Keynote Presentation
My Health - whose responsibility?

Professor Peter Elwood
UK Society for Behavioural Medicine

“complex interventions in a complex world: the role of behavioural medicine“

My health – whose responsibility?

Peter Elwood
Division of Population Medicine
Cardiff University
1st December 2016
INTRODUCTION

what does the public think?

1. The five healthy behaviours
   ‘better than any pill... and no side effects’!

2. A sixth healthy behaviour
   a prophylactic drug(s)

CONCLUSION

the gospel of prevention and Professor Edgar Collis
INTRODUCTION

*what does the public think?*

1. The five healthy behaviours
   
   ‘better than any pill... and no side effects’!

2. A sixth healthy behaviour
   
   a prophylactic drug(s)

CONCLUSION

the gospel of prevention and Professor Edgar Collis
INTRODUCTION: what does the public think?

A CITIZENS’ JURY

Cardiff City Hall, October 2006

Judge: Penny Roberts, Former BBC Chief Reporter

My health – whose responsibility: a jury decides.

J Epidem Comm Hlth 2010;64:
INTRODUCTION: what does the public think?

My health – whose responsibility: *a jury decides.* J Epidem Comm Hlth 2010;64:
INTRODUCTION: what does the public think?

1. Treatment is rightly delegated to healthcare professionals…. the preservation of health is a subject’s own responsibility.

My health – whose responsibility: a jury decides. J Epidem Comm Hlth 2010;64:
INTRODUCTION: what does the public think?

1. The preservation of health is a subject’s own responsibility.
2. Information on all health preserving measures should be made readily available to the public.

My health – whose responsibility: a jury decides. J Epidem Comm Hlth 2010;64:
INTRODUCTION: what does the public think?

1. The preservation of health is a subject’s own responsibility.
2. Information on all health preserving measures should be made readily available to the public….
3. The public should be more involved in decisions about public health policy

My health – whose responsibility: a jury decides. J Epidem Comm Hlth 2010;64:
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1. The five healthy behaviours
   ‘better than any pill... and no side effects’!

2. A sixth healthy behaviour
   low-dose aspirin prophylaxis

CONCLUSION
the gospel of prevention and Professor Edgar Collis
The five healthy behaviours

- No smoking
- Regular exercise
- Healthy diet
- Good sleep
- No safe limit!
THE CAERPHILLY COHORT STUDY
A 35-year study of healthy living
THE 35-year CAERPHILLY PROSPECTIVE STUDY 1979 -

2,500 men aged 45-59 yrs:
questioned and examined every five years
THE CAERPHILLY COHORT STUDY

Caerphilly Heart Disease Study: Wikipedia
**THE CAERPHILLY COHORT STUDY**

**HEALTHY BEHAVIOURS** at baseline in 1979

<table>
<thead>
<tr>
<th>Non-smoking</th>
<th>Body weight</th>
<th>Diet</th>
<th>Exercise</th>
<th>Alcohol intake</th>
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</table>

Recorded for 2,500 men aged 45-59 yrs

**OUTCOMES**: health and well-being during the following 30 years

- Diabetes, vascular disease, cancer, dementia and all-cause death
- Wellbeing - happiness, satisfaction, fulfilment, physical and social activity
The five healthy behaviours.....

- non-smoking
- a low body weight
- regular exercise
- a healthy diet
- a low alcohol intake

UNHEALTHY LIFESTYLE
None or one behaviour

HEALTHY LIFESTYLE
Four or five behaviours
THE FIVE HEALTHY BEHAVIOURS

Lifestyle..... and New disease

UNHEALTHY LIFESTYLE
None or one healthy behaviour

HEALTHY LIFESTYLE
Four or five healthy behaviours

- Diabetes
- Heart disease & stroke
- Cancer
- Cognitive decline
- Dementia

Detailed clinical data collected from primary care and hospital records and standard diagnostic criteria applied.
## REDUCTIONS IN DISEASE

<table>
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* Confined to men who followed the behaviours consistently

Reductions based on odds ratios and adjusted for age and social class, and for cognitive decline and dementia, also adjusted for a base-line cognitive function test (NART)
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**Significance of trend**

|                      | 0.001      | 0.0005            | 0.88    | 0.001            | 0.006     |

In the US Women’s Health Study, a 61% reduction in type 2 diabetes was attributable to a low BMI alone. Hu et al. N Engl J Med 2001; 345:790-7.

