Smoking in Pregnancy

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(Tobacco)

Outline

- Policy context
- Smoking in Pregnancy figures & Issues
- Smokefree Pregnancy Services
- Financial Incentives for Smoking Cessation in Pregnancy (CPIT)
- Issues to consider

Policy Context

- ‘Creating a Tobacco Free Generation: A Tobacco Control Strategy for Scotland’ 2013
- Smokefree Scotland by 2034
- Pregnant women: priority group. Smokefree environments before & after birth.

HEAT targets

- Delivery March 2015
- Smoking Cessation: 2823 successful quits at 12 weeks in 40% most deprived within board SIMD
- Antenatal access: 80% pregnant women booked by 12 weeks gestation – allow timely intervention to support improvements in health behaviours (70% of women will have a baby)

National Service Improvement Activity

- Early Years Collaborative (EYC): coalition of community planning partners established 2013
- Workstream 1: conception to one year. Smoking priority topic. Reduction in rate of stillbirth and infant mortality by 15% between 2010-2015

National Service Improvement Activity

- Maternity & Children Quality Improvement Collaborative (MCQIC): branch of Scottish Patient Safety Programme.
- Reduce avoidable harm & increase satisfaction of women with their care.
- Reducing exposure to tobacco smoke key in reducing stillbirths and neonatal mortality (key aim)

Smoking in Pregnancy: GGC

2013

- 18% pregnant women smoking
- 14% of mothers smoking at 10 days post-natally
- 23% partners smoking at 10 days post-natally
- 12% of mothers report newborn exposed to SHS in the home
- Strongly associated with low SIMD & younger maternal age

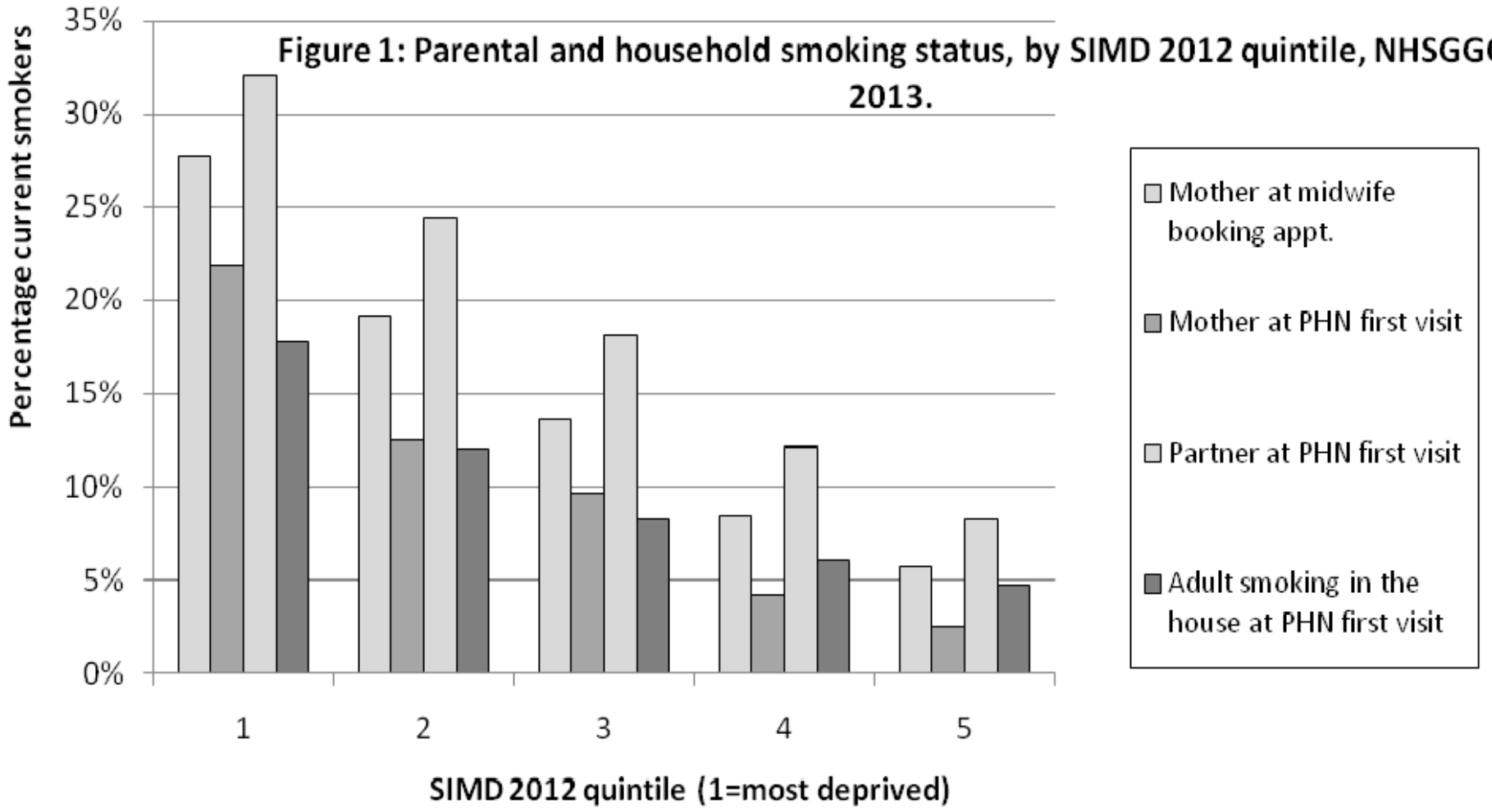
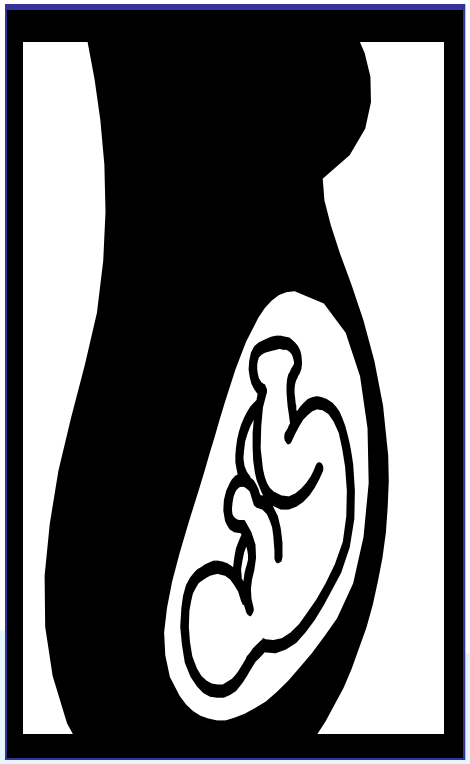


