Obesity is rapidly becoming a global problem, affecting countries at all levels of income.

Before 1980, obesity rates were generally well below 10%. Since then, rates have doubled or tripled in many countries. In Brazil, obesity rates tripled in men and almost doubled in women in 30 years. In India, overweight rates reached 40% in urban areas in the early 2000s. Weight gains contributed to a dramatic increase of diabetes cases in China, where the disease is now as common as in the US, with an estimated 92 million cases.

Overweight and obesity are amongst the leading causes of major chronic diseases, and therefore have a large impact on health care expenditures. Obesity accounts for up to 1% of GDP in most OECD countries, over 1% in the US and up to 4% in China.
Our analysis uses a model of major chronic diseases and relevant risk factors, developed jointly by the OECD and the WHO, to assess the health and economic impacts of a range of prevention strategies.

The model is based on the best available evidence concerning the development of diseases and the effects of interventions. The interventions assessed are those for which evidence of effectiveness is available from rigorous studies. These include interventions in three areas: health education and health promotion; regulation and fiscal measures; and, counselling of individuals at risk in primary care.

Interventions target different age groups and tend to modify different risk factors for health.
In addition, we assessed the effects of a comprehensive prevention strategy including: a mass media campaign; fiscal measures aimed at increasing the price of foods high in fat and lowering the price of fruit and vegetables; government regulation of food advertising to children; and, a compulsory food labelling scheme.

### Interventions Assessed

<table>
<thead>
<tr>
<th>Health education and health promotion</th>
<th>Regulation and fiscal measures</th>
<th>Primary-care based interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media campaigns</td>
<td>Fiscal measures</td>
<td>Physician counselling of individuals at risk</td>
</tr>
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<td>(fruit and vegetables and foods high in fat)</td>
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</tr>
<tr>
<td>School-based interventions</td>
<td>Government regulation of food advertising to children</td>
<td></td>
</tr>
<tr>
<td>Worksite interventions</td>
<td>Compulsory food labelling</td>
<td></td>
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</tbody>
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The OECD/WHO analysis covers 7 countries (Brazil, China, England, India, Mexico, Russia, South Africa).
Up to 740 000 life years can be gained every year, on average, in the seven countries examined, relative to a situation in which no prevention is in place. The number of DALYs gained every year through the same interventions ranges from 240 000 to 920 000.

The largest health gains are obtained through regulation of food advertising and fiscal measures, although most of the gains from the former occur with a long delay, as the intervention targets children and adolescents.
The health benefits of the interventions examined build up over time. The graph illustrates the progression, in terms of life years in good health gained, for each of the interventions in the 7 countries considered.

The time frame of the graph is 100 years from the initial implementation, in the assumption that key population and disease characteristics remain the same. This is designed to show the full potential of all interventions, including those targeting young children (e.g. school-based interventions and food advertising), which take a long time to produce substantial effects.

Counselling of individuals at risk in primary care is the most effective intervention for most of the simulation.
The prevention strategy examined in our analysis can contribute to a prevention package designed to tackle the main risk factors for chronic diseases, including also tobacco, alcohol, high blood pressure and high cholesterol. Such prevention package can be implemented for an annual cost of $1.5 (India) to $4.5 (Mexico) per head. Based on our analysis, combining several interventions to tackle unhealthy diets and physical inactivity would cost between $0.4 (India) and $1.2 (Russia) per head.

These costs will be reduced, or even offset, by future savings in health expenditures resulting from the preventive measures.
Combining several interventions to tackle unhealthy diet and physical inactivity will cut health expenditures associated with the treatment of major chronic diseases in all of the countries examined.

The graph shows the cumulative reduction in health expenditure per head in the 7 countries over a period of 100 years starting from the implementation of the interventions, in the assumption that key population and disease characteristics remain the same.

In the long run, Brazil, India, Mexico and Russia will experience the largest reductions in health expenditures.
Combining several interventions to tackle unhealthy diet and physical inactivity is a cost-effective way of improving population health in all of the countries examined. The cost per life year gained, or DALY saved, through such prevention strategy compares favourably with those of commonly accepted interventions in countries at different levels of income.

Although the benefits of prevention tend to build up over time, the comprehensive strategy assessed in our analysis will be cost-effective even after 20 years (left-hand panel in the graph), and it will pay for itself in Brazil. In a longer time frame (right-hand panel), the strategy will improve its cost-effectiveness further in most countries, it will pay for itself also in China and Mexico. In Russia, it will be virtually cost-neutral.
Key Messages

• Obesity is a growing problem on a global scale.

• Chronic disease prevention is not just for rich countries.

• Effective strategies to tackle obesity can be deployed for USD 0.4-1.2 per head in major emerging economies.

• Price interventions and regulation can produce large health gains. Primary care doctors can play an important role in countries with stronger health systems.

• Prevention provides greater health returns for the money spent than many medical treatments.