Collaboration for Leadership in Applied Health Research and Care South London (CLAHRC South London)

UKCTAS UK Centre for Tobacco & Alcohol Studies

National Addiction Centre

Institute of Psychiatry at The Maudsley

King's College London

Tobacco Harm Reduction: Overview of current context

Debbie Robson Senior Post Doc Researcher in Tobacco Addiction

Ann McNeill Professor of Tobacco Addiction

mental health & smoking partnership

Definition of tobacco harm reduction (THR)

- An umbrella term which includes any action to lower the health risks associated with using tobacco
- THR strategies can be targeted at the
  - **individual** (tobacco dependence treatment)
  - **population** (smoke-free polices)

- "A product is harm reducing if it lowers total tobacco related mortality and morbidity even though use of that product may involve continued exposure to tobacco related toxicants [and/or nicotine]"

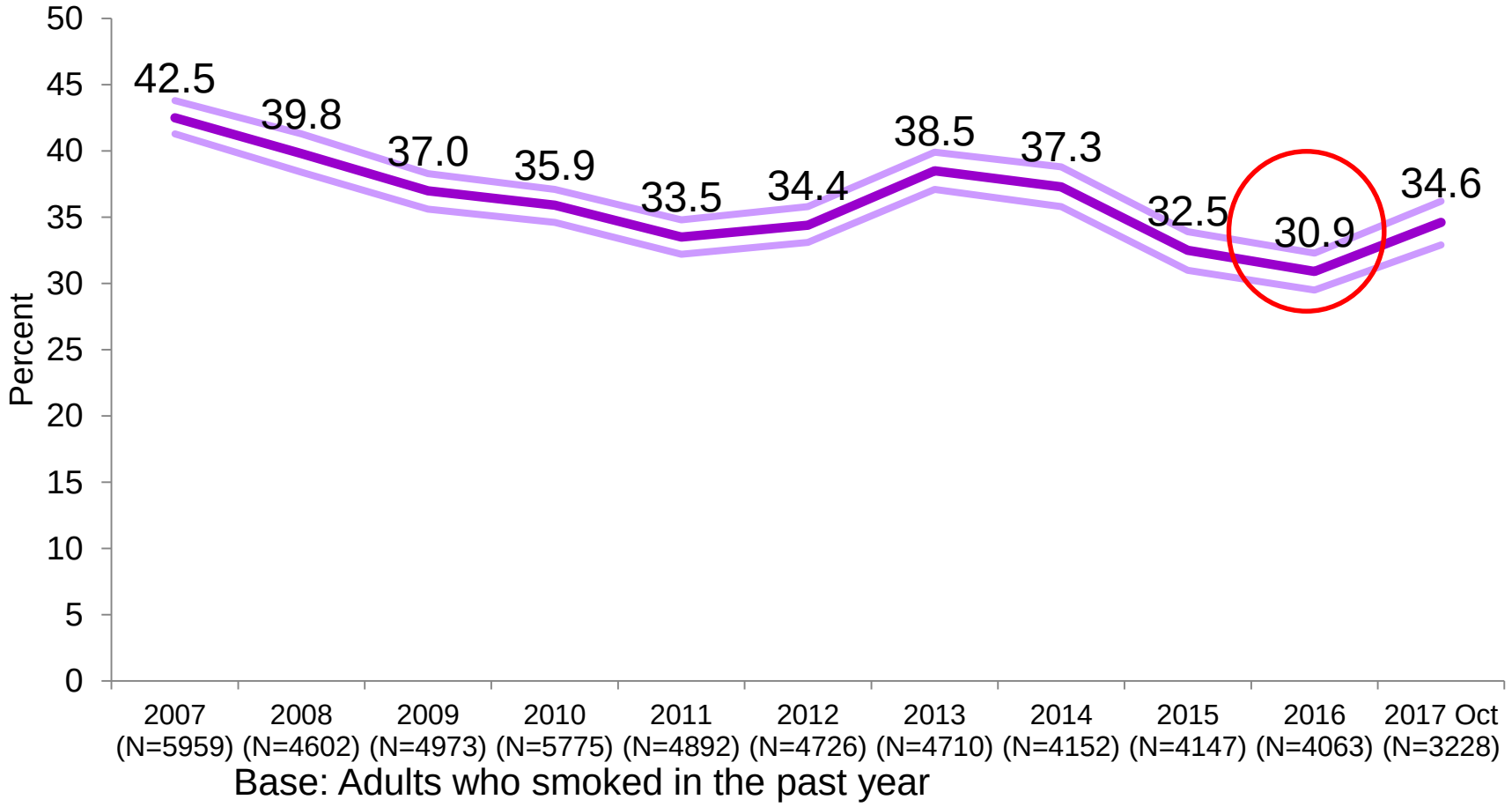
The best thing to do if you are a smoker

is to stop using tobacco completely and as soon as possible

However not every smoker wants to quit or if they do, not everyone succeeds

Tried to stop smoking in past year

(West & Brown, Smoking Toolkit Survey)

