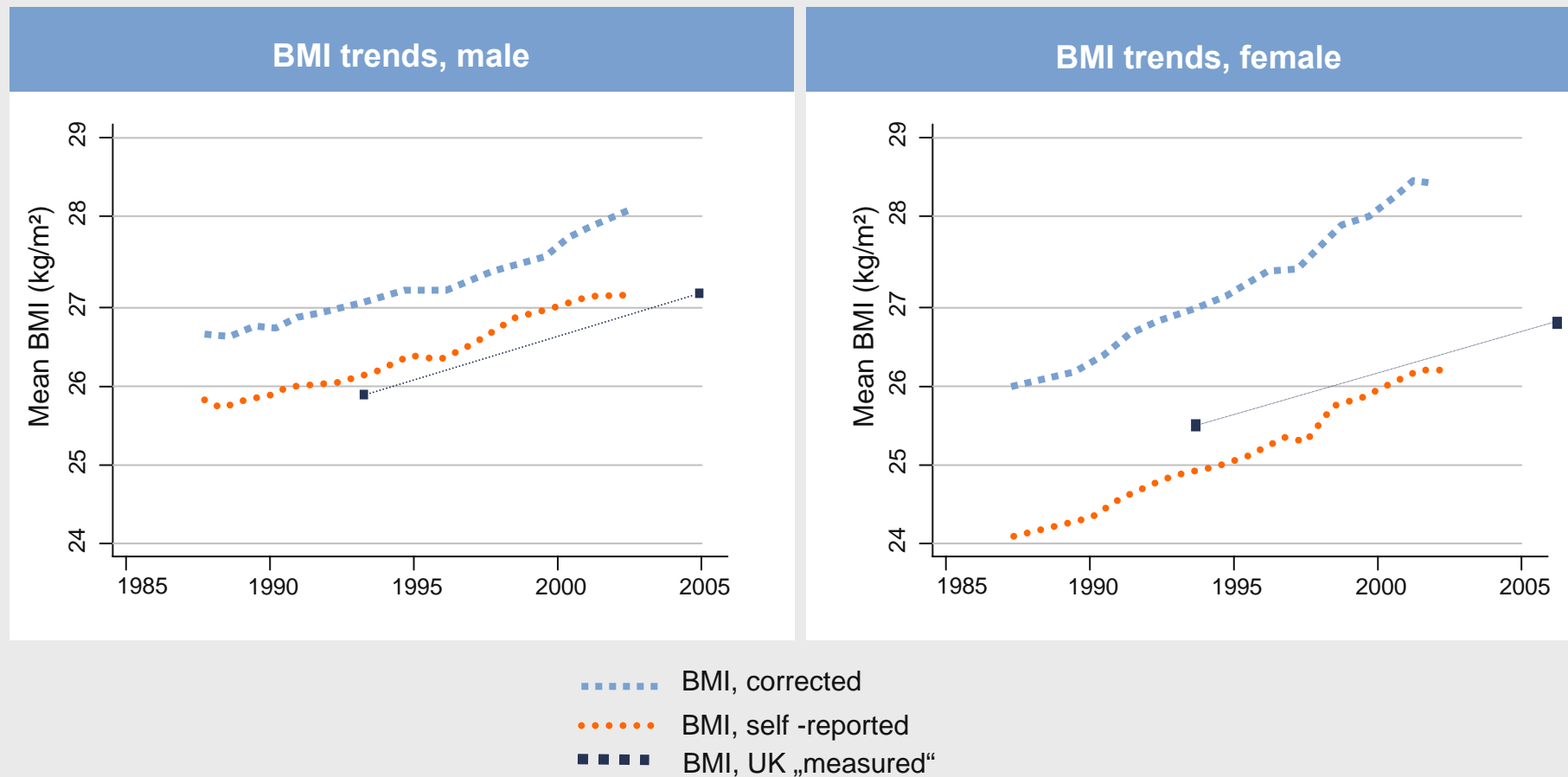
Trends in mean BMI in USA

- Self reported versus examined NHANES
(Nat. Health & Nutrition Examination Survey) $n > 25,000$ -



Trends in mean BMI in USA and UK

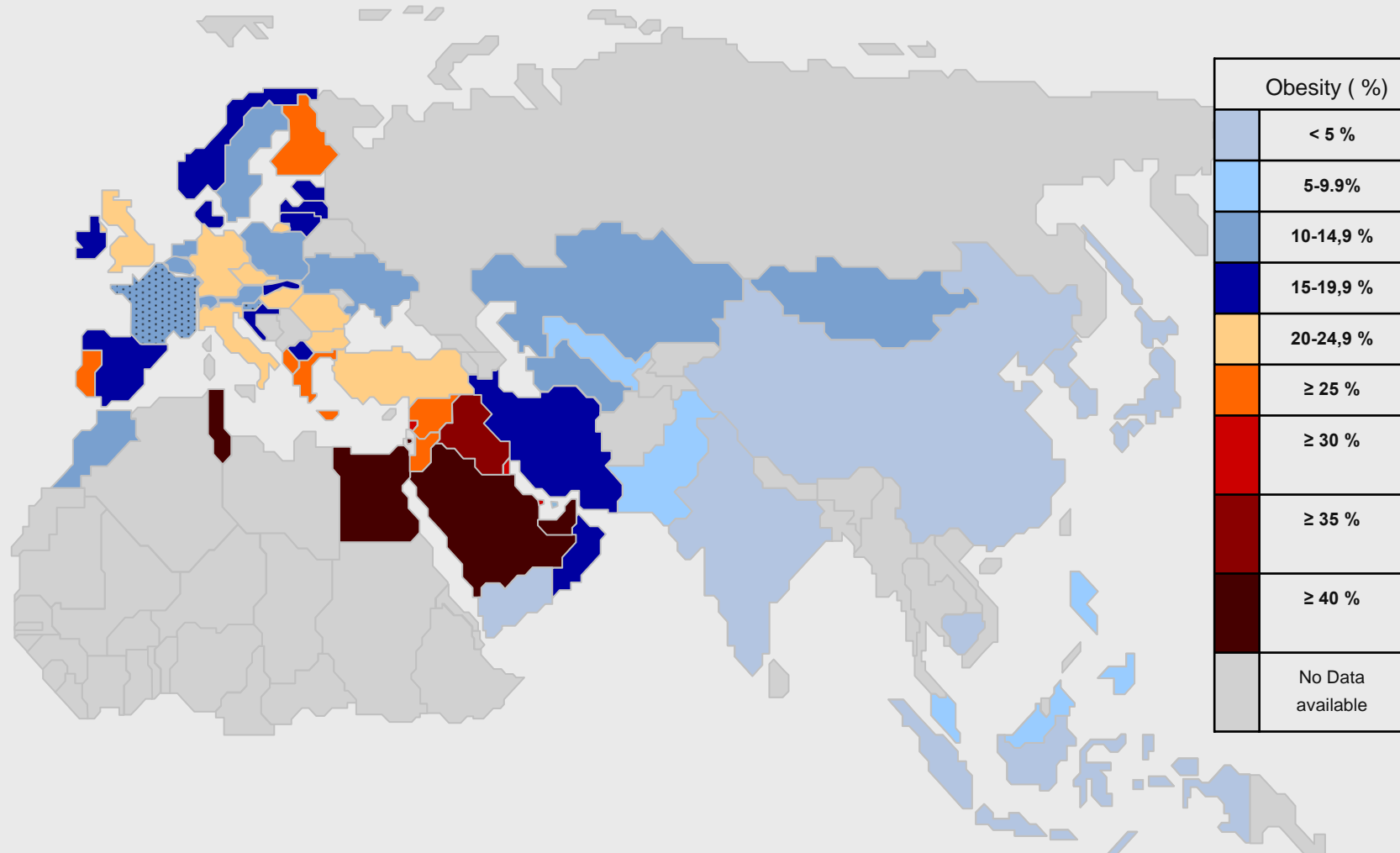
- Self reported versus examined NHANES
(Nat. Health & Nutrition Examination Survey) $n > 25,000$ -



Source: Journal of the Royal Society of Medicine, Vol. 99, May 2006/
Health Survey for England, NHS 2006

Obesity in Europe and Asia* - Women

* BMI ≥ 30



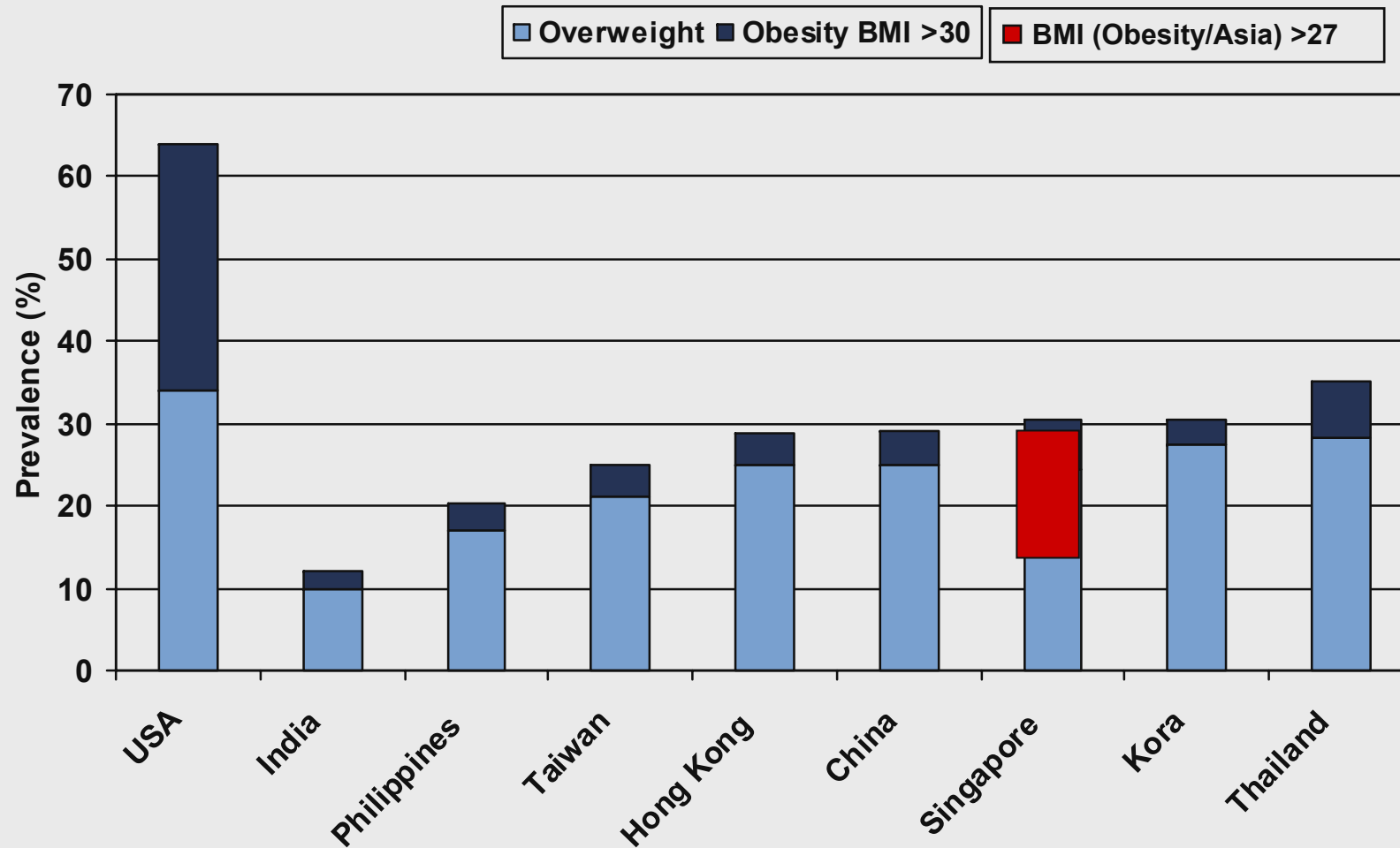
WHO: **much higher** prevalence of obesity in Asia !

