

Smoking cessation interventions and services

[D] Evidence reviews for digital media as an adjunct

NICE guideline NG92

Evidence reviews

March 2018

November 2021: NICE guideline NG92 (March 2018) has been updated and replaced by NG209. The recommendations labelled [2018] or [2018, amended 2021] in the updated guideline were based on these evidence reviews.

See www.nice.org.uk/guidance/NG209 for all the current recommendations and evidence reviews.

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*These evidence reviews were developed
by Public Health Internal Guideline
Development team*

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Digital media as an adjunct

Review question

Is digital media in smoking cessation interventions effective as an adjunct to very brief or brief advice, behavioural support, or pharmacotherapy?

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. The methods used for study identification are Methodology section (see Appendix A) and reviewing methods specific to this review question are described in the review protocol in Appendix B.

Declarations of interest were recorded according to NICE's 2014 conflicts of interest policy.

Public health evidence

Included studies

Three individual studies were identified that met the inclusion criteria for evaluations of interventions that incorporated a digital media component as an adjunct to other smoking cessation activities (Japuntich et al. 2006 [+], Naughton et al. 2014 [++], Pakhale et al. 2015 [+]). Characteristics of the included reviews are presented in Table 1. Detailed evidence tables are provided in Appendix D6.

Excluded studies

See Appendix E for excluded studies.

Summary of studies included in the evidence review

Table 1: Characteristics of included studies

Author, year, title	Quality	Populations	Interventions	Comparison	Outcomes
Japuntich et al. 2006	+	Usual care + Web-based smoking cessation programme - CHES SCRIP	Usual care	Home-based computer	Quit rates Verified biochemically
Naughton et al. 2014	++	Usual care + Printed and short text messages iQuit	Usual care	Primary care (general practitioner surgeries in the UK)	Quit rates verified biochemically
Pakhale et al. 2015	+	Usual care + Automated calls	Usual care	Respiratory clinic in Canada	Quit rates Self-reported outcomes (not biochemically verified)

Japuntich et al. 2006 [+], conducted an RCT to test the efficacy of a web-based smoking cessation programme as an adjuvant to standard smoking cessation care. The intervention

consisted of a web-based smoking cessation intervention as an adjuvant to standard smoking cessation care, which also included bupropion (for all participants).

Using biochemically validated measures the authors reported no evidence of benefit of the intervention (Internet plus standard care) compared with usual smoking cessation care at:

- 3 months (OR=1.13, [95%CI 0.64 to 1.98])
- 6 months (OR=1.48, [95%CI 0.66 to 2.62]).

Naughton et al. 2014 [++] conducted a pilot RCT to evaluate the effectiveness, feasibility and acceptability of a smoking cessation intervention (iQuit system) comprising tailored printed and short text message self-help delivered as an adjunct to cessation support in primary care to inform the design of a definitive trial. The study was conducted on 602 adults in 32 general practitioner surgeries in the UK. The study found no evidence of a short-term benefit to iQuit support when compared with usual care at 8-week follow-up. Self-reported smoking outcomes were verified biochemically. However, there was statistically significant evidence that the intervention group performed better than the comparison group for: prolonged abstinence at 6 months (control 8.9%, iQuit 15.1%; OR = 1.81 [95%CI = 1.09 to 3.01]); and 6-month continuous abstinence at 6 months (control 6.3%, iQuit 11.4%; OR = 1.92, [95%CI 1.07 to 3.45]).

Pakhale et al. 2015 [+], conducted a pilot RCT in the Respiriology Clinic at the Ottawa Hospital in Canada, to evaluate the effectiveness of standard care smoking cessation advice with the following adjuncts: registration to an automated calling system that made nine calls scheduled seven days before their set quit date, and three, 14, 30, 60, 90, 120, 150 and 180 days after; and, a \$110 voucher to purchase smoking cessation pharmacotherapy. Self-reported smoking outcomes were not biochemically verified. Self-reported smoking status was the primary indicator of effectiveness and was obtained at 26 to 52 weeks. Non-smoker status was 18.2% in the intervention group compared with 7.7% in the control group. The OR for self-reported non-smoker status was 2.36 [95%CI 0.39 to 14.15]). Observed differences between groups were not statistically significant (P=0.654). Whilst the intervention was associated with higher quit rates when compared with usual care, the differences were not statistically significant.

Evidence statements

There was weak evidence from one RCT (USA) that suggests a web-based smoking cessation intervention as an adjuvant to standard smoking cessation care does not improve abstinence rates. Using biochemically validated measures the authors found no evidence of benefit of the intervention (Internet plus standard care) compared with usual smoking cessation care at 3 months (OR=1.13, [95%CI 0.64 to 1.98]) or 6 months (OR =1.48 [95%CI 0.66 to 2.62]).

