

## The acceptability of and real time engagement with a context-aware smartphone smoking cessation app (Q Sense)

### Collaborators

Neal Lathia  
Sarah Hopewell  
Jo Emery  
Rik Schalbroeck  
Cecilia Mascolo  
Andy McEwen  
Stephen Sutton

Felix Naughton  
Behavioural Science Group  
University of Cambridge



fmen2@medschl.cam.ac.uk  
@FelixNaughton

## Impact of early lapse on relapse

Lapse in first week of quit  
attempt (FU 6 months)



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Ashare et al, 2013, *Journal of Addiction Medicine*

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Induced lapse in first week of quit attempt (FU 14 days)



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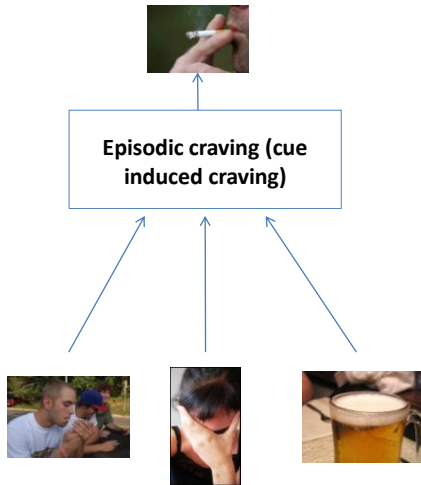
Shadel et al, 2011, *Health Psychology*

## Major cause of lapse

Episodic craving (cue induced craving)

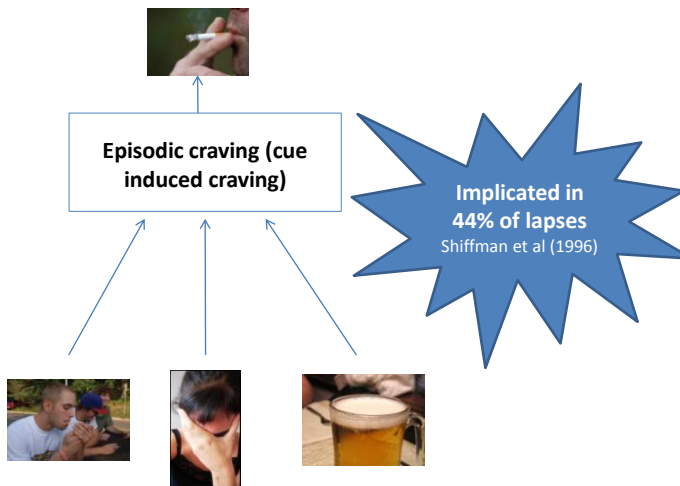
Shiffman et al, 1996 *Journal of Consulting & Clinical Psychology*; Ferguson & Shiffman, 2009, *J Subst Abuse Treat*

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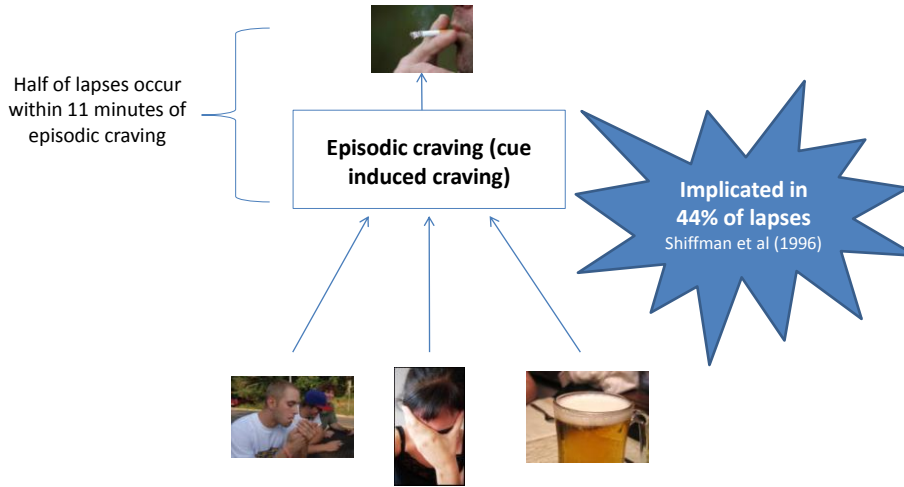
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# Q Sense

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# Q Sense



1/4. How... were you feeling just before you lit up?

