



図3・3・2-3 生活の質を調整した生存年  
 QALY (Quality Adjusted Life Year)  
 生活の質を調整した生存年 = 生命の量 (生存年) × 生命の質 (効用)

評価するのである（その指標として費用と効果の比，例えば，生存年を1年延長当たりの費用を用いる）。

ここで問題となるのは健康改善の指標である。以前は，生存年など客観的な指標を用いていた。しかし，健康は命の量（例，生存年）と質（例，生活の質）の2つの側面があるため，最近，医療経済学では，これらを総合的に検討する指標を開発している（表3・3・2-3）。それが，「生活の質を調整した生存年」（quality adjusted life year, QALY）である（つまり健康で生きられる年数）<sup>11)13)</sup>。具体的には，命の量（生きる年数）と，命の質（死亡0，健康1を両限として数値評価）とを掛合わせる。例えば，図3・3・2-3に示すように，内科治療を行っている心疾患の患者の健康状態（不便苦痛）が，健康と比べて0.3であり，その状態で10年間生きるとすると，それは3QALYになる（ $10 \times 0.3 = 3$ ，つまり3年間健康で生きることと等しい）。一方，外科治療を行えば，生存年数が8年と短くなるが，健康状態は0.5と良くなる。この場合は4QALYとなり（ $8 \times 0.5 = 4$ ，つまり4年間健康で生きることと等しい），命の量と質を総合的に考えると，外科治療が望ましいと判断できる。

後述するように，こうした指標を組み入れた経済的評価の結果から，さまざまな保健サービスの効率性を比較し，望ましいものを選択することが進められている。また，そのための判断基準がいくつか提案されている。実用的な基準の一つとしては，過去の経済的評価とその利用判断を参照する方法である<sup>11)12)</sup>。例えば，具体的な判断事例（すでに効率的として利用されている保健サービス）を参照する場合と，任意に費用効果比の値を設定する場合がある。後者では，1QALYを延長させるのに何万円かかるかが，目安に利用されている<sup>11)12)</sup>（線引の目安として，カナダの研究者の提案では，200万円以下であれば利用するための強い根拠，200万円から1,000万円であれば中ぐらい，1,000万円を越えると根拠は弱い）。ただし，基本的には意思決定を行うも

の価値判断が重要であり、わが国でも基準の設定が求められる。

なお、こうした経済的評価の情報を利用する場合は、チェックリストやガイドラインなどを参照しながら、どの立場で分析しているか（最も広い視点は社会全体）、費用の種類に間接費用（時間の損失）を含めているか、割引き（将来の費用・健康の価値を現在の価値に換算する）を行っているか、など十分な注意を払う必要がある<sup>11)~13)</sup>。

### 3. 禁煙支援の経済的効率

禁煙は、経済的効率（費用—効果）が極めて優れており、保健サービスの経済的評価の黄金律であることが従来から指摘されている<sup>14)</sup>。そこで、上記の根拠に基づくガイドラインを実施した場合、禁煙支援が、どの程度効率的なサービスであるかみてみよう。米国AHCPRのガイドライン<sup>15)</sup>では（表3・3・2-5）、ニコチン代替療法を行わないで、カウンセリングのみを実施した場合、指標としてQALY（生活の質を調整した生存年）を1年延長するのに要する費用を用いると、集団での強化カウンセリングが11万円/QALYと最も少なく、効率的であった。ただし、最も費用の多い最小限カウンセリングでも40万円/QALYと極めて低い値を示していた。ニコチン代替療法（経皮的あるいはガム）とカウンセリングを併用する場合も、集団強化カウンセリングが最も費用が少なく10万円台/QALYであり、最小限カウンセリングが最も費用が多かったが、

