



FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCER

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World
Cancer
Research Fund



American
Institute for
Cancer Research

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Cancer Research

**Food, Nutrition,
Physical Activity
and the Prevention
of Cancer:
a Global Perspective**

World Cancer
Research Fund
Internacional

**Policy and
Action for
Cancer
Prevention**

**Food, Nutrition,
and Physical Activity:
a Global Perspective**

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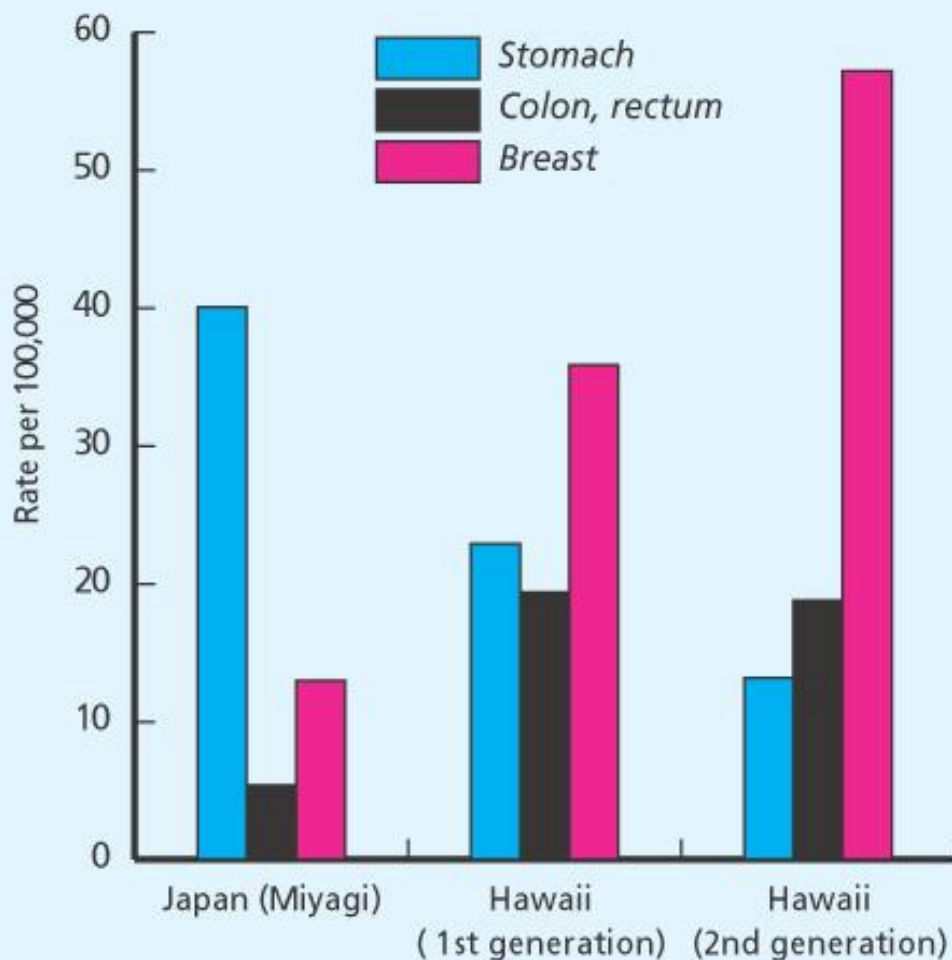
Estimates of cancer preventability by appropriate food, nutrition, physical activity and body fatness in four countries

	USA	UK	BRAZIL	CHINA
Mouth, pharynx, larynx	63	67	63	44
Oesophagus	69	75	60	44
Lung	36	33	36	38
Stomach	47	45	41	33
Pancreas	39	41	34	14
Gallbladder	21	16	10	6
Liver	15	17	6	6
Colorectum	45	43	37	17
Breast	38	42	28	20
Endometrium	70	56	52	34
Prostate	11	20	N/A	N/A
Kidney	24	19	13	8
Total for these cancers combined	35	37	30	27
Total for all cancers	24	26	19	22

Around one quarter of all cancers estimated avoidable through appropriate food, nutrition and physical activity