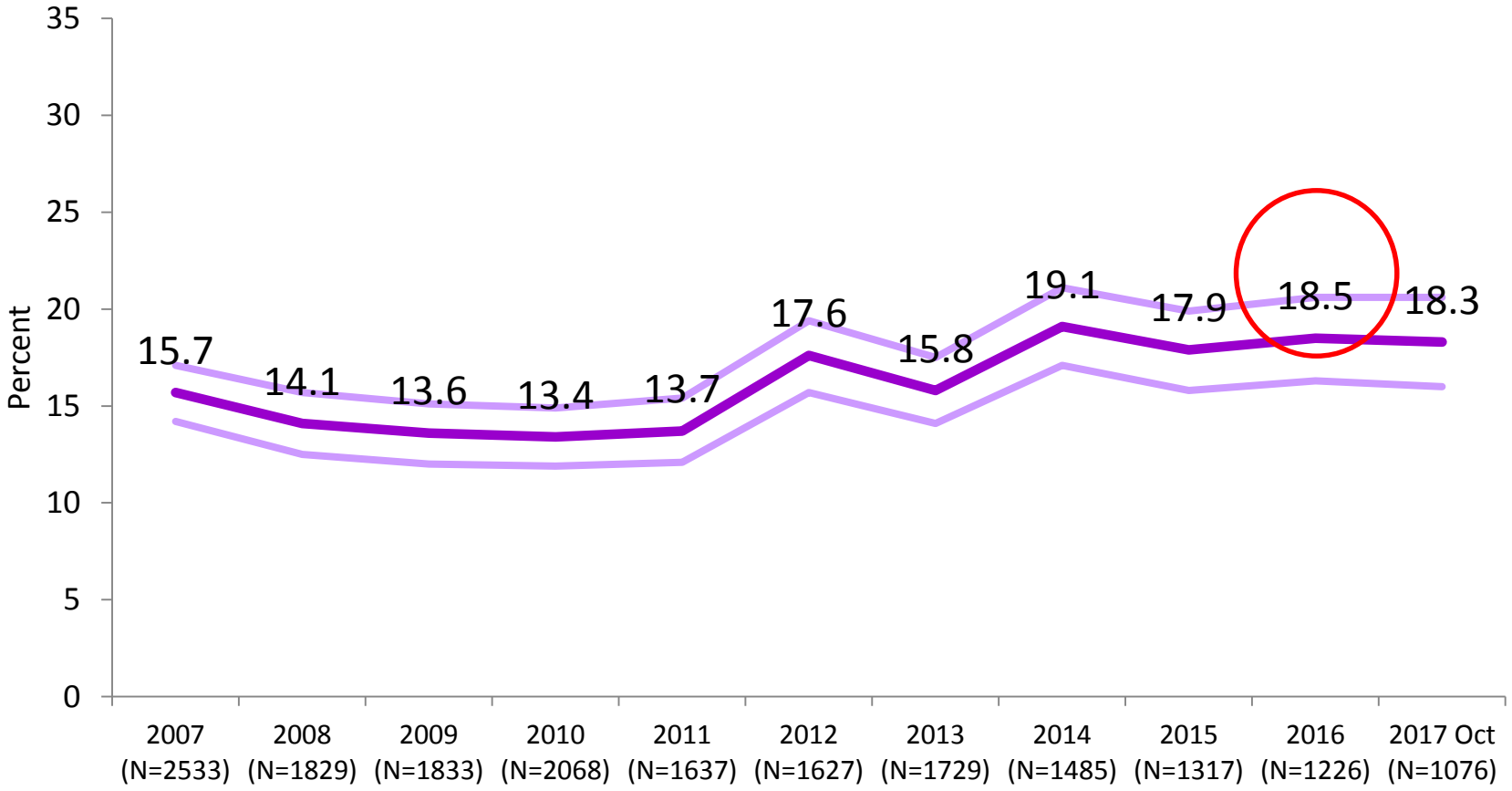


Graph shows prevalence estimate and upper and lower 95% confidence intervals

Of 100 smokers,
31 tried to stop last year (2016)

Success rate for stopping in those who tried

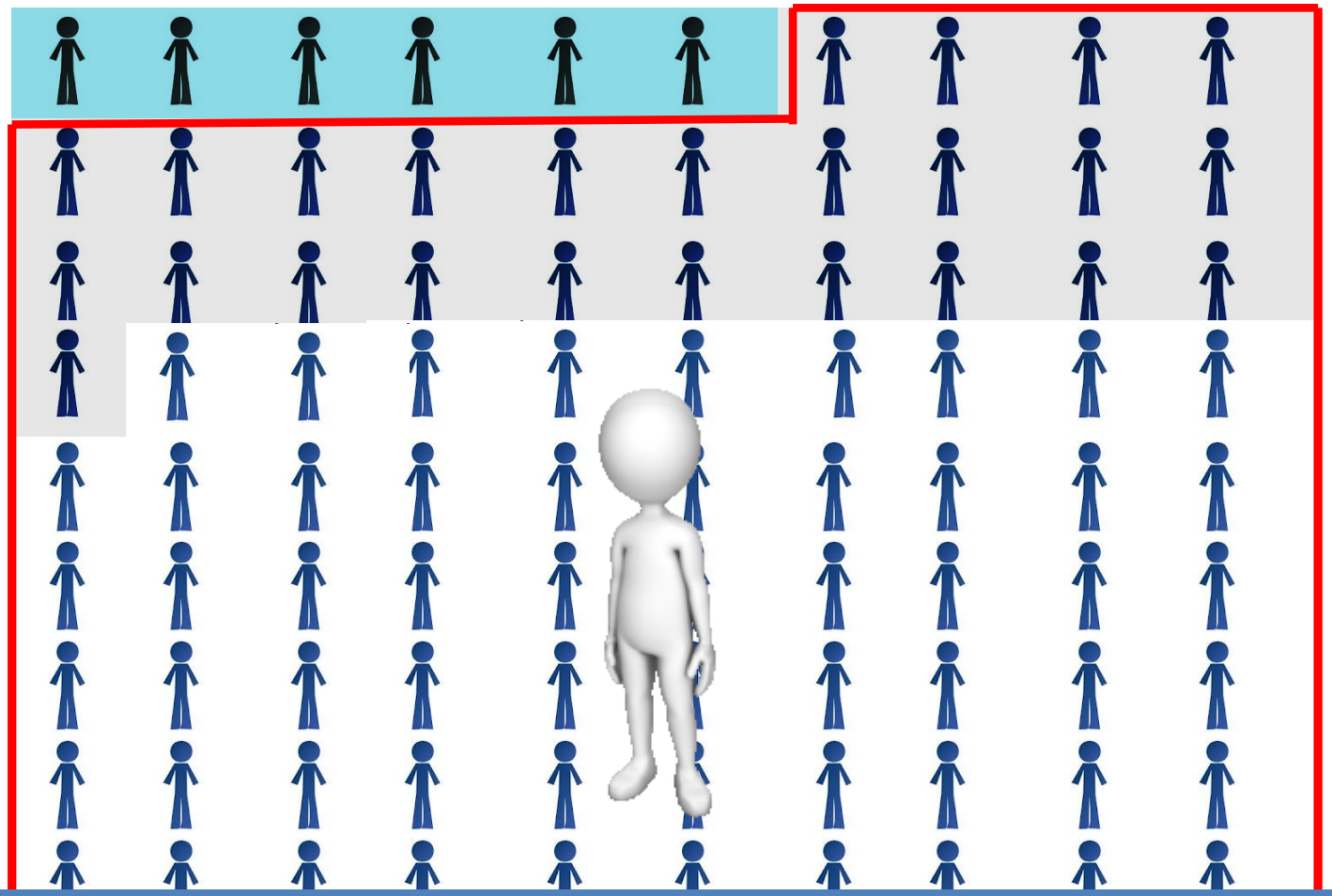
(West & Brown, Smoking Toolkit Survey)



Base: Smokers who tried to stop n the past year

Graph shows prevalence estimate and upper and lower 95% confidence intervals

Of the 31 who tried to stop last year, 6 quit



Where does this leave the remaining 94 smokers (more likely to include those with mental illness)?