- representative study in Singapore -



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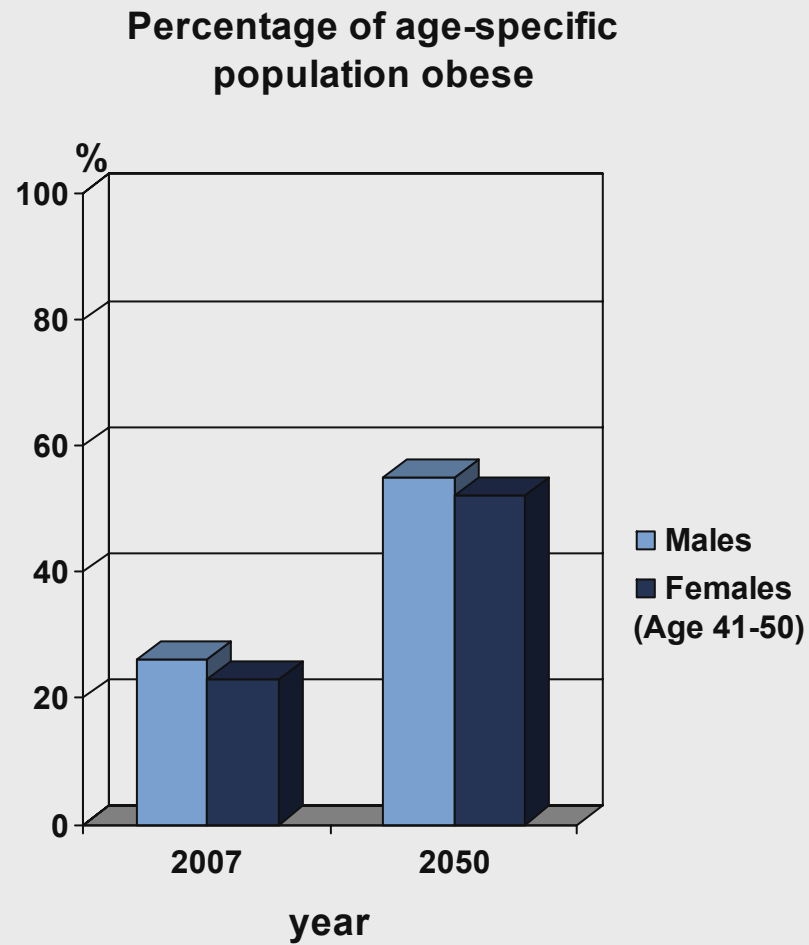
Proportion of overweight and obese adults



Future trends in obesity in the UK



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Source: Foresight 2007, K. McPherson, University of Oxford

3. Epidemiologic trends among children



Prevalence (%) of overweight in children aged 5 – 11

- ITOF: Federal body of research associations in 50 countries -



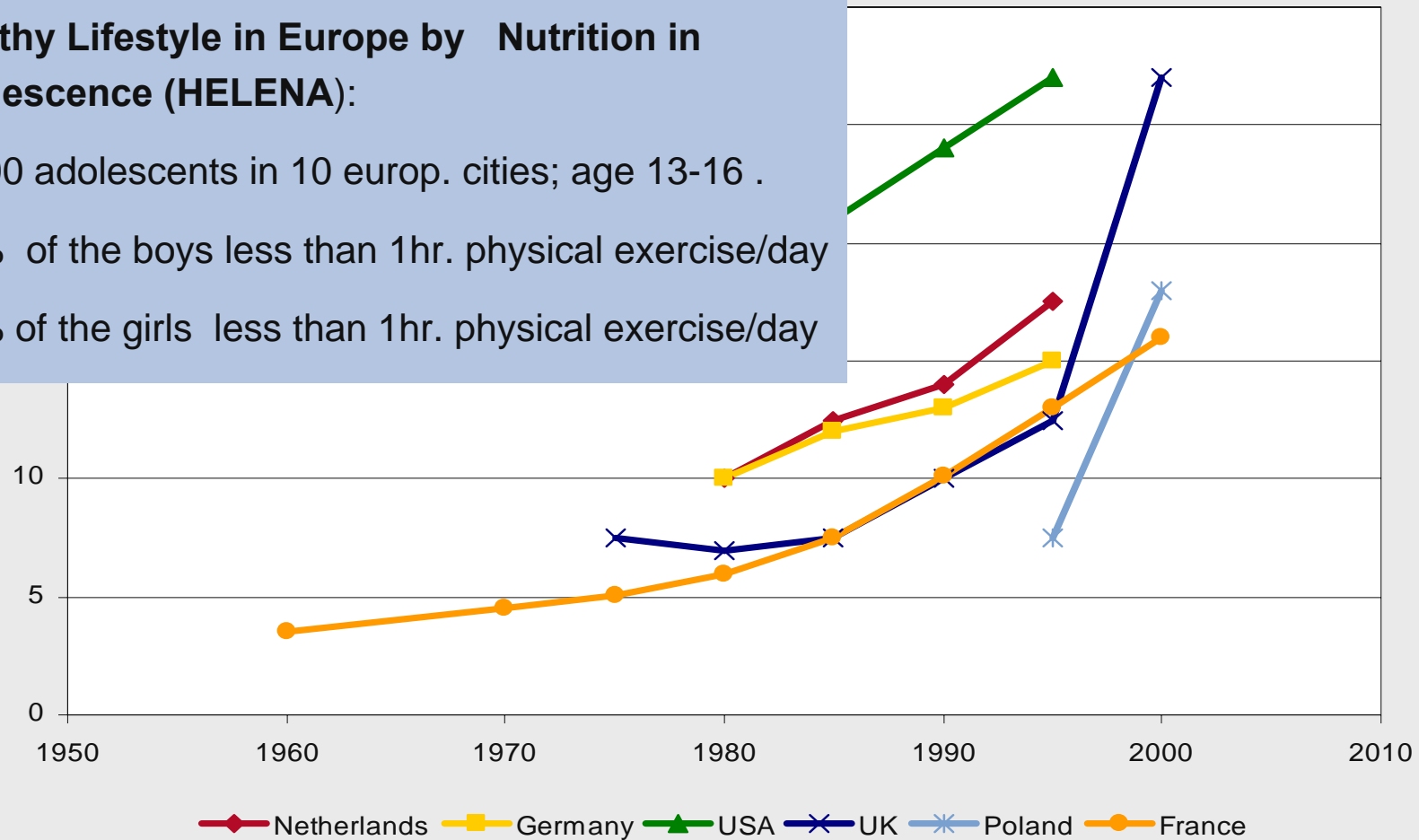
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Healthy Lifestyle in Europe by Nutrition in Adolescence (HELENA):

3,000 adolescents in 10 europ. cities; age 13-16 .

42% of the boys less than 1hr. physical exercise/day

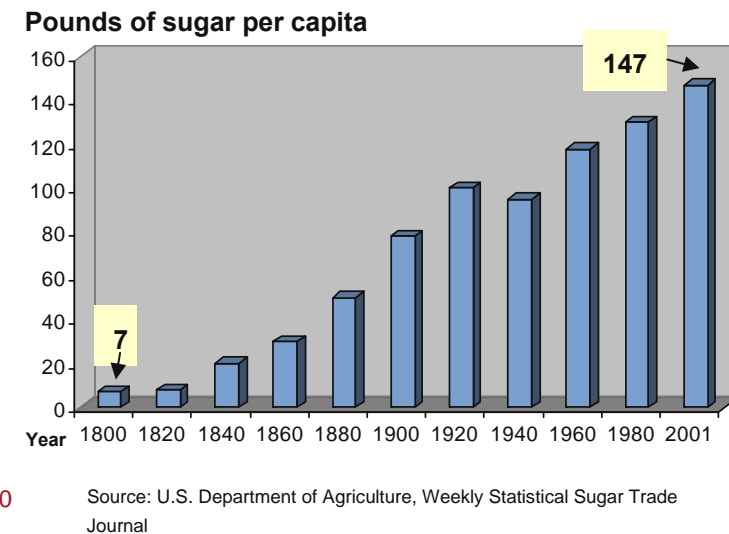
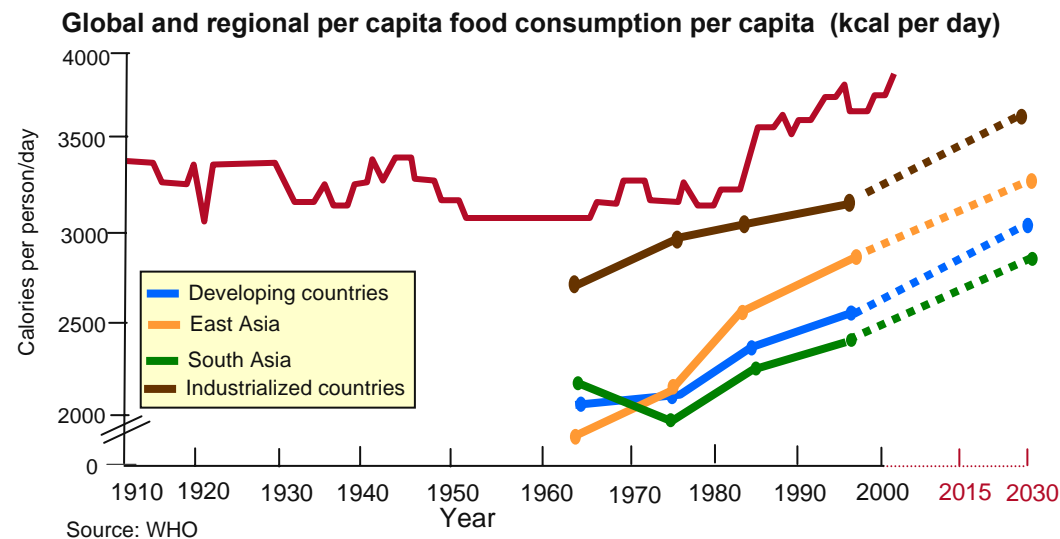
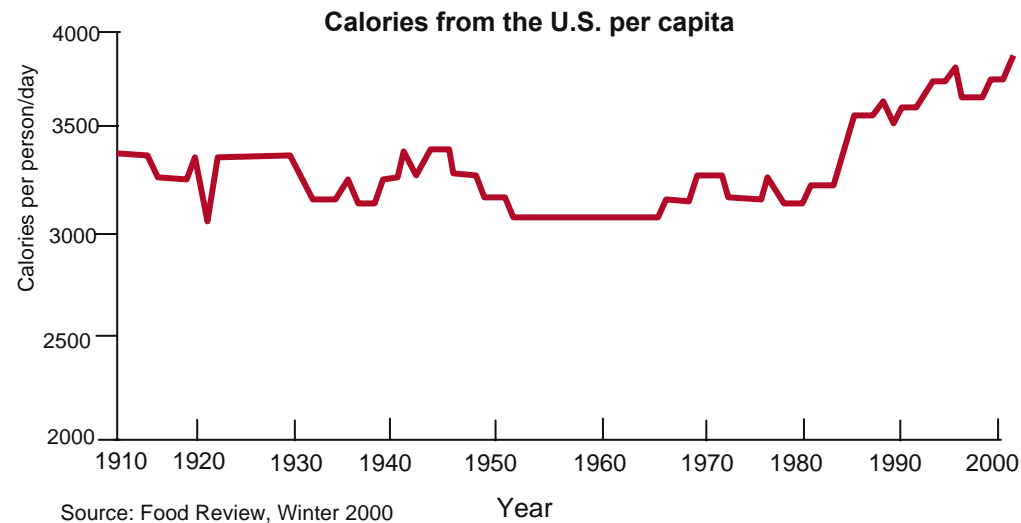
69% of the girls less than 1hr. physical exercise/day