表3・3・2-5 米国AHCPRガイドラインの禁煙勧告の費用—効果（介入別）<sup>15)</sup>

介入	費用/禁煙者	費用/生存年延長	費用/QALY延長
ニコチン置換なし			
最小限カウンセリング	79万円	54万円	40万円
簡潔なカウンセリング	63	43	32
詳細なカウンセリング	30	20	15
個人強化カウンセリング	36	25	18
集団強化カウンセリング	22	15	11
ニコチンパッチと			
最小限カウンセリング	47万円	32万円	24万円
簡潔なカウンセリング	42	29	21
詳細なカウンセリング	27	19	14
個人強化カウンセリング	29	20	15
集団強化カウンセリング	23	16	12
ニコチンガムと			
最小限カウンセリング	90万円	61万円	45万円
簡潔なカウンセリング	74	50	37
詳細なカウンセリング	42	29	21
個人強化カウンセリング	44	30	22
集団強化カウンセリング	36	25	18

QALY：生活の質を調整した生存率（健康な生存率）

割引：3%

（費用は1995年，1ドル＝100円として換算）

表3・3・2-6. 英国の禁煙ガイドライン勧告の費用—効果（介入別）<sup>10)</sup>

介入	費用／生存年延長
対面介入（社会）	
簡潔なアドバイス	4万円
簡潔なアドバイス+自助	5
簡潔なアドバイス+自助+NRT	14
簡潔なアドバイス+自助+NRT+専門家禁煙サービス	17
地域介入（保健医療システム）	
禁煙コンテスト	
低（資源・参加）	17万円
中	17
高	23
禁煙デー	7
広域地域介入	
低（効果）	10
中	5
高	1

割引：1.5%（費用は1997年，1ポンド=200円として換算）

NRT：ニコチン代替療法

50万円未満/QALYであった。これらの費用—効果の値はいずれも、前に述べたカナダの研究者の提案、あるいは従来の効率的な保健サービスと比較しても、極めて効率的であり、積極的に実施すべきサービスに分類される。

一方、英国のガイドライン<sup>10)</sup>では（表3・3・2-6）、個人別の対面的なサービスでは、指標として、生存年を1年延長するのに要する費用を用いると、簡潔なアドバイスが4万円/生存年と最も少なく効率的であった。もっとも費用が多かったのは、アドバイスと自助努力資料（テープ、ビデオ、パンフレットなど）、ニコチン代替療法、専門家禁煙サービスを併用するものであった。また、地域介入で、禁煙コンテストを実施する場合は、参加と資源が多い場合が4万円/生存年と少なかった。禁煙デーを設けることでも、その費用は7万円/生存年と少ない値を示した。また、広域な地域介入を行う場合は、効果を高く設定した場合は、費用が1万円/生存年と極めて少なかった。これらの禁煙支援の費用—効果は、米国の場合と同様に極めて効率的であることが示された。

こうしたガイドラインに基づく禁煙支援以外にも、地域、医療機関、職場でさまざまな取り組みが個別に実施されてきており、それに基づく経済的評価が実施されている。こうした報告を要約して、Warner<sup>10)</sup>が包括的な総説を著わしている。その総説から、禁煙の経済的評価（費用—効果分析）の結果を要約して表3・3・2-7に示した。指標としては、生存年を1年延長させるのにかかる費用（円/生存年延長）を用いている。

成人患者に対するニコチンガムと医師のカウンセリングでは、男性で100万円前後/生存年、

表 3・3・2-7 禁煙の費用—効果分析 (生存年延長を指標)<sup>10)</sup>

対象	禁煙介入の方法	効果評価の根拠	費用/効果 (円/生存年延長)
成人患者	ニコチンガムと医師カウンセリング	文献	男：85～130万円 女：140～200万円
成人患者	ニコチンパッチと医師カウンセリング	文献, 判断分析	男：44～110万円* 女：50～80万円
スウェーデン成人	禁煙コンテストと地域組織的活動	準実験	14～16万円
成人患者	医師カウンセリング	文献	男：15～21万円 女：25～43万円
心筋梗塞患者	看護婦カウンセリング	効果データからモデル	3万円
現場労働者	職場禁煙プログラム	文献, シミュレーション	9万円

(費用は1995年, 1ドル=100円として換算)

\*費用/QALY

表 3・3・2-8 たばこ対策の費用—効果 (費用/DALY削減) (World Bank, 1999より要約)<sup>11)</sup>

地域	価格の10%の値上げ	有効率5%の価格以外の対策	NRTの25%負担
低・中所得国	0.4～1.7万円	0.7～2.7万円	2.8～3.0万円
高所得国	1.6～6.5	13.5～53.8	7.5～11.6

