DERBYSHIRE County Council

KIT Evidence Map

Smoking Cessation Innovative Practice

Population Knowledge & Intelligence Team

VERSION CONTROL

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Disclaimer

The information in this evidence map is designed to give readers an overview of the currently available research evidence on the topic in question. It is drawn from material accessible to KIT free of charge online; this means that it may not be representative of the whole body of evidence on the topic. No critical appraisal or quality assessment of articles has been performed on the evidence included in this report.

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PKIT Evidence Map

Smoking Cessation – Innovative Practice

INTRODUCTION

The original tasking for this evidence map was to identify innovative interventions that could be implemented locally around low cost smoking cessation, with a view to increasing four week quit rates within the County. E-cigarettes and web or phone based apps were specifically excluded.

As the focus was on innovation, it was acknowledged that a strong evidence base for the interventions identified may not exist, and that findings might be conflicting.

POINTS TO CONSIDER

- The articles cited within this evidence map were retrieved using non-systematic searches of limited databases and the internet. The focus was not on interventions with a strong evidence base, rather on gaining an overview of the available evidence (academic and grey literature) on innovative practices around smoking cessation, which could be considered for implementation locally. Due to the focus on innovation, the findings on some topic areas were limited and frequently conflicting.
- Whilst efforts were made to narrow the subject areas, the final selection still included a wide variety of intervention types. This report should therefore be seen as a starting point, and further investigation is advised for interventions that are viable options for implementation within the County.
- It should be noted that this is not an exhaustive review of all smoking cessation innovative practice; rather a subjective overview informed by discussion with the requesters to determine the scope of inclusions and exclusions.
- The focus on low cost interventions has, by definition, limited the interventions considered. However, it may be that smoking cessation interventions already in place locally could be built on to incorporate some of the innovative practice identified without significant cost implications. Studies selected were therefore not excluded on cost alone.
- The evidence base was searched for interventions to increase four week quit rates. However, four week quits were not the outcome reported in most studies; longer term measures of successful smoking cessation were used in most studies.

Who is this evidence map for?

This evidence map has been produced to inform commissioning intentions on a low cost smoking cessation intervention with the potential to increase 4 week quit rates within the smoking cessation service.

Information about this evidence map

The materials used to produce this map have been drawn from the information sources available to KIT free of charge. No assessment of quality has been incorporated into the process.

☑ This summary includes:

- **An Evidence Map** of articles on smoking cessation, with a focus on innovative practice.
- **Points to Consider** emerging from the body of literature.

☒ This summary does not include:

- Critically appraised evidence.
- A comprehensive summary of the articles included.
- Recommendations.

Further information about the methodology and content for this evidence map can be obtained on request by emailing:

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- A number of Cochrane Systematic Reviews are available on innovative practice; these include reviews on competitions/contests, partner support, workplace interventions, mobile phone-based interventions and exercise interventions. Findings from the mobile phone-based interventions and workplace reviews were the most positive.
- The topics most widely covered in the literature on smoking cessation were social media and workplace cessation.
- Articles covering social media were largely focussed on Facebook and 'younger adults.' Yet, as 2018 news reports suggested that Facebook was losing younger users and gaining older users[1], social media should not be excluded as an option if there is a need to engage with older users. It should be noted however, that the findings of studies focussed on younger adults and Facebook may not transfer to older age groups, or to other social media platforms.
- It should also be bore in mind that new social media platforms are constantly emerging.
- Very limited evidence was found on social prescribing or social marketing interventions, with social marketing subsequently not included within this evidence map.
- There is overlap between some of the categories defined in this evidence map; where this is the case articles have been cited in the category that is the main focus of the study.

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METHODOLOGY

After an initial scoping exercise, the following search terms were agreed upon:

- Hotspots
- Online registration/access
- Outreach
- Peer support
- Social marketing
- Social media
- Social prescribing
- Workplace smoking cessation

In addition to the above, the terms 'smoking cessation' and 'innovation' were used, and the results combined to focus the searches on the key topic of interest.

Non-systematic searches of databases available to Public Health via HDAS (PsychInfo and Medline), the Cochrane Library, Google and Google Scholar were carried out.

[1] https://www.theguardian.com/technology/2018/feb/12/is-facebook-for-old-people-over-55s-flock-in-as-the-young-leave

Although key populations of interest included those living in deprivation, those in 'routine and manual occupations' and those who were 'hardened/entrenched smokers', searches were not specifically limited to these population groups.

Search results were filtered by year (2010 onwards) and by population (adults) to increase the specificity of the results. It is acknowledged that this may have eliminated some studies of interest. However, as the final search strategy was still quite wide, the volume of articles identified was large and a pragmatic approach was required in view of the time available.

Results from the non-systematic searches performed for this evidence map are not exhaustive in their investigation of innovative practice, therefore further evidence may be required to support any decisions to implement specific interventions.

Evidence Map

Innovation - Relevant 'innovation' search results that do not fit under other headings				
Journal articles				
Citation	**Title**	**Summary**	**Notes**	**Limitations**
Do, H. P. et al. (2018)	**Which eHealth interventions are most effective for smoking cessation? A systematic review** Article link	A systematic review and meta-analysis synthesizing the evidence from 108 studies (110,372 participants) on the effects and effect modifiers of eHealth interventions that assisted people to stop smoking. **Results:** Compared to control groups, smoking cessation interventions using web-based and mHealth platforms resulted in significantly greater smoking abstinence. Tailored text messages or web-based information and conjunctive nicotine replacement therapy may also increase smoking cessation. High frequency (daily) text messaging was found to be less effective than weekly text messaging. Little or no benefit for smoking abstinence was found for computer-assisted interventions. The authors concluded that there was consistent evidence to show web-based and mHealth smoking cessation interventions can moderately increase smoking abstinence. The magnitude of effect sizes from mHealth interventions would likely be greater if the trial was conducted in the USA or Europe or when the intervention included individually tailored text messages	**Four classes of interventions were included in review:** • **web-based with unique web-page/portal;** • **computer-generated programs;** • **mobile-based such as apps or text messages; and** • **other platforms such as Facebook/Twitter /chat rooms/digital games.** **Just under two thirds of the interventions included in the study were web-based.** **The methodological quality of trials and the intervention characteristics (tailored vs untailored) were found to be critical effect modifiers amongst eHealth interventions, especially for web-based and text messaging trials.** **The authors recommend that future smoking cessation interventions should take advantage of web-based and mHealth engagement to improve outcomes around prolonged abstinence.**	Just under one third of the included studies were dated prior to 2010. There was a mix of participants in the included studies; 64% were recorded as adults, 26% as young people (15-24yrs) and 18% had chronic disease or were pregnant. Follow up was undertaken at variable time points across the included studies including, 1-6 months (32 studies), 6-12 months (48 studies) and >12 months (28 studies). Only 31% of included studies used biochemical validation to confirm smoking status – CO breath test or a urine test. Authors had difficulty pooling the data. As outcomes were calculated using different measures, it was difficult to compare overall effects across multiple studies. High heterogeneity existed across the included studies due to significant difference in study design and outcome indicators. User experience was not considered in this study.

