



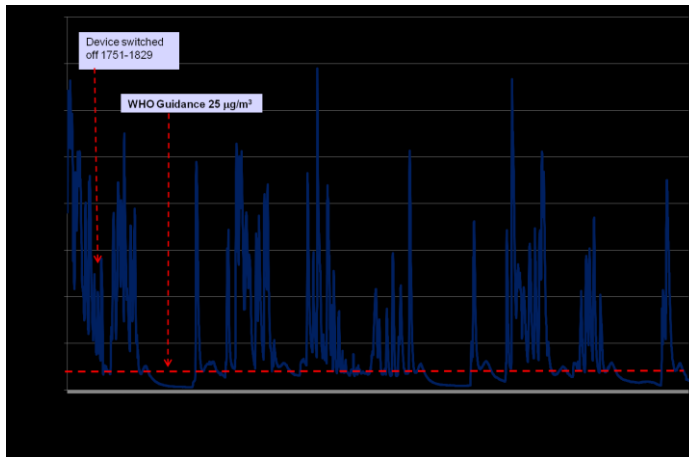
Using measurements to encourage smoke-free homes

Dr Sean Semple



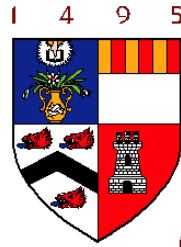
Using personalised feedback

- We use personalised feedback to change many types of behaviour (speeding, cholesterol, weight)
- Can we use measurement of household air quality to encourage parents to make their homes smoke-free?



- A short history of three research projects from the UK
 - REFRESH (2009-2011)
 - First Steps 2 Smoke-Free (2012-2015)
 - TACKSHS (2016-2019)





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Reducing Families' Exposure to Second-hand Smoke in the Home (REFRESH)

The REFRESH Project was funded by the Big Lottery Fund and managed and led by ASH Scotland in partnership with the Universities of Aberdeen and Edinburgh



REFRESH Team

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REFRESH

- Aim to reduce children's exposure by creating a smoke-free home
- Emphasis of the intervention was NOT cessation but changing smoking behaviours around children
- Lack of evidence for community or home based interventions
- Pilot/feasibility study (2009-2011)
- Aimed at mothers who smoke with children aged 1-5 years
- Mothers given personalised feedback on SHS levels in their home