(費用は1995年, 1ドル100円として換算)

NRT：ニコチン代替療法

割引：3%, 評価期間：30年, DALY：障害調整生存年 (健康な生存年の損失)

女性で約150万円～200万円/生存年である。また、ニコチンパッチと医師カウンセリングでは、それよりもやや低く、男性で50万円～100万円/生存年である。女性の場合はこれよりも少なめな値を示している。スウェーデンでの禁煙コンテストと地域的な組織活動では、男女を分けていないが、15万円前後/生存年と極めて効率性が高い。

内科患者の場合、医師のカウンセリングのみの場合、15万円～20万円/生存年、さらに急性心筋梗塞の患者では3万円/生存年と極めて効率的であった。また、職場の禁煙プログラムでも、9万円/生存年と効率性は高い。

また、世界銀行は、たばこ対策と経済の問題について、より広い視点から費用—効果の分析を行っている<sup>1)</sup>。これによれば最も効率的な対策は、たばこの価格(税率)の値上げであり、価格以外の総合的対策(広告の禁止、情報の提供、喫煙場所の制限など)は、それよりやや劣るものの、極めて効率的であることが推定される。一方、前にも取り上げた個人的なニコチン代替療法(利用を促進するための公的な費用一部負担)では、価格対策と肩を並べるほど効率的であった(表3・3・2-8)。

現在、保健医療の政策判断の支援情報として、こうした保健サービスの経済的評価の結果を、効率の高い順位に整理した一覧表(リーグ表)としてまとめている<sup>11)12)</sup>。その代表例(英国)<sup>17)</sup>

表 3・3・2-9 保健医療の経済的効率の一覧表 (Mason  
ら, 1993 から)<sup>17)</sup>

保健医療	費用/QALY
コレステロールの検査と食事療法	7万円
頭部外傷の神経外科的介入	7
一般医の禁煙アドバイス	8
くも膜下出血の神経外科的介入	15
脳卒中予防の高血圧治療	29
ペースメーカー移植	34
大動脈狭窄症の弁置換	35
股関節置換	37
コレステロールの検査と治療	46
冠動脈バイパス移植 (左主枝, 重症)	65
腎臓移植	146
乳がん検診	179
心臓移植	243
コレステロールの検査と治療 (増分, 25~39歳全員)	439
在宅血液透析	536
冠動脈バイパス移植 (1枝, 中等症)	585
継続的外来腹膜透析	617
病院血液透析	682
エリスロポエチン治療 (透析患者の貧血, 10%死亡率減少)	1,689
悪性頭蓋内腫瘍の神経外科的介入	3,347
エリスロポエチン治療 (透析患者の貧血, 死亡率減少なし)	3,921

(原表の1990年の値を、購買力平価、消費者物価指数により1995年の値に換算)

を表3・3・2-9に示した。一般医の禁煙アドバイスは、コレステロールの食事療法、頭部外傷の神経外科治療などと同様にQALY1年延長に要する費用は10万円未満であり、最上位に位置していた。中間に位置するのは、乳がん検診や腎臓・心臓移植であり、100万円から200万円台/QALYであった。効率が劣り、費用が1,000万円/QALYを越えるのは、エリスロポエチン治療など3種類であった。リーグ表を利用する際には、分析の時期、割引率、効用評価、費用範囲、比較代替案など、さまざまな点を注意深く検討することが必要であるが<sup>11)12)17)</sup>、生存年延長当たりの費用を指標に用いた一覧表 (米国)<sup>18)</sup>でも、禁煙支援は極めて効率的な保健サービスに位置づけられていた。

#### 4. 禁煙支援の経済的効率の比較検討

禁煙支援は、効果的・効率的な保健サービスであり、さまざまな領域で積極的に利用すべきである。ただ、注意すべき点は、先に示した禁煙支援の費用-効果の値は、「何もしない」場合と

表 3・3・2-10 禁煙支援の経済的効率の増分比較 (英国) (対面介入：社会)