Stressed?  Slightly  Intensely

Depressed or low?  Somewhat  Intensely

Submit

2/4. Cravings and Urges.

How strong was the urge to smoke just before you lit up?

Strong  Intensely Strong

Submit

3/4. Which of the following best describes the situation or place you are currently in?

Home

Working

Socialising

Other

Submit

4/4. Who are you with?

Nobody

Let alone

Friends/Family who are smoking

Friends/Family who are not smoking

Colleagues who are smoking

Colleagues who are not smoking

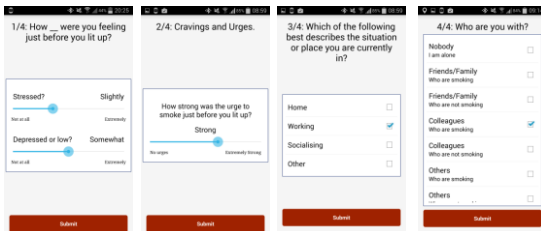
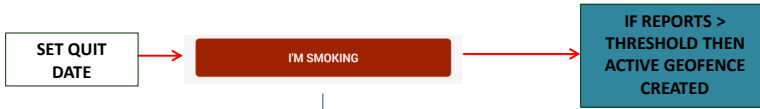
Others who are smoking

Others

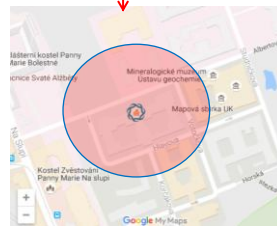
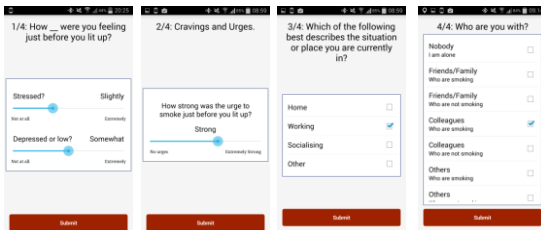
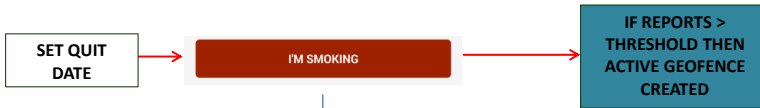
Submit



# Q Sense



# Q Sense



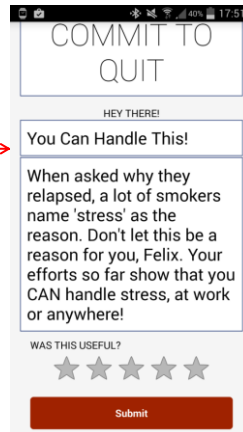
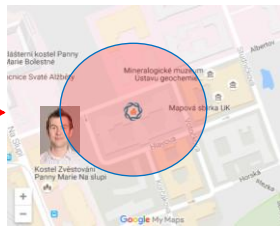
# Q Sense