US Health Professionals who had adopted the five healthy behaviours experienced an 87% reduction in heart disease (Relative risk (RR): 0.13 CI: 0.09-0.19) [Chiuve et al. Circulation 2006;114:160-7].

The 84,000 women in the US Nurses’ Health Study the risk of coronary events was reduced 85% (RR: 0.17; 95% CI: 0.07-0.41) by following the five healthy behaviours [Stampfer et al. N Engl J Med 2000;343:16-22].

In a study of 4,886 adult British subjects, the following of four healthy behaviours led to hazard ratios of 0.29 (95% CI: 0.19, 0.43) for cardiovascular disease [Kvaavik et al. E. Arch Intern Med 170: 711-8].

In some studies, the reduction in cancer is large, up to a hazard ratio of 0.30 (95% CI: 0.15, 0.60) [Ford et al. Arch Intern Med 169: 1355-1362].

In another. 112,000 non-smoking subjects, the 4% of subjects who achieved a high score based on body weight, activity, diet and alcohol intake, showed a reduction of only 14% in incident cancer (RR: 0.86; 95% CI: 0.78, 0.94) [McCullough et al. Cancer Epidemiol Biomarkers Prev 20: 1089-1097].
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Significance of trend: 0.001, 0.0005, 0.88, 0.001, 0.006

‘Better than any pill.... and no side effects’!
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**BENEFITS OF A HEALTHY LIFESTYLE:** (4/5 behaviours)

1. Reductions in incident disease:
   - up to 70% less diabetes
   - up to 60% less heart disease and stroke
   - up to 35% less cancer
   - up to 60% less dementia
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### BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease

2. Delayed onset of disease:
   - *vascular disease events delayed by 12* *(1.9-22.0) years*
   - *dementia delayed by 4* *(2.5-9.7) years*
   - *death from any cause by 6* *(2.9-9.7) years*
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## BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease
2. Delayed onset of disease
3. Disease free retirement:
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### ‘Unhealthy’
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-72%  
-67%  
-35%  
-56%  
-65%

### ‘Healthy’
(Four or five behaviours)

100  
100  
100  
100  
100

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### BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease
2. Delayed onset of disease
3. Disease free on retiring:
   - 10% of subjects who had neglected healthy living
   - 23% of those who had followed a healthy lifestyle
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### BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease
2. Delayed onset of disease
3. Retiring disease free
4. **Disease burden in the community reduced**
### REDUCTIONS IN DISEASE

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### BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease
2. Delayed onset of disease
3. Retiring disease free
4. Disease burden in the community reduced

- *if the subjects in the Caerphilly cohort had each been urged to take up one additional healthy behaviour...*
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1. Reductions in incident disease
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3. Retiring disease free
4. Disease burden in the community reduced
   - *if the subjects in the Caerphilly cohort had each been urged to take up one additional healthy behaviour*....
   - *If only half had done so............. there would have been.....*
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#### BENEFITS OF A HEALTHY LIFESTYLE: (4/5 behaviours)

1. Reductions in incident disease
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3. Retiring disease free
4. Disease burden in the community reduced
   - *if the subjects in the Caerphilly cohort had each been urged to take up one additional healthy behaviour*.
   - *If only half had done so, there would have been.....*
     - 12% less diabetes
     - 6% less vascular disease
     - 13% less dementia
‘Wellbeing at advanced ages’ estimated when subjects were retired

'Self-esteem; Happiness; Interests; Physical and Social activity'
OTHER BENEFITS

‘Wellbeing’ estimated when the subjects were retired (75-89 years)

‘Self-esteem; Happiness; Interests; Physical and Social activity’

The average scores for men who had lived a healthy lifestyle were double the scores for men who had lived an unhealthy lifestyle  all $P<0.001$

Preliminary analyses
The focus of health promotion........

No safe limit!
... health services in the UK are unsustainable ... unless members of the public are 'fully engaged' and take responsibility for their own health Wanless

... the major aim of the NHS is to 'empower the millions of individuals... to make the right choice'. Dept of Health

... the NHS should provide information, advice and support 'to enable everyone to lead healthier lives'. King’s Fund

1. Wanless D, Treasury HM. Securing good health for the whole population. HM 7 Treasury, 2004
THE UPTAKE OF HEALTHY LIVING
## THE UPTAKE OF HEALTHY LIVING

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THE UPTAKE OF HEALTHY LIVING

An interview survey of 15,000 people across Wales each year (2009-2013)
# The Uptake of Healthy Living

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The challenge from Caerphilly:

Take up one additional healthy behaviour.....
....cut smoking... reduce weight.... exercise more....
....check your diet.... reduce alcohol intake....
The challenge from Caerphilly to the people of Wales:

Take up one additional healthy behaviour.....