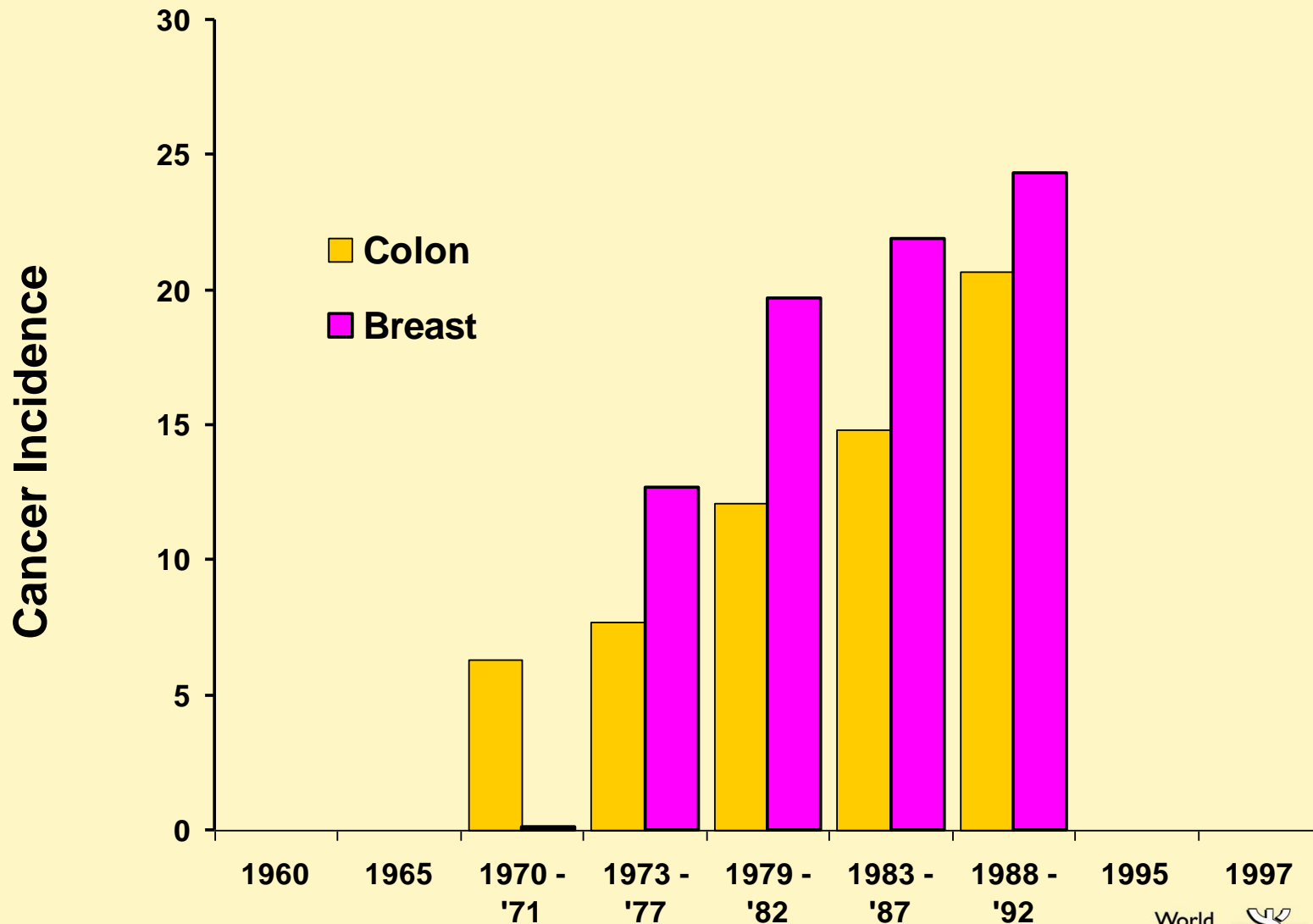
Migration data

Figure 1.2.20 Cancer incidence for selected cancers in Japanese women by generation in Hawaii and Japan, 1968–1977



Age-adjusted to the World Standard Population
(From Kolonel et al, 1980)

Trends in Cancer Incidence in Japan*



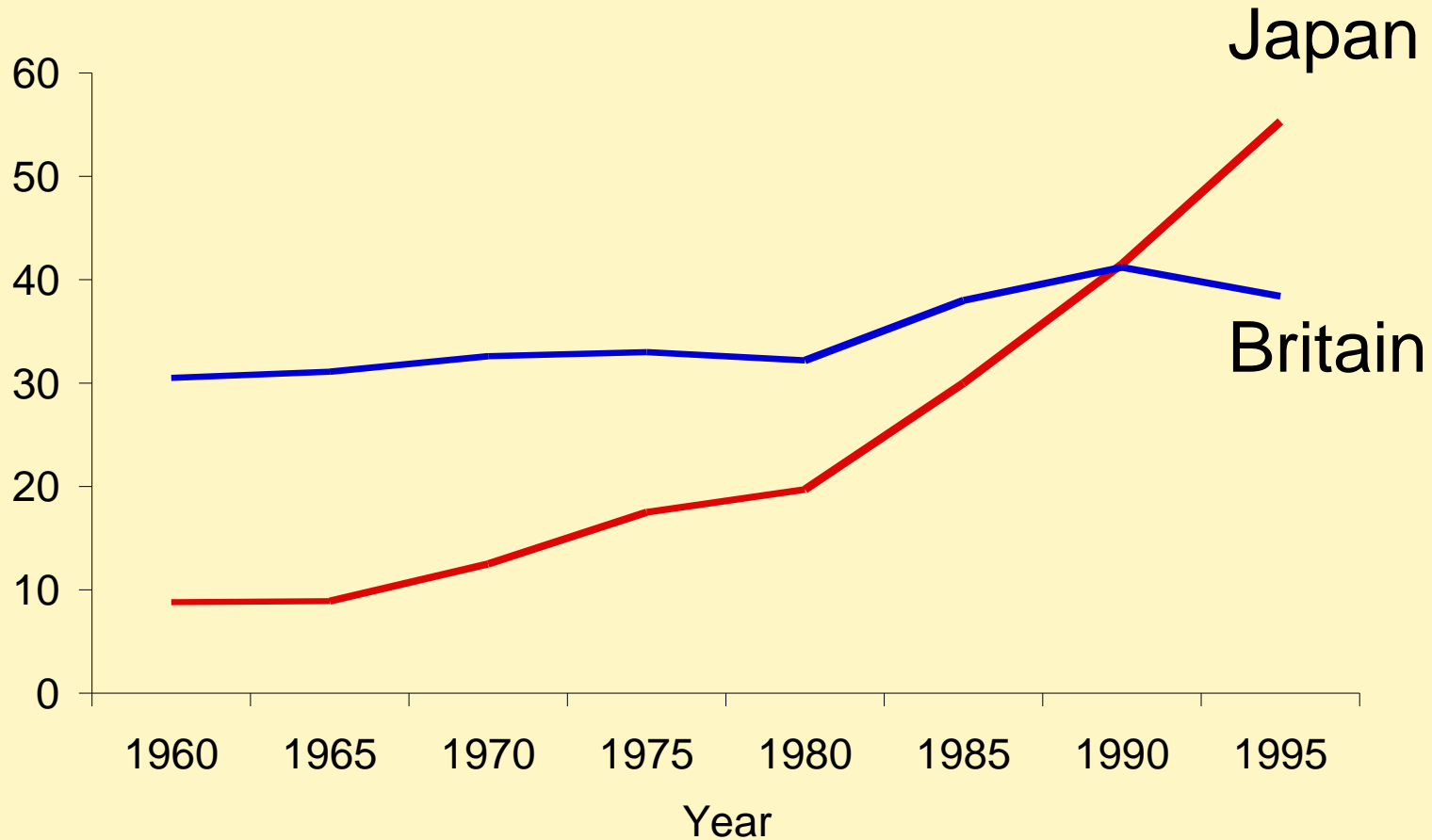
* Per 100,000, world population standard

