

## Supplement 2

| <b>Sensitivity analysis for 10-year cumulative impacts of a 10-year media campaign compared to no campaign</b> |                  |                                  |                                  |   |                                  |
|--|------------------|----------------------------------|----------------------------------|---|----------------------------------|
|  | Deaths prevented | Net medical costs* (\$ millions) | Net direct costs** (\$ millions) | All payer, direct cost, breakeven Year*** | Productivity gains (\$ millions) |
| <b>Base case</b>   | <b>-23,500</b>   | <b>-6,360</b>                    | <b>-5,080</b>                    | <b>5</b>                                  | <b>5,320</b>                     |
| Baseline smoking initiation rates +25%   | -23,500          | -6,350                           | -5,070                           | 5   | 5,330                            |
| Baseline smoking initiation rates -25%   | -23,500          | -6,370                           | -5,090                           | 5   | 5,310                            |
| Baseline smoking cessation rates +25%  | -27,700          | -7,620                           | -6,340                           | 4   | 5,550                            |
| Baseline smoking cessation rates -25%  | -21,000          | -4,920                           | -3,640                           | 6   | 4,340                            |
| Relative risks of SA diseases +25%   | -33,800          | -6,250                           | -4,960                           | 5   | 6,330                            |
| Relative risks of SA diseases -25%   | -21,900          | -6,420                           | -5,140                           | 5   | 4,740                            |
| Media campaign effectiveness +50%  | -36,900          | -9,390                           | -8,110                           | 4   | 7,800                            |
| Media campaign effectiveness -50%  | -12,200          | -3,260                           | -1,980                           | 6   | 2,620                            |
| SA medical costs +35%  | -23,500          | -8,810                           | -7,530                           | 4   | 5,320                            |
| SA medical costs -35%  | -23,500          | -3,830                           | -2,550                           | 6   | 5,320                            |
| SA medical costs: alternative source   | -23,500          | -12,640                          | -11,360                          | 3   | 5,320                            |
| Smoking cessation treatment costs +35%   | -23,500          | -6,040                           | -4,760                           | 5   | 5,320                            |
| Smoking cessation treatment costs -35%   | -23,500          | -6,600                           | -5,320                           | 4   | 5,320                            |
| Media campaign costs +50%  | -23,500          | -6,360                           | -4,439                           | 6   | 5,320                            |
| Media campaign costs -50%  | -23,500          | -6,360                           | -5,720                           | 4   | 5,320                            |
| Discount rate 3%   | -19,500          | -5,200                           | -4,070                           | 5   | 4,380                            |
| Media campaign effectiveness - 50%;<br>Media campaign costs +50%; and<br>Discount rate 3%                      | -10,100          | -2,660                           | -980                             | 8   | 2,160                            |
| SA = smoking-attributable  |                  |                                  |                                  |   |                                  |
| *Includes costs of smoking cessation treatments and costs of smoking-attributable illness.                     |                  |                                  |                                  |   |                                  |
| **Includes all direct costs: media campaign costs, cessation treatment costs and SA medical costs              |                  |                                  |                                  |   |                                  |
| ***Year in which cumulative net direct costs become negative (cost savings occur)                              |                  |                                  |                                  |   |                                  |

In sensitivity analyses we:

Increased and decreased baseline initiation and cessation rates by a relative 25%. That is, we multiplied each simulated individuals baseline rate by 1.25 or 0.75 in the model. This tests the impact of systematic under or over estimation of these rates from survey data. Similarly, we increased and decreased the relative risks of each smoking-attributable disease for both current and former smokers by a relative 25% to test the impact of any systematic bias in estimating these risks by the original source. We tested the effect of large variation in Media campaign effectiveness ( a relative 50%), given lack of direct data

on the impact of sustained media campaigns. Likewise, we tested large variation in Media campaign costs (a relative 50%) given uncertainty in the relationship between media campaign intensity and effectiveness. We tested the impact of 35% changes in smoking cessation treatment costs and smoking-attributable medical costs to assess plausible systematic bias in their estimation. We also tested the impact of using an alternate estimate of smoking-attributable medical costs by age and sex (Maciosek et al. 2015, Preventive Medicine); however the alternate estimates do not vary by insurance status except to the extent that insurance status is correlated with age and sex. Finally, we implemented a 3% annual discount rate to determine the impact of discounting future costs to their present value at the start of the sustained media campaign, and we conducted a multivariate sensitivity analysis combining the 3% discount rate with the extremes of low media campaign effectiveness and high media campaign costs.