AFTER QUIT  
DATE



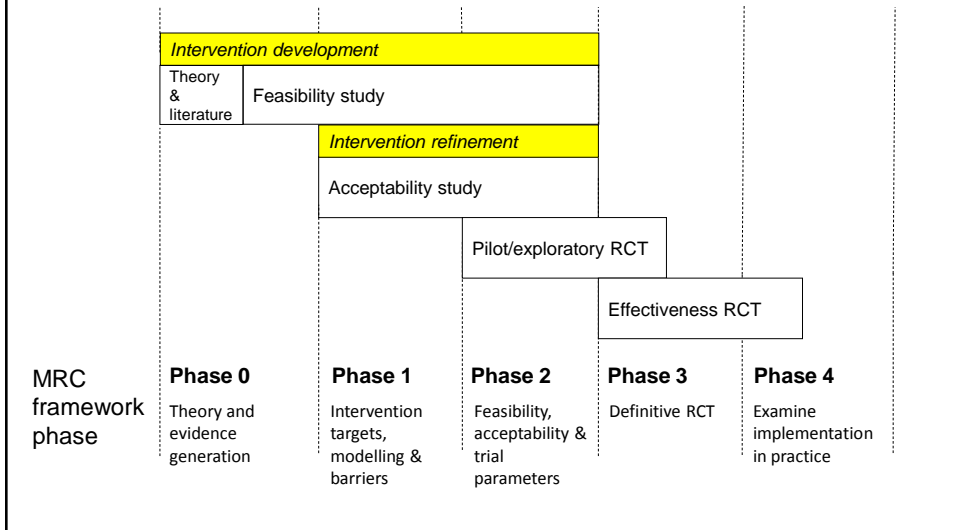
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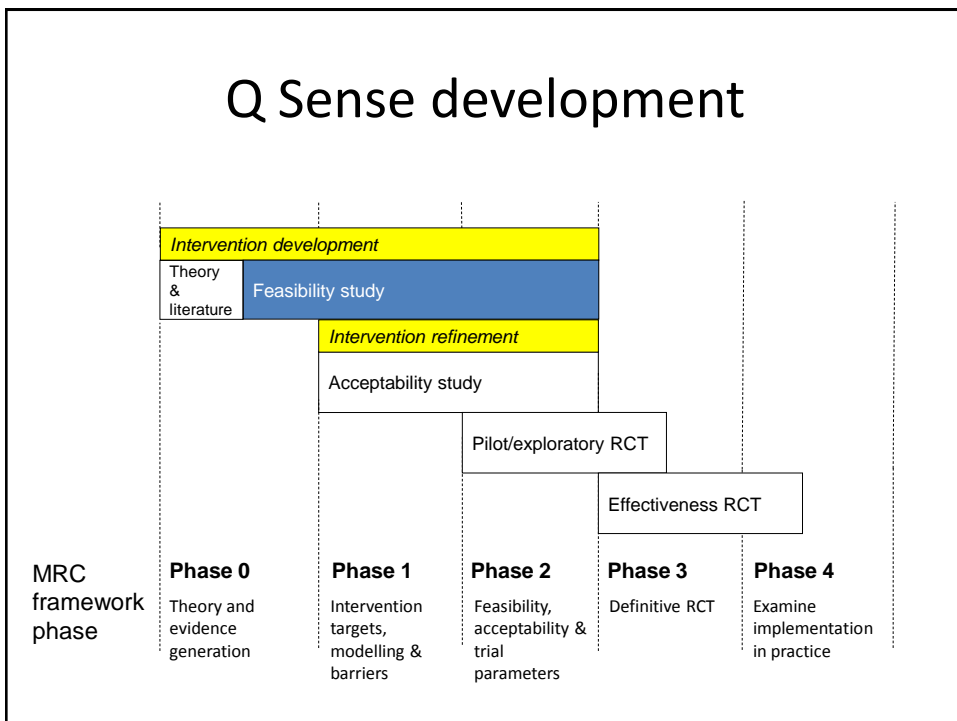




# Q Sense development



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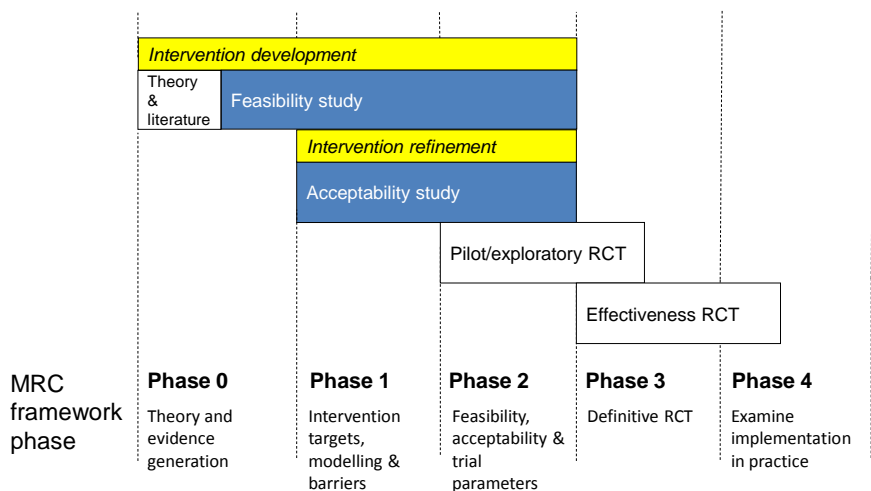


# Feasibility study

- Median time to report smoking → 13 secs
- Underreporting on around half of days
- Reporting barriers
  - Forgetting
  - Not wanting to appear rude
  - Driving
  - Relapse