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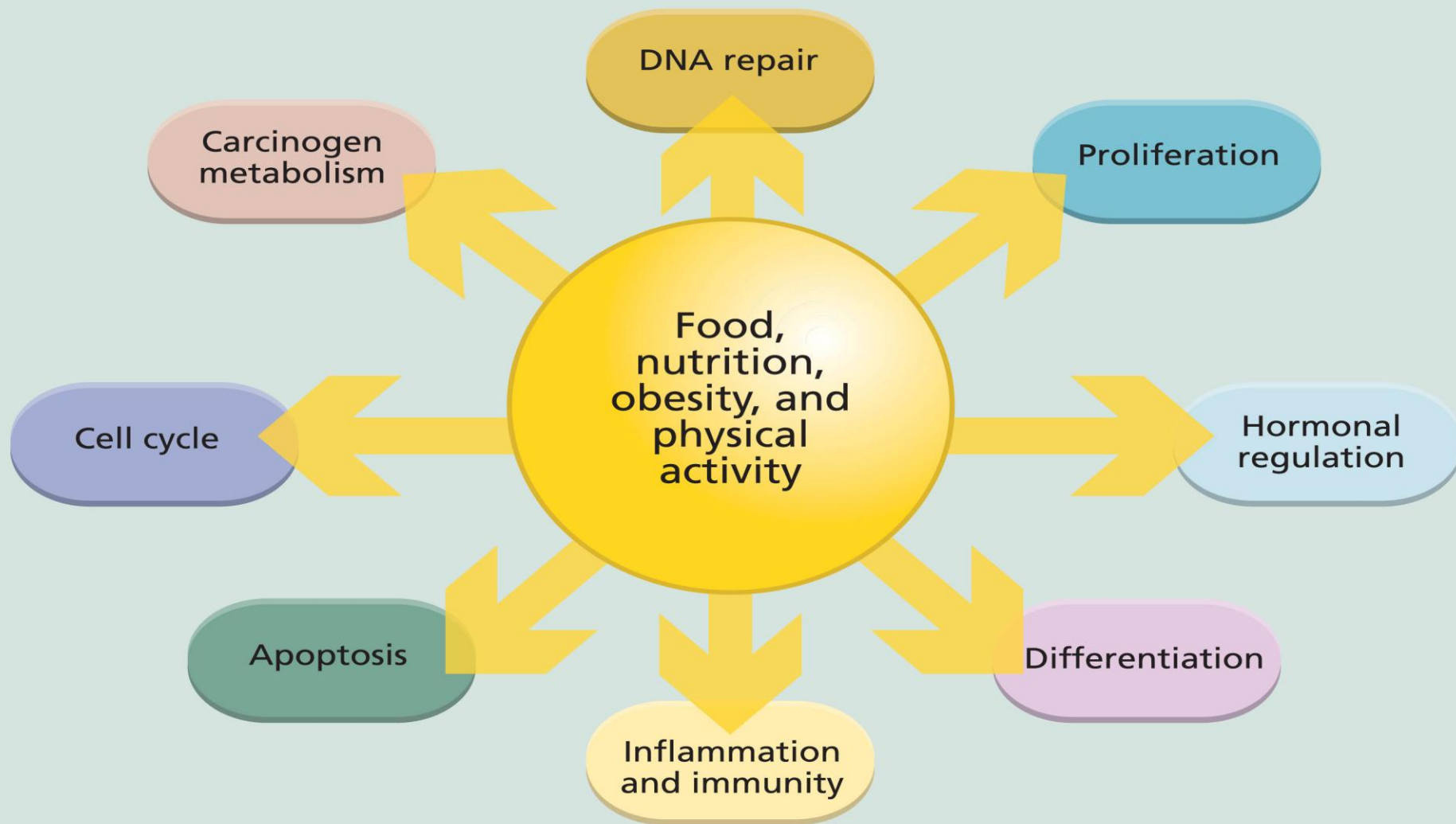
Colorectal cancer incidence among men in Britain and Japan, 1960 to 1995