Cobos-Campos, R. et al. (2016)	**Effectiveness of text messaging as an adjuvant to health advice in smoking cessation programs in primary care: A randomized clinical trial** Abstract link - please contact member of the KIT team for access to full article	Randomised clinical trial comparing the effectiveness of SMSalud®, a combined program that includes both text messages and health advice sent to a mobile phone, to health advice alone. **Results**: 24.4% (39 of 160) of participants in the intervention group and 11.9% (19 of 160) in the control group had stopped smoking (confirmed by CO breath test) at 6 months. Those more likely to stop had mild or no tobacco dependence (28.3% vs. 11.4%) Twelve month continuous absence percentages were 16.3% and 5.6% respectively for the intervention and control groups.	**The study concluded that:** ***'The combined program is effective for smoking cessation. Patients with less tobacco dependence have a higher probability of success.'*** **The authors noted that the effectiveness of health advice in promoting lifestyle changes does not persist over time, therefore other *'strengthening mechanisms'* need to be used, such as the SMSalud® program.** **This intervention is reported to be cost effective by the authors.**	Higher proportion of participants in the control group *'often spent time with smokers or in places where others were smoking'* than the intervention group (41.5% compared to 27.5%). Due to the nature of the intervention the study was not blind. However, the researchers were blinded to the randomisation sequence until patients were allocated to minimise the risk of bias. Follow up was 6 months – focus was not 4 week quit. Large loss to follow up (just over 50%), with the assumption that those who did not attend appointments still smoked. Authors report those with a *'lower degree of dependence'* had a higher dropout rate. The ~5 hour half-life of CO is acknowledged as a limitation of this study. As this affected both groups the authors report that this will not have affected the results.
Hendricks, P. S. et al. (2016)	**Withdrawal exposure with withdrawal regulation training for smoking cessation: a randomized controlled pilot trial** Article link	Randomised controlled pilot trial of adult smokers (80) comparing an intervention group receiving 'Withdrawal Exposure with Withdrawal Regulation Training (WT)' with a control group receiving 'Relaxation Control (RC) training'. (RC training was used to control for the therapeutic contact of WT.) WT involved four sessions covering the first four hours of abstinence in which 'individualized withdrawal regulation strategies' were developed and applied. Sessions took place before quit date, at which point WT ceased and all study participants received brief counselling,	**The authors report that smoking cessation treatments usually administer 'withdrawal regulation strategies' after a smokers quit date. In this study all sessions occurred prior to the quit date.** **The results indicated that withdrawal regulation training promotes abstinence by enhancing withdrawal regulation.** **The authors suggest that further investigation of this innovative approach is warranted.**	Small sample size. Therapist was not blinded. Regarding educational attainment, there was a lower proportion of *'associates degree or more'* in the withdrawal regulation training group. Difficulties proving null hypothesis. Authors note that they were unable to ascertain which elements of the treatment were responsible for the effects on abstinence (e.g. whether it was the withdrawal exposure, the

		nicotine replacement therapy and self-help literature. Seven-day point-prevalence was confirmed biochemically at 2 and 3 months after the end of treatment abstinence. 22.2% of WT participants were abstinent, compared to 0% and 4.2% in the RC group at both time points. Study results suggested WT led to improvement in the regulation of withdrawal symptoms, which authors in turn associated with abstinence.		withdrawal regulation training or combining them both). Authors' note that is it not known whether the findings of this study could be generalised to lighter smokers.
Houston. T. K. et al. (2015)	**Evaluating the QUIT-PRIMO clinical practice eportal to increase smoker engagement with online cessation interventions: a national hybrid type 2 implementation study** Article link	A hybrid type 2 implementation trial with two levels of randomisation to determine the efficacy of a multi-modal smoking cessation intervention. Half of the 174 participating practices were randomized to a paper referrals process to encourage patient use of the 'Web Assisted Tobacco Intervention' (WATI), and the other half to an innovative online practice ePortal with an "e-referral tool" to the WATI. To test the comparative effectiveness of WATI features, registered smokers were then randomised to receive standard or enhanced features, giving three participant groups; Control group, Messaging group and Personalised group **T**he main measures in the 'Practice eportal Implementation Trial', were smokers referred and registering. The 'Clinical Effectiveness Trial' focused on the effectiveness of WATI components on 6 month smoking cessation. **Results:** The e-referral portal implementation program resulted in nearly triple the rate of smoker registration (31 % of all smokers referred registered online) versus comparison (11 %).	**The clinical effectiveness trial within this study is likely to be of most interest, as it assesses the effectiveness of a 'Web-assisted tobacco intervention' (WATI) on 6 month cessation of registered smokers.** **However, the implementation of an e-portal with e-referral tool at clinical practices to increase registration opportunities, actual registrations and subsequently more opportunities for successful smoking cessation is also informative.** **The focus was on increasing referrals and thus registrations; the addition of WATI resulted in more successful quits at 6 months.**	Not focussed on 4 week quits. Large proportion lost to follow up - 34% could not be contacted and a further 14% declined follow up. Numbers not equal in the three WATI groups. Authors' noted that using three groups reduced their power to detect differences by sub group. Authors' report that the patients in this study were highly educated (92% high school graduate or some college/college graduate or more).