NICE National Institute for Health and Care Excellence

Tobacco: harm-reduction approaches to smoking

Issued: June 2013

NICE public health guidance 45

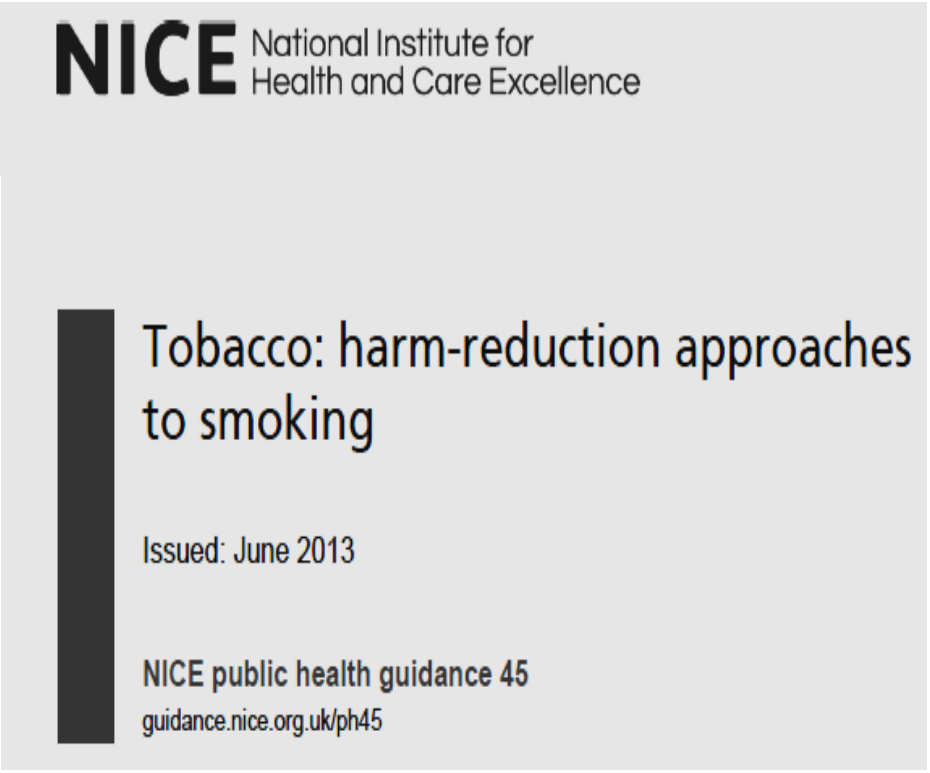
guidance.nice.org.uk/ph45

Any **investment** in harm-reduction approaches should **not detract** from the provision of Stop Smoking Services

Recommendations in this guidance are intended to **support,** extend the **reach** and **impact** of existing services.

- **HARM REDUCTION TREATMENT APPROACHES**
- **Stopping smoking** [using one or more licensed nicotine-containing products as long as needed to prevent relapse]
- **Cutting down prior to stopping smoking** (cutting down to quit)
- **Smoking reduction**
- **Temporary abstinence**

with or without using licensed nicotine products



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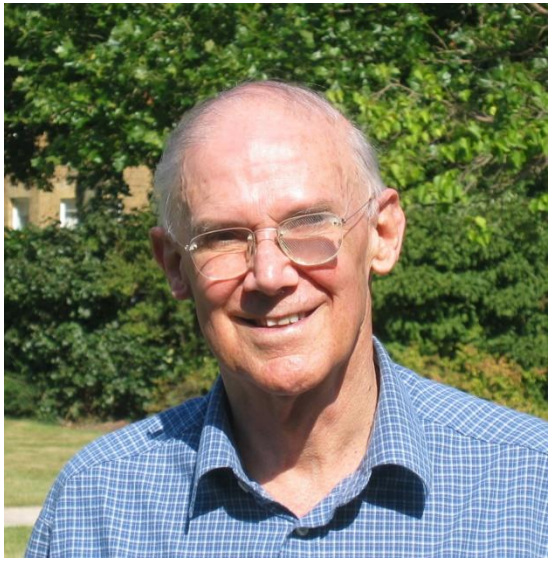
Who is it aimed at?

People who

1. may want to stop smoking, without necessarily giving up nicotine
2. may not be able (or do not want) to stop smoking in one step
3. may not be ready to stop smoking, but want to reduce the amount they smoke

British Journal of Addiction (1991) 86, 653–658

The future of nicotine replacement



MICHAEL A. H. RUSSELL

ICRF Health Behaviour Unit, Institute of Psychiatry, 101 Denmark Hill, London SE5 8AF, UK

Abstract

Following in the wake of progress forged by nicotine chewing gum, a new generation of nicotine replacement products will soon be available as aids to giving up smoking. These range from nicotine skin patches, which take 6–8 hrs to give very flat steady-state peak blood levels, to nicotine vapour inhalers which mimic the transient high-nicotine boli that follow within a few seconds of each inhaled puff of cigarette smoke. Other products undergoing clinical trials include a nasal nicotine spray and nicotine lozenges. It is argued here that it is not so much the efficacy of new nicotine delivery systems as temporary aids to cessation, but their potential as long-term alternatives to tobacco that makes the virtual elimination of tobacco a realistic future target. Their relative safety compared with tobacco is discussed. A case is advanced for selected nicotine replacement products to be made as palatable and acceptable as possible and actively promoted on the open market to enable them to compete with tobacco products. They will also need health authority endorsement, tax advantages and support from the anti-smoking movement if tobacco use is to be gradually phased out altogether.

Separate the nicotine from the tobacco smoke

"Smokers smoke for the nicotine, but die from the tar"

Professor Mike Russell, Maudsley Smokers Clinic, 1979

For smokers who are unable to quit, or don't want to quit, encourage switching to cleaner forms of nicotine, including e-cigarettes

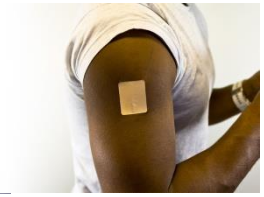
MOST HARMFUL
NICOTINE DELIVERY SYSTEM

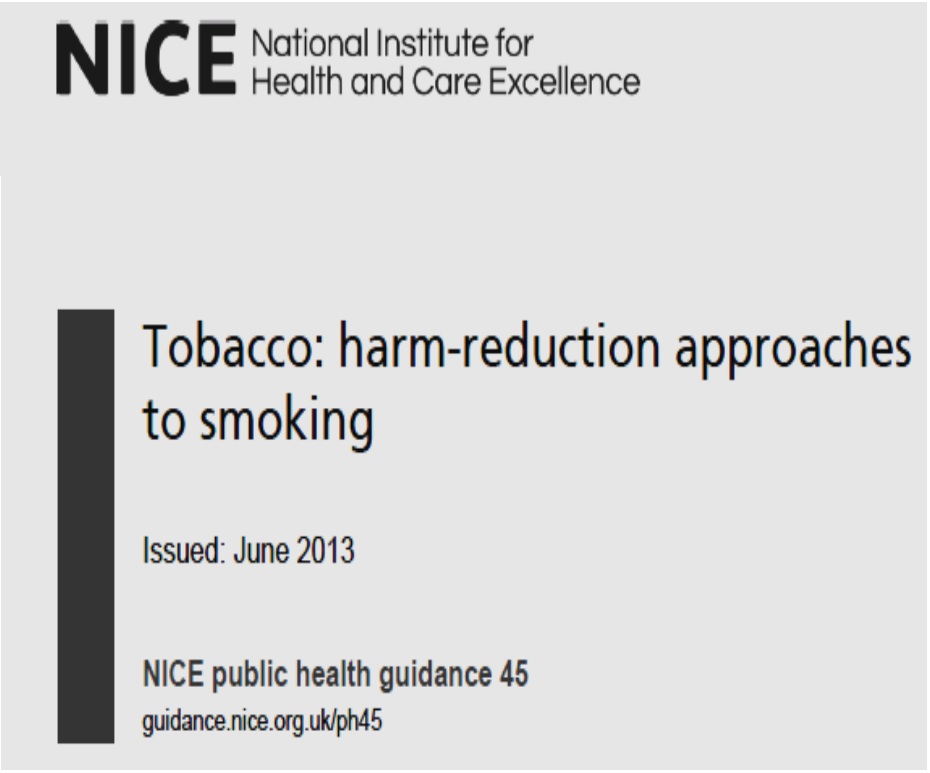
LEAST HARMFUL
NICOTINE DELIVERY SYSTEM

Combustible tobacco products

Non Combustible tobacco products

Non Combustible nicotine products





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3. may not be ready to stop smoking, but want to reduce the amount they smoke