**Environment
is the main determinant
of cancer patterns**



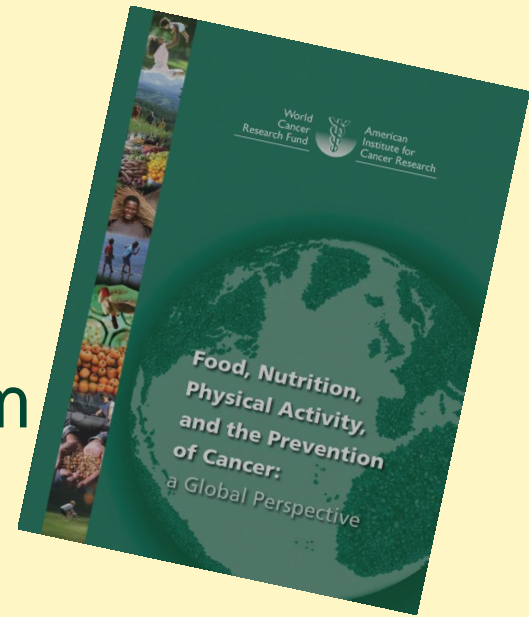
Food, nutrition, obesity, physical activity, and cellular processes linked to cancer



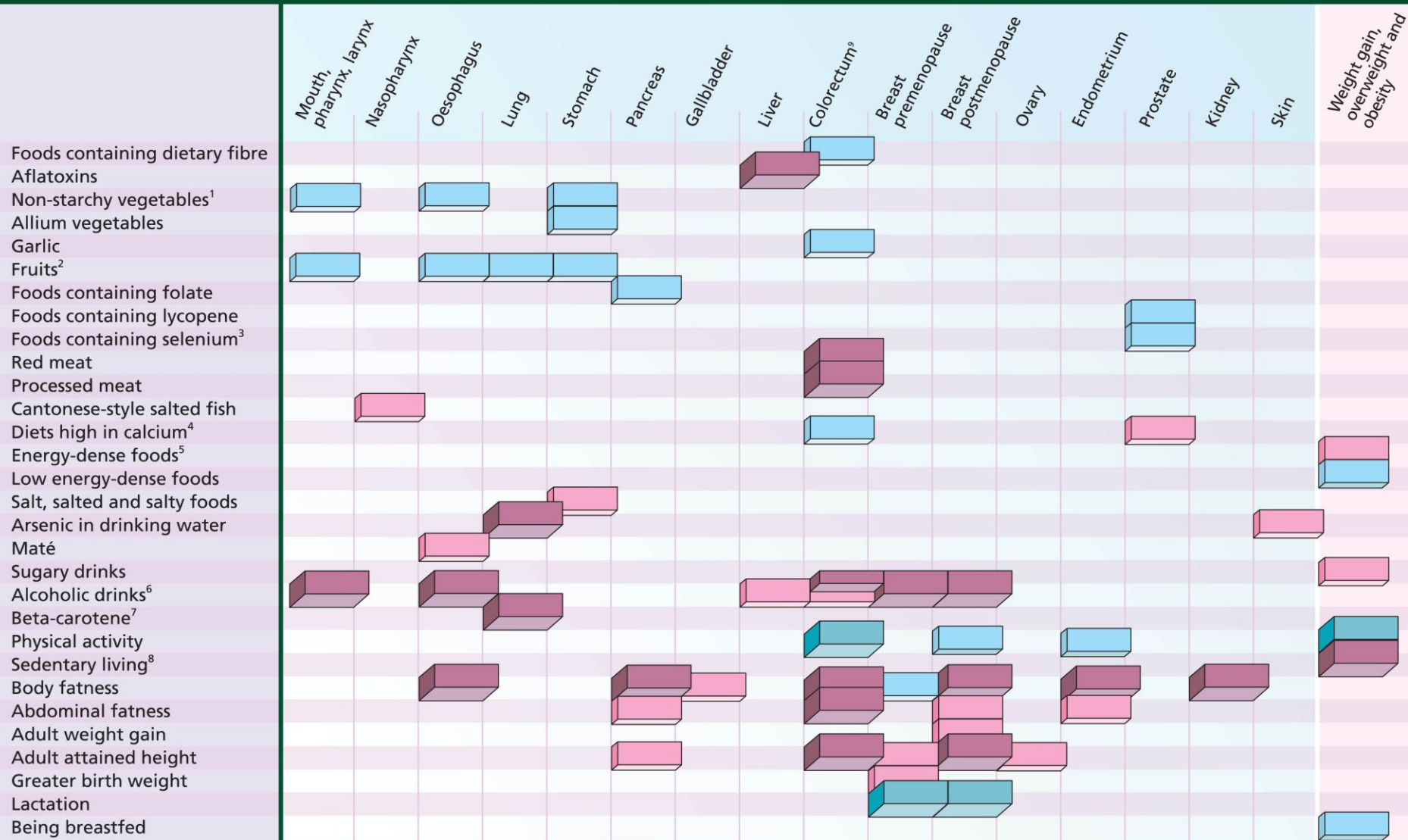
EXPERT REPORT PROCESS

Key features

1. New method
2. Systematic reviews
3. Review of evidence separate from judgement
4. Panel of international experts
5. Predetermined criteria for judgements
6. Flexibility
7. Continuous review of evidence