		In the clinical effectiveness trial, 6 month cessation rates were 25.2% and 26.7% respectively in the 'Personalised group' and 'Messaging group', compared to 17% in the 'Control group'. From this the authors concluded that those randomized to the two groups receiving motivational messaging were more likely to quit than those in the control group.		
Keane, L. et al. (2018)	**The development and evaluation of online cessation services: a literature review** Article link	This literature review synthesised evidence from 56 academic journal articles and 5 grey literature reports on the scope and effectiveness of online smoking cessation programs, innovations in design and service components, measures used in formative process and outcome evaluations and evidence of effectiveness. The authors suggest that their results indicate that online cessation services were significantly cheaper and more popular than quitline, although abstinence rates appeared higher amongst quitline users. Due to a *'lack of evidence, and disparity in agreement on quitline versus online effectiveness',* the authors also concluded that online programs were unlikely to be any more or less effective than other *'more intensive and expensive cessation services.'*	**Specific innovations noted within the review included:** • **chat rooms** • **new recruitment strategies** • **mobile apps** • **service tailoring** • **messaging support groups** **Specifically looking at areas of online smoking cessation innovation, the article reports that:** **'*The primary areas for innovation in cessation support are the increased tailoring of support and feedback; strategic text-messaging services; online live chat and real-time counselling; and service integration. Facebook and mobile applications are increasingly common channels for expansion of services. However, service providers should also experiment with other channels such as Snapchat and Instagram, particularly for younger smokers.'***	Does not specifically refer to 4 week quits. Synthesis of the literature rather than reporting on the effectiveness of a specific intervention.

Innovation - Relevant 'innovation' search results that do not fit under other headings			
Online systematic review, reports, presentations and news articles			
Citation	**Title**	**Summary**	**Limitations**
Smith, C., Hill, S. & Amos, A. (2018)	**Stop Smoking Inequalities: A systematic review of socioeconomic inequalities in experiences of smoking cessation interventions in the UK** Article link	A systematic review of **43 papers (40 academic articles and 3 national reports) by Cancer Research UK.** **Within the review, table 6 ('Detailed characteristics of each eligible paper') on pages 23-24 lists a number of referenced innovative interventions, with a narrative synthesis of these available on pages 34-41. Listed interventions include financial incentives, tailored advice matched to literacy levels, and mobile or outreach services.** **Key Findings:** • **Inequalities in smoking rates have not reduced in the U.K.** • **Fewer people are using stop smoking services.'** • **Lower socio-economic status (SES) smokers are more likely to use stop smoking services but are less likely to quit.** • **Scotland has had success in reducing inequalities in smoking.** • **Innovative interventions can support deprived smokers.** **Scotland uses deliberate targeting to attract low SES smokers to the stop smoking service, which then (more than) compensates for the lower quit rate.**	Limitations of some included studies: • low statistical power • lack of (adequate) comparators • limited data on the quality of interventions Only three of the included studies/ papers were qualitative and a further 3 mixed methods, which the authors say limited their ability to explore the reasons why particular approaches were more or less likely to have an equity-positive effect on smoking outcomes. Data was collected prior to 2014 for the majority of articles. Less than a quarter (10) of the eligible articles were deemed to be of 'high value' to the review. Title and abstract not including key search terms could mean relevant studies were not included within this review.
Buckley, K. et al. (2018)	**Smoking in the home: New solutions for a smokefree generation** Article link	Online report: **Action on Smoking and Health (ASH).** **This addresses smoking in the home, and work with landlords to support tenants to stop smoking. A number of recommendations are made, including those centred on supporting Smokefree housing through smoking cessation.** A further article may be of interest based on subject content: Jackson, S. et al. (2018) **'Finding smoking hot-spots: a cross sectional survey of smoking patterns by housing tenure in England'** Article link	Strategic reporting – Does not refer to specific interventions or quit rates.

Abroms, L. (2017)	**'Text delivered interventions'** Article link	Online PowerPoint presentation: **Columbia University.** **This discusses mobile phone technology, the mechanisms involved and how it can promote reach. Overview of Text2Quit and text4baby, with reference to a number of articles in this field.**	PowerPoint synthesise that may require further research if relevant to local smoking cessation service.
Cotogni, I. (2019)	**'Service helping residents to quit smoking ranked second best in country'** Article link	Online news article: **Warrington Guardian, May 2019.** **Reports on SmokeFree Warrington, which had the second highest proportion of 4 week successful quitters at 77%.** **Interventions reported to have had a positive impact upon 4 week quit rates were:** • **Automated text messages to touch base with clients outside of clinic contact time** • **Telephone consultations** • **Email** • **Stronger links with Warrington Hospital** • **Workplace events and sessions** • **Dedicated SmokeFree Warrington Facebook page**	Whilst the article highlights specific interventions, it is not known how long they have been in place, or whether some intervention/s have had more of a positive impact on quit rates than others. Have evaluations of specific interventions taken place?
Thompson, G. (2019)	'**Pembroke Dock Community School helps parents quit smoking'** Article link	Online news article: **Western Telegraph.** **Reports on a Head Teacher helping parents to quit at a school where approximately two thirds of the children live with a smoker. It commenced with Public Health Wales giving lessons to children on the benefits of stopping smoking and the dangers of smoking. The project used 'pupil power,' informing the children that if a parent or someone they knew quit, then they would have £1,000 to spend on them at Christmas.** **Sessions were held after morning drop off Hywel Dda's Help Me Quit Team (HMQ) and the local community pharmacy, as it was noted that some parents found getting to a stop smoking clinic challenging.** **The article includes comments and opinions from a parent that stopped smoking after participating in the project. It also notes that initially 9 parents signed up following a letter sent home, with 40% quitting at the end of 6 weeks.** **The school noted that the project was a good education opportunity and are hoping to hold further sessions.** A further article may be of interest based on this subject: Schuck, K. et al. (2013)**'School-based promotion of cessation support: reach of proactive mailings and acceptability of treatment in smoking parents recruited into cessation support through primary schools'** Article link	Small numbers referred to in the article.