4. What are the reasons for this pandemic ?



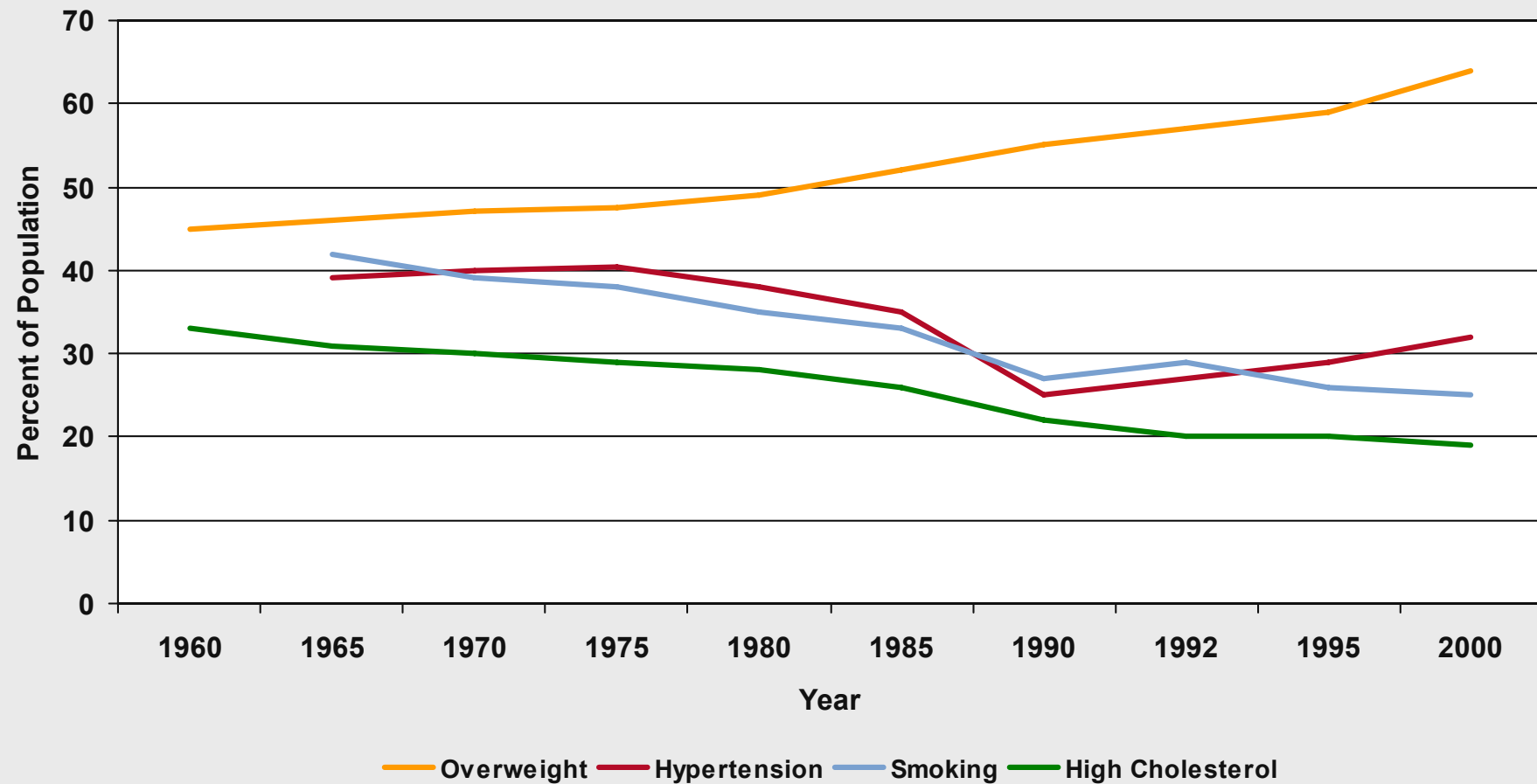
Consumption of calories and sugar per capita in the US



Prevalence of Cardiovascular Disease Risk Factors* in Adults, USA 1961 – 2000



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(*age adjusted)

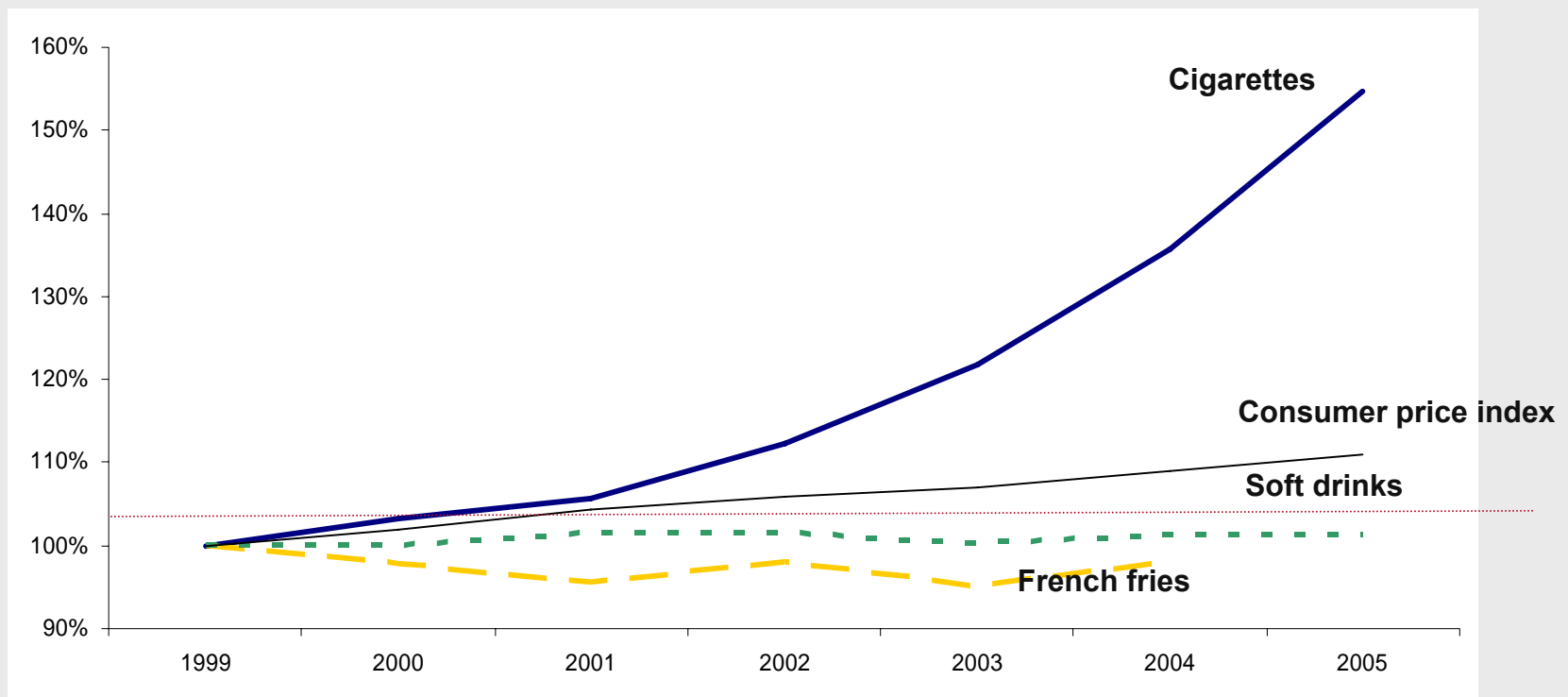
Trend of „Fast food“ and cigarettes prices (Germany)



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Price trends

	"Cigarettes"	"French fries"	"Soft drinks "	CPI Germany total
1999	100%	100,0%	100%	100,0%
2000	103%	97,8%	100%	101,9%
2001	106%	95,5%	101%	104,4%
2002	112%	97,9%	101%	105,9%
2003	122%	95,0%	100%	107,1%
2004	136%	97,9%	101%	108,9%
2005	155%	94,2%	101%	111,1%



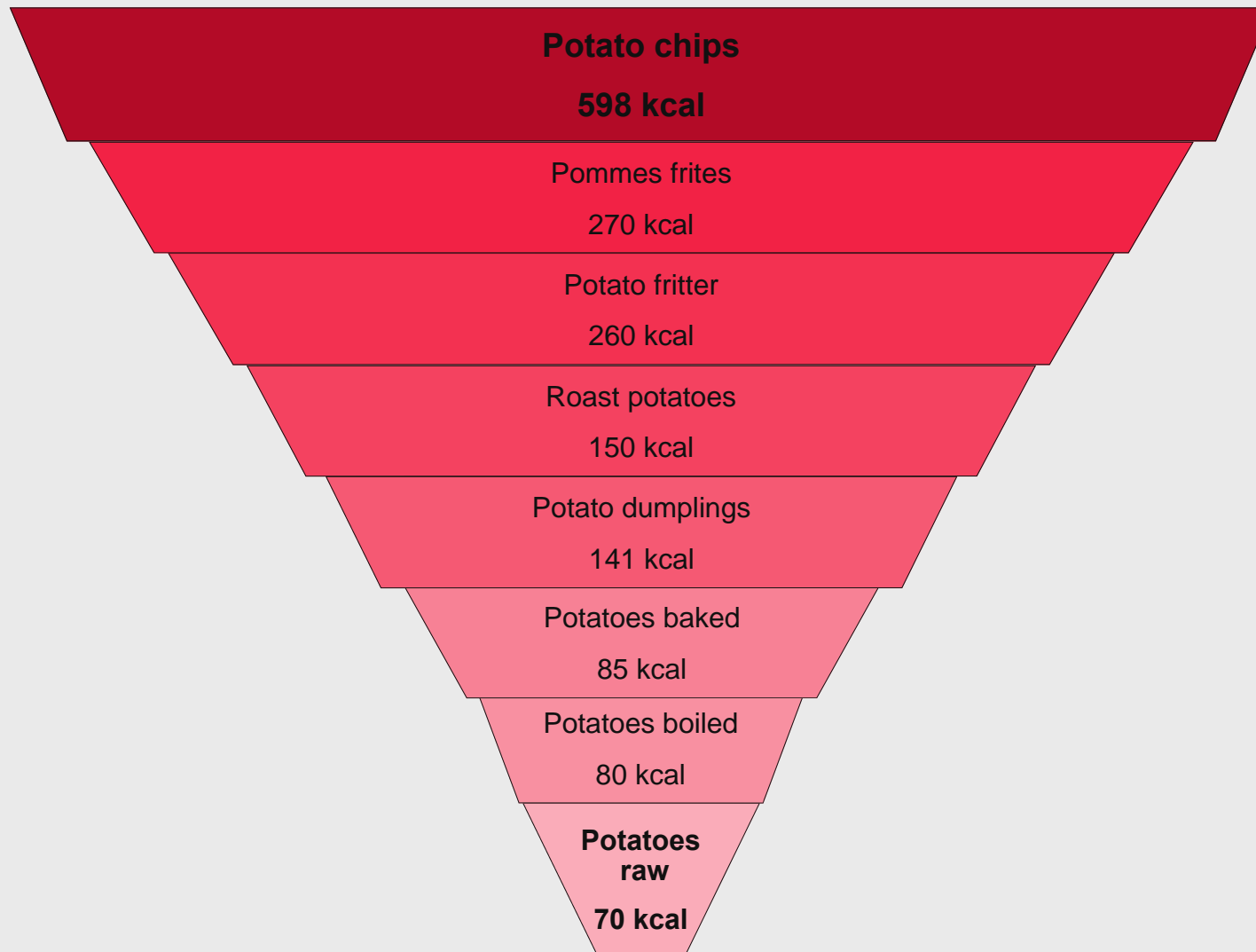
Source: Economist, Statistisches Bundesamt

Artificial food – the “career” of a potato



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Kcal per 100 g



Source: www.weightlossforall.com

Diet or/and physical activity ?



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	Maintenance resp. prevention of weight gain (50-100 kcal/day)	Weight loss (≥500 kcal/day)
Diet alone	Modest	Substantial
Physical activity alone	Modest	Absent or minor
Diet and physical activity combined	Substantial	Substantial

5. Impact on health ?



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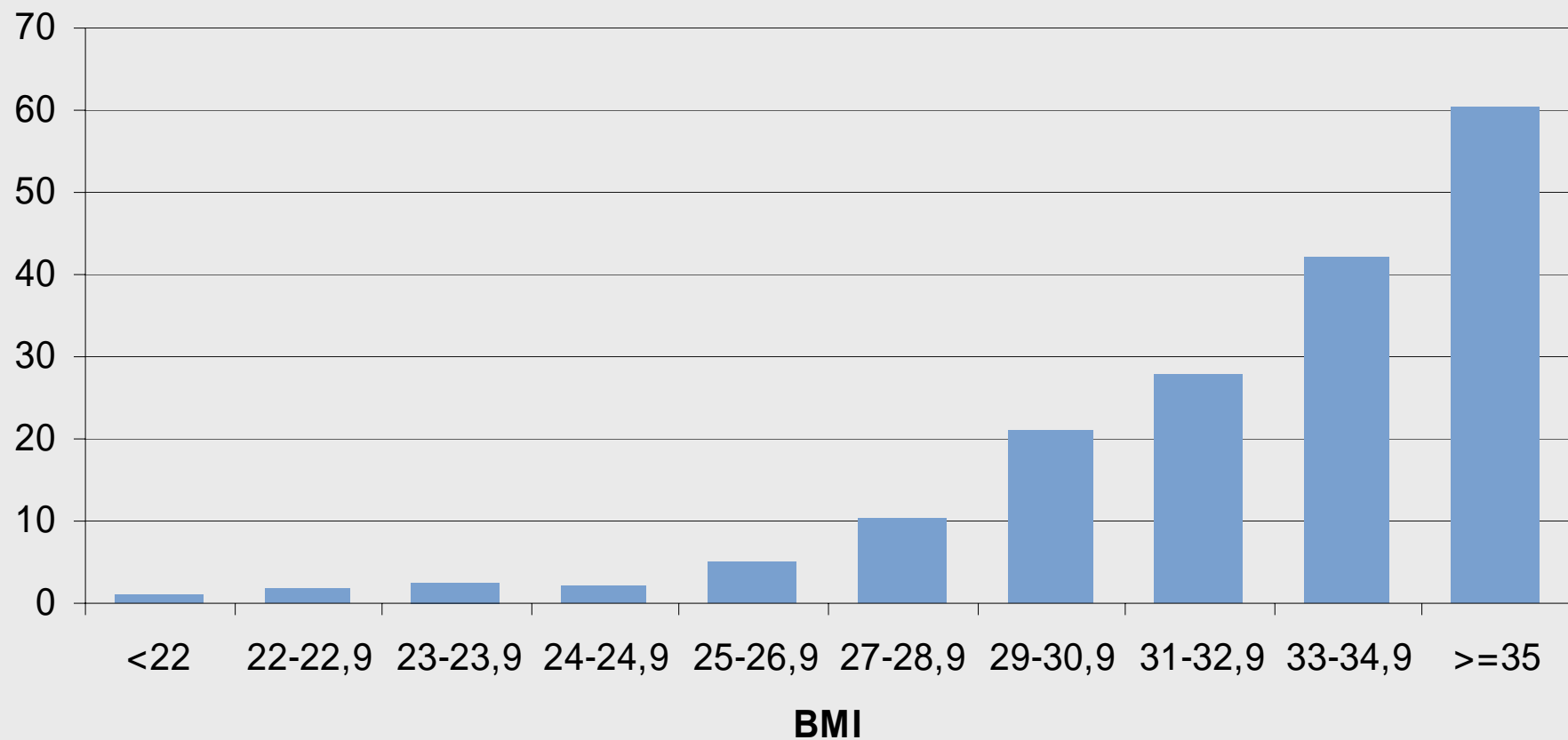
Relationship between BMI and Risk of Type 2 Diabetes