介入	増分	費用/生存年延長
a. 簡潔なアドバイス	a. との比較	4万円
b. 簡潔なアドバイス+自助		8
c. 簡潔なアドバイス+自助+NRT		84
	b. との比較	

(費用は1997年, 1ポンド=200円として換算) NRT: ニコチン代替療法

比較した結果である。しかしながら、禁煙支援には多様な種類があり、どのような対策を選択し、利用すべきであろうか。例えば、前述の英国の例<sup>10)</sup>では、対面介入の中では、「簡潔なアドバイス」が費用/生存年の値が最も少なく、効率的であった。

実はより詳細な情報を検討すると、「簡潔なアドバイス」は、費用は少ないが禁煙効果(生存年延長)も少ない。ところが、それに自助資料やニコチン代替療法を追加していくと、費用は多くなるが、禁煙効果もそれだけ多くなる。ただし、費用-効果の値はしだいに多くなり、効率は低下している。

このような場合、「簡潔なアドバイス」が第一選択になるが、さらに保健サービスの程度を上げて、健康改善を進めた場合、費用-効果がどうなるかということを検討することが求められる。こうした評価を増分分析 (incremental analysis)<sup>11)~13)</sup>と呼んでいる。その場合は、「何もしない」を基準にするのではなく、サービスの追加にしたがって基準を変えて比較する。「簡潔なアドバイス」を基準として、「簡潔なアドバイス+自助」の評価を、さらにそこを基準として、「簡潔なアドバイス+自助+NRT」を評価する。

その結果を見ると(表3・3・2-10)、「簡潔なアドバイス」を基準とした「簡潔なアドバイス+自助」の費用-効果は、8万円/生存年となり、後者を基準とした「簡潔なアドバイス+自助+NRT」の費用-効果は、84万円/生存年となる。したがって、「簡潔なアドバイス+自助」までは、極めて優れた効率性が維持されるが、それよりも強化した「簡潔なアドバイス+自助+NRT」では、効率性は優れているとはいえ、かなり低下することが分かる。このように、禁煙対策でも、その内容によって効率性は大きく変化する。したがって、健康改善だけでなく、経済的効率も考慮して、どのようなサービスをどこまで利用するかを判断することが必要となる。

---

# Lessons from the English smoking treatment services

Martin Raw<sup>1</sup>, Ann McNeill<sup>2</sup> & Tim Coleman<sup>3</sup>

Department of Public Health Sciences, Guy's, King's and St Thomas' School of Medicine, University of London, London, UK and Escola Paulista de Medicina, Universidade Federal de São Paulo, Brazil, Department of Epidemiology and Public Health, University College London, London<sup>2</sup> and Division of Primary Care, School of Community Health Sciences, University Hospital, Queen's Medical Centre, Nottingham, UK<sup>3</sup>

---

Correspondence to:  
Martin Raw PhD  
E-mail: martin@rawdata.demon.co.uk

## ABSTRACT

This paper summarizes and discusses the key findings of the evaluation of the English smoking treatment services, which were established in 1999 as part of the English National Health Service. Within 4 years these services existed throughout the country and were working at full capacity, a total of £76 million having been spent on them over this period, excluding medication costs. In the fourth year almost 235 000 people attended treatment and set a quit date, and the total budget, including medications, was approximately £50 million. At the end of the fourth year the government allocated £138 million for the services for the period April 2003–March 2006. The CO-validated 4-week abstinence rate was 53%, the validated 52-week abstinence rate was 15%, and the relapse rate from 4 to 52 weeks was 75%. There was no sex difference in cessation rates at long-term follow-up. The cessation results and relapse rate from weeks 4 to 52 are consistent with results from published studies, including clinical trials. The estimated cost per life-year saved was £684 and the figure is even lower if the potential future health care cost savings are taken into account at £438 per life-year saved. This compares with the benchmark of £20 000 per life-year saved, which the National Institute for Clinical Excellence (NICE) is using to recommend new health care interventions in the National Health Service. The services were also succeeding in reaching disadvantaged smokers. However, there have been problems, and other health care systems considering an initiative of this kind should: set national training standards and increase training capacity *before* launching the services; standardize the provision of pharmaceutical treatments and make them as accessible as possible *before* launching the services; and give the services at least 5 years of central funding to allow them to become well established. Monitoring is extremely important but should not be so much of a burden that it detracts from developing a quality service and although cessation targets can be helpful, care needs to be taken that they are reasonable and do not promote throughput at the expense of quality.