.....cut smoking... reduce weight.... exercise more....

.....check your diet.... reduce alcohol intake...

Then, when well embedded into your lifestyle, take up another healthy behaviour..... and reap the benefits now and into old age!
WORKING TOGETHER ON HEALTH

Academics
Healthcare workers
Primary care workers
Pharmacists
Care workers
Social workers
Local Authorities
Health Authorities
Government

• ...be a Champion for Health
• .....be a role model
• ....make every contact count
• ....quit for them!

Make prudent healthcare happen
Following a healthy lifestyle leads to huge reductions in heart attacks, strokes, cancer, diabetes and dementia.

Read more in these booklets... and learn how you can live Care-philly!

Click here for a full detailed account of 35 years research in Caerphilly

HealthyLivingWales.co.uk
Healthy Living Wales

We know that if you follow the simple advice which follows, your health is likely to benefit greatly!
Healthy Living Wales

Healthy Living

The Caerphilly Study
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what does the public think?

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   better than any pill

2. A sixth healthy behaviour
   a prophylactic drug(s)

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A randomized controlled trial of aspirin in the secondary prevention of mortality from myocardial infarction.

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30 years later:
‘Aspirin to prevent CVD?........... the Jury’s still out.’
Editorial  Br Med J 2005;330:
A randomized controlled trial of aspirin in the secondary prevention of mortality from myocardial infarction.

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Response by Rachael Iredale, (TENOVUS) BMJ 2005;331:160
‘The debate about aspirin has consumed the medical profession for over 30 years, yet almost no public participation or consultation has occurred..... a citizens’ jury should consider aspirin prophylaxis.....’
My health – whose responsibility: *a jury decides.*

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4. Evidence relating to the preservation of health by preventive drugs, should be made available to the general public...
   ‘even before there is agreement between doctors’
In making choices about health....

‘first choose your philosophy’

McKee, Raine Choosing Health? Lancet 2005;365:369-71
The treatment of disease is properly delegated to healthcare professionals.

The preservation of health – *is my responsibility*

*it is my decision*

...whether or not I smoke,
...what diet I take,
...how much I drink,
...what body weight I maintain,
...whether or not I take exercise......

*first choose your philosophy*

McKee, Raine Choosing Health? Lancet 2005;365:369-71
In making choices about health....

'first choose your philosophy'

McKee, Raine Choosing Health? Lancet 2005;365:369-71

The treatment of disease
is properly delegated to healthcare professionals

The preservation of health – is my responsibility

It is my decision

...whether or not I smoke,
...what diet I take,
...how much I drink,
...what body weight I maintain,
...whether or not I take exercise......

...whether or not I take a preventive medicine

...whether or not I accept an invitation for health screening
## REDUCTIONS IN DISEASE

<table>
<thead>
<tr>
<th>HEALTHY BEHAVIOURS*</th>
<th>REDUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Healthy’</td>
<td></td>
</tr>
<tr>
<td>(Four or five behaviours)</td>
<td>Diabetes</td>
</tr>
<tr>
<td></td>
<td>-72%</td>
</tr>
</tbody>
</table>

Whatever else is advised or recommended it should be presented within the context of healthy living.
1. The preservation of health is a subject’s own responsibility.
2. Information on healthy behaviours should be made readily available and departments of public health should take a key role.
3. The public should be informed about **preventive medicines** even before there is agreement amongst doctors!

What about.... **Prophylactic drugs**?

