Major journals

Making every contact count helps primordial prevention

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This year all healthcare professionals have been implored by the NHS Future Forum (2012) to "make every contact count" (MECC). This initiative is a passionate plea for us to question patients about lifestyle factors at every clinical encounter to reduce future long-term conditions and prevent complications in existing long-term conditions. This was recently launched by the Midlands and East SHA as part of a national drive to implement MECC. The focus is on not smoking, optimising physical activity, healthy diet and safe alcohol consumption.

Berry et al's meta-analysis of 18 studies (summarised alongside) provides further credence for this approach. The data were derived from over a quarter of a million individuals (257 384) and around 2 500 000 person-years of study. There were a total of 5912 deaths from cardiovascular disease, 5061 coronary heart disease events and 2295 strokes. An optimal risk-factor profile was defined as total cholesterol <4.7 mmol/L, blood pressure <120/80 mmHg, non-smoking and without diabetes. This defined cohort had significantly fewer deaths from cardiovascular disease than those with two or more major risk factors. For men this was 4.7% versus 29.6% and women 6.4% versus 20.5%. Specifically for coronary heart disease the risks were 3.6% versus 37.5% for men, and <1% versus 18.3% for women. For strokes the risks were 2.3% versus 8.3% for men, and 5.3% versus 10.7% for women.

For me, this paper introduces the concept of "primordial prevention", that is, preventing the development of risk factors (treating them is primary prevention). The latter is a step too late in many people who then go on to have an event and then secondary prevention becomes a necessary, expensive and significant burden to the patient.

MECC is all about primordial prevention and will particularly serve our patients with diabetes. Berry et al's study adds to the wealth of evidence, from Steno-2, UKPDS, ADVANCE and ASCOT, that multifactorial intervention is central to reducing the complications of diabetes and suggests that primordial prevention may be even better.

NHS Future Forum (2012) *NHS Future Forum Summary Report – Second Phase*. NHS, London. Available at: http://bit.ly/zxuNGD (accessed 22.05.12)

BMJ

CHD improvements attributed mainly to risk reduction

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Researchers examined how much of the observed rapid decrease in mortality from coronary heart disease (CHD) in Poland could be explained by the use of medical and surgical treatments and how much by changes in cardiovascular risk factors.

2 Sources of data included controlled trials and meta-analyses, national surveys, and official statistics fo of adults aged 25–74 in 1991–2005.

3 An epidemiological model was used to combine and analyse data on the uptake and effectiveness of specific treatments and changes in risk factors.

4 From 1991 to 2005, the death rate from CHD in Poland halved, resulting in 26 200 fewer coronary deaths in 2005 in people aged 25–74. About 37% of this decrease was attributable to treatments and about 54% to changes in risk factors, mainly reductions in total cholesterol and an increase in physical activity.

5 It was concluded that over half of the fall in mortality from CHD in Poland can be attributed to reductions in risk factors and about one-third to medical treatments.

Bandosz P, O'Flaherty M, Drygas W et al (2012) Decline in mortality from coronary heart disease in Poland after socioeconomic transformation: modelling study. *BMJ* **344**: d8136

NEW ENGLAND JOURNAL OF MEDICINE

Influence of CVD risk factors consistent across age spectrum

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓

1 The lifetime risks of cardiovascular disease (CVD) have not been reported across the age spectrum.

2 The authors conducted a meta-analysis at the individual level using data from 18 cohort studies involving a total of 257 384 black men and women and white men and women whose risk factors for CVD were measured at the ages of 45, 55, 65 and 75 years.

3 Blood pressure, cholesterol, smoking and diabetes status were used to stratify participants into five categories. The remaining lifetime risks of cardiovascular events were estimated for participants in each category at each age.

4 Participants who were 55 years of age with an optimal risk-factor profile (total cholesterol level 4.7 mmol/L, blood pressure <120 mmHg systolic and 80 mmHg diastolic, non-smoking and without diabetes) had substantially lower risks of death from CVD through the age of 80 years than participants with two or more risk factors (4.7% vs 29.6% among men, 6.4% vs 20.5% among women).

5 Those with an optimal risk-factor profile also had lower lifetime risks of fatal heart disease or nonfatal myocardial infarction (3.6% vs 37.5% among men, <1% vs 18.3% among women) and stroke (2.3% vs 8.3% among men, 5.3% vs 10.7% among women).

6 The authors concluded that differences in risk-factor burden translate into marked differences in the lifetime risk of CVD, and these differences are consistent across race and birth cohorts.

Berry JD, Dyer A, Cai X et al (2012) Lifetime risks of cardiovascular disease. *N Engl J Med* **366**: 321–9

THE LANCET

Community workers effective in diabetes management

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

1 The authors aimed to examine the effectiveness of the Iranian rural primary healthcare system in managing diabetes and hypertension, and to assess whether the effects depend on the number of healthcare workers.

