

# ***Trends in electronic cigarette use in England***



***[www.smokinginengland.info/latest-statistics](http://www.smokinginengland.info/latest-statistics)***

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# Background

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- Electronic cigarette use has become prevalent in many countries
- In England, electronic cigarettes are currently regulated as consumer products
- It is important to track use of electronic cigarettes and assess how far they appear to be promoting or detracting from reduction in prevalence of cigarette smoking

# Aims

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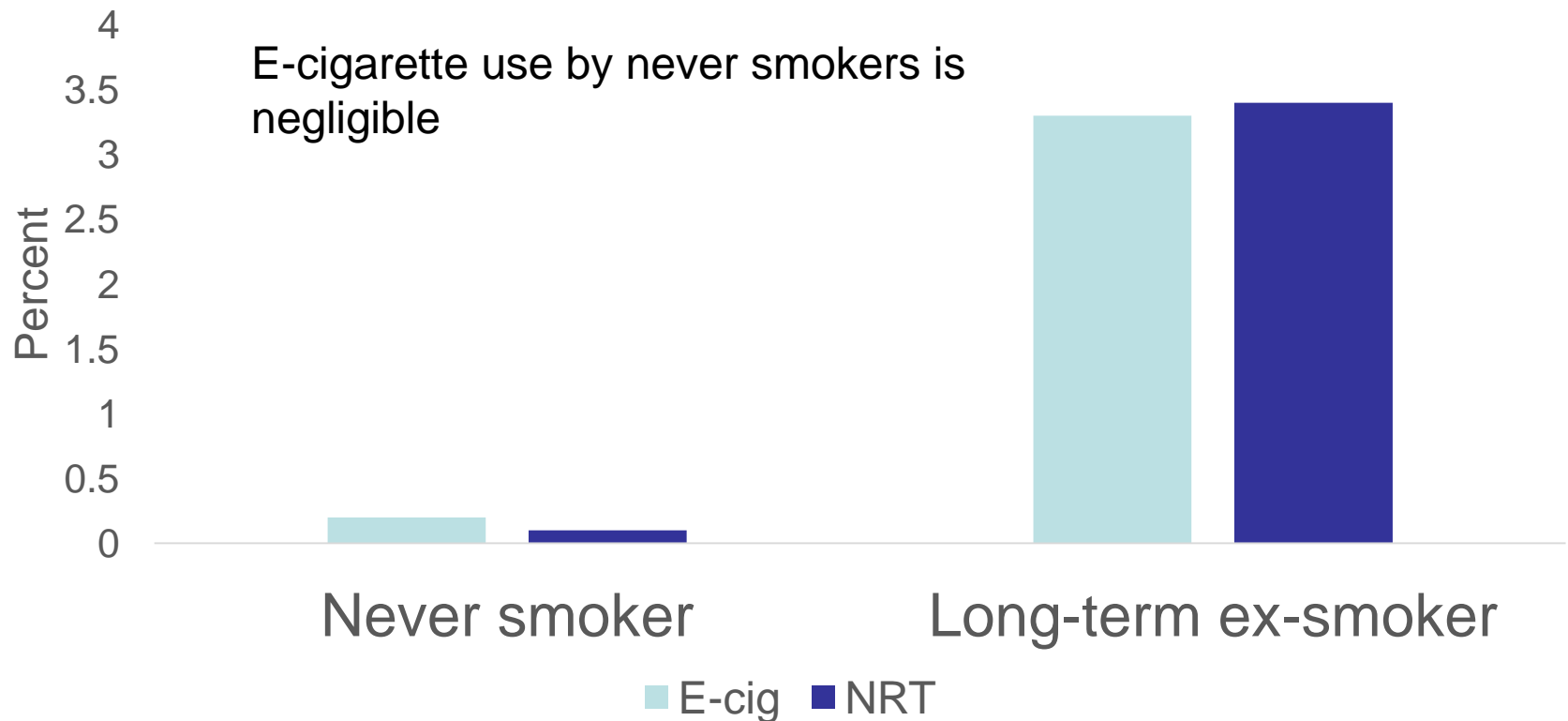
- To track use of electronic cigarettes over time and assess how far any increase is accompanied by changes in:
  - use of other aids to cessation or smoking reduction
  - key performance indicators for tobacco control
    - smoking prevalence
    - smoking cessation rates
    - attempts to stop smoking
    - success of attempts to stop smoking
- To assess prevalence of use of electronic cigarettes in people who have never smoked regularly or stopped for more than a year
- To estimate changes in the total tobacco and nicotine market

# Methods

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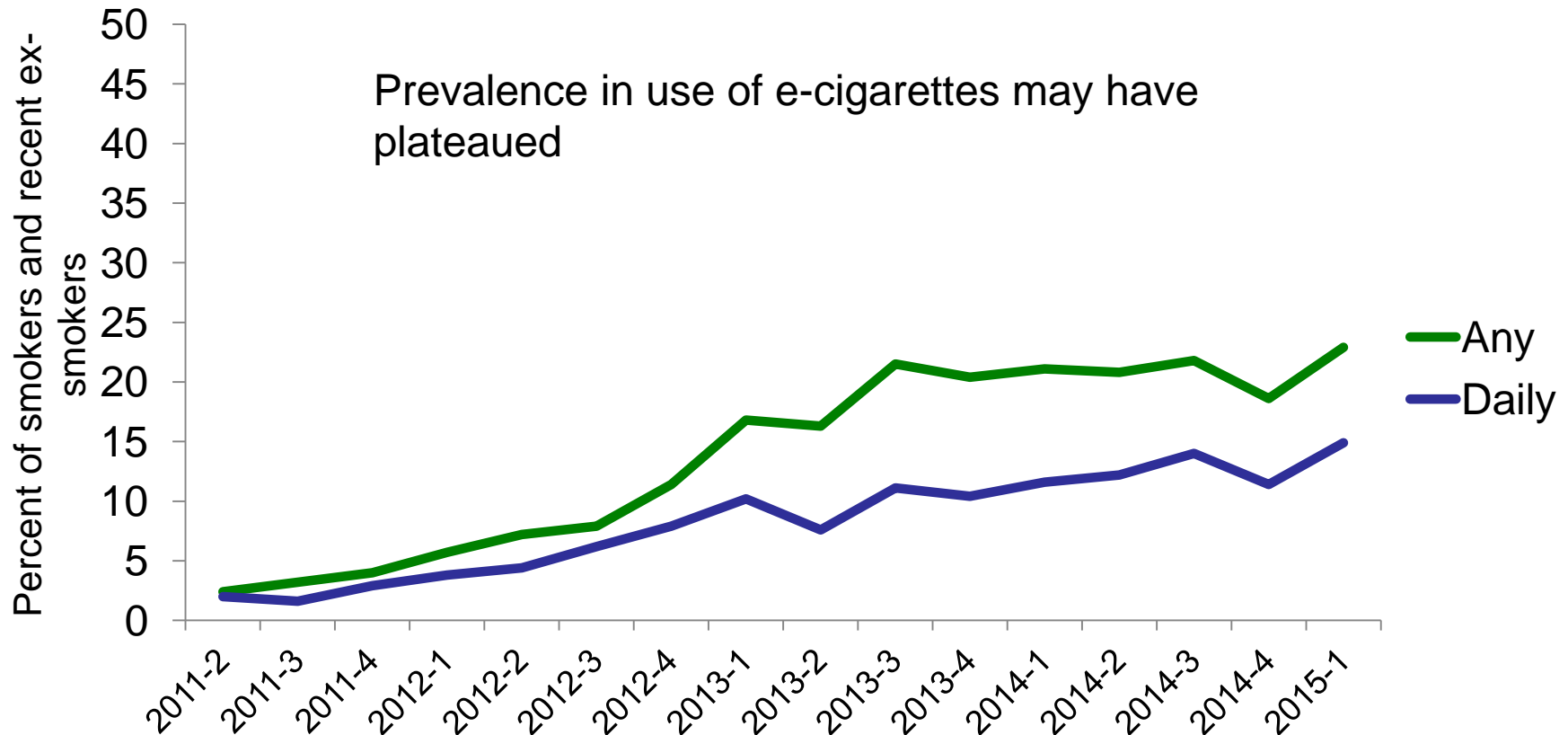
- Monthly household surveys
- Each month involves a new representative sample of ~1800 respondents; smokers ~450
- Data collected on electronic cigarettes since second quarter 2011
- Fidler, et al., 2011. *'The smoking toolkit study': a national study of smoking and smoking cessation in England*. BMC Public Health 11:479
- For more info see [www.smokinginengland.info](http://www.smokinginengland.info)