- NHS n = 100,000 women f-up 16 yrs -



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Relative risk



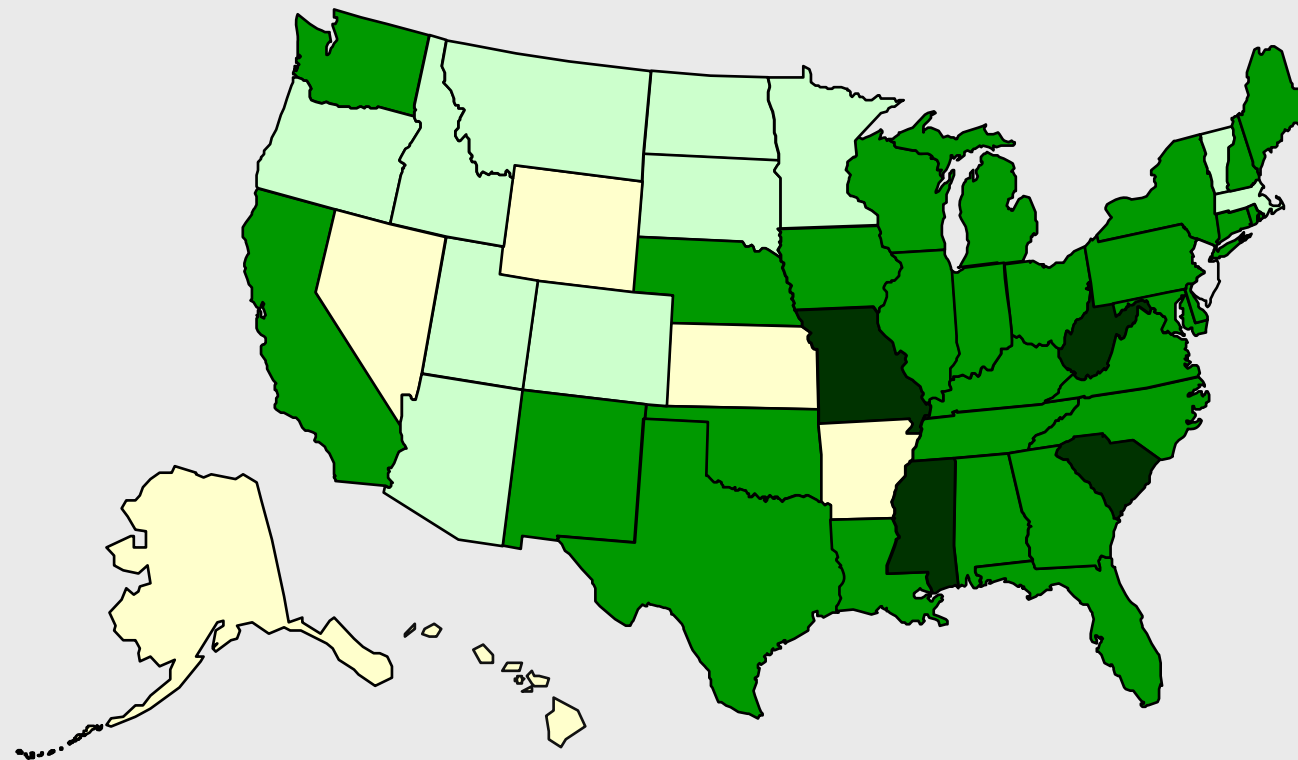
Nurses Health Study

Diabetes Trends among U.S. Adults

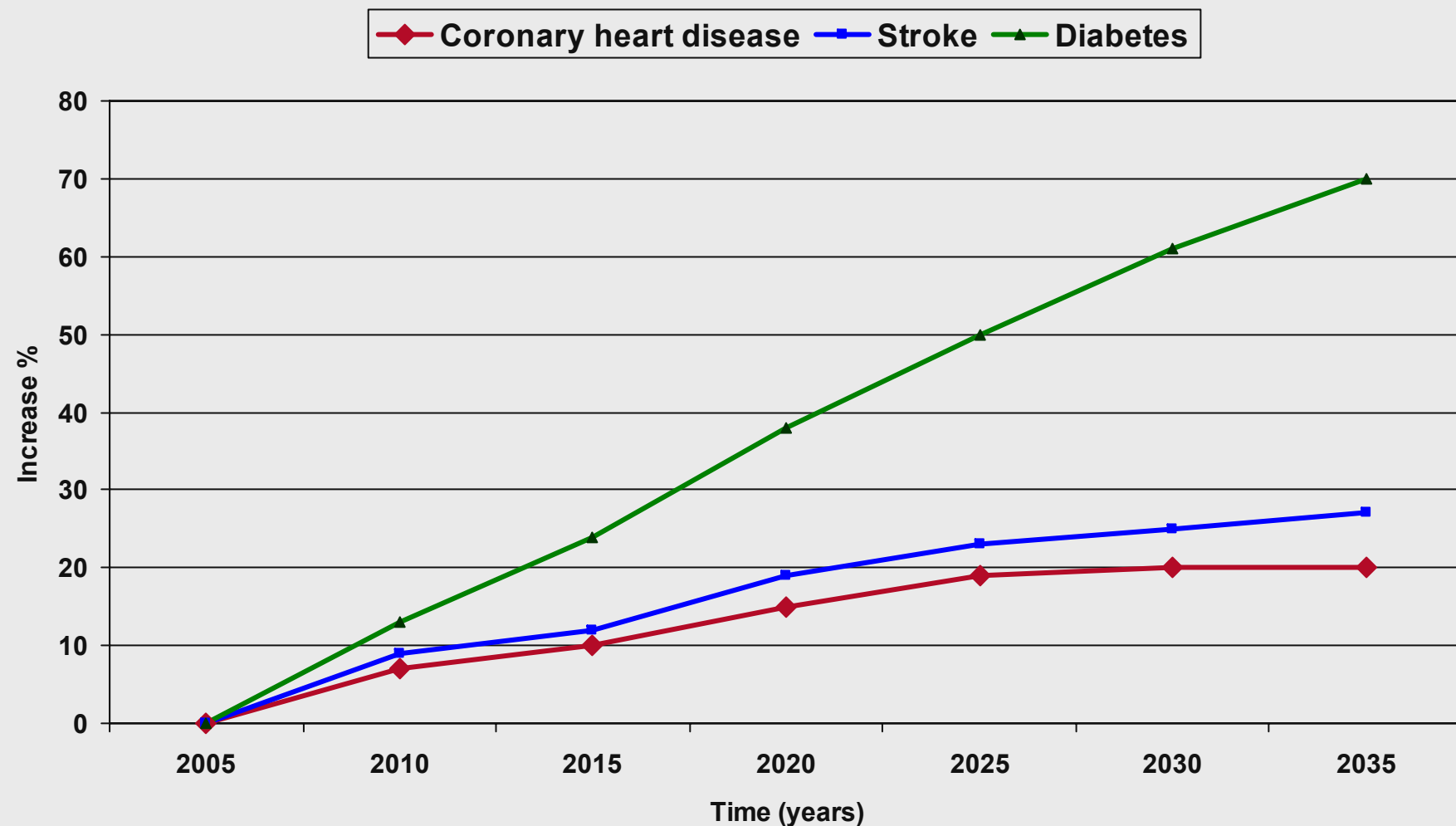
1990



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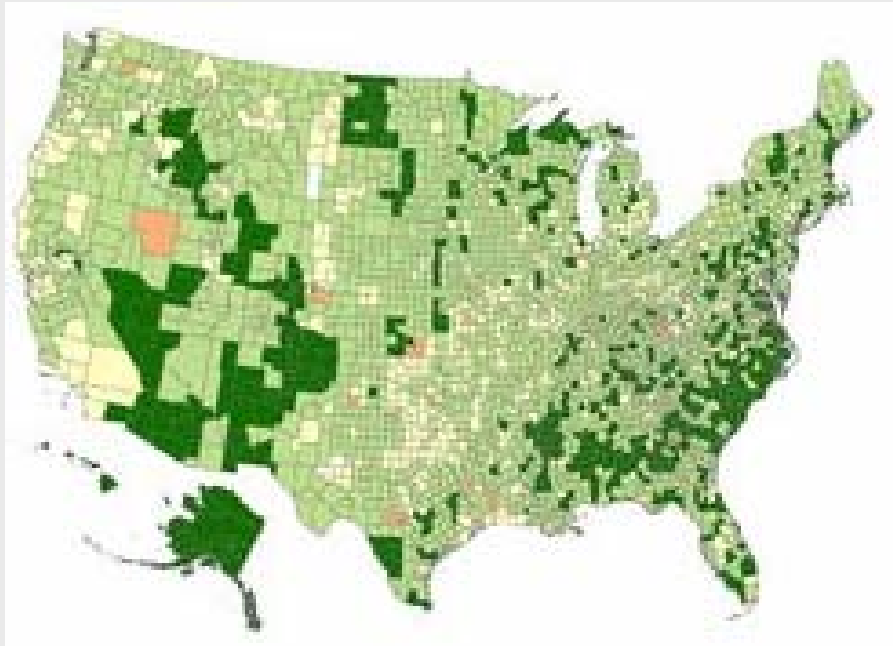


Increase in diseases attributable to rising obesity levels - age- and gender-standardised -