2 Using data from the Non-Communicable Disease Surveillance Survey, records for 65 619 individuals (11 686 of these in rural areas) were examined. Nationally, 39.2% (95% confidence interval [CI], 37.7–40.7) of individuals with diabetes and 35.7% (95% CI, 34.9–36.5) of those with hypertension received treatment, with higher treatment coverage in women than in men and in urban areas than in rural areas.

3 Treatment lowered mean fasting plasma glucose (FPG) by an estimated 1.34 mmol/L in rural areas and 0.21 mmol/L in urban areas. Individuals in urban areas with hypertension who received treatment had 3.8 mmHg lower systolic blood pressure (SBP) than they would have had if they had not received treatment; the treatment effect was 2.5 mmHg lower FPG in rural areas.

4 Each additional primary healthcare worker per 1000 adults was associated with a 0.09 mmol/L (95% CI, 0.01–0.18) lower district-level average FPG (P=0.02); for SBP this effect was 0.53 mmHg (–0.44 to –1.50; P=0.28).

5 It was concluded that primary care systems with trained community healthcare workers can be effective in non-communicable disease management and Iran's primary care system should expand the number and scope of its primary healthcare worker programmes.

Farzadfar F, Murray CJ, Gakidou E et al (2012) Effectiveness of diabetes and hypertension management by rural primary health-care workers (Behvarz workers) in Iran: a nationally representative observational study. *Lancet* **379**: 47–54

AMERICAN JOURNAL OF MEDICINE

Fasting plasma glucose variation predicts mortality

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 Researchers examined whether time-dependent annual fasting plasma glucose (FPG) variation can be used as a predictor of mortality in subsequent cardiovascular disease-related mortality independent of mean FPG, renal function, mean HbA_{1c}, HbA_{1c} variation, and other risk factors in people with T2D.

2 They used an electronic database of all patients with T2D aged 30 years and over (n=5008) enrolled in a diabetes care management programme in a Chinese university hospital.

3 The mortality rates were 8.64, 12.71 and 30.82 per 1000 person-years in groups of first, second and third tertiles of baseline FPG, respectively. After adjusting for mean FPG, mean HbA_{1c}, HbA_{1c} variation and other risk factors, it was determined that annual FPG was independently associated with all-cause mortality and mortality due to expanded and non-expanded cardiovascular disease, and the corresponding hazard ratios for third versus first tertile of annual FPG were 5.53 (95% confidence interval [CI], 3.85–7.94), 3.21 (95% CI, 2.00–5.15), and 9.45 (95% CI, 5.37–16.63), respectively.

4 The study's authors concluded that time-dependent variation of FPG was a strong predictor of all-cause, expanded, and non-expanded cardiovascular disease-related mortality in people with T2D, suggesting that glucose variation may become a measure in clinical practice for the management of these patients.

Lin CC, Li CI, Yang SY et al (2012) Variation of fasting plasma glucose: a predictor of mortality in patients with type 2 diabetes. *Am J Med* **125**: 416.e9–18

ARCHIVES OF INTERNAL MEDICINE

Progression to ERSD linked to systolic hypertension in CKD

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 In chronic kidney disease (CKD), the association between each blood pressure component and end-stage renal disease (ESRD) risk is not well-known.

2 Researchers studied associations of systolic blood pressure (SBP) and diastolic blood pressure (DBP) with ESRD risk among 16 129 participants with an estimated glomerular filtration rate of 60 mL/min/1.73 m^2.

3 Over 2.87 years, there were 320 ESRD events. Higher SBP was associated with higher ESRD risk, starting at SBP ≥140 mmHg. After sex and age adjustment, compared with SBP <130 mmHg, hazard ratios (HRs) were 1.08 (95% CI, 0.74–1.59) for SBP of 130–139 mmHg, 1.72 (95% CI, 1.21–2.45) for SBP of 140–149 mmHg, and 3.36 (95% CI, 2.51–4.49) for SBP of ≥150 mmHg. People with DBP ≥90 mmHg were at higher risk for ESRD compared with those with DBP of 60–74 mmHg (HR, 1.81; 95% CI, 1.33–2.45).

4 More than 33% of participants had uncontrolled hypertension (SBP ≥150 mmHg or DBP ≥90 mmHg), mostly due to isolated systolic hypertension (54%).

5 The authors concluded that high SBP seemed to account for most of the risk of progression to ESRD. This risk started at SBP of 140 mmHg rather than the currently recommended goal of <130 mmHg, and it was highest among those with SBP of ≥150 mmHg. They suggest that treatment strategies that preferentially lower SBP may be required to improve BP control in CKD.

Peralta CA, Norris KC, Li S et al (2012) Blood pressure components and end-stage renal disease in persons with chronic kidney disease: the Kidney Early Evaluation Program (KEEP). *Arch Intern Med* **172**: 41–7

> *"Fasting plasma glucose was independently associated with all-cause mortality and mortality due to expanded and non-expanded cardiovascular disease."*