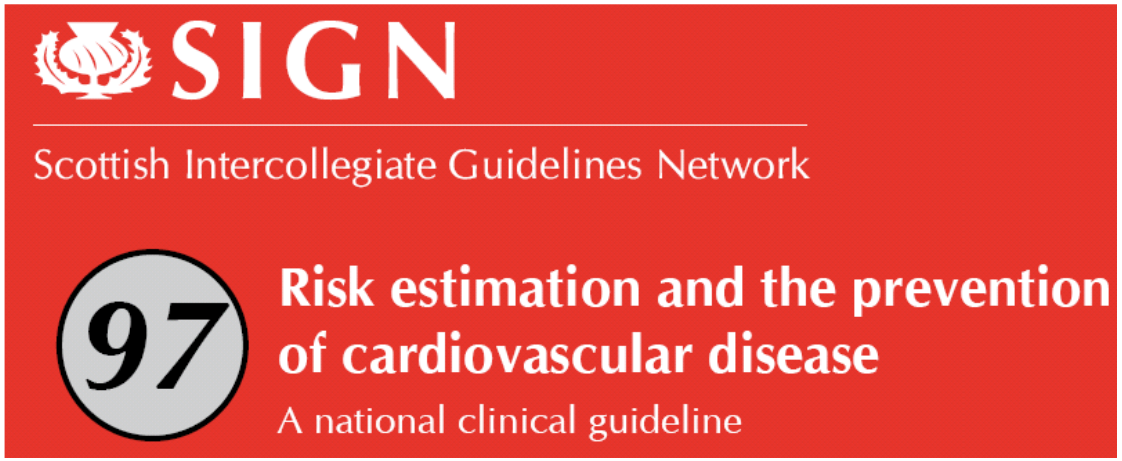


# Statins in the primary prevention of cardiovascular disease (CVD): the cost of treating to target

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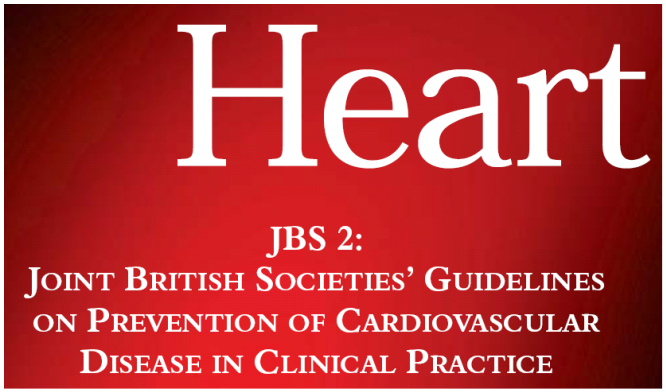
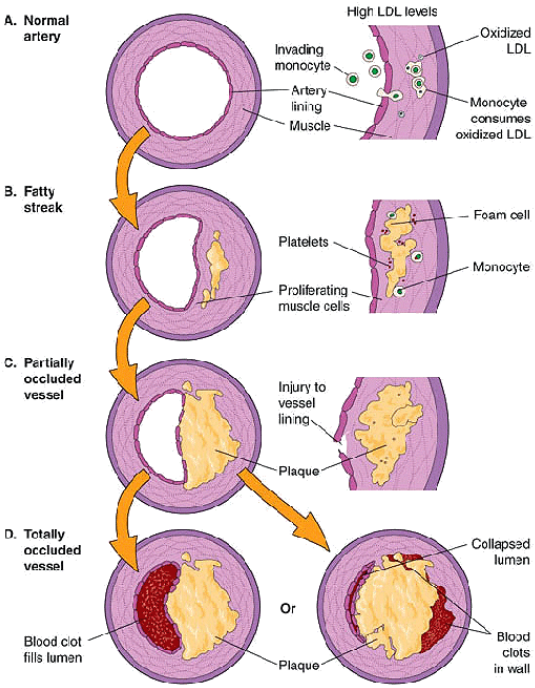
Sarah Wild



# Statin use is set to increase

All adults ≥ 40 years old with
10-year CVD risk ≥20% should be
considered for a statin (1º prevention) SIGN97