Hancock, E. (2017)	**'This app uses virtual reality to help people quit smoking once and for all'** Article link	Online news article: **METRO.** **Discusses the app MindCotine, which is designed to allow users to surf over their cravings, whilst acquiring the skills necessary to face the challenge of relapse. A starter kit containing a headset (at a cost of $10) can be pre-ordered, and the app downloaded.** **The app features meditation and calming imagery, so that the user feels like they are smoking when they are not. The app also allows the user to interact with others who want to quit smoking.** In addition to the above a 2015 (Gajewski, M.) blog on the Cancer Research UK website, **'Visions for the future: Quitting smoking'** includes a section that discusses Virtual Reality Therapy (VRT) and smoking cessation. The article notes that there are signs that VRT could help smokers to quit, but that it is thought to be in the early stages. Article link	Whether available within the UK? Does not specifically refer to 4 week quits.
Mack, H. (2017)	**'MindCotine launches Kickstarter for VR smoking cessation tool'** Article link	Online news article: **mobihealth.** **Discussed the launch of MindCotine, which features meditation, calming imagery and a community of users to interact with. The article notes *'…MindCotine is supposed to be used as a complimentary tool to an active smoking cessation undertaking, whatever that may look like from person to person*.'**	Whether available within the UK? Does not specifically refer to 4 week quits.
NHS England (2017)	**'Dudley optical practices celebrate first year of new health check scheme'** Article link	Online news article: **NHS.** **Dudley Healthy Living Optician Scheme has seen Dudley Local Optical Committee (LOC) and Dudley Council working together to go beyond health checks to focus on a number of additional areas including smoking cessation advice and health promotion which is provided by optical practices in the area.**	Limited reporting within the article. Does not refer to quit rates or numbers accessing service.

Hotspots

Journal articles

Citation	Title	Summary	Notes	Limitations
Cheung, Y. et al. (2019)	**Delivery of a nicotine replacement therapy sample at outdoor smoking hotspots for promoting quit attempts: a pilot randomized controlled trial** Abstract link - please contact member of KIT team for full article access	Pilot randomised controlled trial on the proactive recruitment of adult smokers at outdoor smoking hotspots located in Hong Kong. Participants were randomised into one of two groups. The **nicotine replacement therapy** sample (NRTS) group (50) received 10 minutes brief advice and a week's worth of NRT patch/gum. The control group (50) received brief advice only. Primary outcome at 1 and 3 month telephone follow up was 'any self-reported quit attempts' (which were defined as not smoking for at least a 24 hour period). **Results:** At follow up non-significant increases in quit attempts were seen for the NRTS group when compared to the control; • At one month - 14% of the NRTS group and 10% of the control group. • At three months - 26% of the NRTS group and 12% of the control group. By the first month just over half of the NRTS group had used the NRT sample, and feedback on its usefulness as a smoking cessation aid was generally positive. When addressing reasons for not using the NRT sample, bad taste of the gum and not thinking it was useful were reported as 'major factors.'	**The authors concluded that approaching smokers to deliver brief smoking cessation intervention at outdoor smoking hotspots was both *'feasible'* and *'efficacious'* and was supported by this study.** **Support post recruitment was also recommended for future smoking cessation trials to increase use of both NRT and cessation services.** Other similar articles that may be of interest: • Chan, S. S. C. et al. (2018) **'Proactive and brief smoking cessation intervention for smokers at outdoor smoking hotspots in 'Hong Kong'** Article link (may need KIT assistance/ OpenAthens login to access full article) • Cheung, Y. T. D. et al. (2018) **'Feasibility, efficacy, and cost analysis of promoting smoking cessation at outdoor smoking 'hotspots': A pre-post study'** Abstract link - please contact member of KIT team for full article access • Jackson, S. et al. (2018) **'Finding smoking hot-spots: a cross sectional survey of smoking patterns by housing tenure in England'** Article link (Referenced under 'Innovation' heading with ASH (2018) report).	Self-reported outcomes (1, 3, 6 months post enrolment), with no biochemical validation. Small number of participants (50 in each group). Majority of participants were male, employed. Recruitment staff were not blinded, which could have led to biased counselling. Authors reported difficulties with recruitment and noted that people were only at hotspots for a short time, giving only limited time for recruitment and intervention. NRTS group had more participants that were interested to quit and ready to quit within 30 days. Noted within the discussion that whilst some quitting outcomes were increased with one week free NRT, the findings were not conclusive. The authors suggest that this could be due to the *'pilot nature'* of the study, and the consequent small sample size. Authors suggest that after the first recruitment contact, *'booster'* behavioural support should be added.

			Other articles by some of the authors of the main article above, focussing on Social Media (WhatsApp and Facebook) for smoking cessation may also be of interest: • Cheung, Y. T. D. et al. (2017) **'Online social support for the prevention of smoking relapse: A content analysis of the WhatsApp and Facebook Social Groups'** Abstract link - please contact member of KIT team for full article access • Cheung, Y. T. D. et al. (2015) **'Using WhatsApp and Facebook online social groups for smoking relapse prevention for recent quitters: A pilot pragmatic cluster randomized controlled trial'** Article link	