# Nicotine use by never smokers and long-term ex-smokers



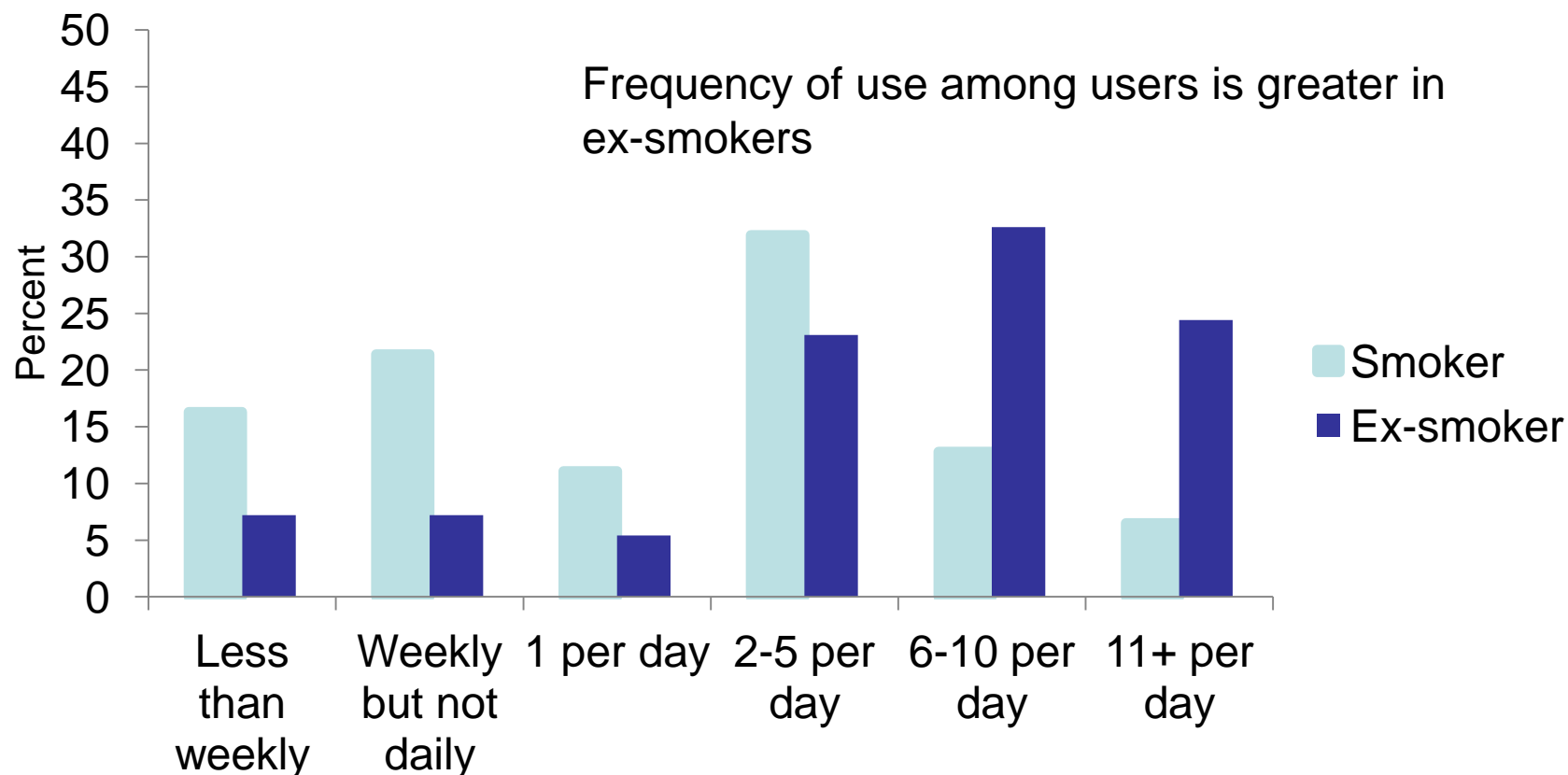
N=22489 never and long-term ex-smokers from Nov 2013

# Prevalence of electronic cigarette use: smokers and recent ex-smokers



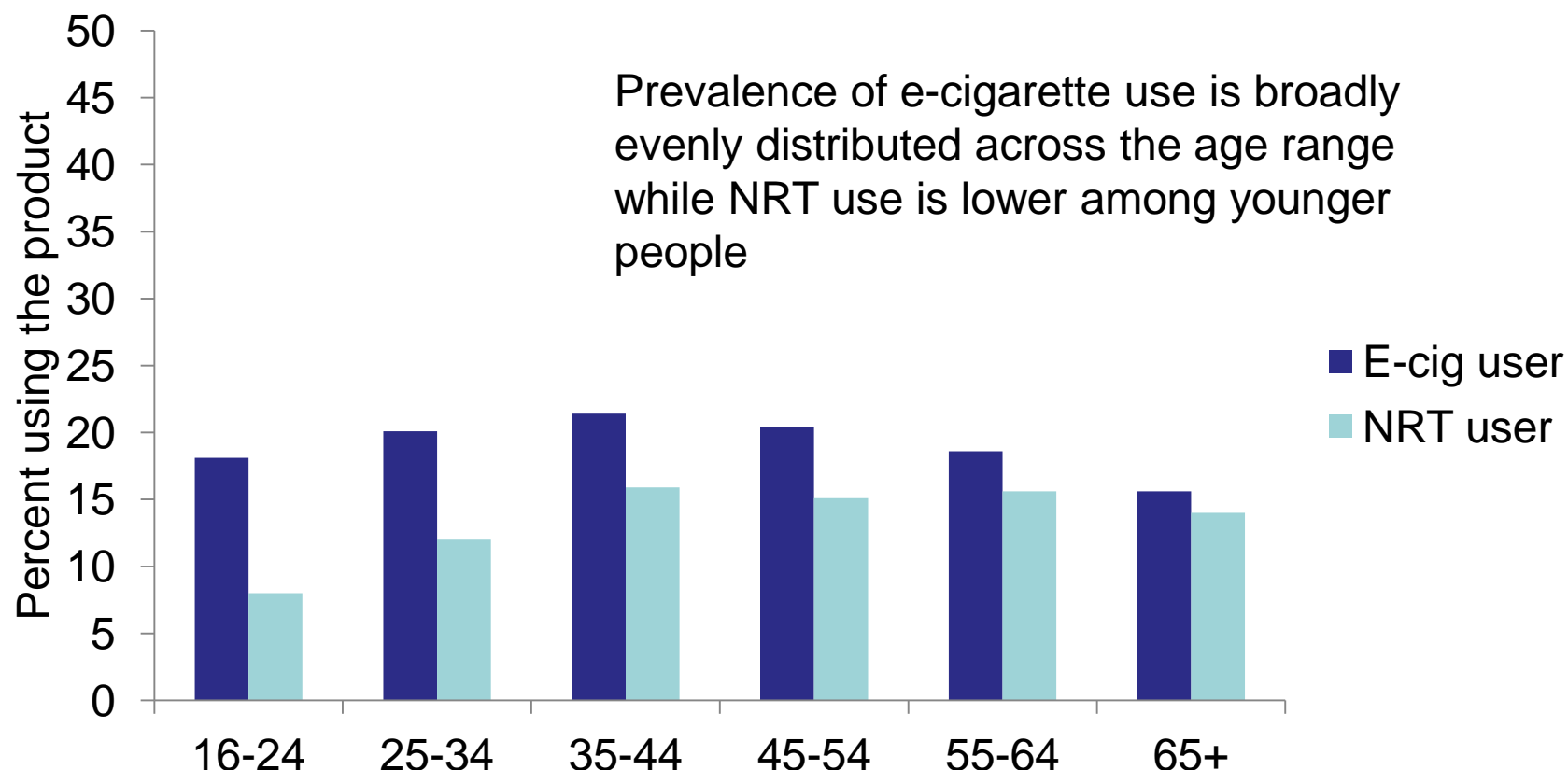
N=16529 adults who smoke or who stopped in the past year; increase  $p < 0.001$

# Electronic cigarette use



N=1655 e-cigarette users not using NRT

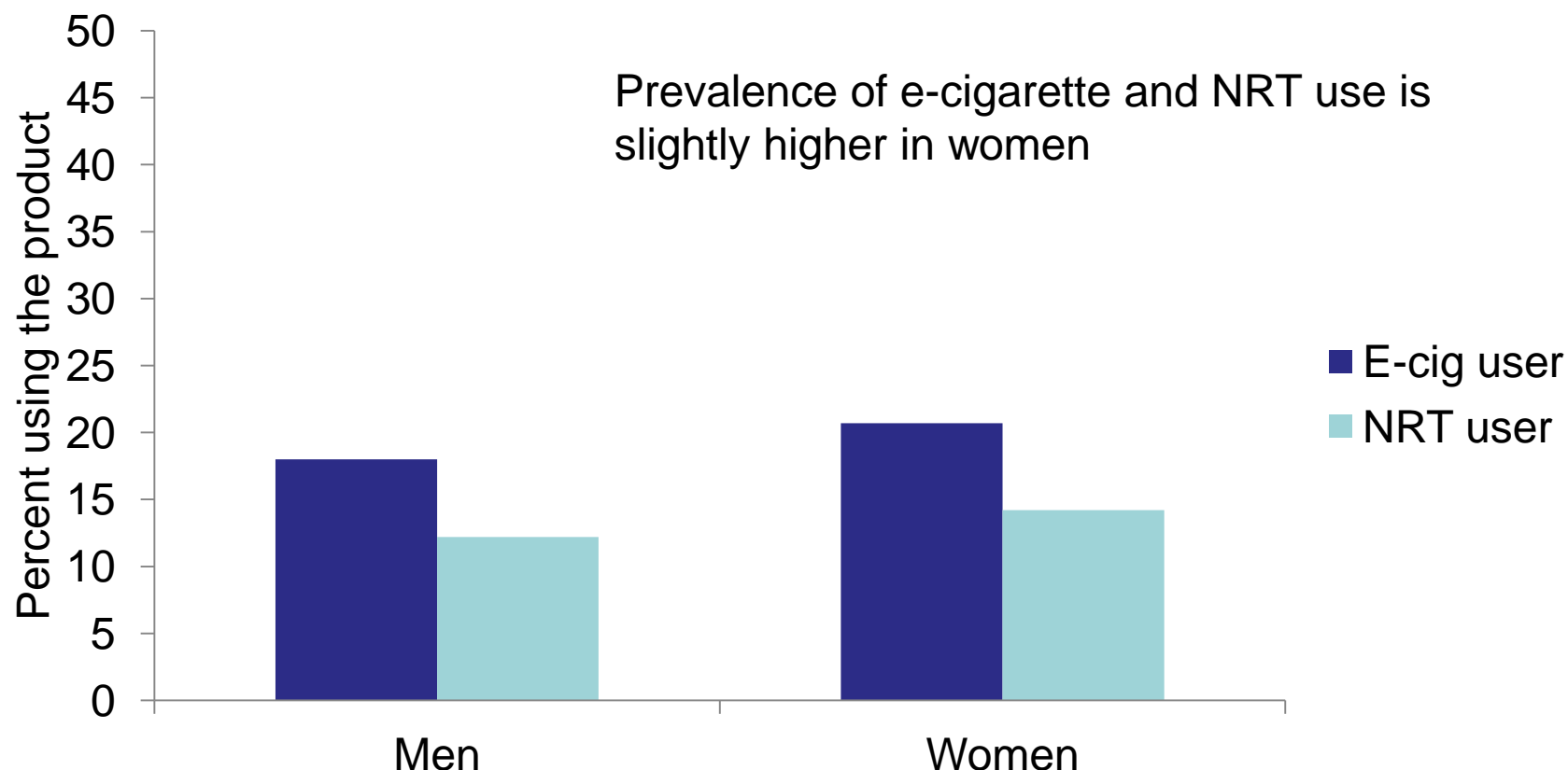
# Electronic cigarette and NRT use across the age range