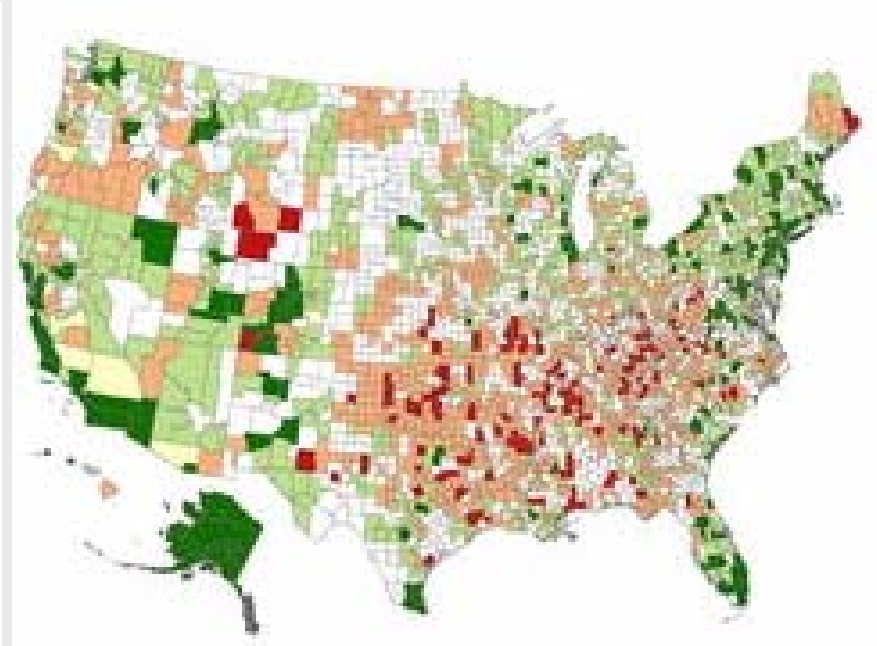


Mortality trends in US counties

Female 1961 - 1983



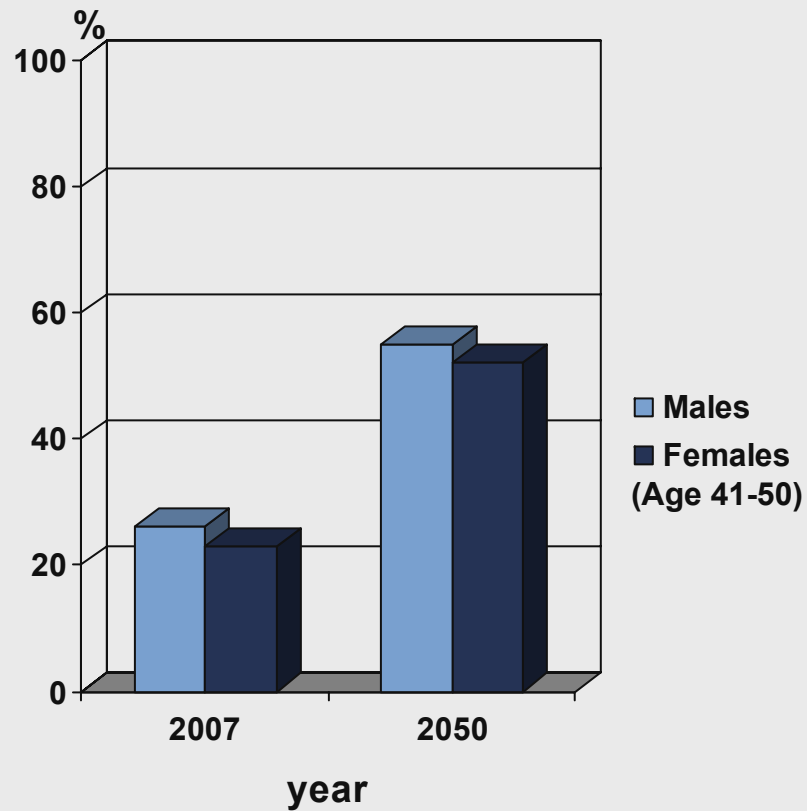
Female 1983 - 1999



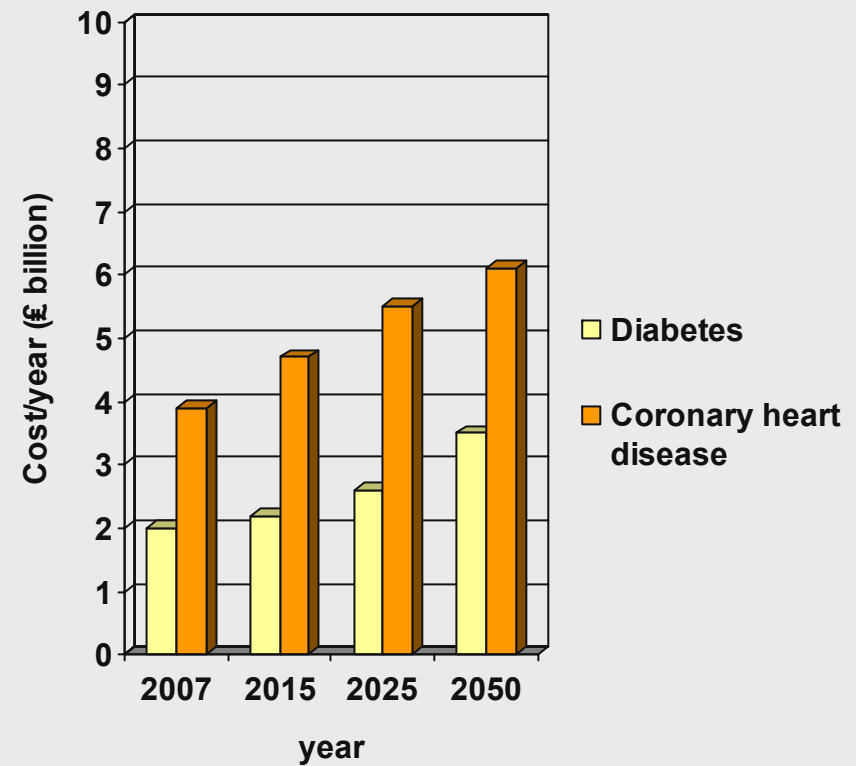
- Life expectancy increased at a level significantly higher than national mean
- Life expectancy increased at a level higher but not significantly distinguishable from mean
- Life expectancy increased at a level higher but less than mean
- Life expectancy change was statistically indistinguishable from national mean
- Life expectancy change was less than the national mean
- Life expectancy had a statistically significant decline.

Future trends in obesity in the UK

Percentage of age-specific population obese



Estimated future NHS disease costs attributable to obesity



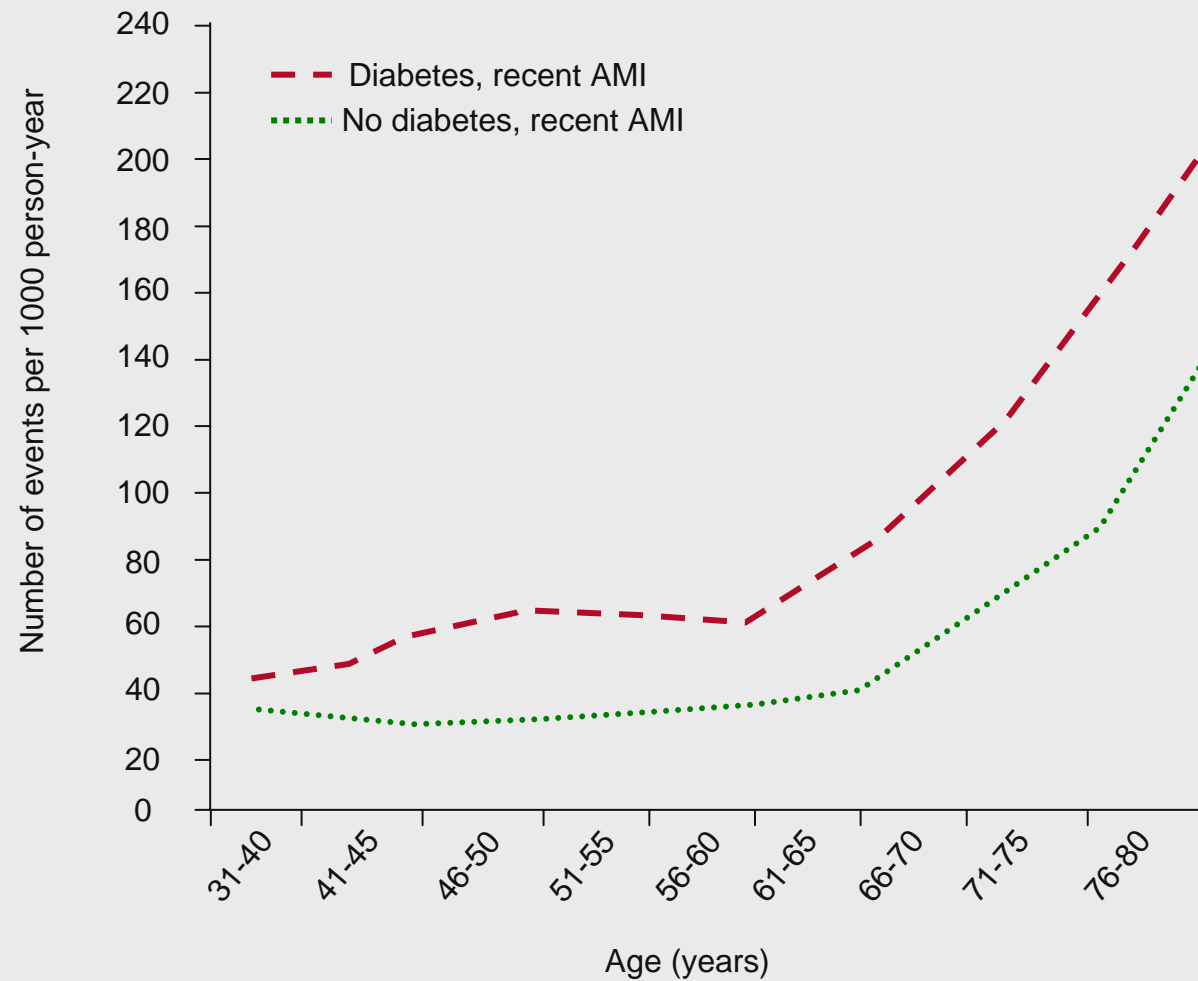
- Obesity is rising to epidemic proportions around the world at an alarming rate
- followed by a Diabetes Type 2 epidemic worldwide (“Twin epidemic”)
- ..and atherosclerotic complications (Heart attack)?
- Young generation will be exposed two decades longer
- Change of eating habits and increase of physical activity promising, if rewarded

Relation between age and rates of CHD with and without diabetes

- population based retrospective cohort study n > 9 million -



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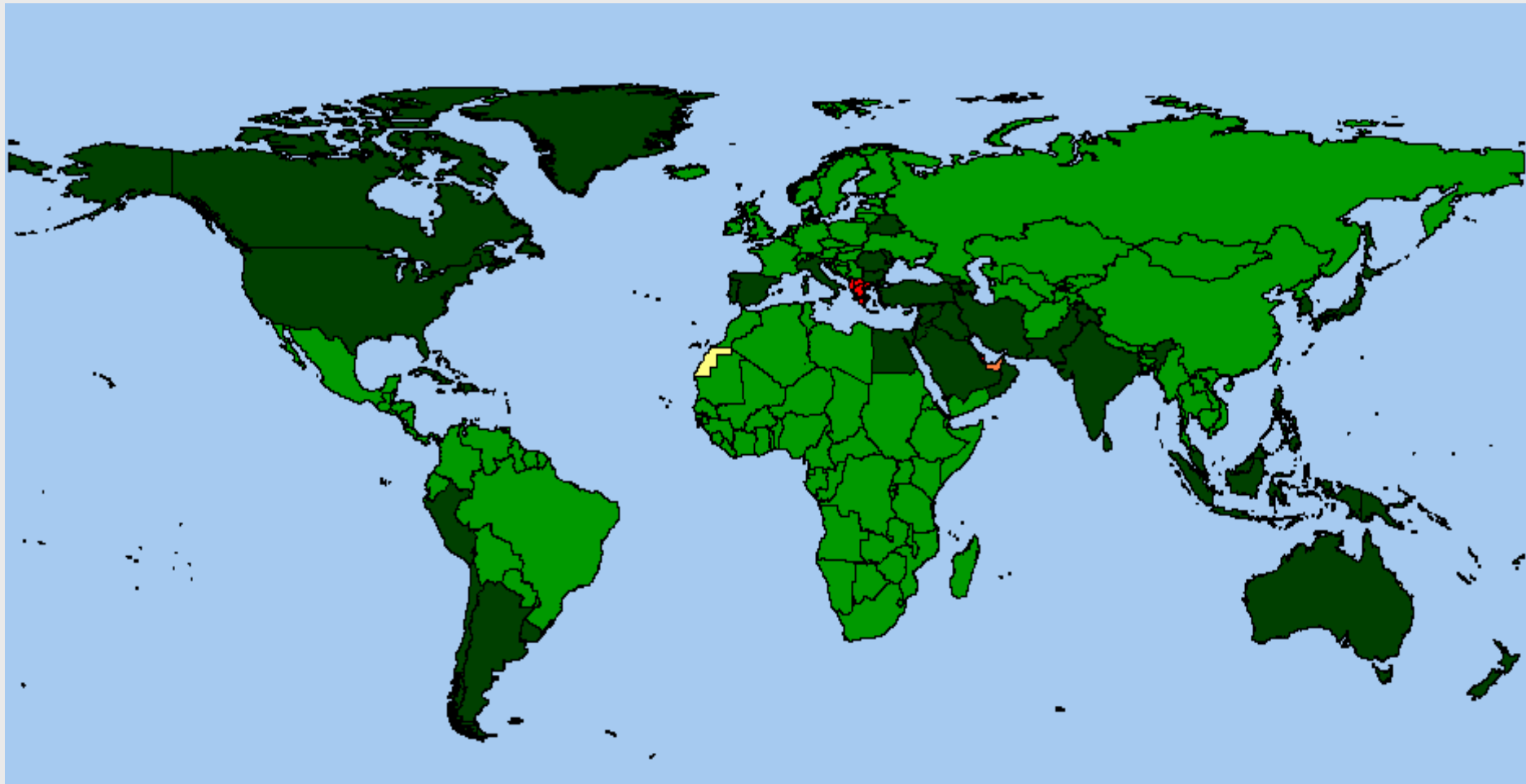