Secondary prevention

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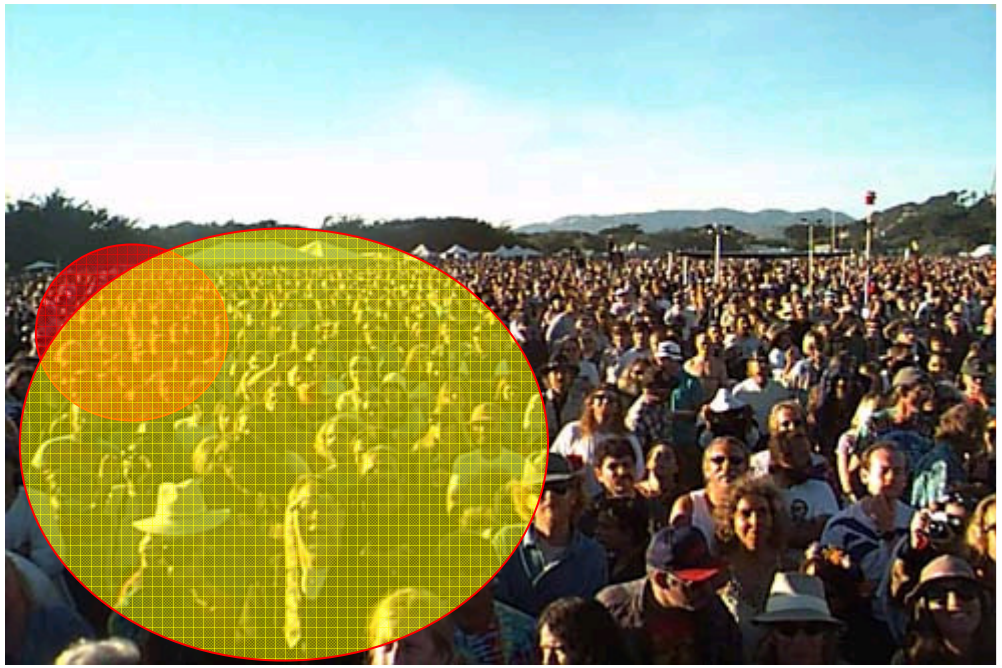
Primary prevention



mindsci-clinic.com

SIGN
Scottish Intercollegiate Guidelines Network

97 Risk estimation and the prevention of cardiovascular disease
A national clinical guideline

# What target?

Good practice point ☑

The existing total cholesterol target of <5mmol/L in individuals with established symptomatic atherosclerotic disease should be regarded as the minimum standard of care. (SIGN97)