Online Registration / Access

Journal articles

Citation	Title	Summary	Notes	Limitations
Keller, P. A. et al. (2016)	**Increasing reach by offering choices: Results from an innovative model for statewide services for smoking cessation** Abstract link - please contact member of KIT team for access to full article	Observational study of a new service model implemented in 2014 by ClearWay MinnesotaSM for QUITPLAN®, the state's population-wide cessation services. The new model included a redesigned website with online enrolment and allowed service users to choose between the QUITPLAN® Helpline or one or more individual services (NRT starter kit, text messaging, email program, or quit guide). An evaluation assessed programme reach, quit attempts, quit outcomes, predictors of 30-day abstinence and average cost per quit via a seven-month follow-up survey. Registrations increased by 169% on the previous calendar year, with 83.7% making a quit attempt. Several variables were found to predict quit outcomes, e.g. receiving only one call from the Helpline and using both Helpline and the NRT starter kit.	**The authors concluded that providing greater choice of cessation services and reducing registration barriers had the potential to engage more tobacco users, foster more quit attempts and lead to long-term cessation and reductions in prevalence.** A further article that may be of interest based on ClearWay Minnesota's QUITPLAN services: • Kerr et al. (2019) **'Impact and effectiveness of a stand-alone NRT starter kit and statewide tobacco cessation program.'** Focus on reach and 30 day quit at 7 month follow-up**.** Abstract link - please contact member of the KIT team for access to full article	Large amount of missing data on participants' readiness to quit reported by authors. Not all variables reported in the research as predictive of quitting were captured at registration (e.g. motivation). Authors note that using both phone and web surveys together could have introduced some measurement error in the study. Authors note possibility of response bias.

Outreach – The focus within articles identified tended to be low socioeconomic status				
Journal articles				
Citation	**Title**	**Summary**	**Notes**	**Limitations**
Hammett, P. et al. (2018)	**A proactive smoking cessation intervention for socio economically disadvantaged smokers** Article link	Randomised controlled trial evaluating the effectiveness of a proactive cessation intervention, how stigma influenced its effectiveness, and the tailoring of interventions to smokers who were socioeconomically disadvantaged. Participants were current smokers*, randomised one of two groups: • **Proactive outreach (1,200)** including mailings, telephone outreach, counselling and access to free cessation treatments • **Usual care (1,206)** Baseline measurements were utilised to form lower and higher perceived stigma groups. The proactive intervention was found to be more effective among smokers with lower perceived smoking-related stigma than those with higher perceived smoking-related stigma.	**The study concluded that *'… Smokers with lower perceived smoking-related stigma had social environments that were conducive to smoking, received less physician advice to quit, and were less motivated to quit than higher stigma smokers. Despite these barriers, the intervention was more effective for lower stigma smokers, suggesting that proactive outreach is an efficient treatment for hard-to-reach smokers.'***	Self-reported measure to assess 6 month prolonged abstinence at the 12 month follow up point. Authors note that the findings may not extrapolate to smokers with a 'broader socioeconomic gradient' as the participants in this study were all socioeconomically disadvantaged.
Fu, S. S. et al. (2016)	**Proactive tobacco treatment offering free nicotine replacement therapy and telephone counselling for socioeconomically disadvantaged smokers: a randomised clinical trial**	Randomised clinical trial testing the effects of a 'proactive outreach tobacco treatment intervention' on population-level (socioeconomically disadvantaged smokers) abstinence and treatment use. Current smokers* (2406) were randomised to either: • **Proactive outreach** -tailored mail and phone calls -free cessation treatment (NRT and intensive telephone counselling)	**Primary outcome was 6 months prolonged abstinence at the 1 year follow up, with secondary outcomes including 30 day and 7 day point prevalence abstinence (all self-reported).** **Significant effects were also seen for the intervention at '30-day abstinence', but not '7-day point prevalence' abstinence (secondary measures). Various reasons for this are discussed in the article.**	Self-reported (not biochemically verified) 6 month abstinence, however 30 day point prevalence was a secondary measure. Authors note that there could have been a Hawthorne effect for usual care participants, as they were aware they were participating in the study.

	Article link	-usual care • **Usual care – access to** -primary care physician -state's telephone quitline -insurance coverage of FDA** approved smoking cessation medications The primary outcome assessed by follow-up survey was *'self-reported 6-month prolonged smoking abstinence at 1 year.'* **Results:** A higher prolonged abstinence rate was seen in the intervention group than usual care at 1 year. The study also found that participants in the intervention group made significantly greater use of 'evidence-based tobacco cessation treatments' than those in the usual care group.	**The authors concluded that *'population-based proactive tobacco treatment increases engagement in evidence-based treatment and is effective in long-term smoking cessation among socioeconomically disadvantaged smokers. Findings suggest that dissemination of population-based proactive treatment approaches is an effective strategy to reduce the prevalence of smoking and socioeconomic disparities in tobacco use.'***	

** 'enrolled in the Minnesota Health Care Programs, the state's publicly funded healthcare programmes for low-income populations.'*

*** Food and Drug Administration*

NB Smith et al. (2018) Cancer Research systematic review within 'Innovation' section of the evidence map notes Scotland's work with smokers from disadvantaged areas (actively targeting and attracting them to their service).

Peer Support

Online reports

One of the main limitations with this area of smoking cessation was that many of the studies returned in searches were based on studies of very specific populations (e.g. pregnant smokers, mental health and homeless populations). Also, looking for evidence of innovation in these areas as opposed to a description of what people think may work for a specific population was difficult.

The reports included below highlight the potential high cost of peer support, but do provide examples of use, albeit without a specific example of a smoking cessation intervention (references within both reports highlight the smoking cessation journal articles used).

Citation	Title	Summary	Limitations
Tran Graham, J., Rutherford, K. (2016)	**The power of peer support: What we have learned from the Centre For Social Action Innovation Fund** Article link	Online report: **Nesta.** **Provides an overview of what peer support is, a number of case studies and evidence of their impact, lessons learned in the delivery of peer support and what is next in this area.**	Does not specifically refer to smoking cessation. Grants ranged from just over £83k to just under £500k.
Nesta (2015)	**Peer support: What is it and does it work?** Article link	Online report: **Nesta.** **Summarises evidence from over 1000 studies, discusses what peer support is and if it works, focussing on the WHO, WHAT, HOW, WHERE and WHEN.**	Smoking cessation is not a specific focus of the report, however the subject is referred to, with specific smoking cessation articles referenced at the end of the report.