Study design

Intervention tested by comparing 2 groups

24 hours 4 weeks 24 hours



Visit 1

Saliva sample
Air monitor set-up

Visit 2

Motivational
interview

Standard

No air
quality
feedback

Enhanced

Personal
air quality
levels
discussed

Visit 3

Saliva sample
Air monitor set-up

Visit 4

Air quality
feedback

Enhanced

Further
interview

Air quality measurements

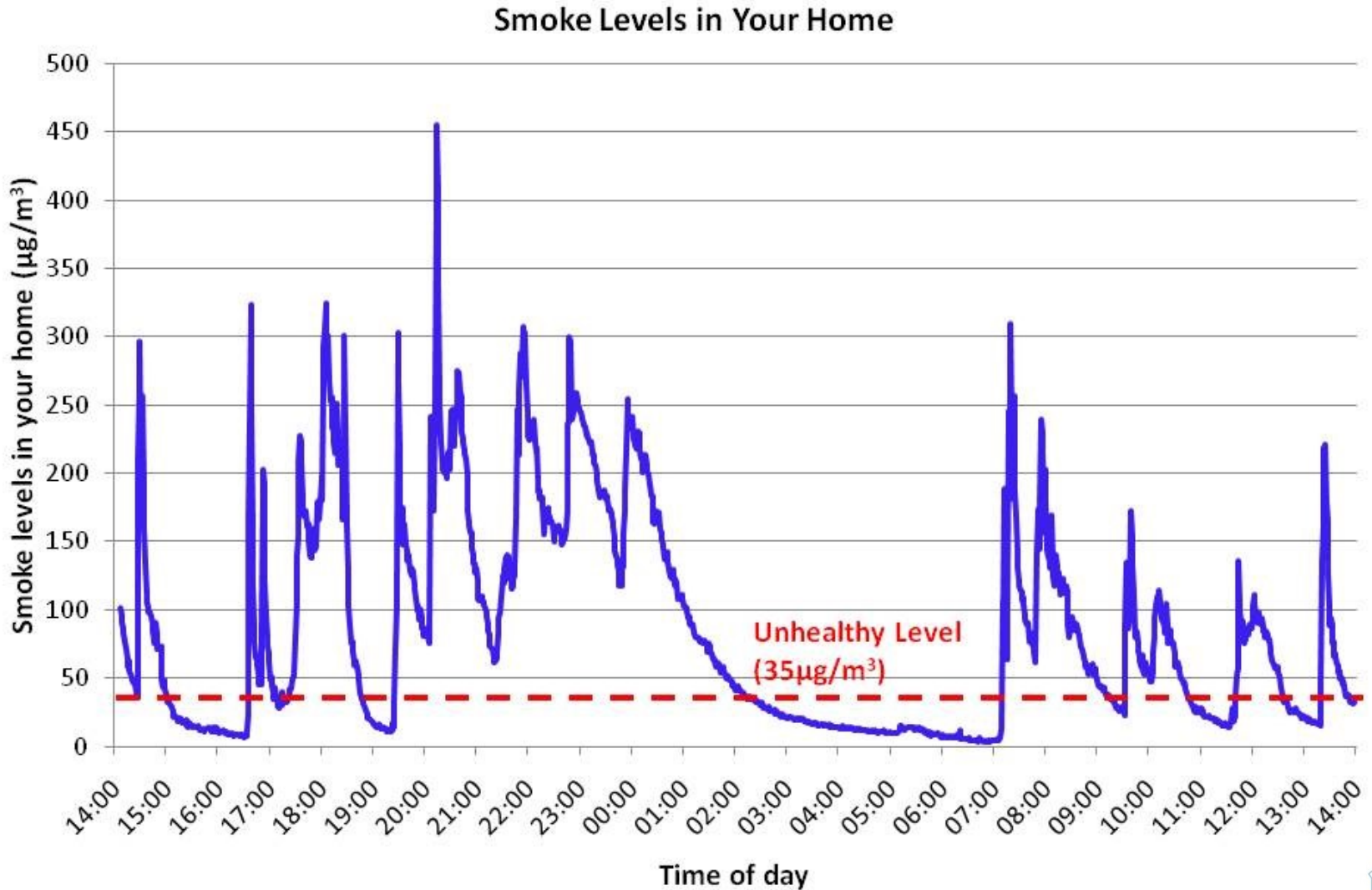
Measured using a SidePak



Measured levels of fine particulate matter (PM_{2.5})/smoke over 24 hours.

Health-based guideline of 35µg/m³ averaged over 24h (newer guidance in 2011 is 25µg/m³)

Air quality feedback



Quantitative results

Recruitment: 1693 invited → 59 agreed to take part (3.5%)

Air quality improved in both standard and enhanced homes but by more in enhanced intervention compared to standard (though difference was not statistically significant due to small numbers).

Intervention	Average PM _{2.5}		Maximum PM _{2.5}		% of time over 35 µg/m ³		Salivary <u>cotine</u>	
	Standard	Enhanced	Standard	Enhanced	Standard	Enhanced	Standard	Enhanced
Number	26	20	26	20	26	20	18	15
GM	-3.6	-30.7	-23.1	-44.8	-50.4	-82.4	-14.4	-28.6
p	0.229		0.261		0.198		0.577	

Findings from interviews with the Enhanced group

Motivators and mechanisms of change

- Reaction to PM_{2.5} was 'shock'
- Existing behaviour thought to protect child
- Important that information was personalised
- Graph acted as reminder and tool for sharing information
- Primary motivation was child's health

REFRESH—reducing families' exposure to secondhand smoke in the home: a feasibility study

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ABSTRACT

Objective To study a novel intervention (REFRESH) aimed at reducing children's exposure to secondhand smoke (SHS) in their homes.

Design A randomised feasibility study.

Setting Aberdeen City and Aberdeenshire.

Participants A total of 59 smoking mothers with at least one child younger than 6 years. Participation took place between July 2010 and March 2011.

Intervention Four home visits over a 1-month period, which involved two 24-h measurements of home air quality (PM_{2.5}) and a motivational interview to encourage changes to smoking behaviour within the home in order to reduce child SHS exposure. The enhanced group received their air quality data as part of their motivational interview at visit 2; the control group received that information at visit 4.

Main outcome measures The main outcome measures were comparisons of the data from visits 2 and 4 on the 24-h average concentration of PM_{2.5}, the

air quality as part of a complex intervention to reduce children's SHS exposure should be explored.

INTRODUCTION

Reducing children's exposure to secondhand smoke (SHS) is a significant health priority.¹ Exposure to SHS is an important cause of premature mortality and morbidity,^{2–4} and children are more vulnerable^{4–7} than adults to the health effects, such as acute respiratory infections, SIDS (sudden infant death syndrome) and slowing of lung growth.⁸ While evidence suggests that there has been an increase in the percentage of smoking parents adopting a smoke-free home from 16% in 1998 to almost half in 2008 in England and Wales,⁹ data from Scotland indicate that around 27% of children are still exposed to SHS in their homes¹⁰; this is particularly the case for children living in socioeconomically disadvantaged

<http://dx.doi.org/10.1136/tobaccocontrol-2011-050212>



Conclusions

Providing mothers who smoke with personalised data about the air quality in their home together with a motivational interview is feasible and has an effect on improving air quality measures at one month.

Knowledge about SHS exposure among these mothers was limited. Increasing mothers' awareness of the risks can be shocking, but providing personalised data with immediate support to overcome perceived barriers is empowering in helping them reduce SHS in their home.

The intervention was understandable and acceptable. Overall, the results suggested that a large scale trial using home air quality measurements as part of a complex intervention should be explored.