
Lessons from the English smoking treatment services

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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-

ling and NRT or bupropion range from £655 to £2458 per life-year saved. Thus the figures from this study using real-life services are even better than estimates from studies based on research evidence.

DISCUSSION

The challenges of service development

Because of the short lead time for such a huge project, the new service coordinators struggled to manage many different and conflicting aspects of service development under severe time pressure. That they did so well and succeeded in achieving the services running at full capacity within a few years is testimony to their commitment and hard work. However, some of the problems could have been avoided with strategic planning, for which a longer lead time would have been helpful.

The clearest examples were the lack of trained staff when the services were launched and the piecemeal way the medications were made available, with bupropion coming onto NHS prescription only in the second year and NRT in the third. There were no national training standards in 1999 so training was left to 'market forces', with no attempt to regulate quality. Service development would have been easier and faster if training capacity and standards had been organized, and if bupropion and NRT had also been made available on prescription, before they were launched. Both would have reduced coordinators' work-loads and allowed them to concentrate on issues such as hiring staff, finding premises, achieving throughput targets and targeting priority groups. Training standards for England were published by the Health Development Agency in 2003 [16].

Creating these new services outside existing structures made it more difficult for existing NHS staff to move in and out of them and thus made it more difficult to attract staff with clinical and counselling qualifications. Countries and organizations considering establishing such services may be advised to locate them within existing structures so that they are better connected to other parts of the health care service although, of course, this will depend on the structure of individual systems.

The fixed-term nature of the funding caused problems including job insecurity and staff loss. This will not be easy to remedy in real life as funding is essentially a political issue. On one hand, the government provided central funding to establish these new services, without which they would certainly not have been created. On the other hand, it was always desirable in principle for the funding to become mainstream. As long as funding for stop smoking treatment remained outside normal NHS funding it would be difficult for the services to become part of

mainstream NHS provision and to be seen—and accepted—as an integral and essential part of the NHS.

However, as soon as funding goes mainstream there is a risk of it not being used for its intended purpose and of funds being diverted to more glamorous and immediately needed acute services. Funding for these smoking services went mainstream in April 2003, and although the government indicated the level of funding it thought should go into the services, PCTs are not forced to spend the money on smoking treatment services. The government's main mechanism for ensuring that it is, is to set demanding cessation targets. It is too early to say if this approach will work. There is always the risk that demanding targets will produce target meeting behaviour rather than high quality services, something that appears to have become a problem in other parts of the NHS.

It is not yet clear how best to resolve these tensions. Initial protected funding should be for long enough to enable the services to become embedded into the national health care system and to demonstrate their effectiveness. On the basis of the English experience we recommend that initial funding should be for at least 5 years.

Targeting and reaching disadvantaged groups

Service coordinators were under pressure to develop new services and meet cessation targets very quickly while at the same time being asked to target priority groups likely to use resources more intensively. They appear to have coped quite well with these twin goals, at least in the sense that by the end of the third year they were achieving their cessation targets and reported making efforts to reach disadvantaged smokers.

It will be remembered that formal targets were not set for these priority groups and that coordinators first prioritized targets that were monitored formally. If it is important to attract priority groups then targets must be set and monitored, adequate resources provided and guidance given on how to reach these groups. This was not carried out in England except for pregnant smokers, for whom extra money was provided in years 3 and 4. It seems clear that this money enabled the services to prioritize pregnant smokers. Care needs to be taken in setting targets and a rational basis for them should exist and be explained. As has been mentioned, the cessation targets were increased very significantly from 2003 onwards and this worried some coordinators.

The fact that smoking cessation services were effectively reaching disadvantaged smokers is noteworthy. Evidence from other studies has demonstrated that providing access to services in these areas can be extremely difficult [17]. Given the challenges inherent in providing access in disadvantaged areas, it is worth asking why

NHS smoking cessation services appear to be doing better than might be expected. A range of approaches is being employed to target disadvantaged smokers, including basing smoking cessation advisers in primary care venues in deprived areas, advertising the service in these areas, using a range of community venues such as libraries and community centres and training local people from poorer neighbourhoods to be smoking cessation advisers. Perhaps more importantly, however, services were asked by the Department of Health from the very beginning to reach disadvantaged smokers, and service coordinators accepted from the beginning that this was an important goal. The impact of this success in reaching disadvantaged smokers may be mitigated, however, by their lower success rate. For the services to have an impact in reducing inequalities they will probably need to improve cessation rates in disadvantaged smokers.

Outcome

The validated 1-year abstinence rate of 15% is consistent with results from clinical trials [9,18–21] and the week 4 to week 52 relapse rate of 75% is also consistent with published studies [22]. Thus there is a strong case for relying on research data to extrapolate from short- to long-term outcome and not asking the treatment services to collect long-term follow-up data, which can be expensive and time-consuming and distract the services from treating smokers. Our recommendation is that centrally funded research should periodically investigate long-term outcome in selected services. This will be especially important in seeing if these treatment services can achieve good cessation rates with disadvantaged smokers. We believe services should collect CO validated 4 week quit rates routinely, as these are a good indicator of longer-term outcomes. Were this recommendation to be accepted then CO testing at 4 weeks would have to be mandatory and self-reported smokers whose smoking status is not validated would have to be recorded as smoking. It cannot be conducted on a voluntary basis: biases would creep into the data whereby services that were more conscientious and devoted more effort to rigorous validation might consequently be, or appear to be, less successful.