Naughton et al, in press, *JMIR mHealth uHealth*

# Q Sense development



# Acceptability study

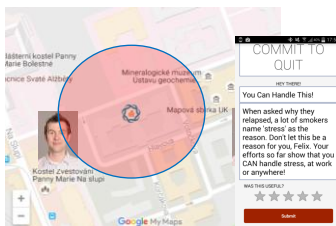
- Objectives

1. Assess **acceptability** of Q Sense among target population
2. Estimate speed of **engagement** with geofence support
3. Estimate **disengagement** from app

- Design & methods

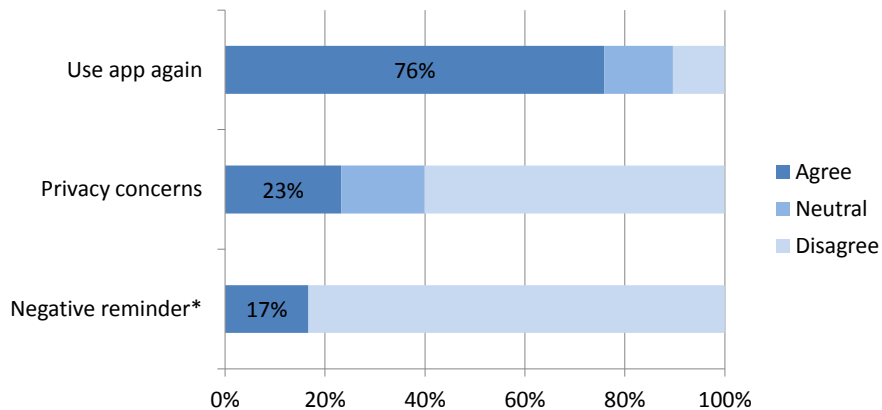
- Mixed methods design (app data, follow-up survey & 1-to-1 interviews)
- Smokers, receiving/motivated to receive cessation support (N=42)
  - 55% female
  - 50% were over 35 years old
  - 74% smoked first cigarette after waking within 30 minutes
- Used app prequit (~7 days) and postquit up to 28 days
- Follow up survey at 28 days post quit date (n=30 out of 42; 71%)
- Purposive sample invited to interview (n=9)

## % receiving geofence-triggered support



- **70%** of those eligible (16/23)

# 1. Acceptability



\* Subsample followed up who received geofence triggered support

# 1. Acceptability

*“When [the messages] actually came through it was as if the programme was written for me. Seriously that is what I did feel...because it was coming through at the times when I felt that I would have smoked and that’s when the support was there.” (ppt 1)*

# 1. Acceptability

*“When [the messages] actually came through it was as if the programme was written for me. Seriously that is what I did feel...because it was coming through at the times when I felt that I would have smoked and that’s when the support was there.” (ppt 1)*

*“Some of [the messages] were useful and some of them seemed very daft. Yes. Some were very irrelevant to me personally, I thought.” (ppt 21)*

# Self-monitoring

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*"...inputting it I'd think, "Am I really that stressed? Am I really that anxious?" (ppt 42)*

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*"And that was the most important thing to start off with, is realising where in your day the pinch points were going to be and to sort of see a pattern of how much you were smoking and when you were smoking." (ppt 24)*

## (more) self-monitoring

*“Have a button, ‘I’m not smoking’...” (ppt 7)*

*“...it almost like solidifies your decision to not smoke whereas you might, if you didn’t have a button as it currently is, five minutes later you think, “Oh I still do want one” (ppt 24)*

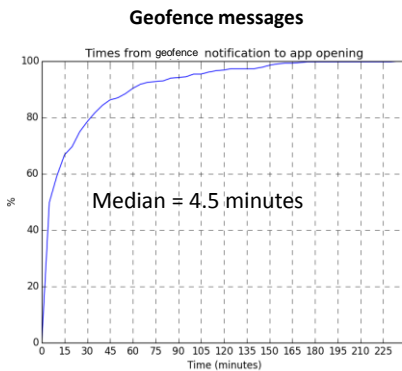
## 2. Engagement

- 2,879 interaction episodes (> 1 minute apart)
  - Mean of 70 (SD 75) per participant
- Of 3,090 notifications, 1,483 (48%) engaged with
- Of 769 GF notifications, 432 (56%) engaged with

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Median time to response after geofence message notification (n=15) = 4.5 mins