N=8,263 adults who smoke or who stopped in the past year



# Electronic cigarette and NRT use in men and women



N=8,263 adults who smoke or who stopped in the past year

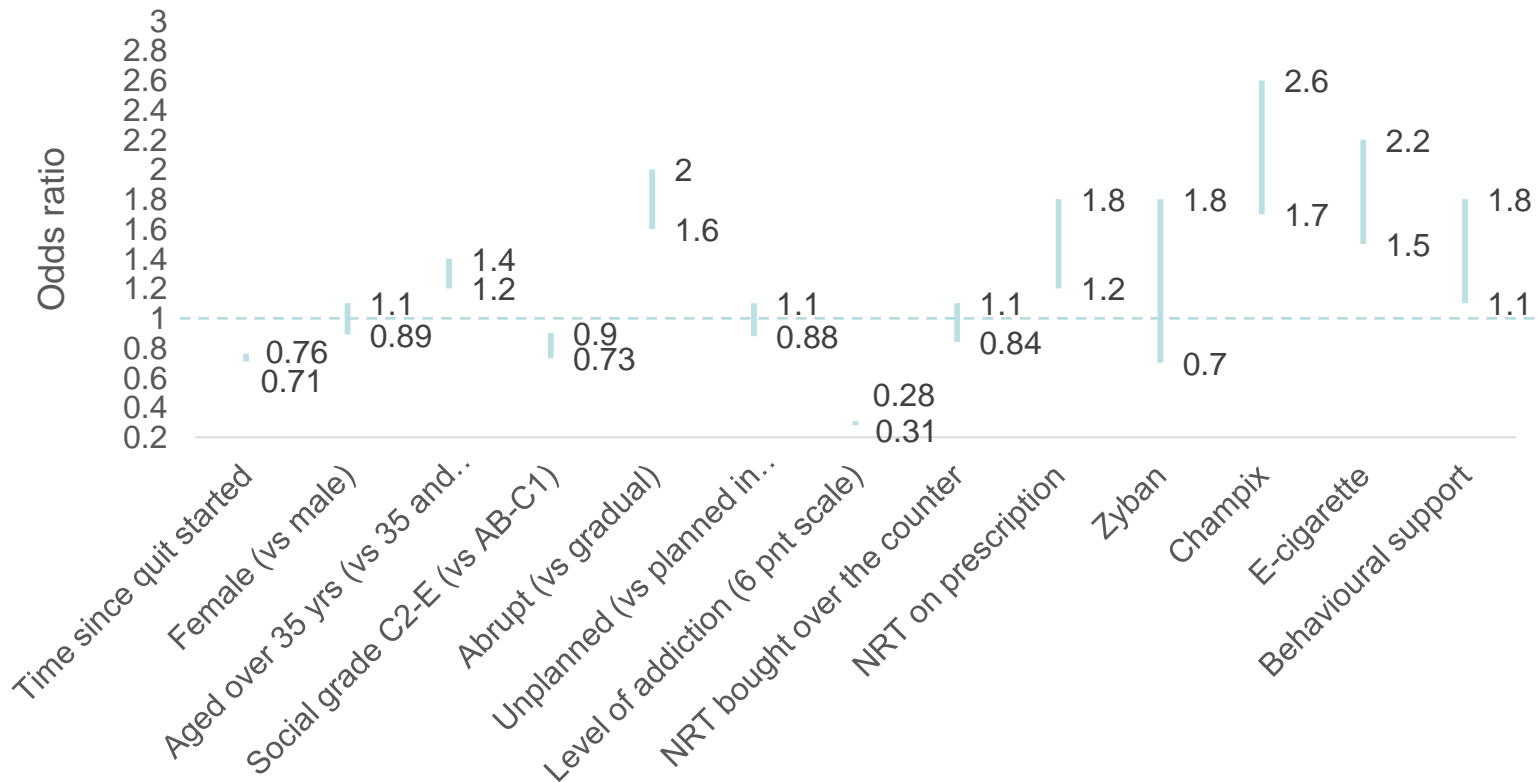
# Factors associated with odds of success in most recent quit attempt: methods

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- N=14,813 smokers and recent ex-smokers who had tried to quit in the past 12 months of whom 2,084 were currently not smoking
- Predictors all entered together in logistic regression model
  - Time since quit attempt started (<1w, 1-4w, 4-8w, 8-12w, 12-26w, 26-52w)
  - Gender
  - Age group
  - Social grade (C2-E routine and manual versus AB-C1 non-manual occupation)
  - Year of survey (entered as categorical, data not shown)
  - Number of prior quit attempts that year (0, 1, 2, 3+) (data not shown)
  - Level of addiction to cigarettes (measured by strength of urges to smoke on scale from 1 to 6)
  - In most recent quit attempt
    - Abrupt quit versus cut down first
    - Quit as soon as decided versus planned in advance
    - Used NRT (licensed nicotine replacement therapy) bought over the counter
    - Used NRT obtained on prescription
    - Used Zyban (bupropion)
    - Used Champix (varenicline)
    - Used specialist behavioural support

# Factors associated with odds of success in most recent quit attempt: results

Base: Smokers who tried to quit in past 12 months

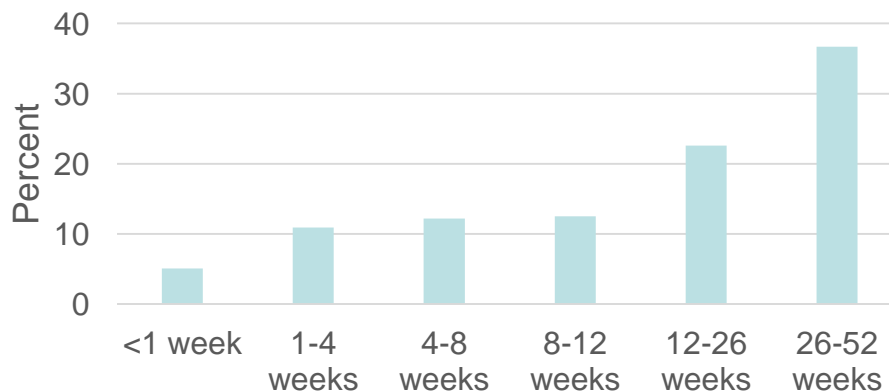


Vertical lines represent 95% confidence intervals; Odds ratio of 1 means no association

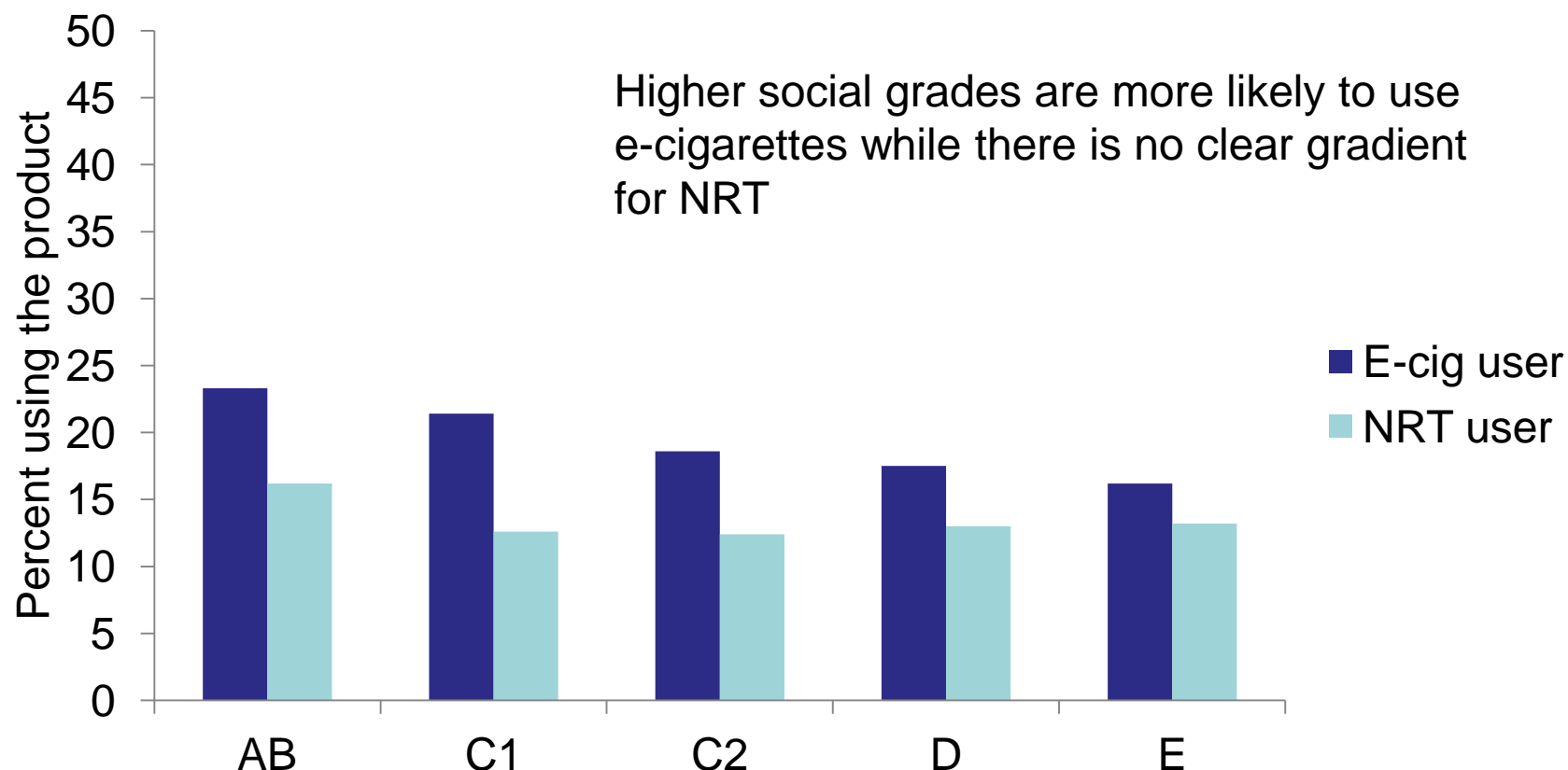
# Factors associated with odds of success in most recent quit attempt: notes