Cochrane Library

Cochrane Database of Systematic Reviews

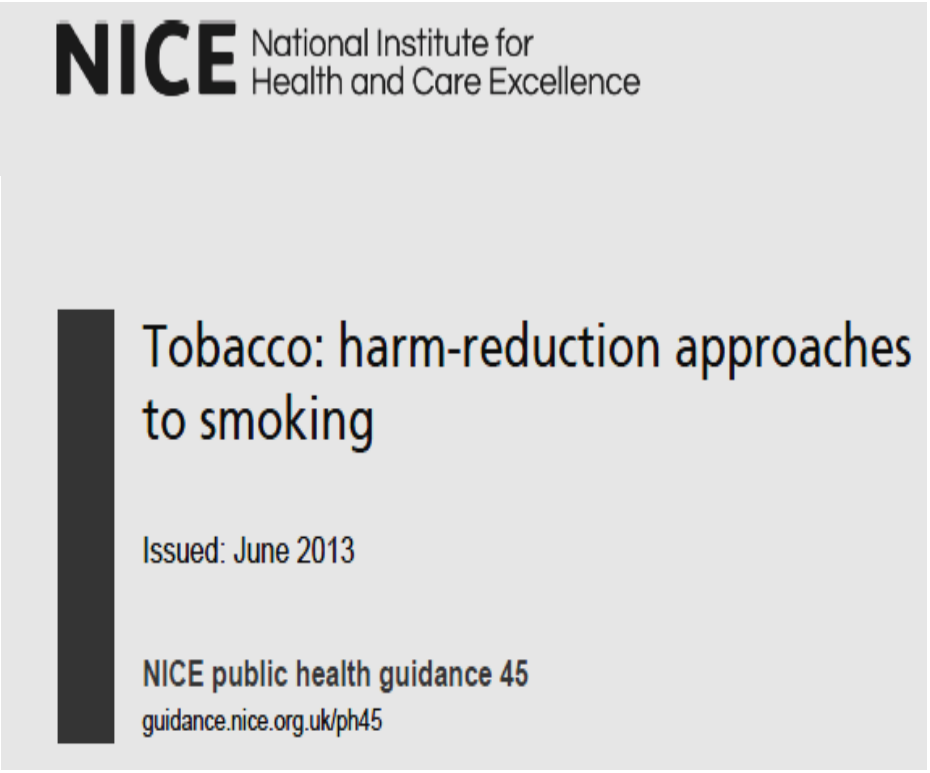
Reduction versus abrupt cessation in smokers who want to quit (Review)

Lindson-Hawley N, Aveyard P, Hughes JR (2012)

10 trials included 3760 participants

Approaches used:
NRT
Face to face or telephone behavioural support
Self help, hand held computers

Conclusion: Reducing cigarettes smoked before quit day and quitting abruptly, with no prior reduction, produced **comparable** quit rates, therefore patients can be given the **choice** to quit in either of these ways



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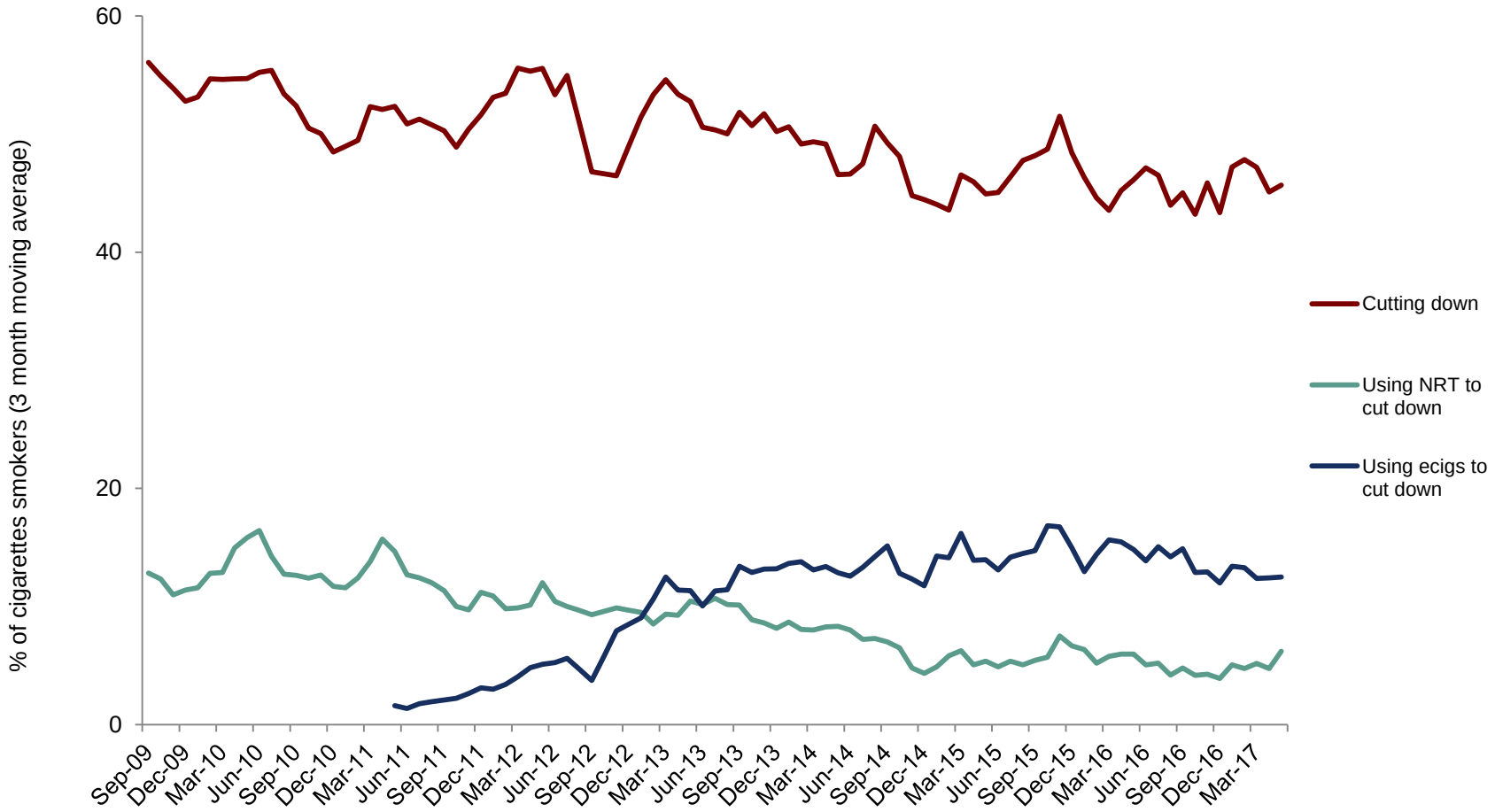
Harm reduction