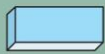
Summary of 'convincing' and 'probable' judgements



KEY



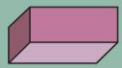
Convincing decreased risk



Probable decreased risk



Probable increased risk



Convincing increased risk

¹ Includes evidence on foods containing carotenoids for mouth, pharynx, larynx; foods containing beta-carotene for oesophagus; foods containing vitamin C for oesophagus

² Includes evidence on foods containing carotenoids for mouth, pharynx, larynx and lung; foods containing beta-carotene for oesophagus; foods containing vitamin C for oesophagus

³ Includes evidence from supplements for prostate

⁴ Evidence is from milk and studies using supplements for colorectum

⁵ Includes 'fast foods'

⁶ Convincing harm for men and probable harm for women for colorectum

⁷ The evidence is derived from studies using supplements for lung

⁸ Includes evidence on television viewing

⁹ Judgement for physical activity applies to colon and not rectum

Food, nutrition, physical activity and cancer

- **OBESITY**
 - Breast (PM), colorectum, endometrium, oesophagus, pancreas, gallbladder, kidney
- **PHYSICAL ACTIVITY**
 - Colon, breast, endometrium, obesity
- **MEAT – RED AND PROCESSED**
 - Colorectum
- **PLANT FOODS**
 - MPL, oesophagus, colorectum, stomach, lung, pancreas, obesity
- **ALCOHOL**
 - MPL, oesophagus, colorectum, breast, liver
- **SALT**
 - Stomach
- **BREASTFEEDING**
 - Breast, excess weight gain (child)

RECOMMENDATIONS

BODY FATNESS

Be as lean as possible within the normal range of body weight

PHYSICAL ACTIVITY

Be physically active as part of everyday life

FOODS AND DRINKS THAT PROMOTE WEIGHT GAIN

Limit consumption of energy-dense foods
Avoid sugary drinks

PLANT FOODS

Eat mostly foods of plant origin

ANIMAL FOODS

Limit intake of red meat and avoid processed meat

ALCOHOLIC DRINKS

Limit alcoholic drinks

PRESERVATION, PROCESSING, PREPARATION

Limit consumption of salt
Avoid mouldy cereals (grains) or pulses (legumes)

DIETARY SUPPLEMENTS

Aim to meet nutritional needs through diet alone

BREASTFEEDING

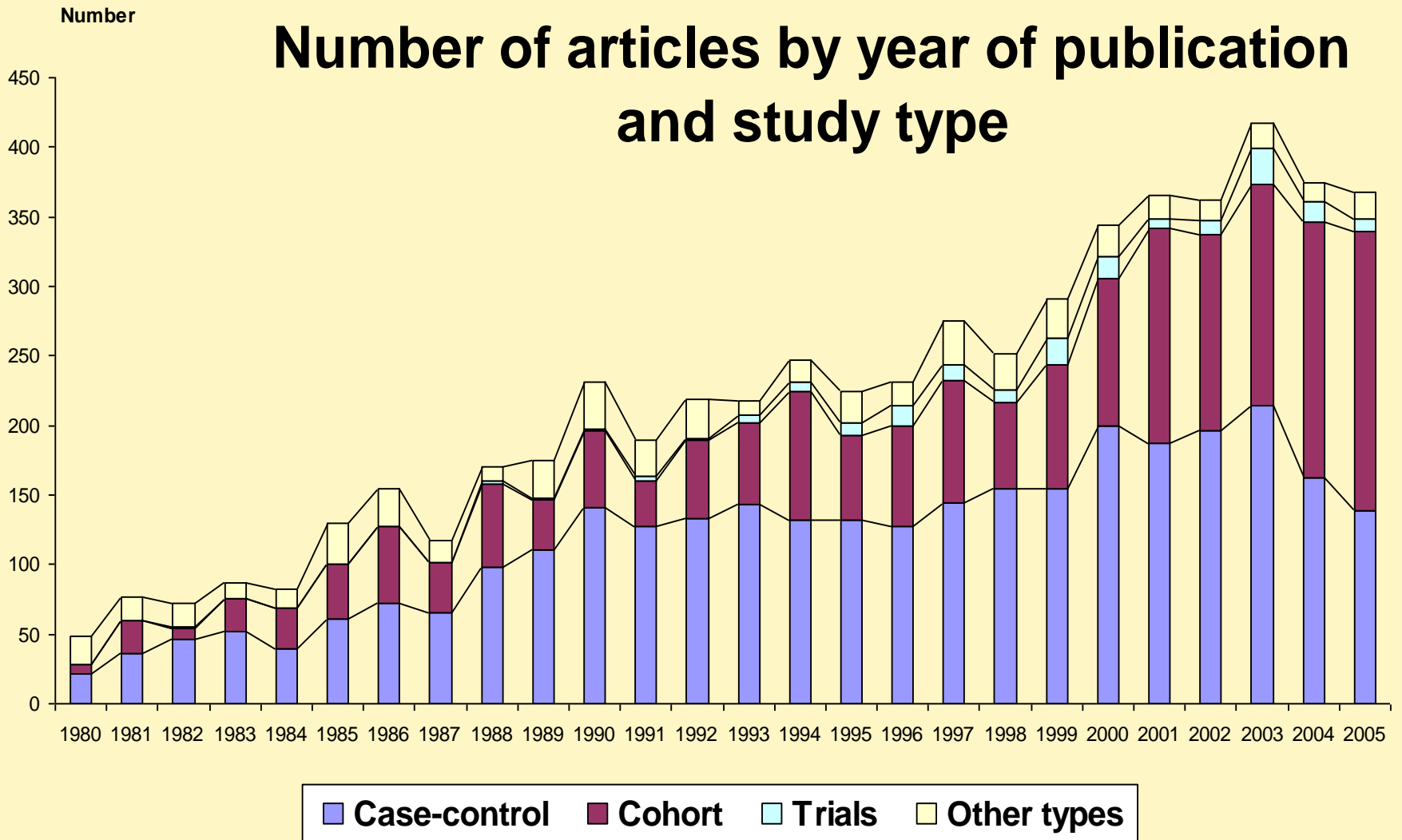
Mothers to breastfeed; children to be breastfed