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- The overall model is **additive** which means that effect of behavioural support is over and above the positive association with of success with NRT or Champix; and effects of all these aids is over and above the positive association with abrupt quitting
- The time since the quit attempt started can be anywhere up to 12 months and followed the distribution shown below

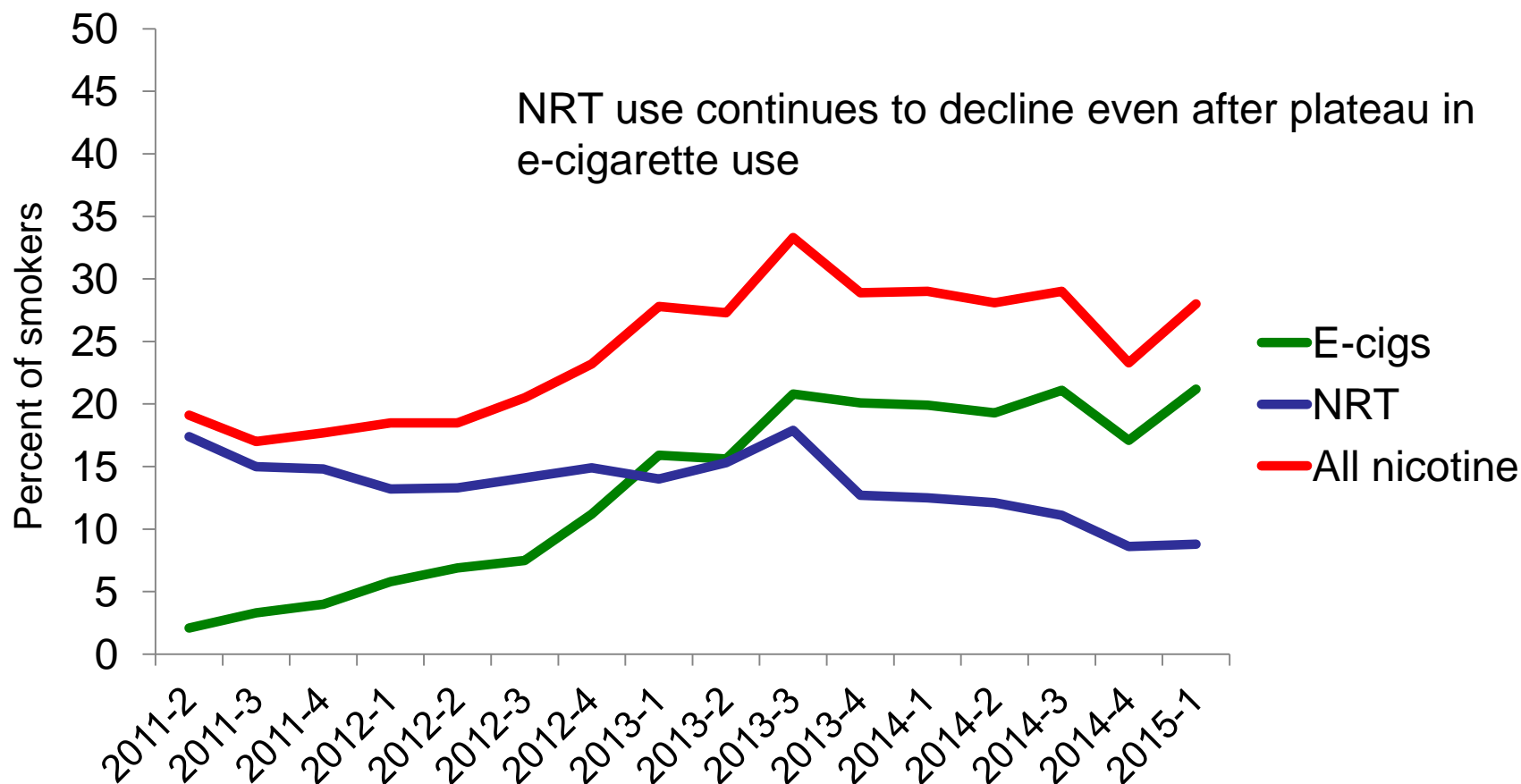


# Electronic cigarette and NRT use across the social gradient



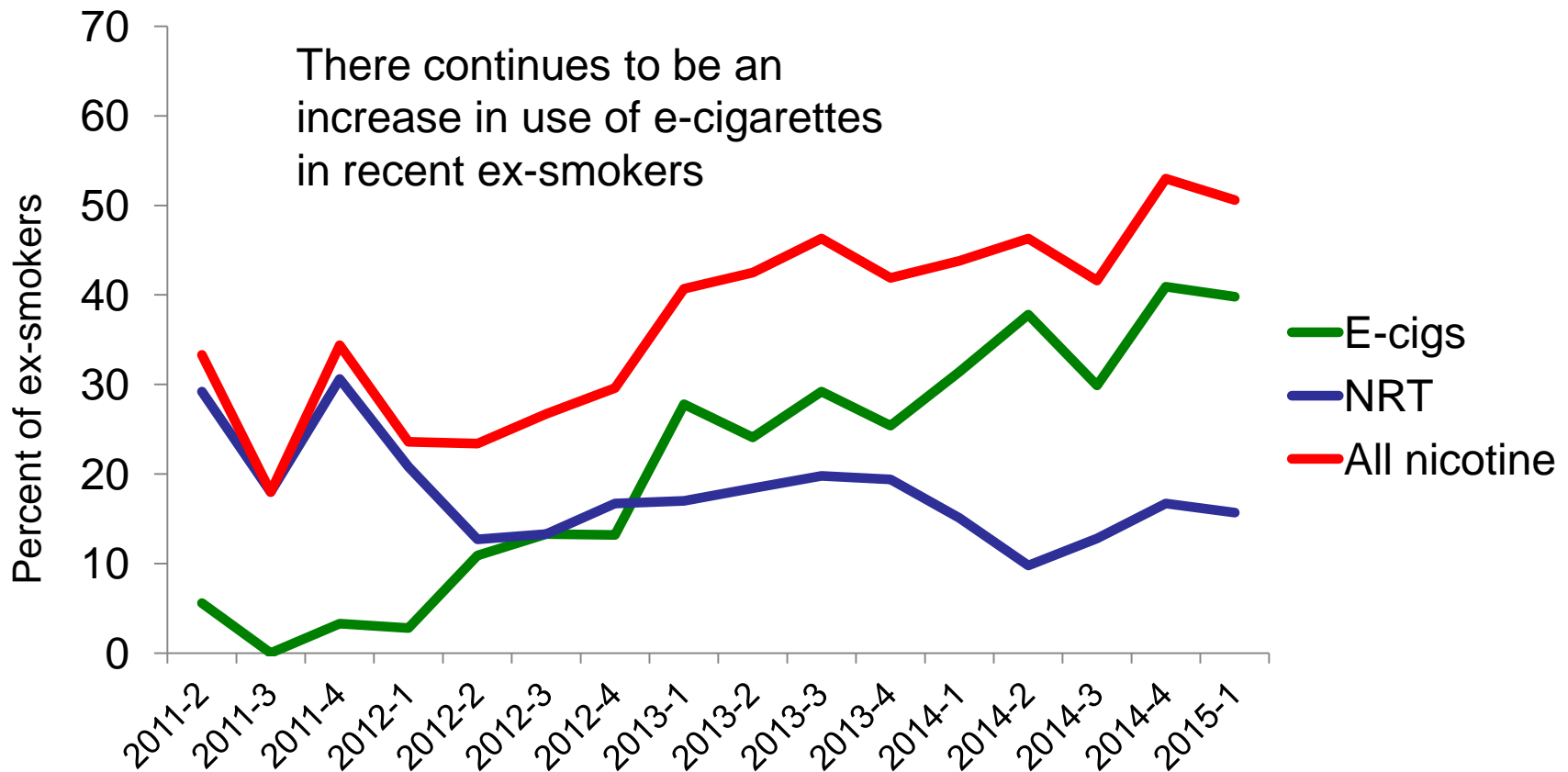
N=8,263 adults who smoke or who stopped in the past year

# Use of nicotine products while smoking



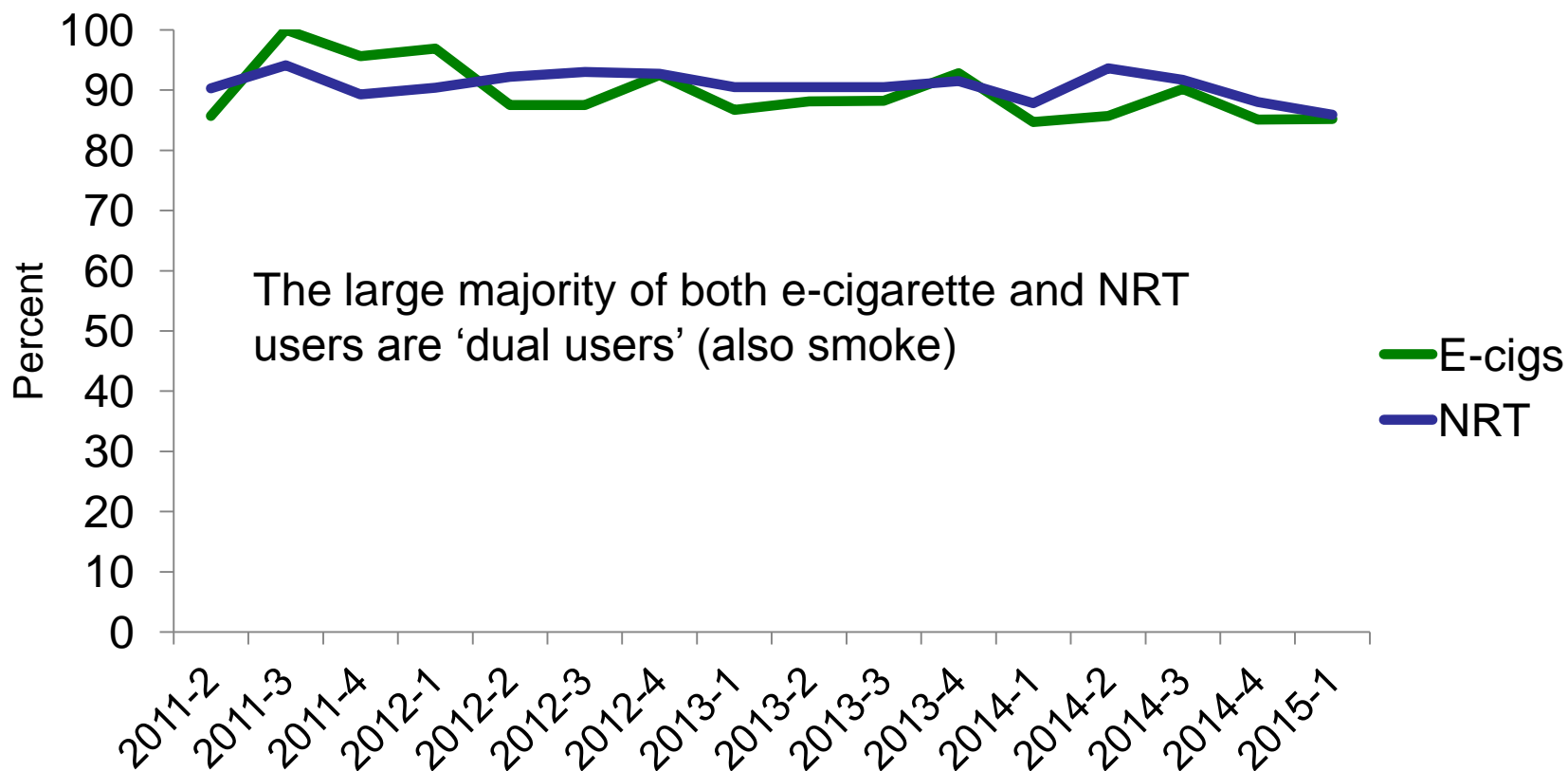
N=15433 smokers, increase  $p < 0.001$  e-cigs and all nicotine; decrease  $p < 0.001$  for NRT