NRT: Nicotine replacement therapy

Cochrane Library

Cochrane Database of Systematic Reviews

Interventions to reduce harm from continued tobacco use (Review)

Lindson-Hawley N, Hartmann-Boyce J, Fanshawe TR, Begh R, Farley A, Lancaster T (2016)

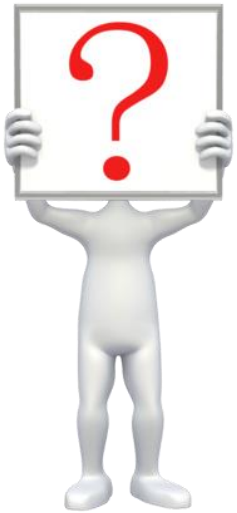
Approaches reviewed	24 trials included
Reducing the number of cigarettes smoked either with or without pharmaceutical treatment, cutting down, substitution, temporary abstinence, etc	
NRT	14 trials – varied designs
Bupropion, varenicline, e-cigs, snus	1 study each (4 studies total)
PREPs	4 studies
Behavioural support	2 studies

Conclusion: People who do not wish to quit can be helped to cut down the number of cigarettes they smoke and to quit smoking in the long term, using NRT, despite original intentions not to do so. Not enough evidence for other aids.

Prevalence of e-cigarette use compared to tobacco smoking

Concerns about e-cigarettes

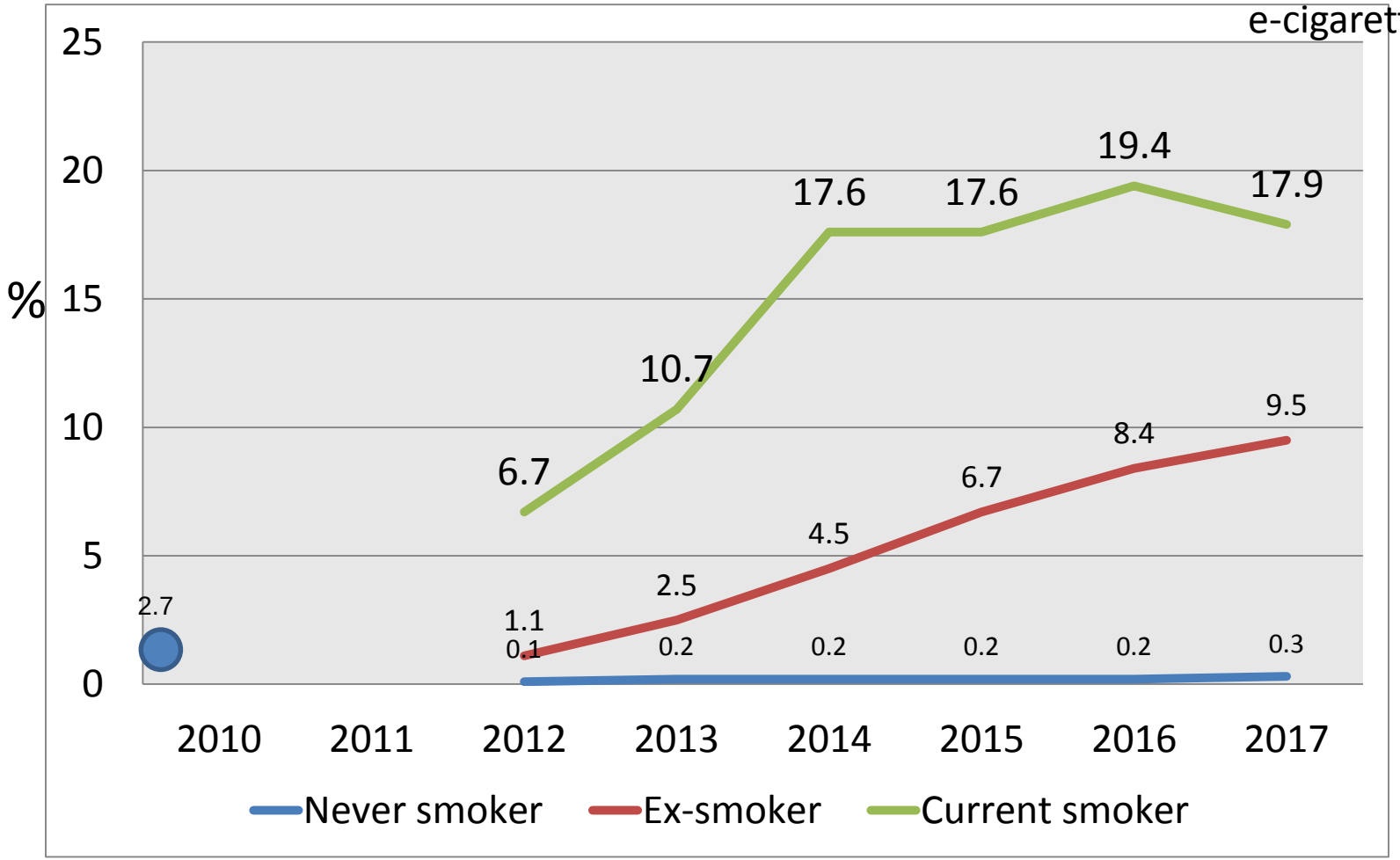
- Uptake by never smokers /gateway/renormalisation
- Safety
- “Dual use”