Social Media - focus in the literature on younger age groups/young adults				
Journal articles				
Citation	**Title**	**Summary**	**Notes**	**Limitations**
Naslund, J. A. et al. (2017)	**Systematic review of social media interventions for smoking cessation** Article link	Systematic review, addressing the following three objectives: • to determine whether social media interventions for smoking cessation are feasible, acceptable and potentially effective; • to identify approaches for recruiting subjects; • to examine the specific intervention design components and strategies employed to promote user engagement and retention. **Results:** Seven studies with 9,755 participants were identified, mainly using Facebook (4) or Twitter (2). Five of these reported smoking-related outcomes. The engagement of participants was promoted via tailored content, targeted reminders, and moderated discussions. Three studies reported that improved outcomes may be associated with active participation (e.g. commenting and/or 'liking' content).	**Initial effectiveness around increased motivation/interest in quitting, the prompting of quit attempts or sustained abstinence/prevention of relapse was noted in many of the included studies.** **The ability of social media platforms to enable peer support via network connections is reported for both those that are, successful in their quit attempts and those that are not.** **Social media being able to overcome barriers associated with cost, geography, stigma and privacy is also discussed.** **The authors concluded that the review highlighted *'…the feasibility, acceptability and preliminary effectiveness of social media interventions for smoking cessation.'*** **The authors also highlight the need for careful consideration of the risks, harms, and potential limitations associated with social media interventions delivered through these popular platforms.**	Included studies did not just focus on smoking cessation outcomes; feasibility, acceptability and usability outcomes also included. The included studies carried out in the USA (4), Canada (2) and Hong Kong (1). Only two studies biochemically verified reported smoking cessation. The lowest quality score for included studies related to the participant follow up percentage being equal to or greater than 75%. Meta-analysis was not possible due to a variety of designs, analytical techniques and outcome measures reported. Grey literature not searched. The names of popular social media platforms were not included within the search strategy.
Durmaz, S. et al. (2019)	**WhatsApp embedded in routine service delivery for smoking cessation: effects on abstinence**	Randomised controlled trial based in Turkey, evaluating the use of WhatsAPP for delivering short messages, and their effect on abstinence rates.	**Three month (not smoking in the last 10 weeks) and 6 month (not smoking in the last 24 weeks) cessation was also reported in this study.** **Quit success was lower amongst the unemployed when compared to white-**	Higher proportion of *'high school and above'* education in the intervention group. Lower proportion of unemployed and blue collar workers in the intervention group and therefore a higher percentage of white collar

	rates in a randomized controlled trial Article link	Participants (132) were randomised to the intervention group (60 WhatsApp messages lasting for 3 months) or usual care. The primary outcome was abstinence rate at 1 month post target quit day, with secondary outcomes including 3 and 6 month continuous abstinence rates. **Results:** Being in the intervention group increased abstinence rates at all time points: • Abstinence rate was increased by 3.50 times in the 1st month. '*When controlled for all other factors in the multivariate logistic regression, the intervention was the only variable significantly associated with abstinence.*' • In the 6th month the abstinence rate was increased by 2.5 times by the intervention (secondary outcome).	**collar workers (though within the discussion it is noted that those in the study who were unemployed were *'not a very representative group'*).** **Whilst there were no gender differences at month one, at months 3 and 6 men were more successful quitters than women.** **The authors concluded that embedding WhatsApp support in cessation services increased abstinence rates and had favourable effects on follow up.**	workers (56.4% compared to 35.9% in usual care). The study was also dominated by the middle-aged educated male population. As medication was not subsidised in this study, there is potential for bias, assuming those included in the study were those that could afford to participate. CO levels were only measured at month 1. Social desirability could have affected self-reported cessation. At month 1 those stating they had not had a single puff of a cigarette in the last two weeks were regarded as a successful quit attempt. Inequalities could occur if not everybody has internet access, or for those who have internet access but who are unfamiliar with WhatsApp (study group were experienced users of the app). Study coincided with Ramadan, which could have impacted on usual habits and medical therapy during the study.
Pechmann, C. et al. (2017)	**Randomised controlled trial evaluation of Tweet2Quit: a social network quit-smoking intervention** Article link	Randomised controlled trial measuring sustained abstinence achieved with a Twitter-delivered intervention at 7, 30 and 60 days post quit date. Participants (160) were adult smokers (18–59 years) who intended to quit smoking. All participants received: • 56 days of nicotine patches • emails with links to the smokefree. government cessation website • instructions to set a quit date within 7 days	**Tweet2Quit *'sends daily, automated communications to small, private, self-help groups to encourage high-quality, online, peer-to-peer discussions.'*** **Men were more likely to achieve sustained abstinence with this intervention than women, as were those that set a *'resolute abstinence goal.'*** **Authors found that Tweet volume and those that Tweeted for longer was related to sustained abstinence. Participant retention was higher amongst those that posted an image and tweeted the group at least once.**	Self-reported abstinence. High percentage of female participants. High percentage of Caucasian participants. Participant profile is not broken down by intervention and control groups, but rather by an overview of all participants regardless of which group they were allocated to.

		In addition the Tweet2Quit participants were: • enrolled in 20-person, 100-day Twitter groups • received daily discussion topics via Twitter, • daily engagement feedback via text The authors concluded that Tweet2Quit was a scalable and low cost intervention that was not only engaging, but doubled sustained abstinence from smoking up to 60 days follow-up (40.0%, 26/65) versus control (20.0%, 14/70).	**Overcomes geographical and cost barriers.** Further article that may be of interest: *Pechmann, C. et al. (2015)* '***Development of a Twitter-based intervention for smoking cessation that encourages high-quality social media interactions via automessages'*** *Article link*	
Baskerville N. B. et al. (2016)	**Effect of a digital social media campaign on young adult smoking cessation** Article link	Quasi-experimental design reporting the effect of Break-it-Off (BIO), a multicomponent web and social media based approach to smoking cessation in young adults. Baseline and 3-month follow-up data was collected from two groups of smokers, the BIO intervention group (102 at follow-up) and the Smokers' Helpline (SHL) users' comparison group (136 at follow-up). Primary outcomes were 7 and 30 day point prevalence cessation rates**.** **Results:** Significantly higher quit rates were seen in the intervention (BIO) group at 7 and 30 days when compared to the SHL group. • At 3-month follow-up, BIO participants (91%) were more likely than SHL participants (79%) to have made a quit attempt. • BIO participants (32.4%) were also more likely to have quit smoking for	**Logistic regression analysis used to adjust for level of education, ethnicity and level of cigarette use (daily or occasional) at baseline.** **The authors concluded that '*the reach of the campaign and findings on quitting success indicate that a digital/SM platform can complement the traditional SHL cessation service for young adult smokers seeking help to quit.'***	Narrow age group of participants involved in the study; 19-29yrs only. No biochemical validation. Higher proportion of females in the SHL group. Higher proportion with intent to quit in the SHL group. Lower proportion of 'white' participants in BIO group. Much higher proportion of the BIO group who were not daily smokers. Higher proportion of the BIO group had 'post-secondary or higher' educational attainment. High proportion of participants in both groups were lost to follow up. BIO participants received CaD$25 incentive, which could have led to them being more motivated to participate in the study. Authors were unable to *'obtain corresponding SHL data for the same time periods of BIO.'*

