Economic Implications of Smoking Cessation Therapies
A Review of Economic Appraisals

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Summary
There is a paucity of studies on the economics of smoking cessation. Those undertaken have investigated only a narrow range of available interventions, using variable methodologies which make interstudy comparisons problematical. There is a need for more economic appraisal in this area and for greater consistency in the methodologies employed. Growing evidence on the effectiveness of pharmacotherapies has not been matched by evidence of their cost effectiveness, and studies in this area, particularly on transdermal nicotine, are urgently required.

Cost-benefit analyses (CBAs) have focused on programmes targeted at pregnant women and indicate that resource savings, mainly from reductions in the number of low birthweight neonates, can exceed the costs of the measures. Efforts to persuade pregnant women to quit thus appear to be highly cost beneficial, but further evidence on the efficiency of measures targeted at other groups or to the general population of smokers is required.

Cost-effectiveness analyses (CEAs) suggest that measures targeted at specific groups are more cost effective than those targeted at the general population of smokers, and that the cost effectiveness of such programmes is further improved by providing educational materials that are specific to the targeted groups. Advice on how to maintain abstinence appears to improve the cost effectiveness of help with quitting, and routine advice from physicians to their smoking patients is a cost-effective way of reducing smoking prevalence.

Over the past 40 years, evidence of the harmful effects of tobacco smoking on health has steadily accumulated (Doll et al. 1990). This evidence has come from epidemiological studies, particularly prospective cohort studies, and has demonstrated that all forms of tobacco use are dangerous, but especially cigarette smoking. It is now known that tobacco smoking contributes to over 20 diseases and that at least a quarter of all people who smoke cigarettes regularly will eventually be killed by the habit; indeed, it now seems that prolonged smoking increases 3-fold the risk of premature death in
middle age and that about half of all long term cigarette smokers die early (Doll 1993).

These effects of smoking are dose related, with both quantity and duration of smoking being important variables. Fortunately, stopping smoking attenuates the excess risk and this decline is relatively rapid for cardiovascular disease risk, with about 50% reduction in risk in the first year or 2 years, and the remainder over 10 years or so. Excess risk of cancer declines more slowly, halving over 5 or 10 years and approaching that of never smoking after 20 years’ abstinence. Smoking cessation, although very much second best to smoking avoidance, is beneficial at any age. Having climbed remorselessly in developed countries until the past decade or so, smoking prevalence is now on the decline in many industrial countries, especially in men. Of 128 countries for which mean adult cigarette consumption figures are available for the 5 years 1986 to 1990, in 93 (73%) there has been a decline (Chapman 1992).

Attempts to maintain or accelerate this decline, however, are not costless, yet the potential health gains from reduced smoking suggest that the economic benefits of smoking cessation programmes may exceed their costs. By weighing the value of the benefits of reduced smoking against the cost of the interventions which bring them about, cost-benefit studies attempt to show the extent to which the cost of pursuing these benefits by these means are justified (allocative efficiency). Since the range of smoking cessation interventions is vast, cost-effectiveness studies attempt to show which interventions produce given benefits at least cost (technical efficiency). Unfortunately, the number of smoking cessation interventions which have been subject to either cost-benefit or cost-effectiveness analysis remains small (Elixhauser 1990).

The focus of the present review is on economic appraisals of interventions aimed at persuading individuals to stop smoking. It is not concerned with wider economic issues such as the overall costs of smoking to society or whether smokers pay their way (see Phillips et al. 1992, 1993).

1. Cost-Benefit Analysis

A cost-benefit analysis (CBA) of any smoking cessation measure attempts to assess whether, and to what extent, the benefits of the measure outweigh the costs. This requires expressing all costs regardless of who bears them, and all benefits, regardless of to whom they accrue, in common units – normally money values. An intervention is said to pass the cost-benefit test if the value of all benefits exceeds the value of the costs. Difficulties in measuring and valuing the full range of costs and benefits, however, mean that CBAs tend to be only partial analyses.

On the benefit side, a comprehensive CBA would in the first instance take account of all healthcare resource savings resulting from reduced smoking. This would include not only reduced incidences of the most well established smoking-related diseases such as coronary artery disease or cancer of the lung, but also reduced incidence of: cancer of the oropharynx, larynx, oesophagus, pancreas, bladder, kidney and cervix; chronic obstructive pulmonary disease; peptic ulcer disease; nonmalignant diseases of the mouth; intrauterine growth retardation; spontaneous abortion; respiratory illness in children from passive smoking; decreased physical stature and intellectual development; and possibly male impotence and female infertility (Tsevat 1992).

It is debatable whether these resource savings should be offset by including the additional healthcare resources needed to care for the increased population of elderly which would result from reduced smoking. There is an ongoing debate as to whether lifetime healthcare costs are lower for longer-living nonsmokers than for shorter-living smokers. Evidence from Switzerland suggests that they are not (Leu & Schaub 1983, 1985). Evidence from the UK (Atkinson & Townsend 1977), America (Hodgson 1992; Manning et al. 1989) and New Zealand (Phillips et al. 1992) suggests that they are [see Phillips et al. (1992) for further discussion]. Even if the weight of evidence supports the contention that lifetime healthcare costs are lower for nonsmokers, any study which included lifetime