Cost-effectiveness

The cost-effectiveness results confirm that treating dependent smokers is extremely cost-effective and represents excellent value for money compared with many other health care interventions. In fact it is one of the most cost-effective of *any* intervention provided by the English health care system and, on these figures, by a long way. These services are treating smokers more than

10 times more cost-effectively than the informal benchmark of £20 000 per quality adjusted life-year saved, which the English agency National Institute for Clinical Excellence (NICE) has been using to approve new health care interventions [23]. The figure from the government monitoring data of an average cost per treated smoker of around £200 also shows that helping smokers stop is a remarkably low-cost intervention [24]. Thus treatment for dependent smokers is excellent value for health care systems and, we suggest, should be introduced into all national health care systems.

LESSONS

To what extent can this English experience be reproduced in other countries or regions and organizations? It occurred within a tradition of relatively well-funded addictions research and health education, the active support of many campaigning and professional organizations over more than 30 years, governments which accepted the desirability of combating tobacco, the existence of a national health service with a well-developed infrastructure [1] and in a wealthy country.

From a historical perspective the role of the medical profession was critical in developing tobacco control policy generally and in supporting treatment [1]. The lesson to smoking cessation specialists and tobacco control advocates is: work and campaign with doctors at as high a level as possible. If they need educating first then do that first, because in many countries the medical profession is extremely influential. The national treatment guidelines published by the Health Education Authority in 1998 were not only evidence-based but were also formally endorsed by more than 20 professional organizations, including medical, nursing, dental and pharmacy bodies. This enhanced the authority and influence of the guidelines and helped put evidence-based treatment into the government White Paper.

The effectiveness and cost-effectiveness evidence was also influential and the real-life results from this evaluation back up that research evidence [13]. Treating dependent smokers is one of the most cost-effective interventions that a health service can deliver [8,13]. If health care systems offer these services they will eventually release resources (no longer needed to treat lung cancer, for example) for other uses.

In spite of the excellent cost-effectiveness research evidence, when the government were developing plans for these treatment services the finance ministry insisted on careful estimates of how much the services would cost and on good monitoring data, so that they would know how effective the services were. Thus it may be worth pointing out to governments how cheap smoking

treatment services are (for example they do not require expensive high-tech equipment).

Securing adequate funding for smoking treatment services will always be difficult because health care spending tends to be driven by treating illness, so the effectiveness and cost-effectiveness evidence will be crucial in persuading governments of their value. In England, smoking costs the health service about £1500 million each year [13]. The smoking treatment services are costing approximately £50–55 million a year including medications [1]. Funding smoking treatment services will have a knock-on effect and reduce other health care expenditure. Thus the lesson is: present the evidence and arguments until they are accepted. The English experience suggests that this can be achieved, although we believe that the English experience depended critically on key people being in the right place at the right time. Initiatives such as this will usually need champions.

Government commitment is necessary to develop a treatment system nationally. In England this took from 15 to 36 years, depending on when the clock started. It was 36 years from publication of the first Royal College of Physicians report on smoking and health [25] until the launch of these services, and 15 years from a report published by the Health Education Council, which surveyed the provision of treatment to help smokers stop and called for a comprehensive national treatment system [26]. It need not take so long in other countries. Much of the evidence and arguments are now available (for example, see *The case for commissioning smoking cessation services* [27]) and we hope this *Addiction* supplement will help.

Recommendations

- 1 *Lead time*: allow from 6 to 12 months to plan and launch the services;
- 2 *Training*: set national training standards and increase capacity *before* launching the services;
- 3 *Medications*: standardize the provision of pharmaceutical treatments and make them as widely available and accessible as possible (this includes make them affordable) *before* launching the services;
- 4 *Initial funding*: give the services *five years* to become well established;
- 5 *Monitoring*: monitoring is extremely important but it should not be so much of a burden that it detracts from developing a quality service: 4-week validated success rates should be monitored by the treatment services; however, we think that monitoring of 1-year success rates should not be conducted routinely by all by the services; it should be conducted on a subsample of service clients through a central research body;
- 6 *Targets*: targets for smokers stopping through the services can be helpful in ensuring that they are prioritized in the health care system; however, care needs to be taken that they are reasonable; if reaching key groups, such as deprived smokers, is a priority then targets should be set and monitored formally for this, and these targets should not conflict with throughput targets; targets must not be so demanding that they produce target-meeting-behaviour or cheating rather than real improvements in health outcomes; and
- 7 *Give guidance on service development*: the Department of Health gave guidance on various aspects of service development; this guidance was successful and, *inter alia*, encouraged services to keep to evidence-based treatment.

As we go to press, the services are in their sixth year and their second year without central 'dedicated' funding. Further research will be needed to establish if they can survive in their new 'unprotected' environment. The government controls that helped maintain quality standards are now weaker and it is not yet clear if the more demanding targets will produce better performance or simply target meeting behaviour. Nevertheless, we believe the lessons from this English experience will be useful to others and that evidence-based treatment for dependent smokers will become a normal part of all health care systems.

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