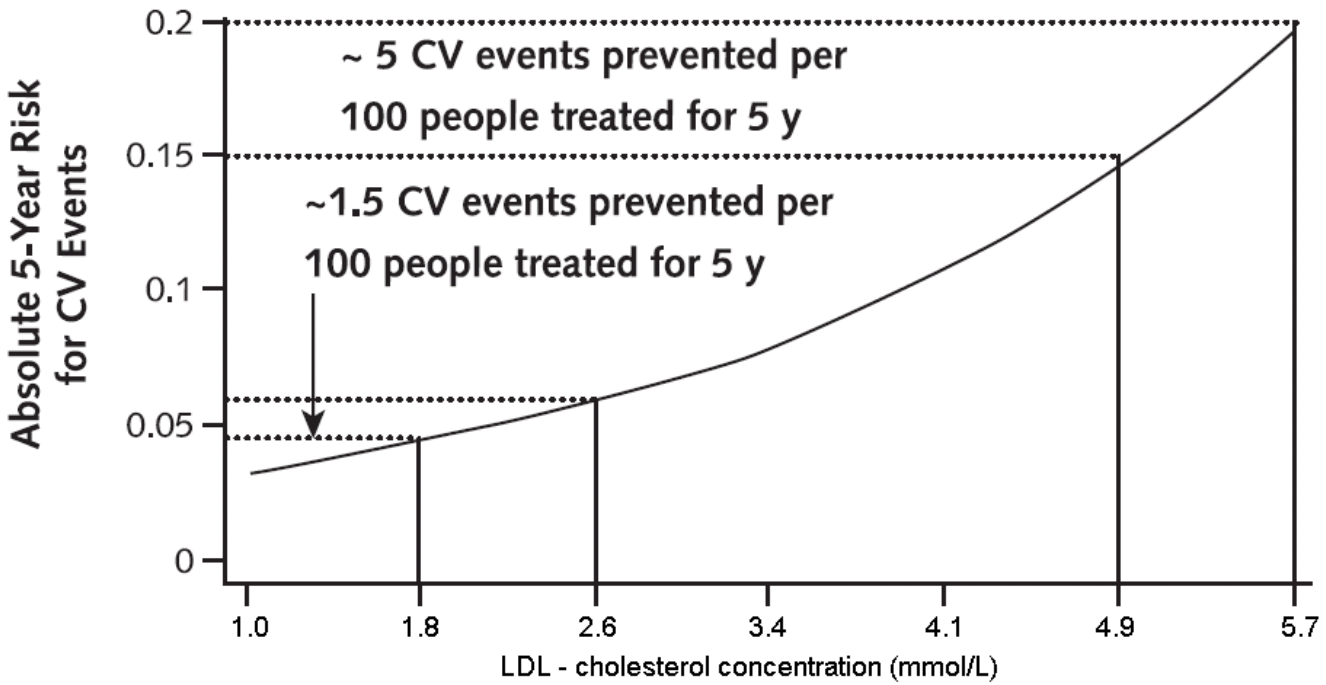
**Table 12** Optimal and audit standard lipid targets

| CVD risk | Optimal total cholesterol target (mmol/l) | Optimal LDL cholesterol target (mmol/l) |
|---|---|---|
| Established atherosclerotic disease; CHD, stroke, or PAD | <4.0 or a 25% reduction in total cholesterol | <2.0 or a 30% reduction in LDL cholesterol |
| Diabetes mellitus | <4.0 or a 25% reduction in total cholesterol | <2.0 or a 30% reduction in LDL cholesterol |
| CVD risk ≥20% over 10 years | <4.0 or a 25% reduction in total cholesterol | <2.0 or a 30% reduction in LDL cholesterol |

Heart
JBS 2:
Joint British Societies' Guidelines on Prevention of Cardiovascular Disease in Clinical Practice

# What is the evidence for aggressive cholesterol lowering?

*Figure 1.* **The diminishing returns of the hypothesized log-linear relationship.**




Hayward RA, Hofer TP, Vijan S. Narrative Review: Lack of Evidence for Recommended Low-Density Lipoprotein Treatment Targets: A Solvable Problem. Ann Intern Med 2006;145:520-530.

# Methods (data sources)

- **Scottish Health Survey 1998**
  - Full data on risk factors from 2758 participants aged 40 – 74 years

- **Scottish Morbidity Records (1998-2005)**
  - Record linkage → anonymised database
  - CVD events, CVD deaths and deaths from any cause over a seven year period

- **Census data (2001)**
  - Population estimates for Scotland (2.1 million people aged 40 to 74 years)

