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Comment on Kahn R, et al. The Impact of Prevention on Reducing the Burden of Cardiovascular Disease. Circulation published online Jul 7, 2008;DOI:10.1161/CIRCULATIONAHA.108.190186.

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Kahn and colleagues (1) estimated the 30-year cost-utility of 11 different interventions for prevention of cardiovascular disease in the U.S. population. Reduction of body mass index (BMI, kg/m^2) below 30 was estimated to be the fourth most cost-effective intervention with a cost-utility ratio of $18,941 per Quality-Adjusted Life-Year (QALY).

In Table 2 of their paper the authors indicated that the per-capita cost of the weight reduction intervention ($1356 for first year, $672 for all remaining years) was derived from their reference 44, a paper by Maciosek et al. (2). Yet our examination of this reference, as well as its on-line technical appendix (3), revealed no quantitative estimates of the costs of weight reduction interventions.

The cost estimate used by Kahn and colleagues for the first year of their hypothetical weight reduction program is surprisingly identical to the cost of the intensive lifestyle weight control intervention reported by the Diabetes Prevention Program (DPP) after subtracting the cost of the placebo intervention: $1,399 - $43 = $1356 (4, Tables 1 and 3). The "remaining years" cost used by Kahn and colleagues, $672, is also identical to the average of the costs reported for the 2nd and 3rd years of the DPP lifestyle intervention, after subtracting the annual placebo cost: [($679 - $18) + ($702 - $18)] / 2 = $672.50.

Kahn and colleagues also estimated the cost-utility of reducing fasting blood glucose below 110 mg/dl with the use of a "generic glucose-lowering agent", presumably metformin (1, Table 2). In the DPP trial the efficacy of metformin and of weight reduction were both evaluated for prevention of type 2 diabetes and weight reduction was

found to be nearly twice as effective as metformin (5). Because Kahn and colleagues used the DPP efficacy data for reduction of fasting blood glucose by metformin, it is puzzling that they did not also use the DPP efficacy data to estimate the health and economic impact of reducing fasting blood glucose by weight reduction.

References:

1. Kahn R, Robertson RM, Smith R, Eddy D. The Impact of Prevention on Reducing the Burden of Cardiovascular Disease. Circulation published online Jul 7, 2008;DOI:10.1161/CIRCULATIONAHA.108.190186.
2. Maciosek MV, Coffield AB, Edwards NM, Flottemesch TJ, Goodman MJ, Solberg LI. Priorities Among Effective Clinical Preventive Services. Results of a Systematic Review and Analysis. Am J Prev Med 1006;31:52-61.
3. http://www.prevent.org/images/stories/clinicalprevention/studymethods.pdf
4. The Diabetes Prevention Program Research Group. Costs Associated with the Primary Prevention of Type 2 Diabetes Mellitus in the Diabetes Prevention Program. Diabetes Care 2003;26:36-47.
5. Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, Nathan DM. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. N Engl J Med 2002;346:393-403.

We greatly appreciate Drs. Williamson and Narayan calling attention to our citation error. They are correct that the costs we used to model the impact of weight reduction were derived from the DPP (their reference 4 and our reference 35 with page numbers that should be 36-47). Although weight loss is a good therapy for reducing hyperglycemia, our rationale for using metformin to normalize impaired fasting glucose (IFG) was : a) its excellent safety profile and effectiveness in reducing mild hyperglycemia b) since not everyone with IFG is overweight, weight loss therapy would not likely be the treatment of choice for those persons and c) in a previous study (1) metformin was found to be more cost-effective than lifestyle modification for delaying or preventing diabetes and its complications.

1. Eddy DM, Schlessinger L, Kahn R. Clinical outcomes and cost-effectiveness of strategies for managing people at high risk for diabetes. Ann Intern Med 2005;143:251-264