# Use of nicotine products in recent ex-smokers



N=1096 adults who stopped in the past year; increase  $p < 0.001$  for e-cigs and all nicotine; decrease  $p = 0.003$  for NRT

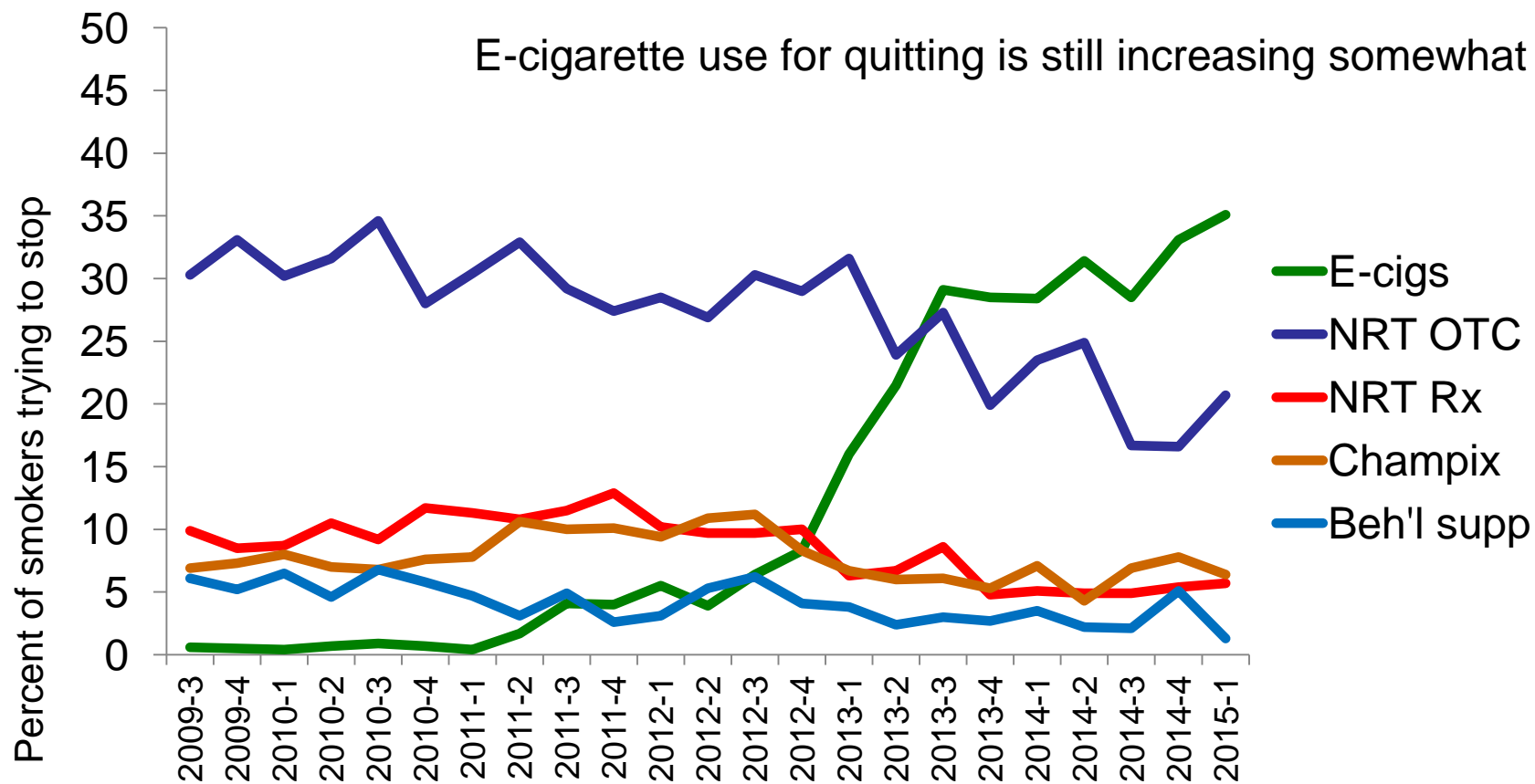
# Proportion of e-cigarette and NRT users who are smokers



N=2135 e-cigarette users and N=2224 NRT users of adults who smoke or stopped in past year

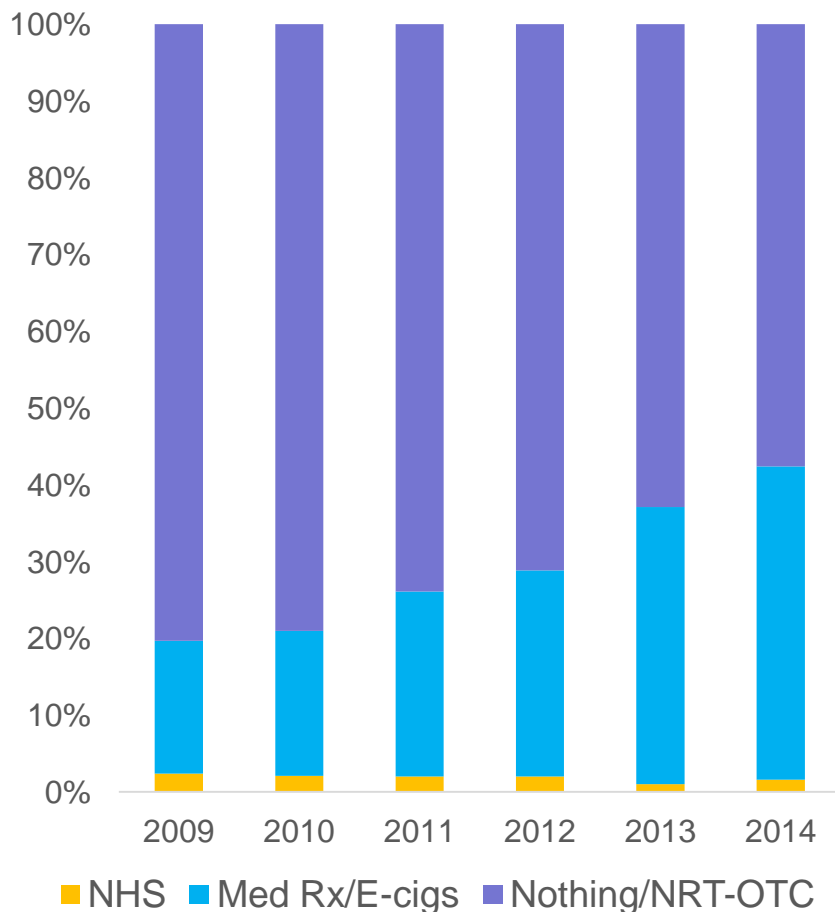


# Aids used in most recent quit attempt



N=10078 adults who smoke and tried to stop or who stopped in the past year

# Aids used in most recent quit attempt



E-cigarettes have grown the use of moderately effective aids to cessation from 24% to 35%; use of most effective methods has decreased from 4% to 3%

At stable quit attempt rate of 37% this contributed 0.05% to the decreased prevalence (~20,000 additional ex-smokers)