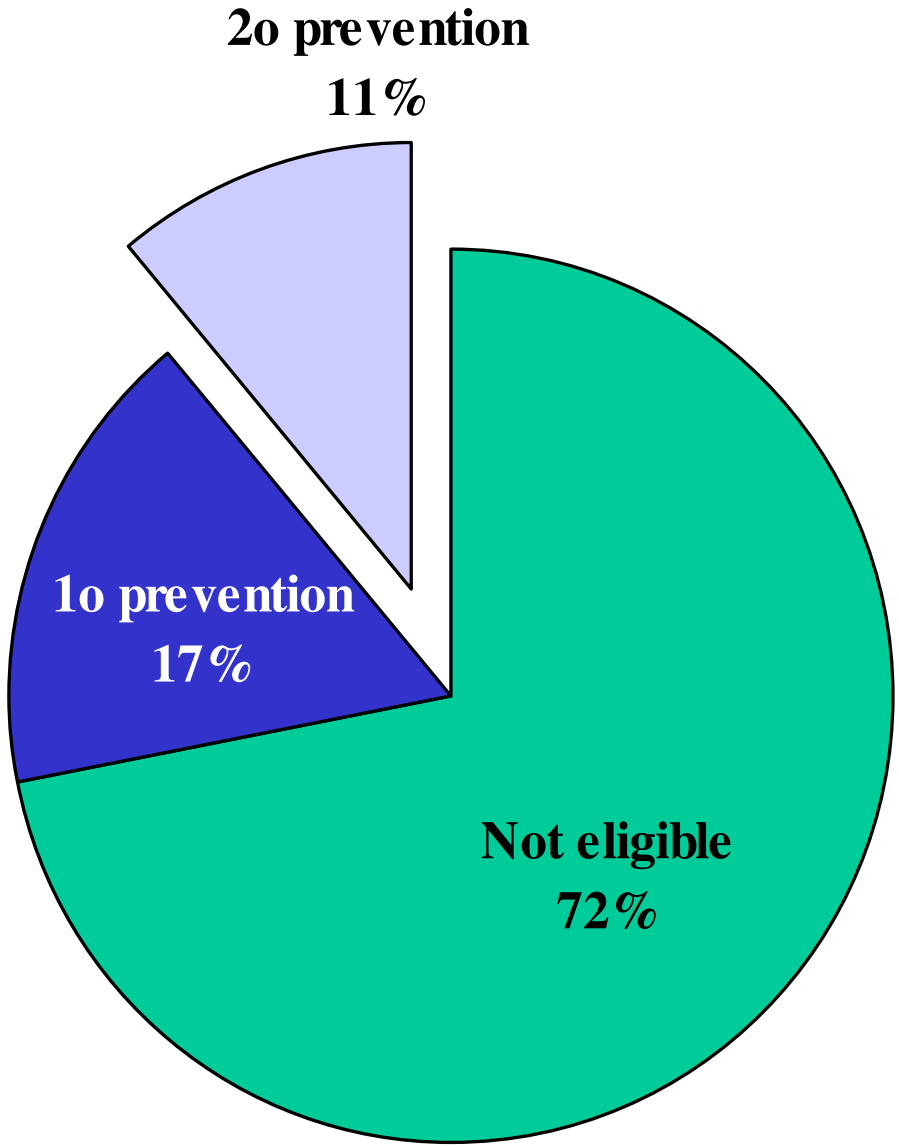
# Methods (analysis)

- **Modeling**
  - Estimated 10-year CVD risk (Framingham)
  - Estimated costs of assessment and treatment for those eligible for 1$^{o}$ prevention with a statin
  - Estimated reduction in CVD events, deaths and follow up with statin usage (CTT, Lancet 2005)

- **Costing data**
  - Health costs (Curtis and Netten 2005)
  - Scottish drug tariff

# Results (1)
# Initial assessment

- Two appointments with practice nurse, including blood tests
- See GP and dietician if eligible for statin
- Total cost = £66 million