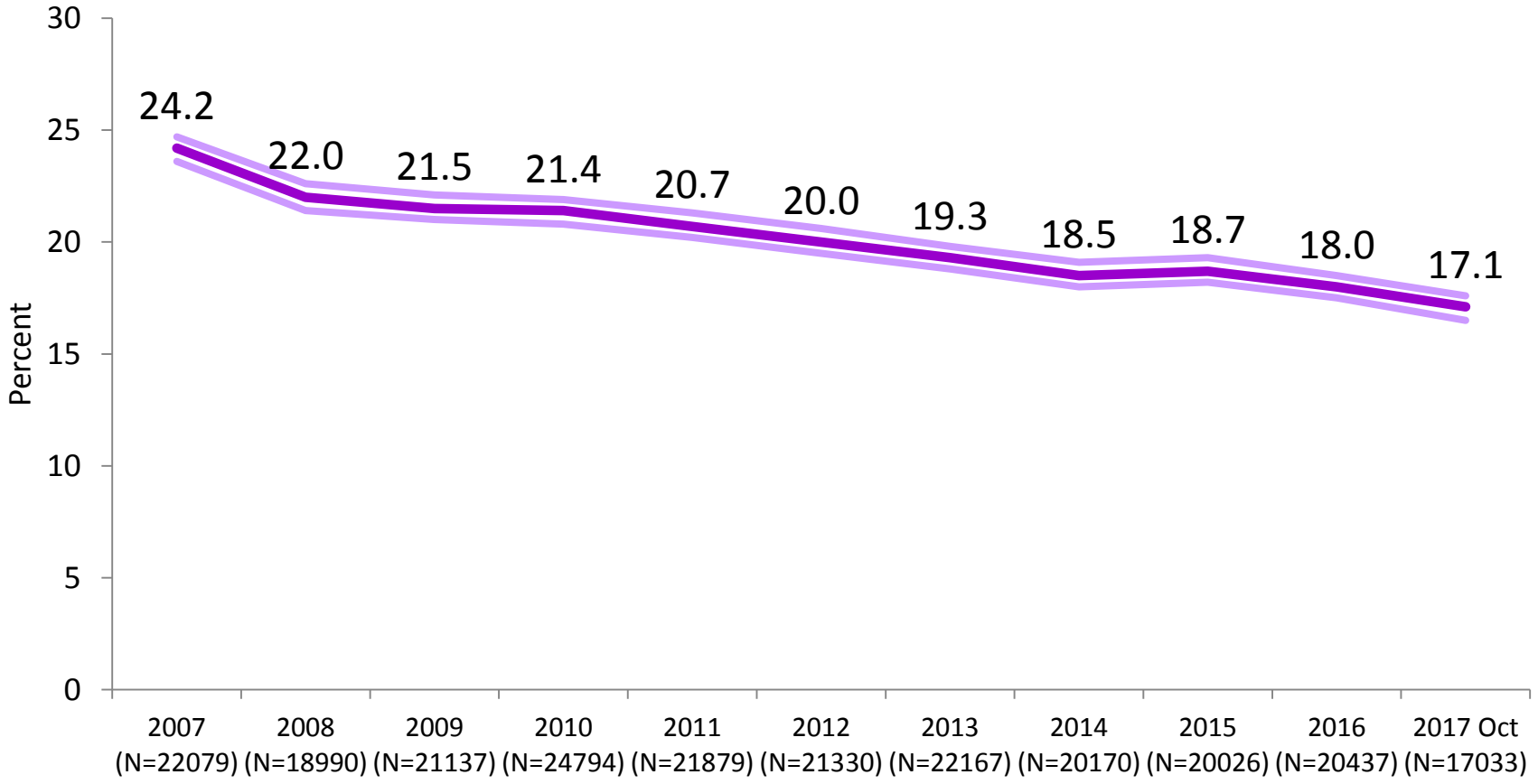
Current use of e-cigarettes by smoking status

(ASH smokefree adult, 2017)

2.9 million current e-cigarette users



Cigarette smoking prevalence



Base: All adults

Graph shows prevalence estimate and upper and lower 95% confidence intervals

Toxicants in Vapor

Comparison of sample toxicants emitted by tobacco cigarettes and e-cigarettes

Toxic compound	**Tobacco cigarette** (µg in mainstream smoke)	**E-cigarette** (µg per 15 puffs*)	**Average ratio** (conventional vs electronic cigarette)
Formaldehyde	1.6–52	0.20–5.61	9
Acetaldehyde	52–140	0.11–1.36	450
Acrolein	2.4–62	0.07–4.19	15
Toluene	8.3–70	0.02–0.63	120
NNN**	0.005–0.19	0.00008–0.00043	380
NNK**	0.012–0.11	0.00011–0.00283	40

* The authors assumed smokers of e-cigarettes would take an average of 15 puffs per vaping session, corresponding to smoking one tobacco cigarette.

** Tobacco-specific nitrosamine, a carcinogenic compound that originates in the curing and processing of tobacco.

Adapted from Goniewicz et al. (2014)[4]

ORIGINAL RESEARCH

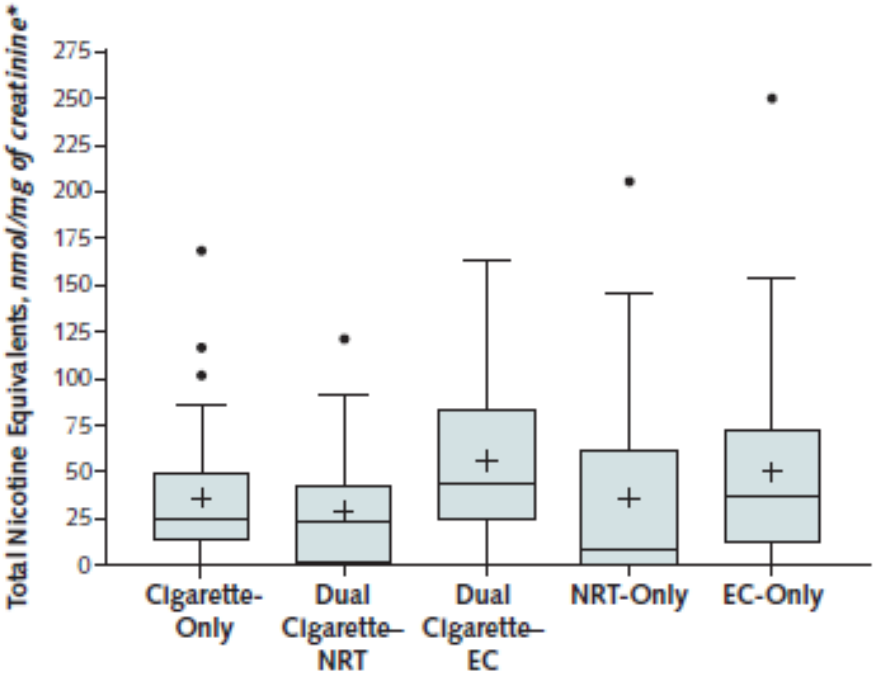
Annals of Internal Medicine

Nicotine, Carcinogen, and Toxin Exposure in Long-Term E-Cigarette and Nicotine Replacement Therapy Users