**KEYWORDS** Cessation, cost effectiveness, evaluation, tobacco dependence treatment.

## INTRODUCTION

This paper summarizes and discusses the key findings of the evaluation of the English smoking treatment services. We hope the lessons learned will be useful to other countries, regions or major agencies which have or are considering creating a treatment service for smokers. After the introductory paper of this *Addiction* supplement [1]

the research findings were presented in four main parts: the challenges of service development [2,3], targeting and reaching disadvantaged groups [4,5], outcome [6,7] and cost-effectiveness [8]. Here we have followed the same order, first summarizing the key findings, then discussing them under the same headings. Finally we reflect on the lessons of this national experience for other countries. To help readers follow the chronology of the

establishment of the English treatment services we have summarized key dates in Table 1, which is adapted from Table 2 in the introductory paper [1].

In England, treatment services for addicted smokers are now provided through the National Health Service (NHS), which means that the services are paid for out of general taxation and are free at the point of use. Their creation was an ambitious project. Treatment services were announced in the government White Paper, *Smoking Kills*, in December 1998 and established from April 1999 onwards with centrally allocated government funding. After 4 years these services existed in every local health area in the country and were working at full capacity. In the fourth year almost 235 000 people attended treatment and set a quit date [1]. A total of £76 million was spent over these first 4 years [1]. This figure does not include spending on medications except for years 1 and 2 for nicotine replacement therapy (NRT), which came out of a separate, central NHS drugs budget. Medications spending is currently estimated to be about £30 million per year [10]. Thus in the fourth year of the project the total budget was approximately £50 to £55 million. At the end of the fourth year the government allocated £138 million for these smoking treatment services for the period April 2003 to March 2006 and broke this figure down at primary care trust (PCT) level, so that individual PCTs knew how much they were expected to spend on smoking treatment services. However, there is no mechanism to oblige them to spend the money on these services except encouragement to do so by the government and demanding cessation targets, and the spending is not monitored. They are 'indicative' funding levels.

When we refer to the services we mean each of approximately 100 services set up originally at health authority level, there being 95 health authorities in England at that time (in a few health authorities more than one smoking cessation service was set up). These local services comprise the English NHS treatment service for smokers (there are now about 170 services

covering 303 PCTs). Although broadly similar services have been developed in Northern Ireland, Scotland and Wales, the four countries that make up the United Kingdom have separately administered and funded health care systems. Thus the services in these other countries have followed slightly different timetables and paths. Updated Scottish treatment guidelines with some details of their services, have been published recently [11]. This study only concerns England.

## SUMMARY OF KEY FINDINGS

### Findings: the challenges of service development

The first part of the evaluation looked at the practical challenges in establishing a new national service and identified a number of basic issues [2,3].

#### *Accommodation and recruitment*

Accommodation for new services was difficult to find and this problem was exacerbated because services were set up alongside rather than within existing NHS structures. Recruitment was difficult. Service coordinators found it hard to find health professionals with cessation or group facilitation skills and said short-term contracts were a deterrent to recruiting staff, as was the narrow remit of these new jobs. Varying and sometimes unattractive salaries, and the fact that these jobs mostly did not fit into the existing NHS career structure also deterred applicants.

#### *Training*

Few training courses were available when the services were first set up, capacity was inadequate to meet demand and there were no agreed standards for training. As a result many services developed their own training,

**Table 1** The English smoking treatment services: chronology.

Date	Year	Action
December 1998		Publication of evidence based treatment guidelines (9); announcement of treatment services by the government
April 1999–March 2000	1	Smoking cessation services established only in 26 Health Action Zones (HAZs) with 3 years central funding provided by the government
April 2000–March 2002	2–3	Smoking cessation services extended to cover the whole country, with two remaining years of central funding
April 2002–March 2003	4	One extra year of central funding provided
April 2003		End of central funding for services; primary care trusts responsible for commissioning and funding services
April 2003–March 2006	5–7	Government allocates funding for this period and sets targets for quitters, but funding is 'indicative' not obligatory



which increased the time and effort needed for recruited staff to become operational and distracted coordinators from other aspects of service implementation.