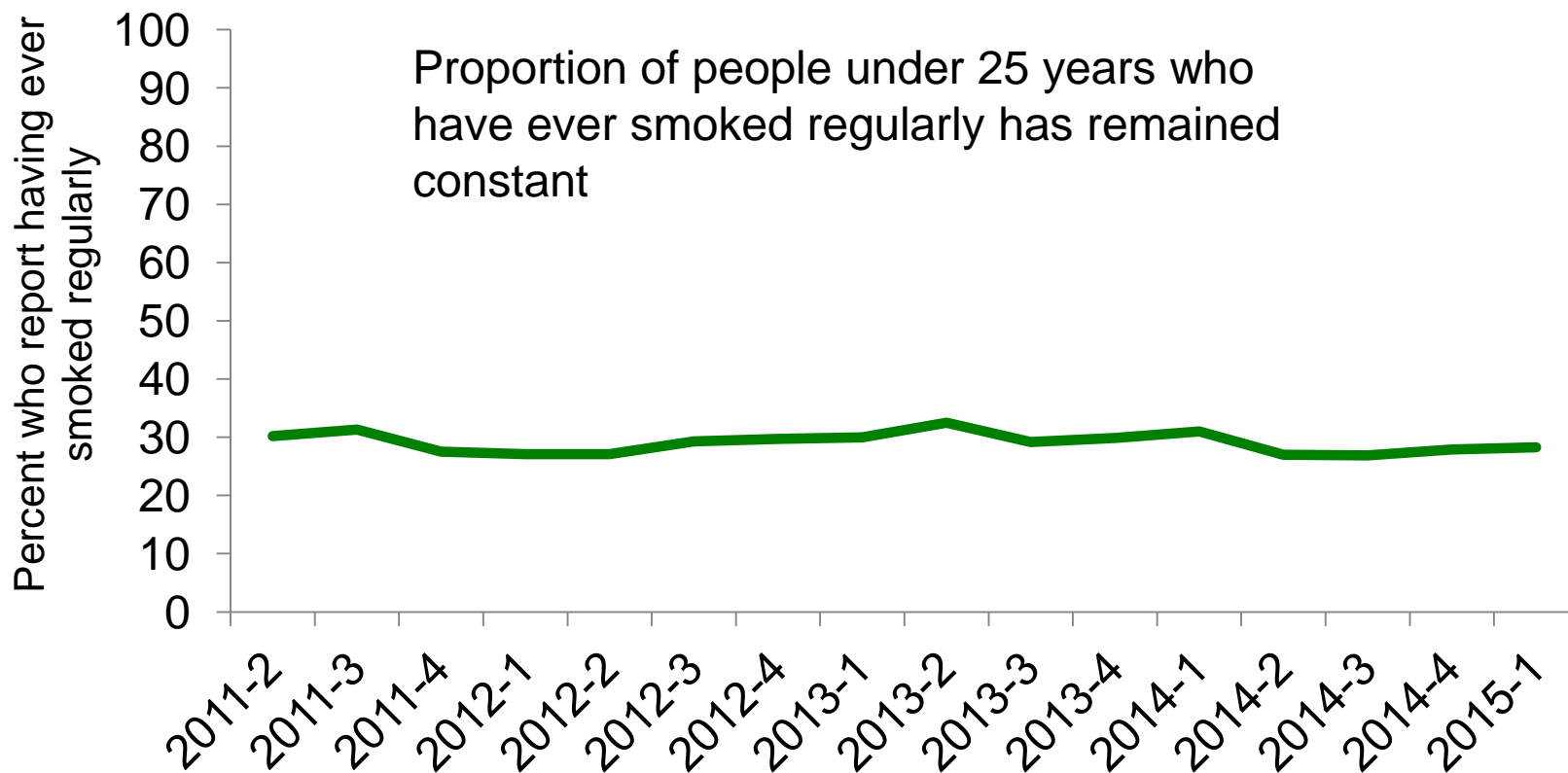
Approx odds of success relative to nothing and NRT-OTC:

1.5 Moderately effective

3.0 Most effective

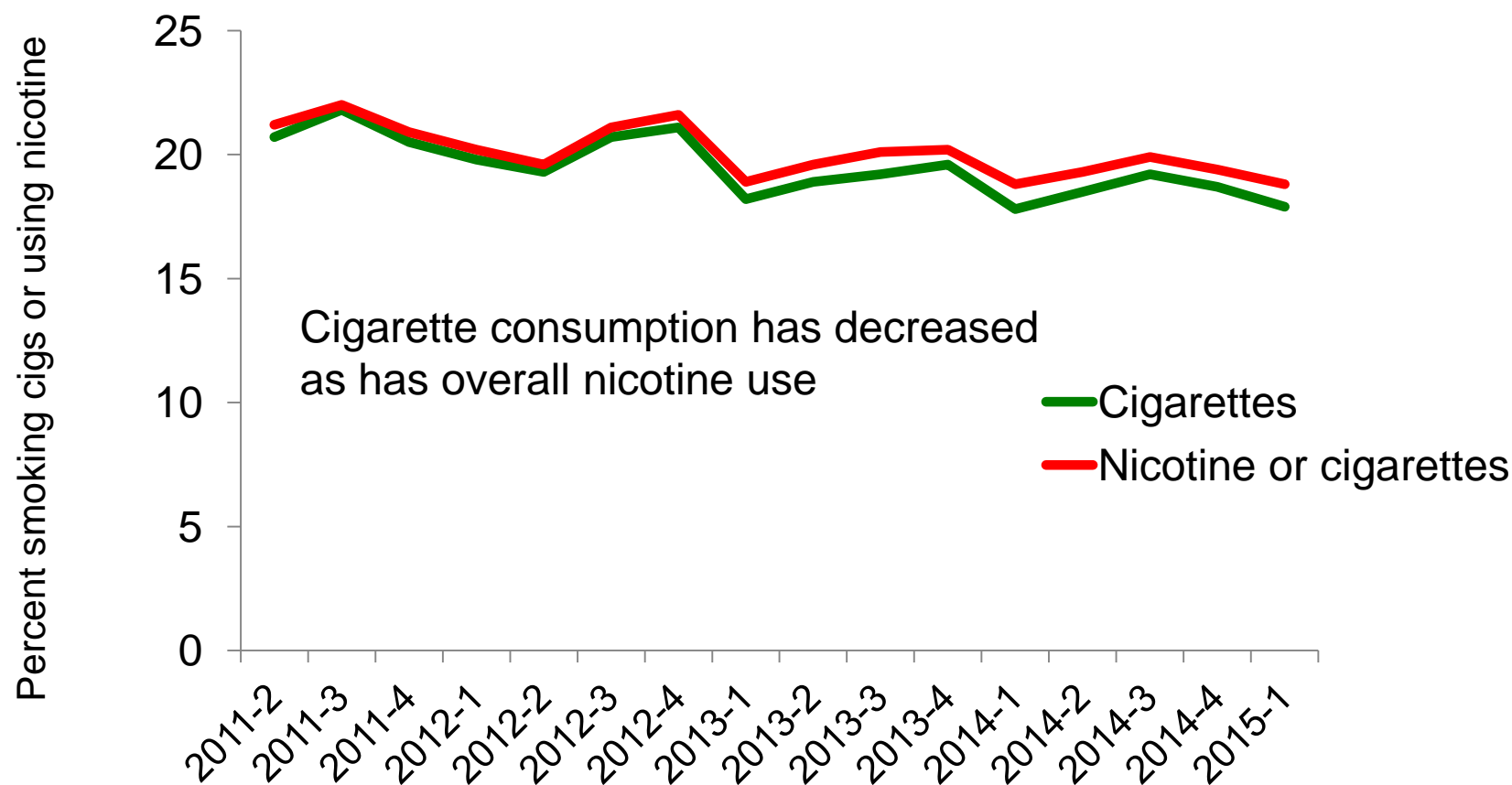
N=9783 adults who smoke and tried to stop or who stopped in the past year; 2009 is Jul to Dec

# Take-up of smoking



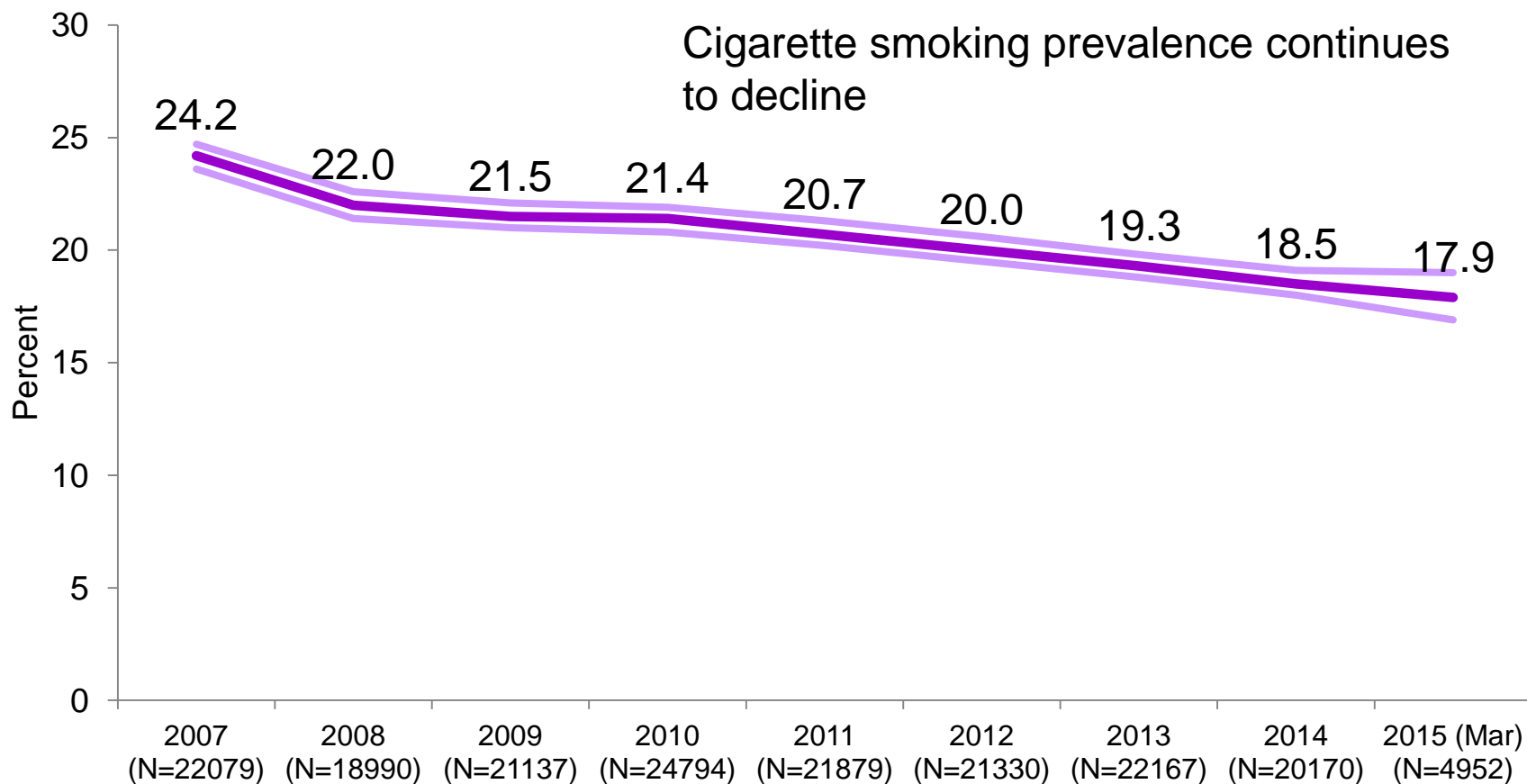
N=12931 people aged 16-24

# Prevalence of nicotine/cigarette use



N=73795 adults, decrease  $p < 0.001$  for cigarettes and  $p < 0.001$  for overall nicotine use