		30 days than SHL participants (14%).		As BIO is multicomponent intervention it is not known which is component is the more effective.

NB Authors of the Hotspot reports (Cheung et al.) have also published articles on social media (Facebook and WhatsApp) and smoking cessation (fully referenced in 'Hotspots' section of this map, and within references at the end of this document).

Social Prescribing			
Online report and news article			
Citation	**Title**	**Summary**	**Limitations**
Hochlaf, D., Quilter-Pinner, H. & Kibasi, T. (2019)	**Ending the Blame Game: The case for a new approach to Public Health and prevention** Article link	Online report: **IPPR.** **The report focuses on furthering prevention and interventions that 'empathise and assist' individuals with a view to reducing the preventable disease burden.**	Whilst smoking is discussed throughout the report, specific social prescribing, peer support or digital technology intervention examples are not provided.
Fiore, V. (2018)	**Hancock: We will create a National Academy for Social Prescribing** Article link	Online news article: **Healthcare leader.** **News article discusses the importance of social prescribing, making specific reference to smoking cessation and the healthy libraries initiative in Norfolk.**	Does not discuss quit rates.

NB As noted with peer support there was limited reporting on social prescribing, however a recent publication Ending the Blame Game: The case for a new approach to Public Health and prevention (link in above table) notes that social prescribing, peer support networks and digital technologies could be part of a 'more progressive response' that supports people in making better health choices.

Workplace

Journal articles

Citation	Title	Summary	Notes	Limitations
Cahill, K. & Lancaster, T. (2014)	**Workplace interventions for smoking cessation** Article link	Cochrane Systematic review of 57 studies (61 comparisons) included. Studies were grouped in to two categories, those that: • aimed to help individual smokers • that targeted the workplace environment as a whole Programmes the review found to help people to stop smoking in the workplace were those based on: • group therapy • individual counselling • medications • combined interventions Programmes the review found did not help people stop smoking in the workplace: • self-help methods • support from friends, family and workmates • relapse prevention • environmental cues • comprehensive programmes aimed at changing several high-risk behaviours.	**The review found that there was the same chance of stopping smoking in the workplace as there was in other settings.** **This review found incentives to have mixed results, however the latest Cochrane Review (Notley et al., 2019) on 'Incentives for smoking cessation' (incentives and contingency management) reports positive results for incentives improving smoking cessation rates. However, it should be noted that this wasn't a workplace specific review.** Article link	Studies were searched for five years ago in 2013. *'Earlier studies tended to be less well-conducted and reported than recent ones. Fewer than one in five studies randomized their study population by an acceptable method. Two-thirds of the studies checked the accuracy of those who said they had quit by testing their breath, blood or urine.'*
Paul, C. L. et al. (2013)	**Implementation of a personalized workplace smoking cessation programme** Article link	Observational study of a smoking cessation programme offered to employees at a large corporation in New South Wales, Australia. Participants (230 - 8% of smokers in the organisation) were offered telephone-based coaching and group sessions designed around cognitive behavioural therapy principles.	**The authors noted that a unique aspect of this study was that participants had the same telephone counsellor throughout and that the counsellor was a former smoker.** **The authors concluded that the intervention successfully assisted employees to stop smoking.**	Self-reported cessation only, with a small number of participants (108). No control group included. The authors therefore reported that studies of telephone-based support provide the most appropriate benchmark against which to assess the effect of the programme.

		Just over three quarters (176) of the participants took part in telephone based coaching and/or group sessions. Six month follow-up assessment was completed by 47% (108) of participants. Intention-to-treat analysis showed 22% of participants achieved 7 day point prevalence abstinence and 10% achieved 3 month prolonged abstinence at the 6 month follow-up. Over three quarters of those that were still smoking at follow-up reported that they had intentions to quit in the next 6 months.		Only 8% of smokers within the organisation registered for the cessation programme. However, it was still reported that this was more than double that of telephone based cessation that is outside of the workplace. Authors report a lack of robust research design, but maintain that the results of the study were not due to chance. Possibility of social desirability bias, as the authors' noted that the true number of employees that stopped smoking could be slightly lower than is actually reported.
Dupuis, L. et al. (2018)	**Quitting the smoke break: a successful partnership with the construction industry** Article link (may need KIT assistance/Open Athens login to access full article)	Journal article providing an overview of the work carried out by Ottawa Public Health (OPH) 2014-16 with 25 construction companies, which resulted in the implementation of smoking cessation programs on 41 construction sites. This work is described as innovative within the article, and the first of its kind in Canada. The intervention was a tailored initiative designed to encourage quit attempts and foster a smoke-free culture. It was designed, delivered and evaluated by OPH partnering with local construction companies, unions and workers. Alongside NRT, the workers received group and 1-to-1 counselling. **Outcomes***: • At 1 month - 40% remained smoke-free, 38% had reduced tobacco consumption. • At 6 months - 34% remained smoke-free, 45% had reduced tobacco consumption. **From a participant's survey*	**The authors note that high stress levels and the demographic make-up of this particular workforce may explain why smoking rates and quit rate fails are high.** **The development of a partnership between OPH and the construction industry was seen as critical for the success of this particular project and is the main focus of this article.** **Champions within the industry (at all levels), common ground and a focus on the positive and effective communication were also highlighted as important for success.** **Emphasis on interventions being tailored to each company, worksite champions being in place, top down communication being key and contests being held.** **A table of enablers and barriers to the project and '*factors for a winning partnership with the construction industry'* is provided.**	Self-reported smoking cessation. Focus is on an overview of the project, rather than the methodology for evaluating the intervention. The results make up only a very small part of the article and are not necessarily clear enough for interpretation. Numbers quoted indicate considerable loss to follow up, but this is not highlighted or taken into account in the calculation of quits and reduction in cigarettes smoked. Address whether this learning is transferable to the structure and workings of the local construction industry. The results given for outcomes would be significantly lower if calculated against the 565 in the quit category (with lost to follow up classed as smokers - as is the case in many smoking cessation