#### *Service configuration*

Over two-thirds of services (71%) were operating at full capacity by the end of March 2002. By then most services (89%) were based in a variety of locations rather than at one central location (such as a hospital). Over 90% of services used general practices as a base, in order to ensure that treatment was as accessible as possible. Health service premises (for example primary care and pharmacies) were used mainly in rural areas, with more variety in urban areas (e.g. libraries, leisure centres, community halls, schools) where transport was better and distances smaller. Difficulties were experienced trying to offer treatment in secondary care, for example hospitals, including lack of demand and lack of interest from hospital staff. This was partly because smoking cessation did not fit with their traditional activities. As new smoking treatment services were not set up within existing health care services, service staff had to spend considerable time negotiating with and overcoming scepticism from some primary care physicians. Almost all services followed Department of Health advice by offering evidence-based treatment, including group and individual support. By 2002 only one service was offering treatment for which there is no evidence of effectiveness (for example, hypnosis and acupuncture). Individual 1:1 support was more common in rural areas, and over the period of these surveys, from 2001 to 2002, there was a substantial increase in 1:1 support, in response to a range of factors including consumer demand. Most services (60–70%) also offered telephone advice and self-help materials.

#### *Medications*

In the first year of the services NRT was made available through a voucher scheme. In the second year bupropion—but not NRT—became available on NHS prescription, causing an increased demand for bupropion. This caused considerable problems for the services, exacerbated by the fact that bupropion had to be prescribed by a doctor, so arrangements had to be set up in clinics that did not have medical staff (most of them). NRT became available on NHS prescription at the beginning of the third year. These continuing changes in the way medications were supplied caused considerable extra work for staff. Nevertheless, the medications were widely used. By 2002 99% of coordinators reported that their advisers recommended NRT to clients and 95% that bupropion was recommended.

#### *Funding and staffing*

The use of fixed-term funding hindered staff recruitment and retention, which in turn disrupted service development. Coordinators in all services reported in their Autumn 2002 interviews that they knew colleagues who were thinking about or applying for other jobs and some reported that staff had left because of funding uncertainty. Short-term funding also made it difficult for coordinators to make long-term strategic plans. Changes in the structure of the NHS also created problems. During the last year of central funding, when service coordinators needed to negotiate long-term funding for their services, 95 health authorities were replaced by around 300 PCTs as the bodies principally responsible for commissioning health services. This created a shifting and difficult environment. For example, coordinators did not always know with whom to negotiate funding, and additional problems were caused by the fact that the 100 services were now required to serve 300 PCTs. This meant that some services faced being broken up or having to negotiate complicated arrangements with several PCTs in order not to become fragmented. Staff felt that services needed a period of initial funding longer than the original 3 years to become well enough established to cope with such complex changes and that one of the benefits of such stability may have been to allow the collection of 1-year follow-up results, which may have overcome scepticism about the effectiveness of the services from primary care doctors. However, the practicality of busy treatment services collecting long-term outcome data is unclear (see below). Smoking cessation targets were felt to be helpful in principle, as they demonstrated the relevance of the services to PCTs and helped health care professions other than those involved directly in the services to appreciate their importance.

#### **Findings: targeting and reaching disadvantaged groups**

##### *Targeting disadvantaged smokers [4]*

The services were set up to treat any adult smoker motivated to stop but they were also asked to attract smokers from three priority groups: young, pregnant and disadvantaged smokers. Such targeting was new for the NHS. However, service coordinators were given no guidance on how to attract priority groups and progress was not monitored formally. By the end of the third year all services reported that they were targeting economically disadvantaged smokers, 99% were targeting pregnant smokers and 75% young smokers. Many service coordinators felt that pressure to meet demanding targets, which were formally monitored, conflicted with the requirement to target priority groups, even though they recognized the