Prevalence of diabetes worldwide

- Percentage of people aged ≥ 20 with diabetes in 2000



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no data



below 5%



5% - 9.9%



10% - 14.9%



15% and above

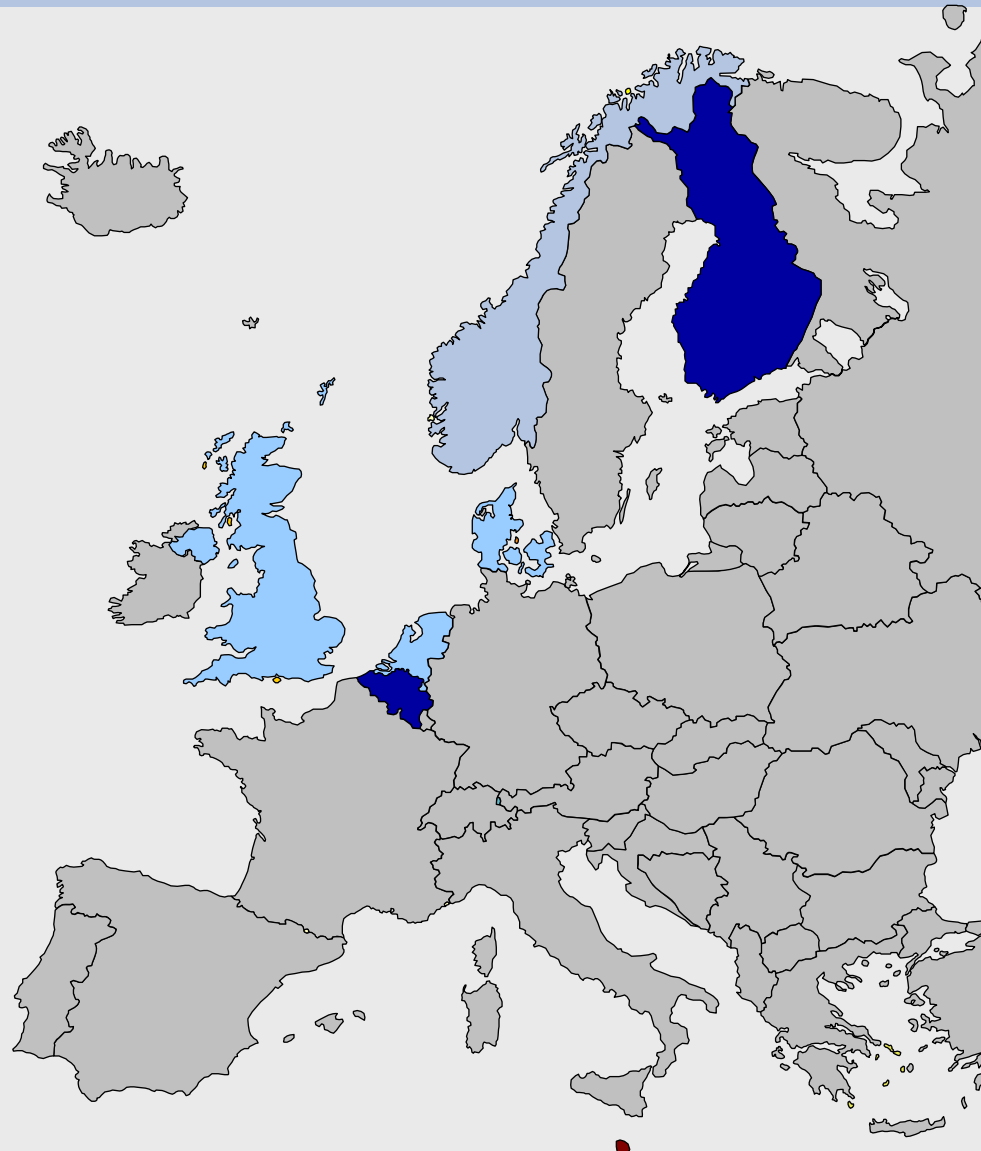
Obesity* in Europe - Females








1980-1984



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* BMI ≥ 30



Obesity (%)	
	< 5 %
	5-9.9%
	10-14,9 %
	15-19,9 %
	20-24,9 %
	≥ 25 %
	Self Reported data



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- Introduction
- Ways out
 - Case Management
 - Disease management programs
 - Prevention programs
- Conclusion

Alarming cost driver: Diabetes

- 1 in every 10 health care dollars is spent on diabetes and its complications
- Medical cost of diabetes in 2007 (USA) is \$116 billion
 - \$27 billion for treatment of diabetes
 - \$58 billion for treatment of diabetes-related chronic complications
 - \$31 billion for excess general medical costs.
- Medical expenditures of people with diagnosed diabetes is 2.3 times higher than those without diabetes.
- It is projected that the annual costs of diabetes (in 2002 dollars) could rise to \$156 billion by 2010 and to \$192 billion in 2020.

What are the causes of this alarming rise of diabetes?


- Population aging
- **Unhealthy diet**
- **Overweight and obesity**
- Sedentary lifestyle



The majority of type 2 diabetes is preventable by a healthy diet, increasing physical activity and promoting a healthy lifestyle.



Analyse the cause and trends internationally
Obesity identified as a risk in the Health Sector

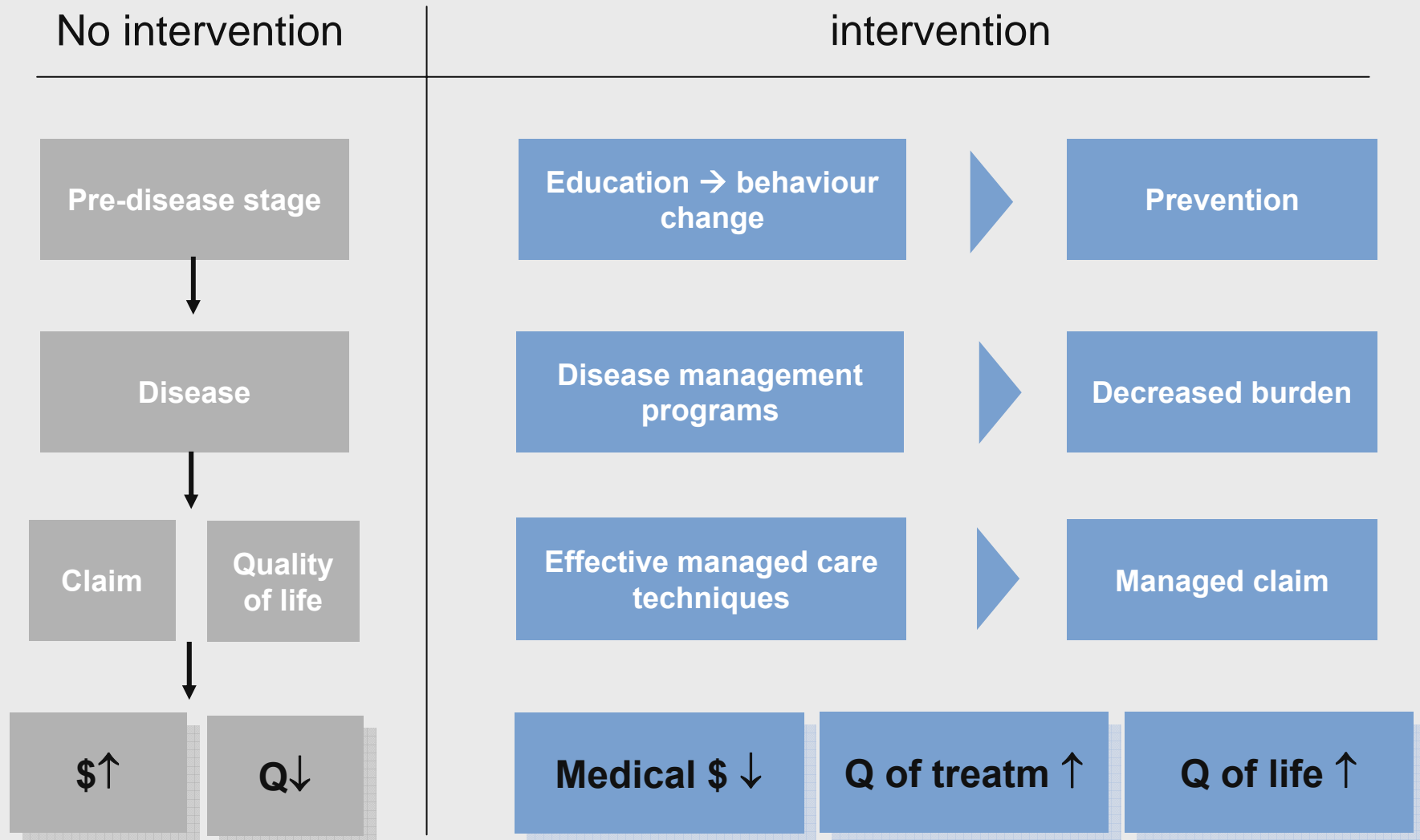


Combination of the Know-How within the MR Group
Development of Solutions

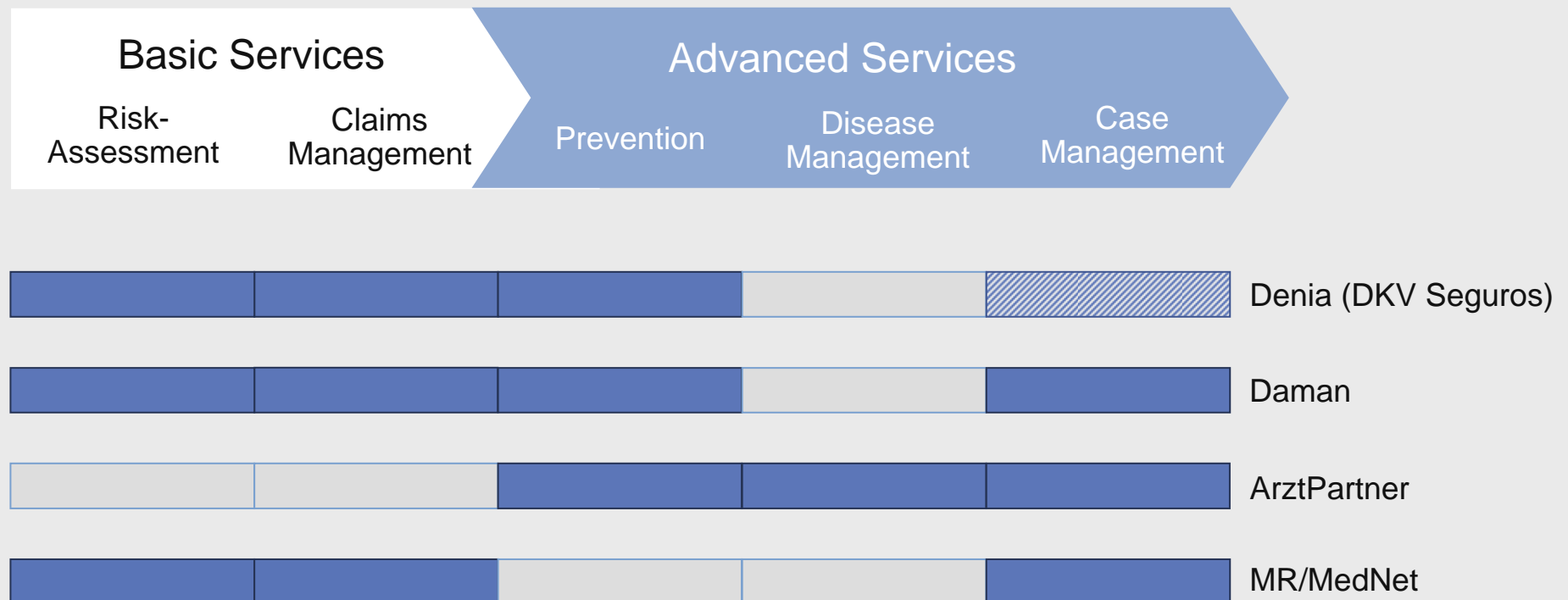
Ways out



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Munich Re approach to risk management