			Results from the evaluation include: • **41 construction sites participated in the program.** • **1500 workers participated in a Fresh Air Contest.** • **565 in the quit category.** • **83% (468) participants opted to receive NRT.** • **131 participants were referred to SHL (Smokers Helpline?).** • **40% (115 of 287 reached) were smoke free and 39% (112) had reduced the number of cigarettes smoked at their 1 month follow up.**	studies), or the 1500 participating in the Fresh Air Contest.

Workplace			
Online press release and news article			
Citation	**Title**	**Summary**	**Limitations**
PHE (2019)	**PHE calls on all NHS trusts to ban smoking on hospital grounds** Article link	Press release: **GOV.UK.** **Northumbria Healthcare NHS Foundation Trust:** **'I want to quit' button included on staff intranet to help signpost expert advice and support**	Evaluation of effect not included within the press release. Not a focus on 4 week quits.
Gregory, R. (2019)	**Ground breaking scheme to help employees quit smoking at work** Article link	News report: **Wales247.** **Sandvik Osprey (manufacturing firm in Wales) hold NHS run smoking cessation sessions at its plant in Neath Port Talbot.** **A staff survey was carried out to ascertain if staff would support the idea, following which an NHS Wales Stop Smoking Advisor held sessions every week (at the same time). The advisor spoke to the group about progress, used a CO monitor to measure carbon monoxide levels and advised on NRT.** **It is noted within the article that sessions being run at the same time every week, and those taking part keeping in touch by phone and on site, has led to success. It is hoped that a reduction in staff being off work sick (exacerbated by smoking) will be seen.**	Whilst reporting on the schemes success, only quotes from staff that have successfully quit are used within the article, and no data is provided as regards numbers or proportions that have successfully stopped smoking. No focus on four week quit.

Other Cochrane Systematic Reviews - additional to those under specific subheadings within this report			
Citation	**Title**	**Summary**	**Limitations**
Fanshawe, T. T. et al. (2019)	**Competitions for smoking cessation** Article link	This systematic review and meta-analysis includes merged studies from two previous reviews, with a search also carried out for more recently published relevant articles. The review had the main objective of ascertaining if competitions lead to higher, long-term quit rates, whilst also addressing unintended consequences and cost. The participants could be any age and gender. Eligible interventions: • Contests • Competitions • Lotteries • Raffles A total of 20 studies (14 RCTs & 6 quasi-randomised or controlled trials) met the set inclusion criteria. Authors' concluded that the evidence included was of very low quality, with the review unable to draw any strong conclusions regarding the effectiveness of smoking cessation competitions, as defined by in this review, on long-term quit rates. Further articles that may be of interest: • Glover, M. et al (2014) **'The WERO group stop smoking competition: main outcomes of a pre- and post- study'** also focusses on this area, and may be of interest. It also links into peer support, with the article noting that the support of the coordinator and team were important. Article link • Dupuis et al (2018) **'Quitting the smoke break: a successful partnership with the construction industry'** makes reference to a Fresh Air contest (summarised within Workplace section of this map). Article link (may need KIT assistance/OpenAthens login to access full article)	Not focussed on 4 week quits. Discrepancies noted between self-reported and biochemically verified smoking status.
Faseru, B. et al. (2018)	**Enhancing partner support to improve smoking cessation** Article link	This is an update of a previous review (three new studies added) to ascertain whether partner support improved smoking cessation outcomes for smokers attempting to stop smoking. This was compared to interventions that lacked a partner-support component. At total of 14 studies were included in the review, with the authors measuring quits at 6, 9 and 12 month follow up, and also looking at sub groups of different types of partners (e.g. relatives, 'cohabiting partners', friends). The authors' concluded that there did not appear to	Not focussed on 4 week quits – looking at longer term follow up. Biochemical verification was limited. Authors reported that the overall quality of the evidence was low.

		be an increase in long-term smoking abstinence from interventions that aimed to increase partner support.	
Whittaker, R. et al (2016)	**Mobile phone-based interventions for smoking cessation** Article link	A total of 12 studies (either RCTs or quasi-randomised trials) were included in this review with a focus on smoking cessation outcomes at 6 months. Some studies reported continuous abstinence, whereas others reported point-prevalence abstinence. The authors concluded that *'evidence supports a beneficial impact of mobile phone-based smoking cessation interventions on six-month cessation outcomes.'* The included studies were deemed to be of good quality.	Focus was on outcomes at 6 months – not 4 week quits. *'…most included studies were of text message interventions in high-income countries with good tobacco control policies. Therefore, caution should be taken in generalising these results outside of this type of intervention and context.'*
Ussher, M. H. et al. (2014)	**Exercise interventions for smoking cessation** Article link	A total of 20 studies were included in this review, to assess whether exercise programmes (alone, or with other smoking cessation interventions) were more effective than smoking cessation programmes only (6 month follow up or more). Of those 20 studies, only two presented evidence to suggest that long term smoking cessation was aided by exercise. Other studies were reported to have needed larger sample sizes or more intensity to attain a desirable exercise level.	Focus was on outcomes at 6 months – not 4 week quits. Level of evidence is reported to be very low. Narrative summary – no meta-analysis.

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