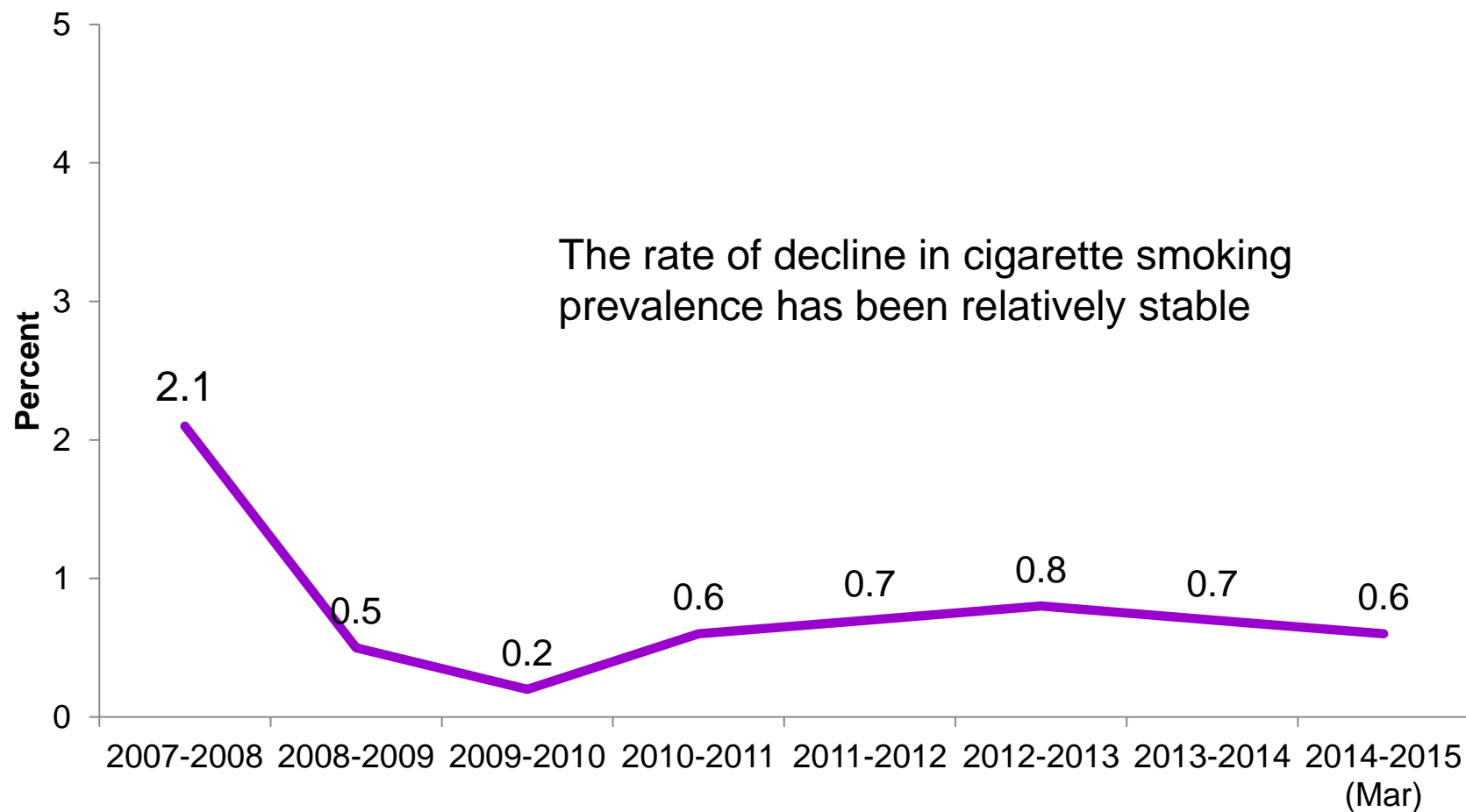
# Cigarette smoking prevalence



Base: All adults

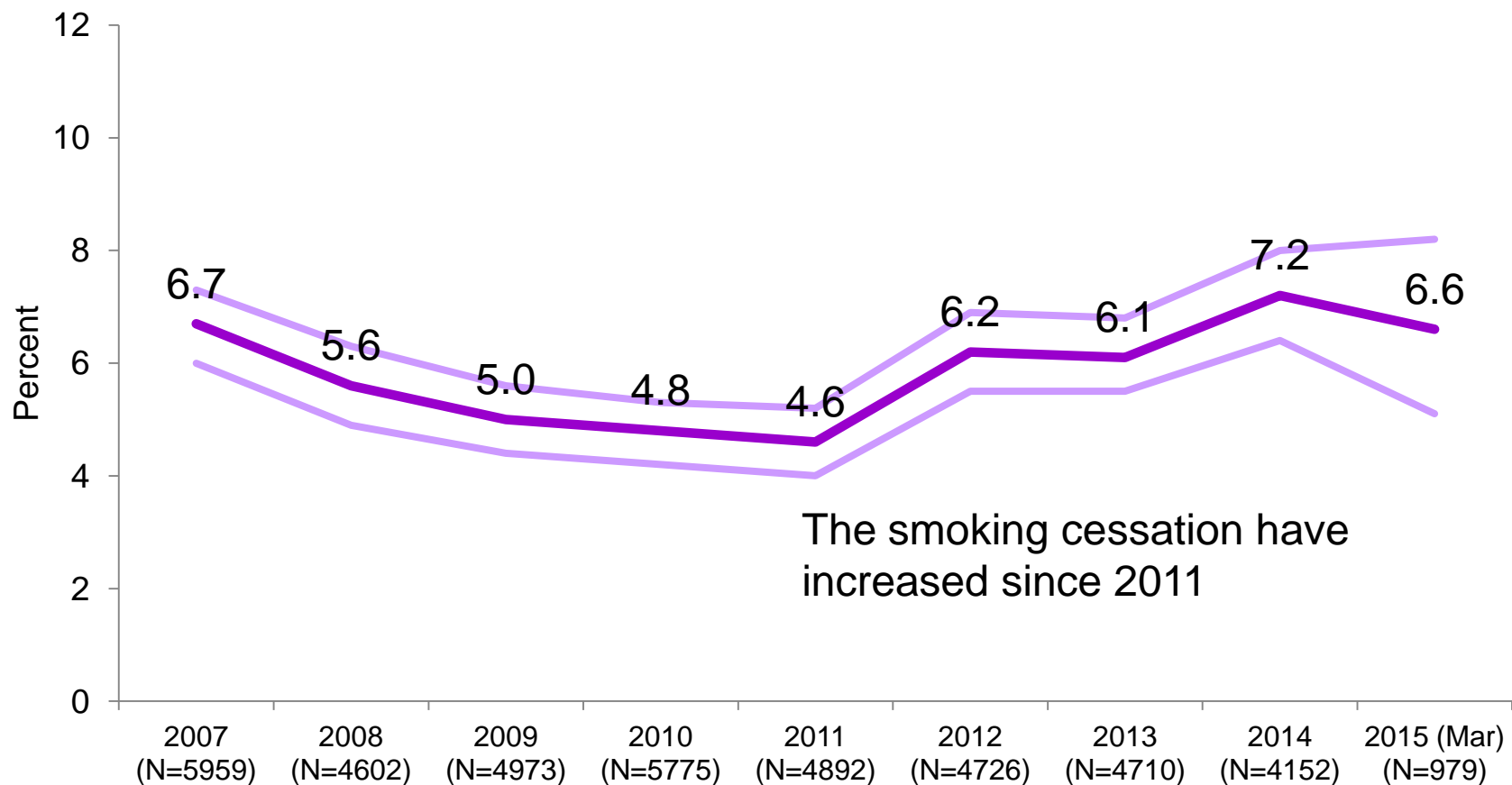
Graph shows prevalence estimate and upper and lower 95% confidence intervals