- Healthy behaviours
  - Statins
  - Low-dose aspirin
  - Weight loss drugs
  - Other prophylactics
### HEALTHY BEHAVIOURS*

- Healthy lifestyle (Four or five behaviours)
- Statin

### REDUCTIONS IN DISEASE

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<tr>
<td>Cancer</td>
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</tr>
<tr>
<td>Cognitive decline</td>
<td>-56%</td>
</tr>
<tr>
<td>Dementia</td>
<td>-65%</td>
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</tbody>
</table>

- Healthy lifestyle (Four or five behaviours)

| Statin       | Increase in risk | -25%* | Nil | Nil | Nil |

- Primary prevention of CVD by Pravastatin. Lancet 2006;368:1155-63
### REDuctions in Disease

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<td>Statin</td>
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<td>Nil</td>
</tr>
<tr>
<td>Aspirin</td>
<td>Nil</td>
<td>-25%</td>
<td>-30%**</td>
<td>Nil</td>
<td>Nil</td>
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</table>

• Primary prevention of CVD by Pravastatin Lancet 2006;368:1155-63
• Overview of 27 RCTs CTT Collaboration Lancet 2012;380:581-90:

** Rothwell & Price et al (2012) 51 RCTs OR 0.63 (0.49,0.82)
Rothwell Fowkes et al 2012: 8 RCTs; >5 yrs, HR 0.66 (0.50, 0.87)
Rothwell, Wilson, Elwin et al 2010; 4 RCTs; HR 0.68 (0.54, 0.87)
Burn et al 2012: HR 0.65 (0.42, 1.00)
Algra & Rothwell et al 2012; 61 c-c and 45 cohorts
Low-dose aspirin and cancer incidence and mortality

- **Colon cancer reduced**  \[\text{HR } 0.76 \ (0.60, \ 0.96)\]
  
  Rothwell PM *et al.* *Lancet* 2010; 376: 1741–50

- **Cancer deaths reduced**  \[\text{OR } 0.79 \ (0.68, \ 0.92)\]
  
  Rothwell PM *et al.* *Lancet* 2011; 377: 31–41

- **Cancer deaths reduced**  \[\text{OR } 0.85 \ (0.76, \ 0.96)\]
  
  Rothwell PM Price *Lancet* 2012; 379:1602-12

- **All cancers reduced**  \[\text{HR } 0.64 \ (0.48, \ 0.84)\]
  

- **Colon cancer reduced**  \[\text{OR } 0.62 \ (0.58, \ 0.67)\]
  

- **Colon cancer reduced**  \[\text{HR } 0.63 \ (0.35, \ 1.13)\]
  
  Burn J *et al.* *Lancet* 2010; 377: 2081–7
## Low-dose aspirin and reductions in colorectal cancer

<table>
<thead>
<tr>
<th>Authors</th>
<th>Nature of studies</th>
<th>Outcome</th>
<th>Incidence/mortality in subjects on aspirin (95% CI)</th>
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<tbody>
<tr>
<td><strong>COLON POLYPS</strong></td>
<td></td>
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<tr>
<td>Sandler et al (2003)</td>
<td>RCT</td>
<td>New polyps</td>
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<td>Cole et al (2009)</td>
<td>Overview of 4 RCTs</td>
<td>New adenomata</td>
<td>RR 0.83 (0.72, 0.96)</td>
</tr>
<tr>
<td><strong>CRC INCIDENCE</strong></td>
<td>RCT</td>
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<tr>
<td>Flossman &amp; Rothwell (2007)</td>
<td>Two RCTs, 17 C-C &amp; cohorts</td>
<td>Incidence of CRC</td>
<td>HR 0.74 (0.56, 0.97)</td>
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<td>Rothwell Wilson Elwin (2010)</td>
<td>Cohort study</td>
<td>Incidence of CRC</td>
<td>HR 0.76 (0.60, 0.96)</td>
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<tr>
<td>Chan et al (2005)</td>
<td>Randomised trial</td>
<td>Incidence of CRC</td>
<td>RR 0.77 (0.67, 0.88)</td>
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<tr>
<td>Cook et al (2013)</td>
<td></td>
<td></td>
<td>HR 0.80 (0.67, 0.97)</td>
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<tr>
<td><strong>METASTATIC SPREAD</strong></td>
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<tr>
<td>Elwood et al (2016)</td>
<td>Overview 5 studies</td>
<td>Metast.s all cancer</td>
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<td><strong>CRC MORTALITY</strong></td>
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<td><strong>TREATMENT OF CRC</strong></td>
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<td>Elwood et al (2016)</td>
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...what about undesirable side effects?
# Healthy Behaviours

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**None!**

- Muscle cramps…. increased risk of diabetes
  - rarely rhabomolysis
- Indigestion… increase in non-fatal stomach bleed
  - rarely cerebral haemorrhage
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**None!**

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... increase in **non-fatal stomach bleed**

Systematic review and meta-analysis of randomised trials to ascertain fatal gastrointestinal bleeding events attributable to preventive low-dose aspirin: No evidence of increased risk.