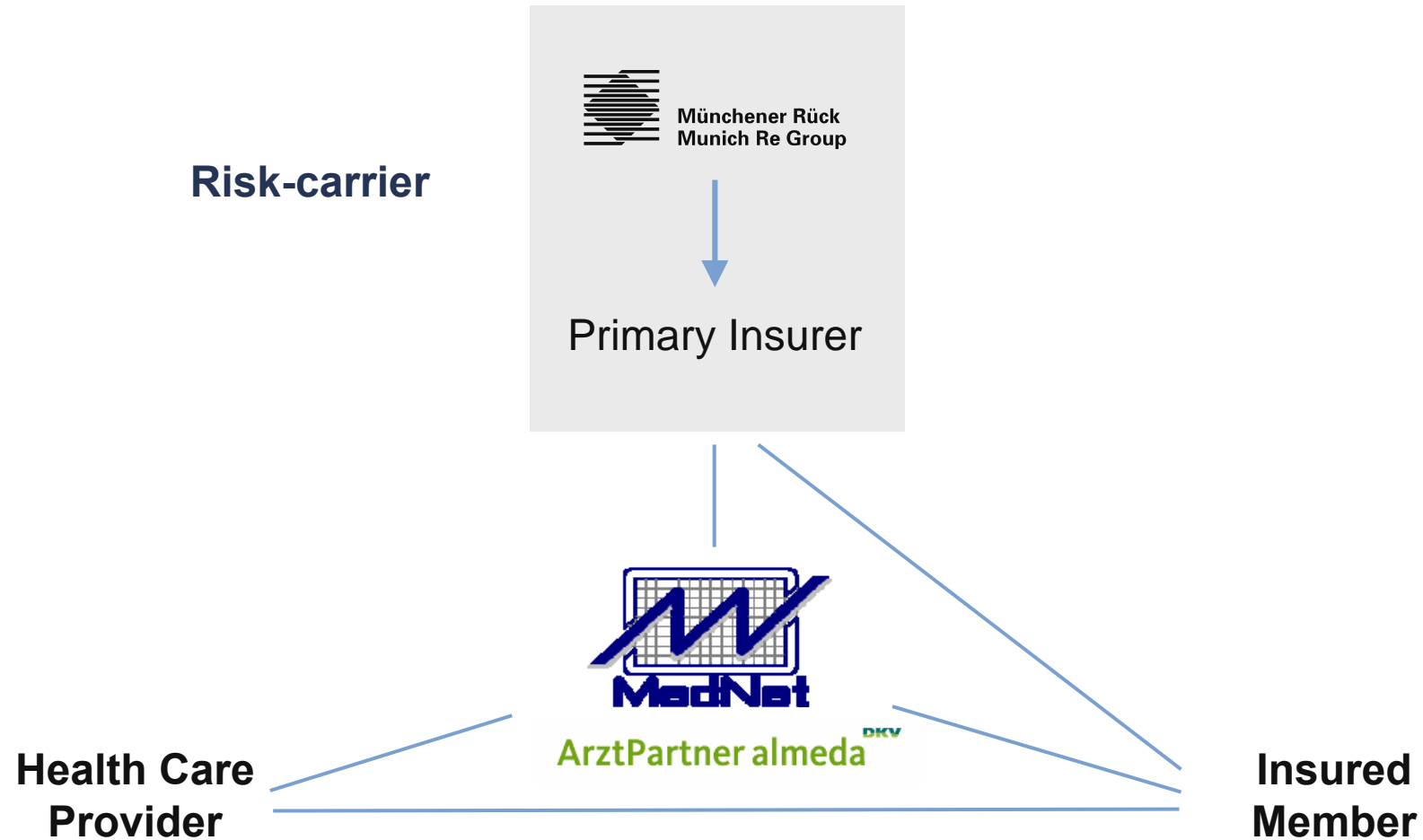
Case Management



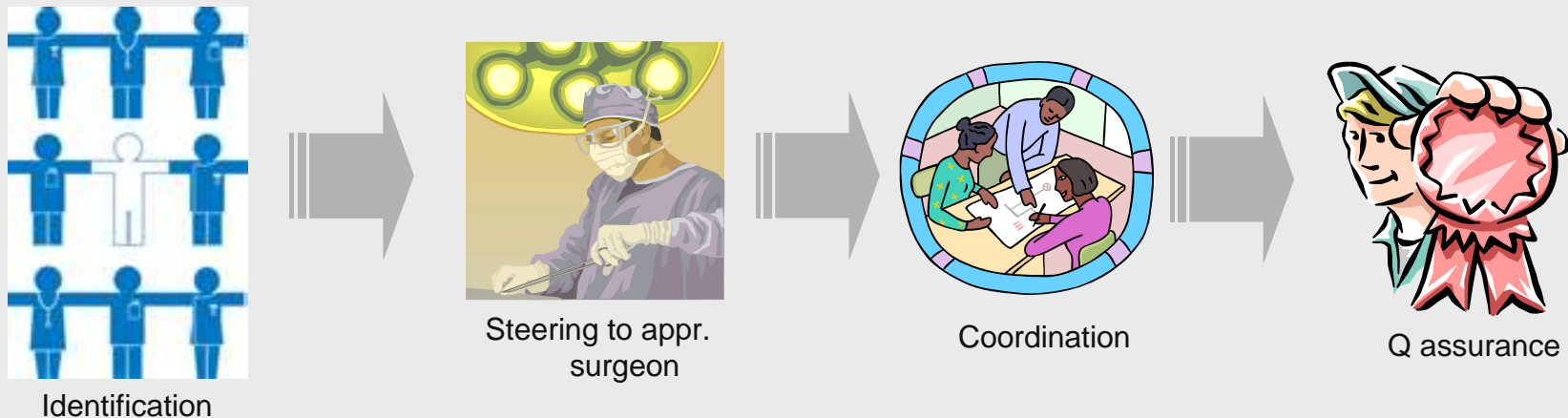
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MedNet and ArztPartner almeda Munich Re Healthcare Service Companies



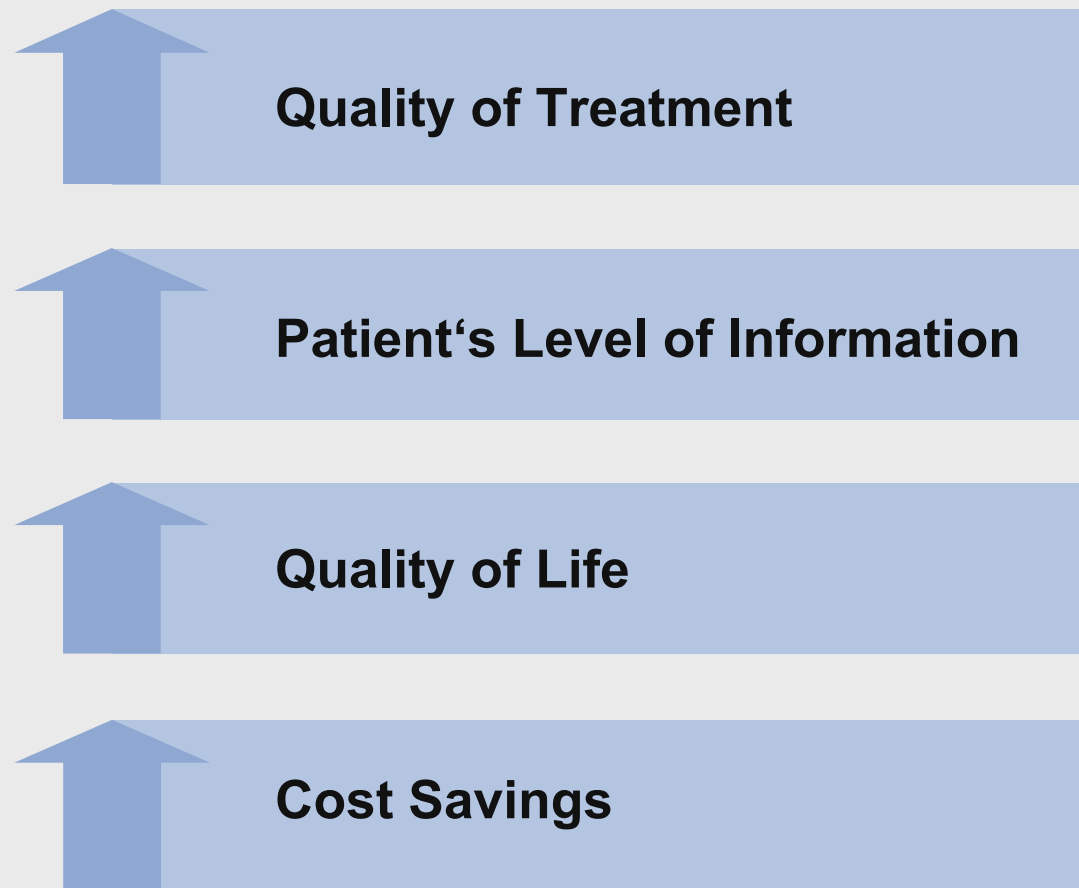
MedNet: Case Management example for a typical late complication of obesity related diabetes mellitus



Example: Case Management Process for a Kidney transplant

- Transplant candidate selected
- Patient needs – resources – provider capabilities evaluated and patient steered to the most appropriate transplant surgeon
- Care plan designed in cooperation with treating physician and patient
- Care monitored along the treatment (e.g. immunosuppressive treatment and patient compliance) and quality assured

Benefit for the Patients:



Disease Management



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DMP Example Chronic Heart Failure – Workflow

(Munich Re Group Service Company – ArztPartner almeda – Germany)



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Identification

- **Data base query on claims data**
 - ICD Codes
 - CHF specific medication

Recruiting

- **Insurance company invites identified persons**
 - Initial mailing kit
- **Reminding after three weeks**
 - Call or letter

Orientation

- **Welcome call**
 - Qualification of diagnosis and severity (NYHA I-IV)
- **Welcome kit**
 - Program folder
 - Telemetric weight scale and blood pressure meter (optional)
 - Education material

Care

- **Outbound Care Calls**
- **Health Reports**
- **Education Material**

Economic evaluation DMP Chronic Heart Failure (controlled, randomized, prospective study design)



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Tab. 1 Patientencharakteristika, Anzahl Rezepte, Krankenhausaufenthalte, Kosten und Mortalität. Angegeben sind Anzahl mit Prozentwerten in Klammern, Mittelwerte, Mediane und Standardabweichungen (SD).

Variable	Interventionsgruppe	Kontrollgruppe	p
Anzahl	251	251	
Frauen	106 (42,6%)	138 (55,3%)	
Alter (Jahre)	71,7	76,5	<0,001 ²
Median	73	78	
SD	10,2	11,3	
NYHA I und II	18 (7,2%)	19 (7,6%)	
NYHA III	51 (20,3%)	32 (12,7%)	
NYHA IV	81 (32,3%)	60 (23,9%)	
nicht näher bezeichnet ¹	101 (40,2%)	140 (55,8%)	
Anzahl Rezepte*	23,8	27,1	0,05 ³
Median	20,2	22,8	
SD	15,2	17,9	
Krankenhaus-Fälle*	2	3,4	0,04 ³
– Median	1	1,5	
– SD	2,9	8,8	
Krankenhaus-Tage*	25,3	49,1	0,01 ³
– Median	8,2	14,5	
– SD	45,3	151,1	
Leistungsausgaben			
Krankenhaus* (EUR)	8682	15810	0,01 ³
– Median	2249	3948	
– SD	26816	53155	
Arzneimittel* (EUR)	1881	1636	0,53 ³
– Median	1078	1024	
– SD	3807	2282	
Gesamt* (EUR)	10563	17446	0,05 ³
– Median	3799	5303	
– SD	27230	53322	
Todesfälle ⁵ (%)	37 (14,7%)	69 (27,1%)	<0,001 ⁴

*Durchschnitt je Teilnehmer bezogen auf ein Jahr; ¹ICD-Nummern 50.1, 50.19 und 50.9; ²t-Test; ³Mann-Whitney-U-Test; ⁴Chi-Quadrat-Test
⁵Risk-Ratio für Ereignis Tod = 0,62, p-Wert (Mantel-Haenszel estimator) = 0,017

Ø Observation period 12 months
(min. 6 months and max. 18 months)

- Expenditures for hospital care within the treatment group were 45% lower than within the control group
- Expenditures for drugs were 15% higher within the treatment group
- After 12 months the health care costs were 39,5% lower (up to 6.800 € per patient per year, p=0,05) within the treatment group compared to the control group
- The all cause mortality was reduced by 46% (p<0,001)

**Significant all cause mortality and health care expenditure reduction through
Telemedical Chronic Heart Failure DMP**

Dtsch Med Wochenschr 2007; 132: 417–422 · B. Kielblock et al., Einfluss einer telemedizinisch ...

Sufficient behavior modification is fundamental to Disease Management

**DMP manages treatment quality
and costs of chronic diseases**

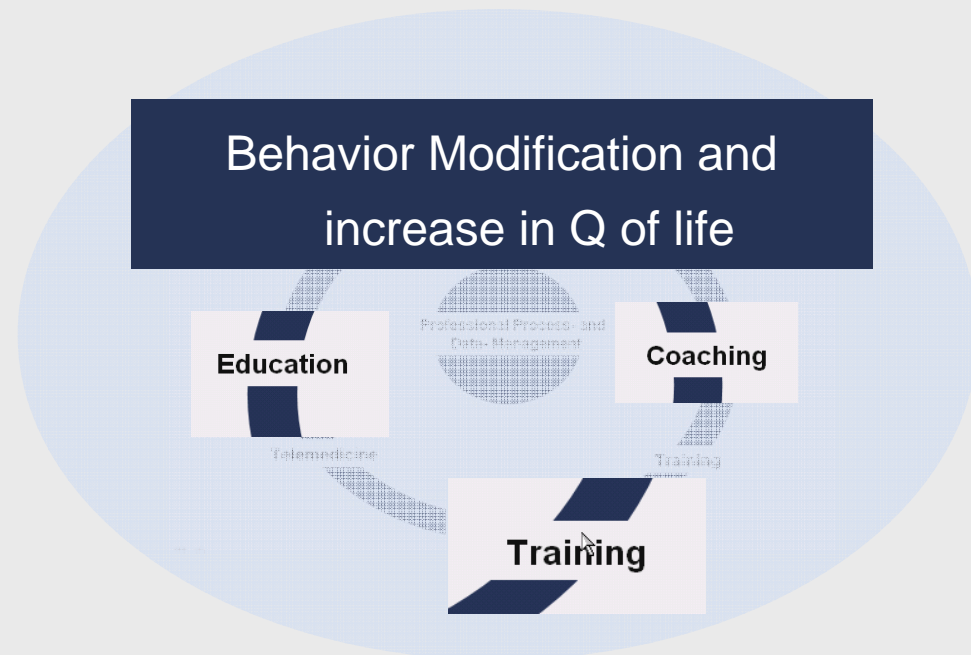


Program results show that behavior modification (nutrition, exercise and smoking) plays a significant role, contributing more than 50% to the success of DMPs!