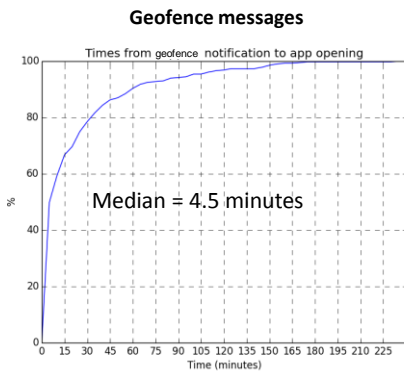


**79% viewed within 30 minutes**

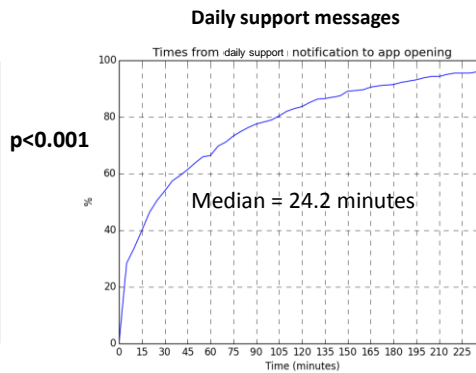


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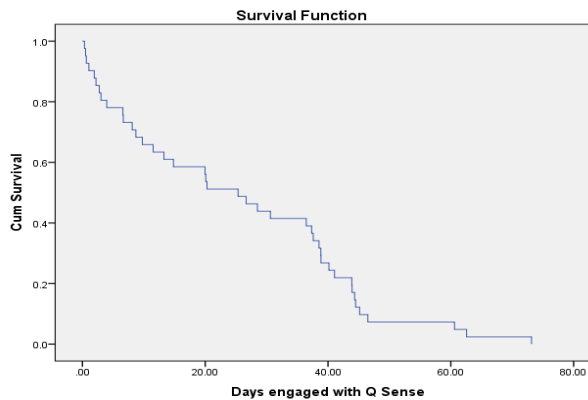
**79% viewed within 30 minutes**



**54% viewed within 30 minutes**

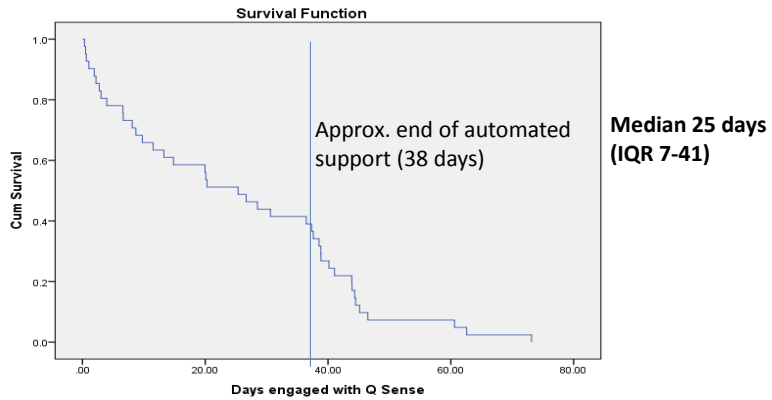
## 3. Disengagement

- Last completion of an app survey or rating a message



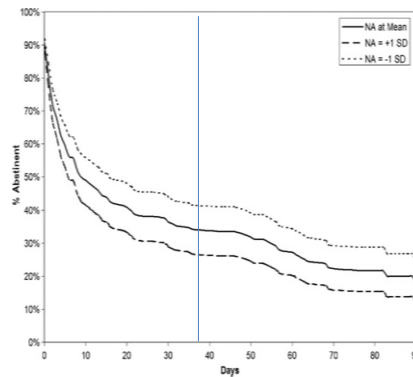
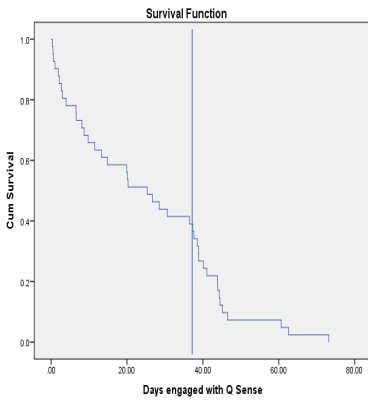
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Shiffman et al, 2007 *Drug & Alcohol Dependence*

## Summary

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$\frac{3}{4}$  would use Q Sense again

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Over half of geofence messages engaged with, most viewed within **5 mins**

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Desire for more **self-monitoring**

## Summary 2

~  $\frac{1}{2}$  of interaction episodes driven by notifications

But only 10% of smoking cessation apps include any type of proactive notifications

Hoepfner et al (2016) *Nic Tob Res*



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# Thank you

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