importance of such groups. However, they were confident they could target economically disadvantaged smokers, mainly by locating treatment services in disadvantaged areas, especially in primary care. They were less confident about reaching pregnant smokers, who they felt to be an extremely difficult group to reach. Young people were felt to be the least important of these three groups because of an absence of any evidence for effective interventions. Between 2001 and 2002 many services reported progress in designing services to reach pregnant smokers (particularly by providing more intensive support) and for economically disadvantaged smokers, but little progress was reported with young smokers. This is probably not surprising, as the rationale for targeting young smokers was unclear. There is little evidence showing effective treatments for them and no guidance was given on how to reach them or what to offer. While it was recognized that the services should be open to any smoker wanting to stop, a particular focus on young smokers was felt to be inappropriate. It should be noted that extra funds were provided to develop services for pregnant smokers in 2001/02 and 2002/03. Finally, 30% of coordinators felt that the extremely demanding new targets for 2003–06, which almost doubled previous ones, would make reaching priority groups even more difficult.

#### *Reaching disadvantaged smokers [5]*

The treatment services in England have been very successful in reaching and treating smokers living in the most disadvantaged areas. A higher proportion of smokers using the treatment services than smokers in the population were in areas of greater deprivation, meaning that the services were reaching deprived smokers more effectively even than more affluent smokers. This is a remarkable finding which goes against previous research on health care and deprivation, which shows that health services tend to be accessed less by those living in disadvantaged areas.

#### **Findings: outcome**

##### *Short-term outcome [6]*

Overall, 53% of those setting a quit date were abstinent (validated by expired air carbon monoxide measurement) at 4 weeks. To be counted as having stopped smoking successfully at 4 weeks for the purposes of the Department of Health monitoring, a smoker needed to access a treatment service and subsequently set a quit date. He/she had to then be contactable for follow-up between 4 and 6 weeks after the quit date, and at face-to-face or telephone follow-up report having not smoked for a continuous period of at least 2 weeks starting no more than

2 weeks after the quit date. To be counted as a validated success clients had to fulfil these criteria and give an exhaled CO level of less than 10 parts per million.

Several characteristics were associated statistically with cessation: more addicted smokers were less likely to stop (lower socio-economic status was associated with higher addiction levels); older smokers, and those more motivated to stop, had higher cessation rates. The cessation rate rose sharply with age, from 41% of 16–30-year-olds to 65% of those aged 61 and over. Women used the treatment services more than men (58% versus 42%) and had significantly lower cessation rates (52% versus 56%,  $P < 0.001$ ).

##### *Long-term outcome [7]*

Almost 15% of those using the treatment services were abstinent at 1 year (CO validated). This is just over 25% of 4-week validated stoppers, a relapse rate of 75% from 4 to 52 weeks. Of those who relapsed, 39% relapsed between 1 and 3 months, 29% between 4 and 6 months, 17% 7–9 months and 15% 10–12 months. The characteristics associated with long-term abstinence are similar to the 4-week associations: more addicted smokers had lower cessation rates; more disadvantaged smokers had lower cessation rates; older smokers had higher cessation rates; those more motivated to stop had higher cessation rates. However, in the multivariate analysis there was no sex difference in cessation with rates between men and women. Those who stayed in treatment longer and used the medications longer had higher cessation rates. However, this is what would be expected because those who fail to stop smoking drop out of treatment as a result. The vast majority of clients (97%) used 1:1 treatment, with only 3% having group support. Just over three-quarters (76%) used NRT.

#### **Findings: cost-effectiveness**

The English smoking treatment services were very cost-effective, with a mean cost per life-year saved of £684. This figure is even lower if the potential future health care cost savings are taken into account, with an average figure of £438 per life-year saved [8].

These figures compare extremely favourably with the cost-effectiveness of other health care interventions and are consistent with estimates reported in the research literature. For example, the Cromwell *et al.* [12] estimates from implementing the US guidelines translate to £1457 per quality adjusted life year (QALY) averaged over all smoking cessation interventions; Parrott *et al.*'s [13] UK figures equate to £1012 per life-year saved; Orme *et al.*'s UK figure [14] to £1225 per life-year saved for group therapy; and Woolacott *et al.*'s [15] estimates for counsel-