Competence in behavior modification is vital to manage disease.



Engage @risk persons in behavior modification to reduce chronic disease risks = prevention



Prevention



Prevention increases quality of life and even helps to reduce costs



- **Approximately 50% of all diabetes type II cases can be prevented through regular physical activity.**
(Tuomilehto, J. et al 2001)
- The risk of developing hypertension, can be reduced approximately 23% through weight loss.
(Stevens, Ann Intern Med 2001)
- Control of hypertension can reduce cardiovascular disease by 33-50%.
(National Diabetes Statistics, NIDDK, 2003)
- Smoking cessation is the single most effective - and cost effective - intervention to reduce the risk of developing COPD and stop its progression.
(Gold Report 2007)

Increasing evidence shows that lifestyle changes are effective in preventing and reducing disease

Health Program Prevention - a systematic approach to induce, support, and maintain a balanced lifestyle



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Risk

Awareness

Preparation

Action

Maintenance

Screening-
Questionnaire

Individual health
profile

Tele-Coaching with personal coach

ArztPartner almeda

Find out your personal health status

Please return the completed questionnaire to us in the prepaid envelope. Or you can fax it to us on 089 43 43 33 33.

We will analyze your details and send you back a written assessment of your personal health risk, plus recommendations on how to look after your health.

Mr. 2007-000000

Address: - Apt. no. -
- House number and street -
- ZIP (Post codes) - Town/City -

Insurance no. or company -

Date of birth: -
Sex: ☐ female ☐ male
Height: cm Weight: kg
What measurement at waist: cm
Number of cigarettes smoked every day:
How frequently do you eat fruit or vegetables? ☐ every day ☐ not every day
How would you assess your own dietary regime? ☐ low fat ☐ plenty of fruit, vegetables, full-fat milk, moderate, high internal stress, a weak ☐ high fat
Do you regularly practice a sport or undertake physical activity for at least 30 minutes most days during your leisure time or at work? ☐ yes ☐ no
Do you smoke? ☐ yes ☐ no
Do you frequently feel stressed or under pressure? ☐ yes ☐ no
Family

Medical values:
What is your blood pressure?
not known
low to normal (up to 120/80 mmHg)
slightly raised (120/80 up to 130/80 mmHg)
high (more than 140/90 mmHg)
Do you know your blood fat levels?
not known
normal (up to 160 mg/dl)
slightly raised (160 to 200 mg/dl)
high (over 200 mg/dl)
LDL cholesterol ("bad cholesterol")
not known
normal (up to 150 mg/dl)
slightly raised (150 up to 180 mg/dl)
high (more than 180 mg/dl)
HDL cholesterol ("good cholesterol")
not known
normal (more than 40 mg/dl)
slightly raised (40 and 60 mg/dl)
low (less than 40 mg/dl)
Triglyceride level
not known
normal (up to 150 mg/dl)
slightly raised (150 up to 200 mg/dl)
raised (more than 200 mg/dl)
Medication/medical conditions
Have you ever taken medication against high blood pressure? ☐ yes ☐ no
Have you ever had a high blood pressure reading, e.g. during an illness or during pregnancy? ☐ yes ☐ no
Do you have diabetes? ☐ yes ☐ no

ArztPartner almeda

ArztPartner almeda - Baldern, 41 • 81689 Munich

Munich, 25.3.2008

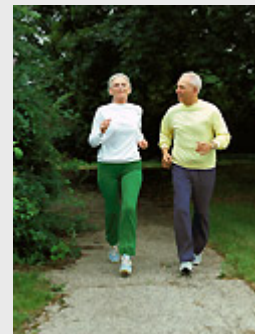
To Mr. Testmann Test
Baldernstraße 49
81689 Munich

Dear Mr. Test,

Thank you for the interest you have shown in wanting to get your cardiovascular and diabetes risk determined. The following evaluation will give you an indication of the possible risks. The risk level you completed contained the responses shown below. Please check the data.

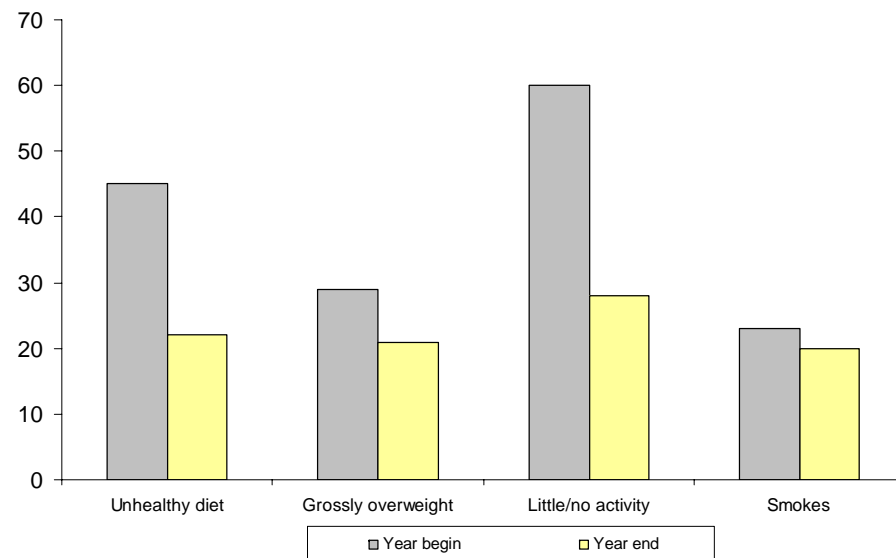
Basic data:
Date of birth: 08.08.66
Height (m): 1.80
Weight (kg): 99.0
BMI (kg/m²): 30.6
Waist circumference (cm): 106
Values:
Blood pressure (mmHg): 106/66
Up to 120/80 mmHg
Low or normal
Smoking: Smoking: yes
Stressed and tense: yes
Family: yes
Heart attack or stroke: yes
Diabetes: yes

Medication/illnesses:
Medication for high blood pressure: yes
Elevated blood sugar level: yes
Diabetic: no
Nutrition/exercise/smoking stress:
Vegetables/fruit: not every day
Eating habits: food tends to be rich in fat
Regular physical activity: no



Health Program Prevention – Successful behavior modification after 1 year of participation

- 51 %* changed their diets
- 28 %* left critical obesity range (lowered weight from BMI>30 to BMI<30)
- 53 %* increased their physical activity
- 13 %* stopped smoking



* % of target population, i.e. of those who showed adverse behavior or values initially

**Successfully
reduced
Cardiovascular and
diabetes risks**

**Positive outcome:
steady decline in
health expenses**

Project Denia – an integrated Health Care System

- The DKV subsidiary “Marina Salud” has a limited term concession contract for the management of public health facilities and public health insurance in the Denia region
- Remuneration: Capitation fee covers the complete outpatient and inpatient service range
- 15 year term



Comprehensive approach including:

- population-based prevention programmes
- participation in *THAO (Think Action Obesity)*



Programa Thao



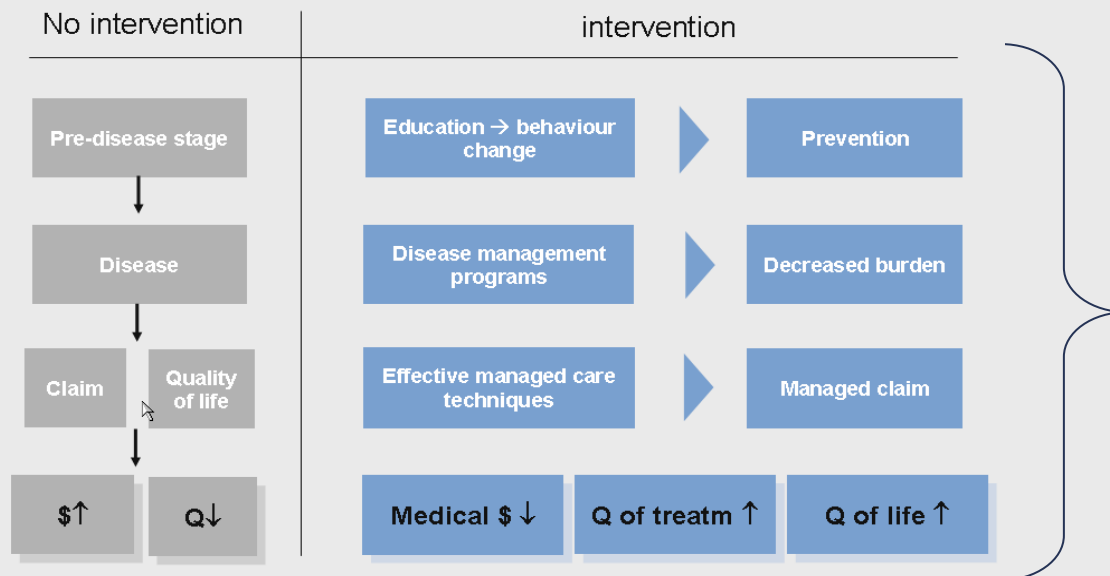
- Four year old prevention programme
- Programme focuses on primary and secondary prevention for the community, parents and children from 3-12 years of age
- Based on a successful project in France (EPODE - Ensemble Prévenons l'Obésité Des Enfants, 2002-2007)
- Implemented in 5 cities of Spain (Villanueva de la Cañada, San Juan de Aznalfarache, Castelldefels, Sant Carles de la Ràpita, Aranjuez)



Conclusions



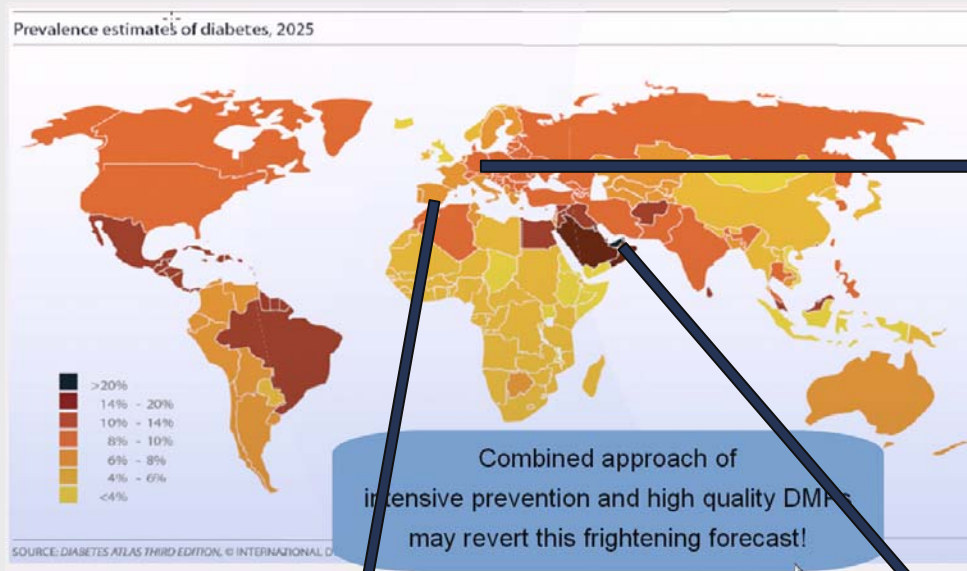
Combination of methods support the solution of the problem



Success Factors:

- Transparency
- High Quality Data
- Professional Data Analysis
- Collaboration with Health Authorities and Providers

What Munich Re Group is doing about that!



German HealthCare Market:

- Prevention-programs
- Disease-Management
- Reinsurance for DMPs

Spain – Denia:

Pilot for prevention service via education of children

UAE – Daman:

Pilot for Life style changing prevention-Services in the hotspot of the bad development

Agenda



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Munich Re Group

1. Introduction: Global Leader in Health Insurance Solutions - Peter Choueiri
2. Obesity: Epidemic trends and its impacts on health - Achim Regenauer
3. Solutions and selected projects - Franz Benstetter
4. Conclusion - Peter Choueiri

Summary

Turning risk into value



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