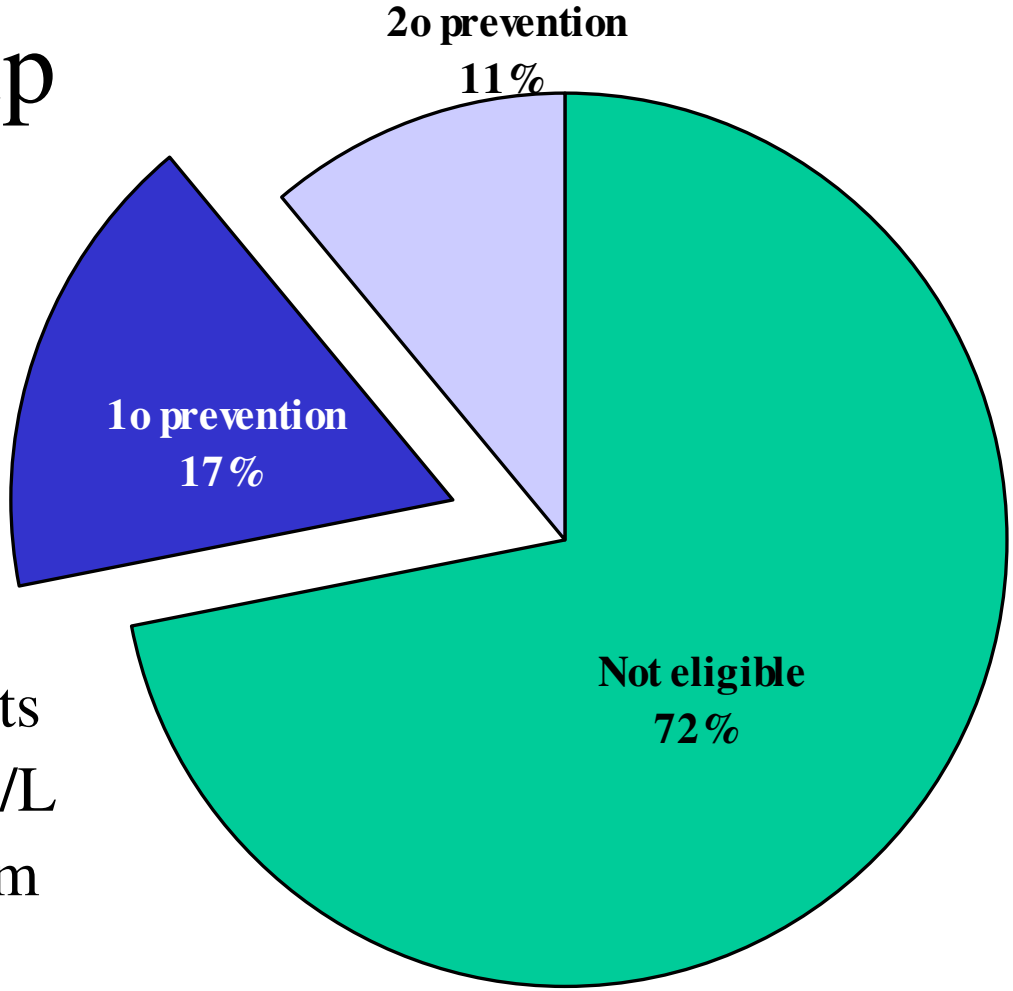
# Results (2): Patient characteristics (1º prevention)

- 348,162 people

- 66% male
- Average
  - age 63 years
  - Systolic BP 154 mmHg
  - cholesterol 6.5 mmol/L
  - 10-year CVD risk 28%

# Results (3)
# Treatment/ follow up

- No target:
  - Simvastatin 40mg (7 years)
  - Total cost = £102 million
- Treat to target:
  - Blood checks + appointments
  - Atorvastatin if TC > 5mmol/L
  - Review £108m, drugs £320m
  - Total cost = £428 million



# Results (4): Impact of treatment

- CVD events (hospital admission):
  - 10% of those eligible for statin (7 years)
  - Expect 37% reduction in CVD events with statins
  - Estimated savings = £70 million
- All cause mortality
  - 15% of those eligible for statin died (7 years)
  - Expect 20% reduction in deaths with statins
- Net cost per life year gained
  - Not treating to target = £ 3,300 / LYG
  - Treating to target = £14,000 / LYG

# Discussion

- In 1º prevention of CVD net cost of statin treatment (7 years, Scotland):
  - No target = £ 98 million
  - Treating to target = £424 million

- No evidence for treating to target in 1º prevention.
- Follow up liver function tests are only required if the patient is symptomatic.
- But – regular contact with GP practice may have other benefits not included here

- Practical aspects:
  - No treatment target in SIGN guidelines (1º prevention)
  - Primary prevention not included in QOF

# Conclusions

- Treating to target does not appear to be an efficient way of allocating resources for primary prevention of CVD.
- Price reductions mean that generic simvastatin is now a cost effective and affordable way of lowering CVD risk (branded statins are not).
- Removing the need for expensive and time consuming follow up checks would free up time and resources for GP practices and patients.