CANCER SURVIVORS

Follow the recommendations for cancer prevention

The Panel emphasises the importance of not smoking and of avoiding exposure to tobacco smoke

Number of articles by year of publication and study type



Continuous Update Project: CUP

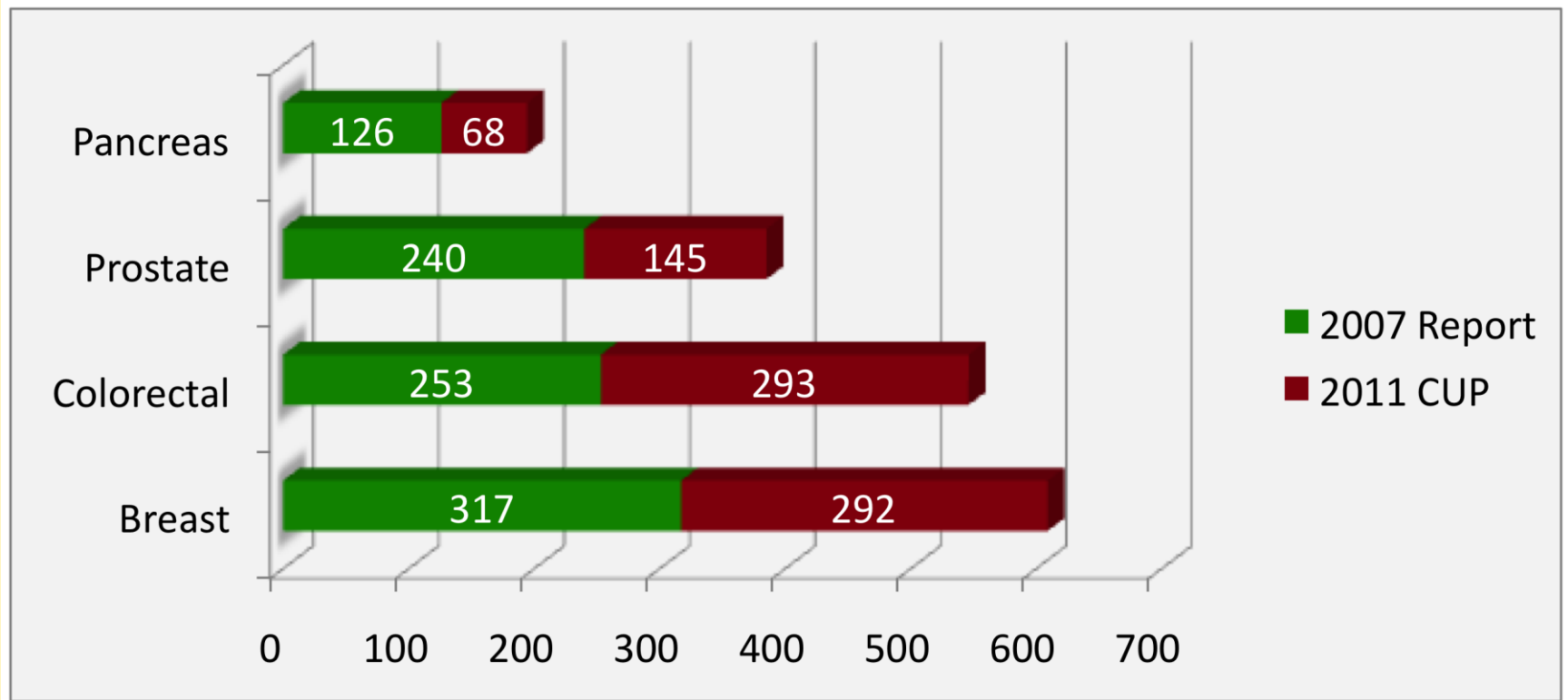


Continuous Update Project: CUP

- Keep evidence, conclusions and recommendations updated into the future
- Working with team at ICL
- Same principles:
 - Systematically review evidence
 - Meta analysis
 - Panel of experts
 - draw conclusions
 - make recommendations