# Decrease in smoking prevalence



Base: All adults

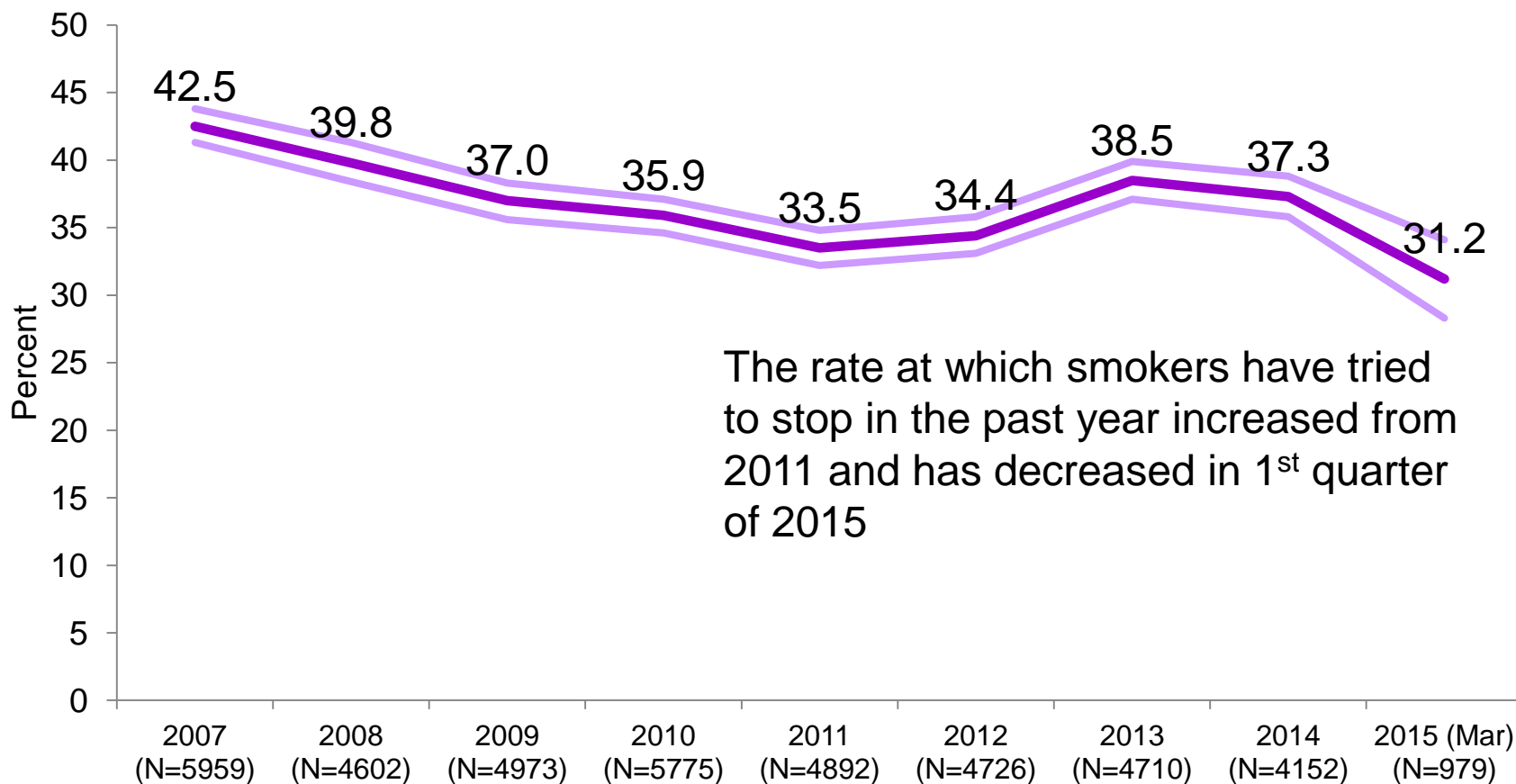
# Stopped smoking in past 12 months



Base: Adults who smoked in the past year

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

# Tried to stop smoking in past year

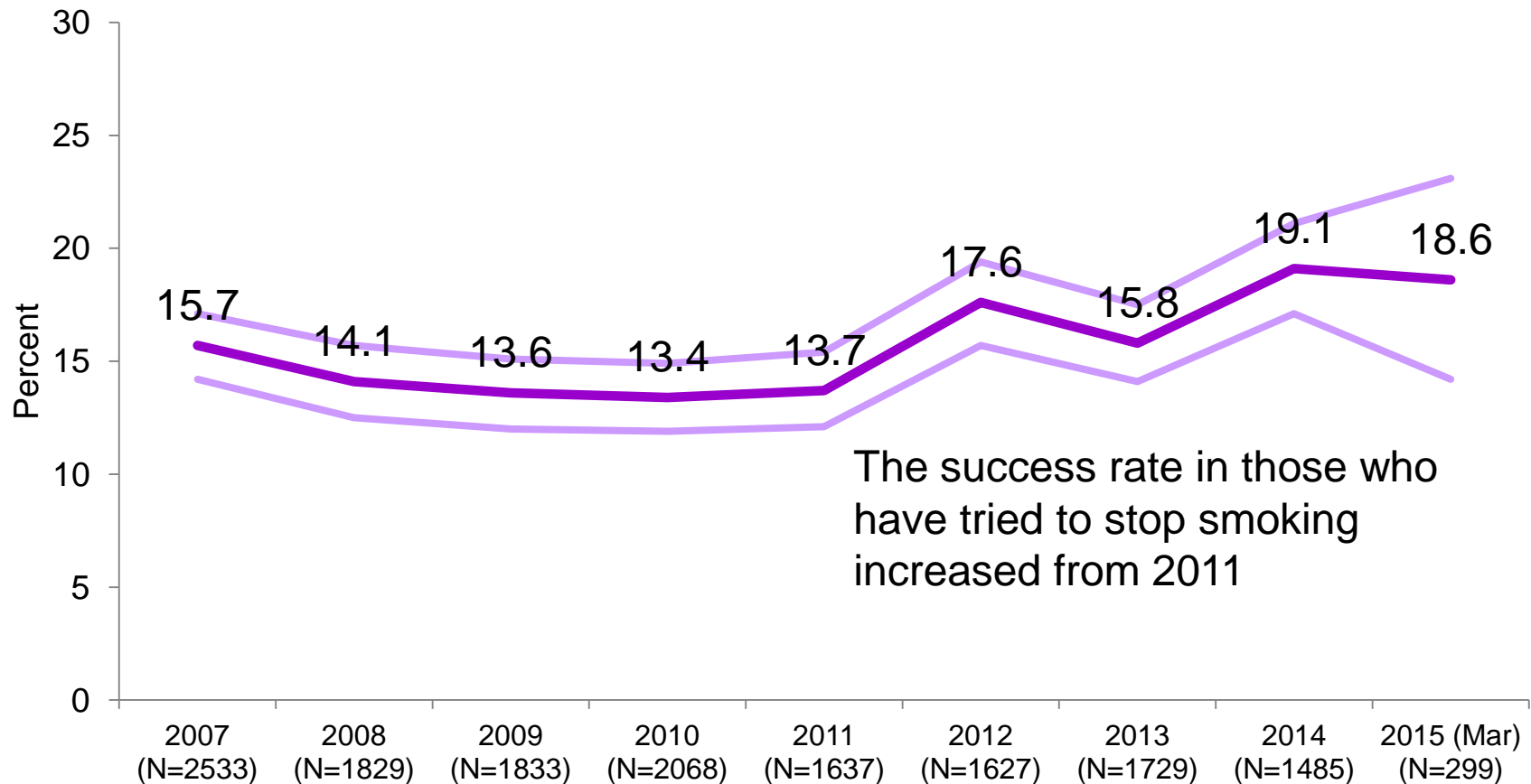


Base: Adults who smoked in the past year

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



# Success rate for stopping in those who tried

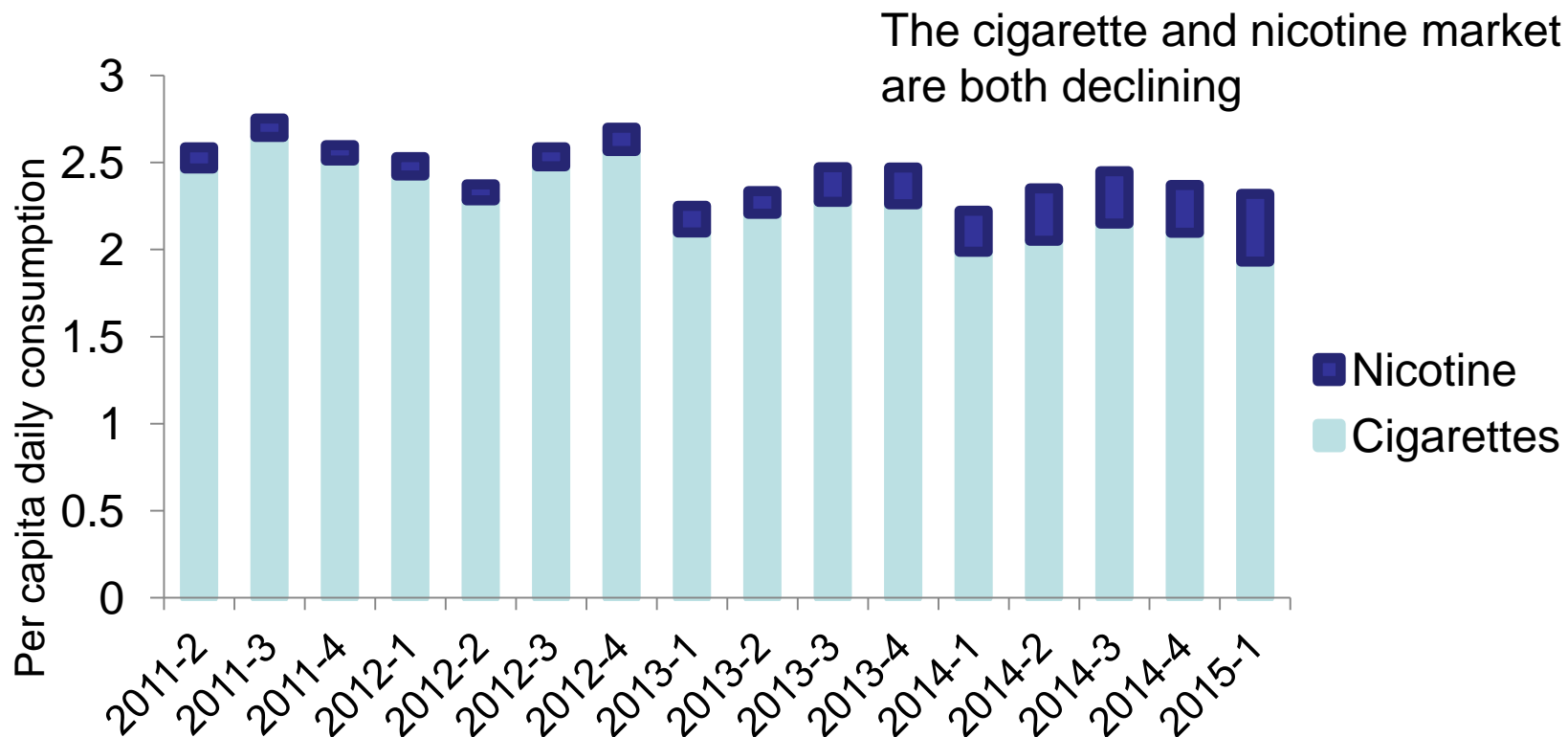


The success rate in those who have tried to stop smoking increased from 2011

Base: Smokers who tried to stop in the past year

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

# The nicotine/cigarette market



N=73747 adults

Nicotine data only from last year smokers  
 nondaily nicotine: <1 pw=0.1, 1+ pw=0.5

# Conclusions

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- Growth in e-cigarette use has slowed and contrary to earlier indications appears fairly stable over the past 2 years
- Growth in electronic cigarette use has been accompanied by a reduction, albeit smaller, in use of licensed nicotine products and prescription medication but the trajectories are very different suggesting no causal connection
- Rates of quitting smoking increased from 2011
- Use of e-cigarettes by never smokers remains very rare and similar to use of licensed nicotine products
- E-cigarettes may have helped approximately 20,000 smokers to stop in 2014 who would not have stopped otherwise