Applicability: The evidence is only partially applicable to the UK because the study was conducted in the USA

There was strong evidence from 1 UK RCT that suggests that the use of text-messaging plus tailored printed messages as an adjunct to smoking cessation support in primary care improves abstinence from smoking when compared with smoking cessation support alone. The study found no evidence of a short-term benefit of the intervention compared with usual care at 8-week follow-up. However, there was statistically significant evidence that the intervention group performed better than the comparison group for

- 6-month prolonged abstinence at 6 months (OR = 1.81 [95%CI = 1.09 to 3.01])
- 6-month continuous abstinence at 6 months (OR = 1.92 [95%CI = 1.07 to 3.45]).

Applicability: The evidence is applicable to the UK, given its setting in English general practice.

- ES12

There was moderate evidence from 1 RCT that providing automated calling, and vouchers to purchase smoking cessation pharmacotherapies as adjuncts to a standardised smoking cessation package in a respiratory clinic, does not improve smoking quit rates.

Applicability: The evidence is only partially applicable to the UK because the study was conducted in Canada. However, the intervention may be feasible in a similar UK-based setting. Some caution is required in interpreting the results due to lack of biochemical validation of outcomes, and outcome data collection that spanned a period of 26 to 52 weeks.

Recommendations

D1 Consider text messaging as an adjunct to behavioural support

Research recommendations

How effective and cost effective are stop smoking interventions delivered using web based packages or apps?

Why this is important

Recommended thresholds for showing that a person has stopped smoking vary depending on factors such as the measurement method, the target population, when the guidance was developed and manufacturer recommendations. Being around other smokers or in areas with heavily polluted air can influence the accuracy of the results. It is important to have valid markers of abstinence to monitor the success of interventions.

Rationale and impact

Why the committee didn't make any recommendations

Topic experts explained that, in their experience, quit rates increase when text messaging is added to behavioural support. Evidence for text messaging alone was not reviewed so the committee did not make a recommendation for this. The text messages should be tailored to the person, give information about the health effects of smoking, provide encouragement, boost self-efficacy, motivate and give reminders of how deal with difficult situations.

Impact of the recommendations on practice

Text messaging is routinely provided in stop smoking services as an opt-out adjunct to behavioural support and because it is cheap it does not need significant investment.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

The committee agreed that quit rate was the most important outcome as it was a reliable proxy for all the benefits accrued after a smoker quits. This includes the reduction in risk to tobacco-related illnesses and the morbidity and mortality associated with these. For people

with tobacco-related illness there is an increased benefit in terms of greater risk reduction, lessening of symptoms, fewer hospital admissions etc.

For people with other medical conditions, stopping smoking can reduce the risk of complications associated with those conditions, increase treatment options (for example in HIV), and reduce delays in recovery after surgery

From a population health aspect the committee noted that one of the largest risk factors for starting smoking is having a parent who smokes so any increase in quit rates in one generation will have a carry-on benefit in terms of further reducing the number of people who take up smoking in the next generation. There is an additional benefit from reduced exposure to second-hand smoke.

The quality of the evidence

The committee agreed that the evidence for digital media was sparse with few studies and only a single UK-based study identified. Only two of the studies used biochemically verified self-reported smoking outcomes. The evidence base also covered a wide range of digital media interventions, some of which would now be considered obsolete. The findings were inconsistent across the studies with some studies showing a benefit in terms of increasing quit rates and other studies being inconclusive.

The evidence for text messaging plus tailored printed messages came from a single RCT, which was conducted as a pilot study in GP settings. The committee were aware that a follow-up definitive study is ongoing and so the committee were minded to see the evidence base as immature relative to existing practice which consists of text messaging without tailored printed messages. The topic experts noted that text messaging is a routine part of usual care in stop smoking services as an opt-in option alongside behavioural support.

Benefits and harms

The committee agreed that text messaging plus tailored printed messages as adjunct to smoking cessation interventions showed benefit in term of increasing quit rates. The committee discussed the harms that might be associated with text messaging such as the potential for 'nagging' but considered that as individuals have the opportunity to opt-out of receiving the text messages then this would not be an issue.

Cost effectiveness and resource use

No review of cost effectiveness evidence was undertaken. Instead, a bespoke model was developed which explored the threshold at which interventions are cost effective and assessed the cost effectiveness of a range of interventions identified in the effectiveness reviews.

This topic area was not covered in the overall health economic modelling, as no studies were found to inform an analysis. However, scenario analyses indicated that interventions with modest effectiveness would be cost-effective and potentially cost saving to both NHS and local authorities if costs were sufficiently low. The committee noted that text messaging was cheap and would not require a significant investment,

Other factors the committee took into account

The topic experts stated that current standard practice in a stop smoking service is to offer text messaging as an adjunct to behavioural support. However, the evidence to support the routine use of text messaging was a single RCT so a recommendation was made to consider text message support as an adjunct to behavioural support in the evidence-based stop smoking interventions section.

The topic experts also noted that printed 'stop smoking' information is also readily available in stop smoking services and healthcare settings,