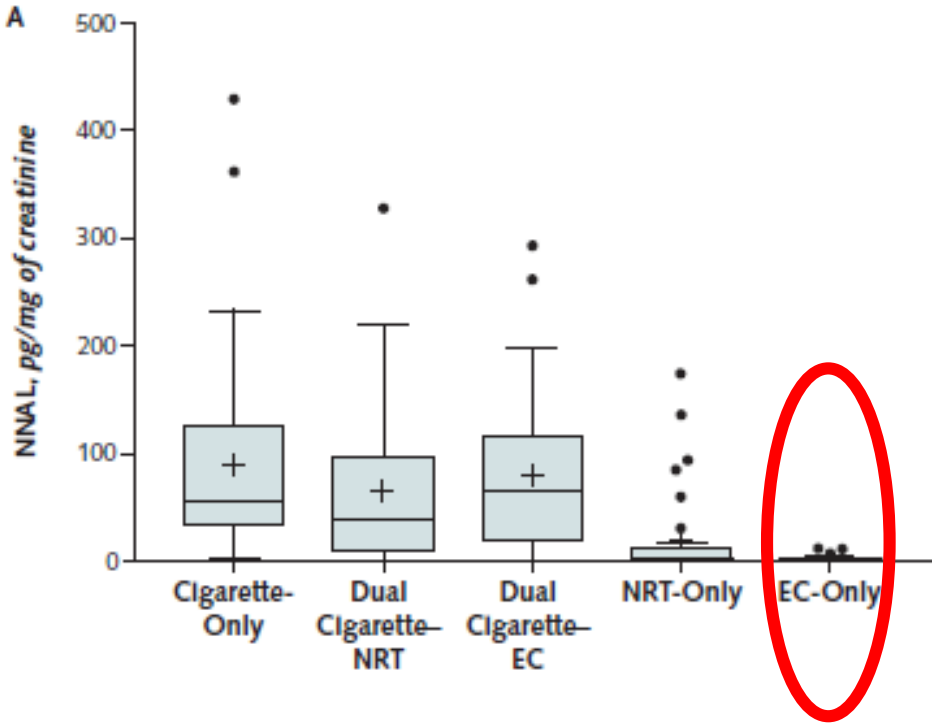
A Cross-sectional Study

Lion Shahab, PhD; Maciej L. Goniewicz, PhD; Benjamin C. Blount, PhD; Jamie Brown, PhD; Ann McNeill, PhD; K. Udeni Alwis, PhD; June Feng, PhD; Lanqing Wang, PhD; and Robert West, PhD

181 participants had urine and saliva analyzed for biomarkers of nicotine - Tobacco-specific N-nitrosamines and volatile organic compounds



Nicotine equivalence



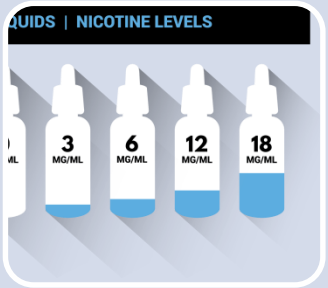
Toxins and carcinogens

Regulation Tobacco products Directive 2014/14/EU

- New minimum standards for the safety and quality of all nicotine containing e-cigarettes and e-liquids came into May 2016, with a transition period until 20th May 2017.