Number of papers from cohort studies in CUP database



Breast cancer update 2008

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCER OF THE BREAST (POSTMENOPAUSE)

	DECREASES RISK	INCREASES RISK
Convincing	Lactation	Alcoholic drinks Body fatness Adult attained height ¹
Probable	Physical activity ²	Abdominal fatness Adult weight gain

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCER OF THE BREAST (PREMENOPAUSE)

	DECREASES RISK	INCREASES RISK
Convincing	Lactation	Alcoholic drinks
Probable	Body fatness	Adult attained height ¹ Greater birth weight

Evidence for all factors was consistent with the conclusions from the Second Expert Report

Colorectal cancer update 2011

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCERS OF THE COLON AND THE RECTUM

	DECREASES RISK	INCREASES RISK
Convincing	Physical activity ^{1,2} Foods containing dietary fibre ³	Red meat ⁴ Processed meat ⁵ Alcoholic drinks (men) ⁶ Body fatness Abdominal fatness Adult attained height ⁷
Probable	Garlic Milk ⁸ Calcium ⁹	Alcoholic drinks (women) ⁶

Foods containing dietary fibre upgraded from probable to convincing

Evidence for all other factors was consistent with the conclusions from the Second Expert Report

Red and processed meat

Dose response meta-analyses for colorectal cancer

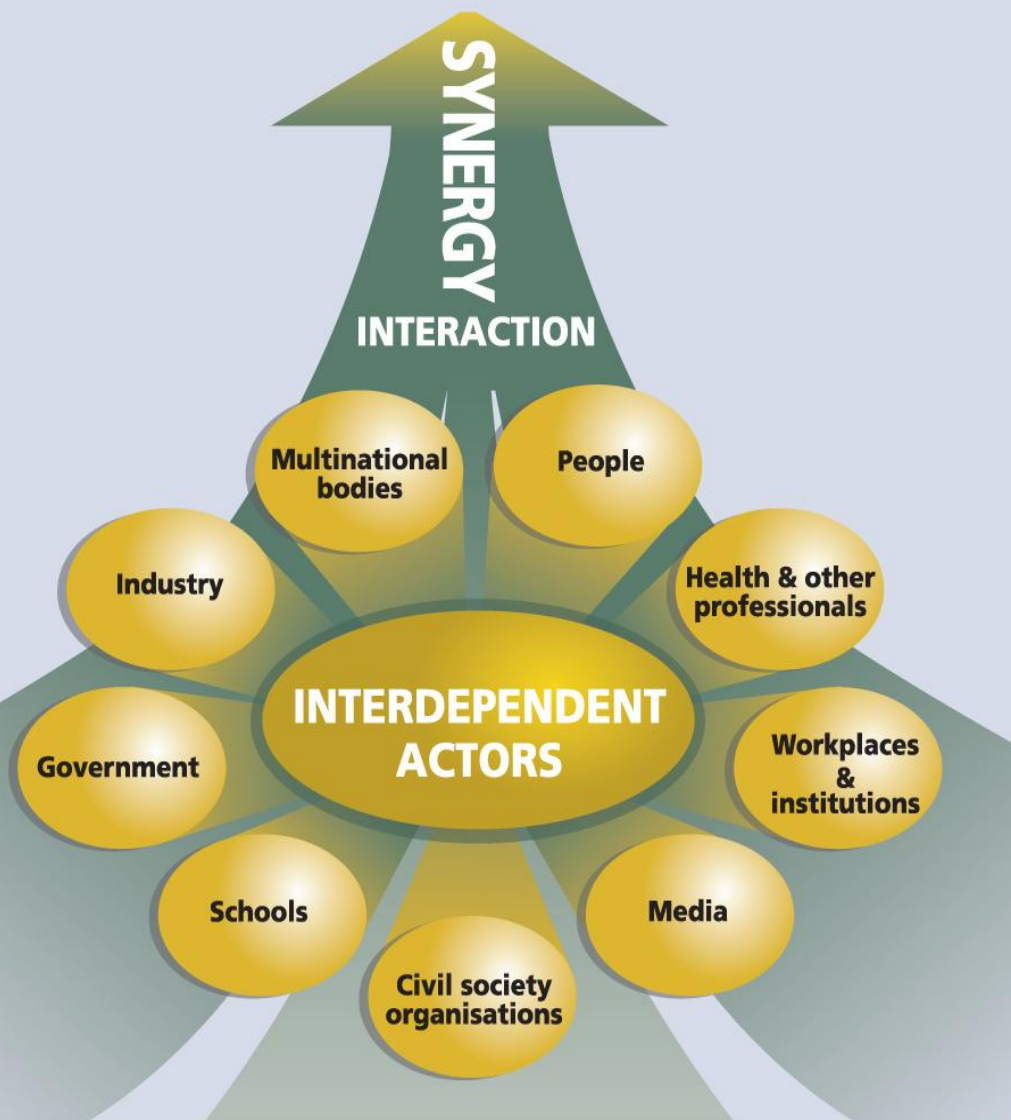
	Red meat Per 100g/d	Processed meat Per 50g/d
CUP 2011	1.17 (1.05-1.31)	1.18 (1.10-1.28)
I² (n)	0% (8)	12% (9)
2007 Expert Report	1.29 (0.94-1.78) ²	1.21 (1.04-1.42)
I² (n)	32% (3)	25% (5)

Cancer prevention

What to do...?