Figure 1: Parental and household smoking status, by SIMD 2012 quintile, NHSGGC 2013.
Percentage current smokers
35%
30%
25%
20%
15%
10%
5%
0%
1
2
3
4
5
SIMD 2012 quintile (1=most deprived)
Mother at midwife booking appt.
Mother at PHN first visit
Partner at PHN first visit
Adult smoking in the house at PHN first visit

What damage is smoking doing in pregnancy?

To the Mum:

- Placenta previa
- Placental abruption
- Premature membrane rupture
- Pre-term delivery & shortened gestation
- Primary & secondary infertility
- Ectopic pregnancy
- Miscarriage
- Early menopause
- Less likely to breastfeed



To the foetus / baby:

- Low birth weight
- Stillbirth & neonatal death
- SIDS
- Oral clefts
- Foetal Malformation
- Respiratory problems
- Middle ear disease
- Impaired growth & development
- Behavioural problems

smoking during pregnancy is the most avoidable cause of foetal and infant ill health and death

Health Impacts

Perinatal

- Stillbirth
- Pre-term birth (<37 weeks)
- Foetal growth restriction

Infant Health

- Sudden Unexplained Death in Infancy (SUDI); Lower Respiratory Illness; Asthma & wheeze; invasive meningococcal disease

Health Impacts

Mothers

- Lifelong smokers lose 10 years of life
- Suffer morbidity particularly chronic lung disease
- Children grow up to be smokers

Potential gains

- Because pregnant women are less than 40 years old, if they quit they will regain all 10 years of life that would be lost

Secondhand Smoke

- 40% of Scottish primary school children reported living with a parent who smokes [13]

- 27.4% were exposed to SHS in their own home [13]
- 9.5% reported exposure at someone else's home [13]
- 6.5% reported exposure in a car [13]
- 19% of children were exposed to SHS at levels dangerous to arterial health [13]

13 Akhtar, P., et al. Changes in child exposure to environmental tobacco smoke (CHETS) study after implementation of smoke-free legislation in Scotland: national cross sectional survey. *British Medical Journal 335(7619): pp.545-5549, 2007*

Secondhand smoke

- It is estimated that exposure leads to 9,500 hospital admissions [14]
- 300,000 primary care contacts [14]

Costs each year (UK)

- Primary Care contacts: **approx £10 million** [14]
- Hospital admissions: £**13.6 million** [14]

14 Royal College of Physicians. *Passive smoking and children. A report by the Tobacco Advisory Group. London: Royal College of Physicians, 2010*

Scale of impact: GGC

- Between ¼ - ⅓ of cases of SUDI, low birth weight and invasive meningococcal disease in NHSGGC attributable to smoking in pregnancy
- Approx 1 case SUDI per year attributable to maternal smoking post-natally
- SHS exposure in home: 142 admissions for bronchiolitis per year