Tank capacity 2mls

Refill container 10mls

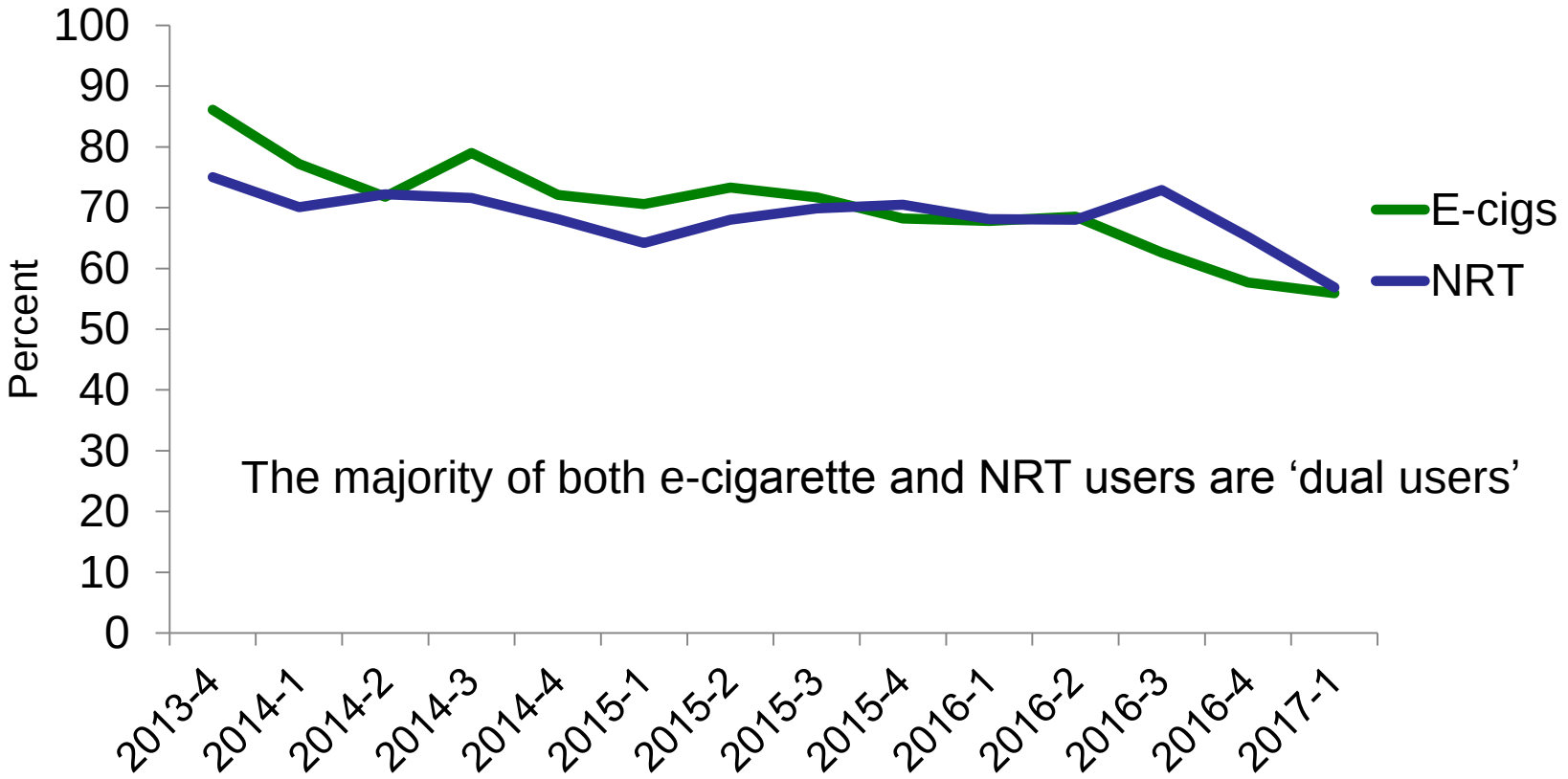


Maximum Nicotine strength of e-liquid 20mgs/ml

Child resistant and tamper proof packaging

Warning labels

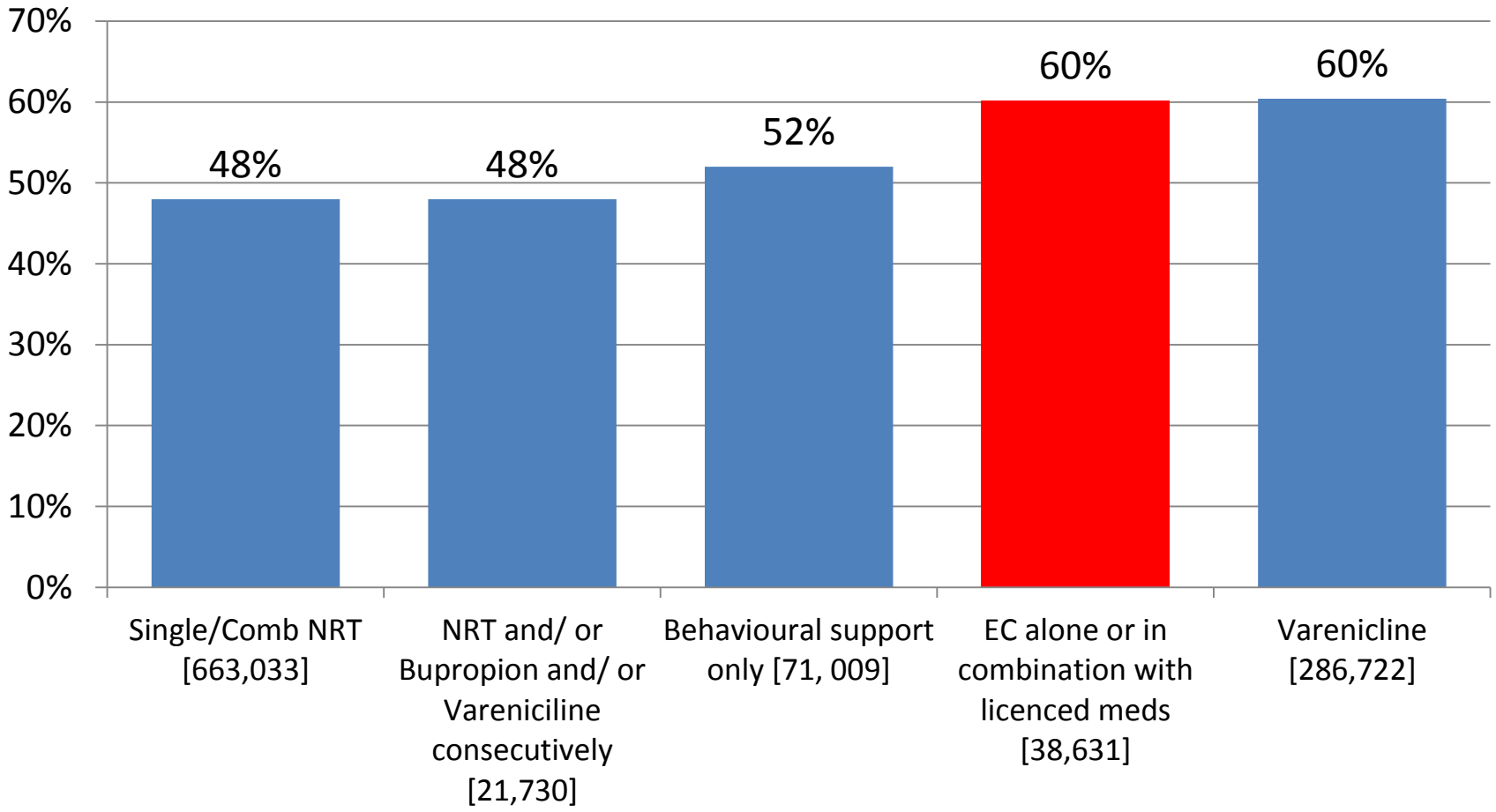
Proportion of e-cigarette and NRT users who are smokers (‘dual users’)



N=3601 e-cigarette users and N=1831 NRT users of adults

How do the data at a population level compare to data at a treatment level?

Effectiveness of using an EC during a quit attempt with a stop smoking service (2014-2017)



Adapted from NHS Digital: These data should not be used to assess or compare the clinical effectiveness of the various pharmacotherapies as they reflect only the results obtained through the NHS stop smoking services, and are not based on clinical trials.

Is there any evidence that EC help people with a mental illness stop or reduce smoking?

Environmental Research and Public Health
ISSN 16604-601
www.mdpi.com/journal/ijerph

Article

Impact of an Electronic Cigarette on Smoking Reduction and Cessation in Schizophrenic Smokers: A Prospective 12-Month Pilot Study

Pasquale Caponnetto [1,2,3,*], Roberta Auditore [1], Cristina Russo [1,2,3], Giorgio Carlo Cappello [4] and Riccardo Polosa [2,3]

PARTICIPANTS: 14 smokers with schizophrenia, 6m, 8f. FROM Catania, Italy (not intending to quit)

INTERVENTION :supply of a rechargeable e-cigarette "Categoria" (nicotine content of each cartridge 7.25mg). Instructions on use. No behavioural support

SMOKING OUTCOMES:
1 year follow up
7/14 reduced cig intake by 50%
2/14 quit

AEs:
4/14 dry cough
No change in psychiatric symptoms

Addictive Behaviors 59 (2016) 30–34

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

Appeal of electronic cigarettes in smokers with serious mental illness☆,☆☆

Sarah I. Pratt [a,*], James Sargent [b], Luke Daniels [a], Meghan M. Santos [c], Mary Brunette [a,c]

[a] Department of Psychiatry, The Geisel School of Medicine at Dartmouth, Hanover, NH, United States
[b] Department of Pediatrics, The Geisel School of Medicine at Dartmouth, Hanover, NH, United States
[c] Department of Community and Family Medicine, The Geisel School of Medicine at Dartmouth, Hanover, NH, United States

PARTICIPANTS:
19 smokers with schizophrenia or BPD, 6m, 13f.
FROM New Hampshire, USA
(previously failed to quit)

INTERVENTION: supply of a rechargeable e-cigarette "NJOY" for 4 weeks.
Instructions on use.
No behavioural support

SMOKING OUTCOMES:
4 week follow up
17/19 reduced cig intake by at least 50%
2/19 quit

ACCEPTABILITY (from qualitative data)
Participants perceived e cigs were less harmful , helped them feel more accepted by non smokers

O'Brien *et al. Tobacco Induced Diseases* (2015) 13:5
DOI 10.1186/s12971-015-0030-2

TOBACCO INDUCED DISEASES

RESEARCH Open Access

E-cigarettes versus NRT for smoking reduction or cessation in people with mental illness: secondary analysis of data from the ASCEND trial

Brigid O'Brien, Oliver Knight-West, Natalie Walker*, Varsha Parag and Christopher Bullen

- No difference in biochemically verified continuous abstinence at six months
  - Mentally ill = 8%, Not mentally ill = 6%
- No difference between treatment efficacy

Acceptability		
	Would you recommend to a friend?	**Stopped because did not like it?**
21mg nicotine patch	37%	41%
16mg nicotine e-cigarette	83%	29%
omg nicotine e-cigarette	80%	22%

Historically, we have not offered a way out of tobacco addiction for smokers who experience a mental illness and/or substance use problems……..

Or offered treatment in a way that is acceptable to this group of smokers

- E- cigarettes are acceptable to smokers with a mental illness
- Evidence they reduce cigarette consumption

Conclusions

- Harm reduction support should complement traditional cessation support
- Should include:
  - encouraging use of relevant therapies until people feel confident of not relapsing (longer term substitution)
  - cutting down to quit with medication & behavioral support
  - engaging with dual users (smokers using e-cigarettes or NRT)
  - engaging with smokers who want to use e-cigarettes to quit
  - encouraging trial and error with the full range of therapies until people quit smoking

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