IMPACT



Everybody has a role to play

Action needs to be coherent

Leadership from

Government

Health professionals

World Health Professionals Alliance Statement on Non-Communicable Diseases and Social Determinants of Health

Health professionals have an ethical and professional responsibility to act in the best interests of patients at all times.

Not only health promotion, treatment and rehabilitation but also:

- **Encouraging media to give positive health messages**
- **Working with public authorities to establish preventive health policy**
- **Advocating for action in other sectors that influence health, for example, agriculture, transport, urban planning and education**
- **Training other health professionals**



Awareness of cancer risk factors

YouGov Survey Results May 2011

(1963 subjects – general public)

“Which, if any, of the following do you think increases your risk of getting cancer?”

- **89% of people identified smoking**
- **Only 60% identified a poor diet or being overweight**
- **Only 45% of respondents identified physical inactivity as a cancer risk factor**
- **Only 56% identified drinking alcohol**



Awareness of cancer risk factors

“Which, if any, of the following do you think increases your risk of getting cancer?” (May 2011)

- **Even fewer – only 37% of respondents – correctly identified processed meat as a cancer risk factor**
- **But**
 - **9% of respondents identified coffee; and**
 - **17% identified sweeteners**

although the evidence does not suggest that either of these affects cancer risk



Awareness of cancer risk factors

- **People are not aware of the links between food, nutrition and physical activity, and cancer**
- **Importance of environment vs inheritance**
- **Feel that it is out of their control**



Awareness of cancer risk factors

“Which, if any, of the following do you think increases your risk of getting cancer?”

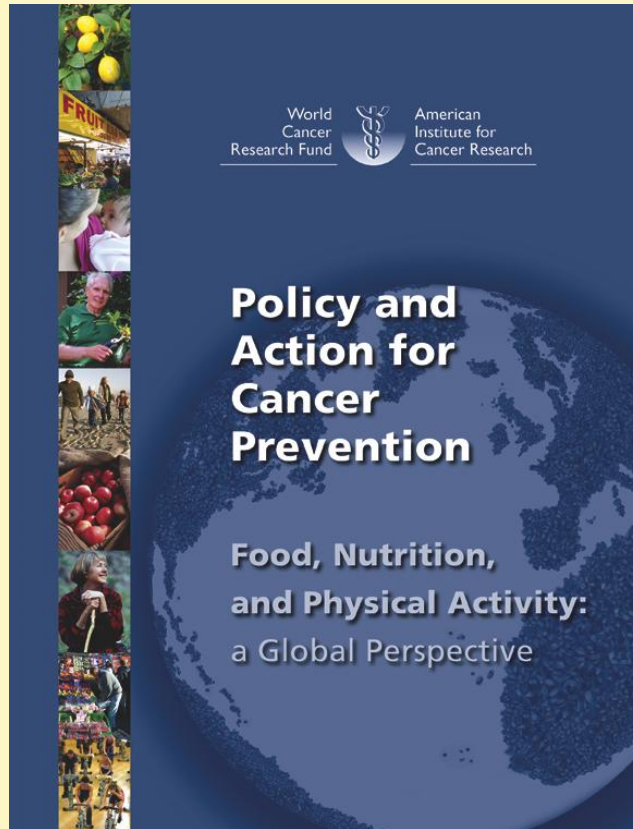
(143 NHS health professionals)

- 81% identified poor diet as a risk factor
- 79% identified overweight/obesity
- 70% identified alcohol
- 64% identified physical inactivity

BUT

- 36% identified coffee

WCRF Policy Report 2009



Sets out the evidence for actions that can be taken by all sectors of society:

- Multinational bodies
- Government
- Industry
- Health professionals
- Schools
- Media
- Workplaces
- Civil society organisations
- Individuals

Clinicians have a role to play

Health professionals are a trusted source of health information.

You:

- **Are expected to be qualified to give advice on wellbeing and prevention, not just diagnosis and management of disease**
- **Have unrivalled opportunities to provide information and encouragement in support of healthy ways of life**
- **Come across people when they might be susceptible to health promotion messages**
- **Have a responsibility to take the lead in promoting health to colleagues, other professionals and other actor groups**
- **Can be effective in delivering successful behaviour change initiatives e.g. providing brief advice on smoking cessation doubles the likelihood of a quit attempt¹**

1. NHS Smokefree. www.smokefree.nhs.uk. Jan 2009.



Conclusions

1. Cancer is a major cause of death, disability and lost life years
2. Cancer is mostly environmentally determined and largely preventable
3. With smoking, food, nutrition, body fatness and physical activity are the most important factors affecting cancer risk
4. Evidence to support this comes from many different sources
5. Early life events also seem to have a major impact, but detailed understanding needs further research
6. Preventing cancer through food, nutrition and physical activity will also prevent other major chronic diseases
7. Changes are needed in people's environment as well as in personal choices



<http://www.dietandcancerreport.org>