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... increase in **non-fatal stomach bleed**

All GI bleeds attributable to aspirin

bleed attributable to aspirin being fatal

fatal bleeds in subjects randomised to aspirin

RR **1.55** (95% CI 1.33, 1.83)

RR **0.45** (95% CI 0.25, 0.80)

RR **0.77** (95% CI 0.41, 1.43)

The six healthy behaviours

- No smoking
- Healthy diet
- Regular exercise
- Healthy weight
- Limit alcohol
- Aspirin, statin or both

No safe limit!
In making choices about health....

'first choose your philosophy'

McKee, Raine Choosing Health? Lancet 2005;365:369-71

The treatment of disease
is properly delegated to healthcare professionals

The preservation of health – is my responsibility

It is my decision

...whether or not I smoke,
...what diet I take,
...how much I drink,
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...whether or not I take a preventive medicine

...whether or not I accept an invitation for health screening
Current national population screening programmes in Wales are:

- Breast Test Wales
- Cervical Screening Wales
- Bowel Screening Wales
- Wales Abdominal Aortic Aneurysm Screening Programme
A verdict in the Citizens’ Jury....

- Information on all health preserving measures should be made readily available to the public....

When screening......
- what about healthy behaviours?
- what about prophylactic drugs?
INTRODUCTION

what does the public think?

1. The five healthy behaviours
   better than any pill

2. A sixth healthy behaviour
   low-dose aspirin prophylaxis

CONCLUSION

the gospel of prevention

Professor Edgar Collis and Archie Cochrane
Preventive medicine commenced in Wales in 1917

In 1917, Sir Wm Osler, Regius Professor of Medicine in Oxford, persuaded Miss Emily Talbot to endow the Mansel Talbot Chair of Preventive Medicine.

Four years later, chairs in Medicine and Surgery were established in the Cardiff Medical School.
Professor Edgar L Collis CBE
MA, MD Oxon, MRCS

appointed to the
Mansel Talbot chair of
Preventive Medicine
in the Cardiff Medical School
1919

Background in occupational health,
pneumoconiosis
industrial fatigue
miners’ nystagmus
phthysis

Edgar L Collis CBE 1870 - 1957
'I am undertaking a heavy responsibility in that I am the first occupant of the only chair in the country devoted entirely to the subject of preventive medicine. There is no tradition to guide, no precedent to refer to....'
Professor Edgar L Collis

Inaugural Lecture: ‘Finem Respice’
[look to the end…before setting forth]
Lancet 1920;i:6-11

‘What is then the task which lies before us ...it is to train.... a well-equipped band of apostles preaching the gospel of health on hill and dale, in hamlet, village and town throughout Wales
Professor Edgar L Collis
Inaugral Lecture: ‘Finem Respice’
[look to the end…before setting forth]
Lancet 1920;i:6-11

‘...that which has proved best and most successful to be selected, and that which has proved less successful... to be avoided’
Institute of Preventive Medicine opened 1921

The first such building, and the first University medical building in Wales
Sir William Osler: at the opening of the Institute of Preventive Medicine in 1921:

'I think we can look forward to the inauguration of a really great School of Preventive Medicine.... that will be an example to the world.'
Professor Edgar Collis: in responding

‘...this Institute stands not only for teaching but also research and the spirit of research....
'...the spirit of research...'

Edgar Collis
'...the spirit of research...' 

Edgar Collis
‘And now let doctors quit the centre stage
To usher in the prophylactic age’

From: ‘Superfluous Doctors’ in: Poems from Prisoner of War Camp
AL Cochrane 1942
Acknowledgements

INTRODUCTION – what does the public think?
with Marcus Longley and others

THE FIVE HEALTHY BEHAVIOURS – ‘better than any pill’
with Janet Pickering and many others

A SIXTH HEALTHY BEHAVIOUR – low-dose aspirin prophylaxis
with Gareth Morgan and many others

CONCLUSION – the gospel of prevention
with Alun Roberts, Archie, and many others
Your decision!
WEB SITES

• HealthLivingWales.co.uk

• AspirinTheFacts.co.uk
Forward!
out of ignorance