Smokefree Pregnancy Services

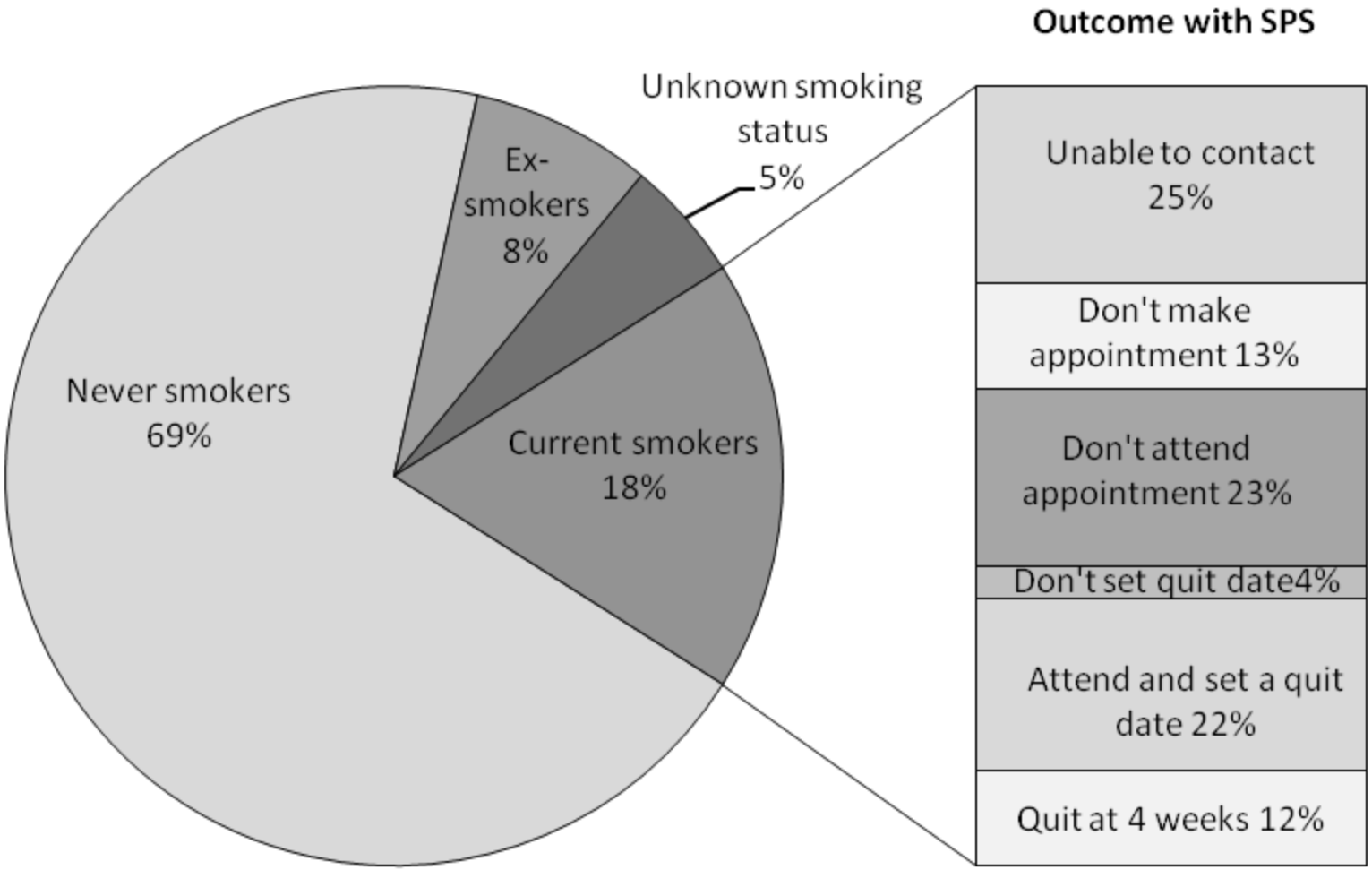
- All women offered CO monitoring
- 98% bookers 2013
- CO >4ppm, automatically referred to SFPS
- Opt out phone-call
- Face to face appointment, NRT, continued phone / text support at least 4 weeks
- Partners / family offered support

Smokefree Pregnancy Services

2014-15

- 735 women set a quit date
- 39% quit smoking at 4 weeks

Figure 3: Smoking in pregnancy, NHSGGC 2013: prevalence at booking and outcomes with Smokefree Pregnancy Service



Service Evaluation

- Low SIMD associated with disengagement & poorer outcomes
- Women's smoking cessation journeys complex & individual
- Advisers non-judgemental, supportive
- Some pressure to set quit date

Service Evaluation

- Motivation is key
- Disengagement: lack of readiness / low motivation
- Low use of NRT
- Boredom & stress barriers to quit

Cessation in Pregnancy Incentives Trial (CPIT): effectiveness & cost effectiveness

Professor David Tappin

on behalf of the CPIT Research Team

UKCTAS
UK Centre for Tobacco & Alcohol Studies

Nov-14

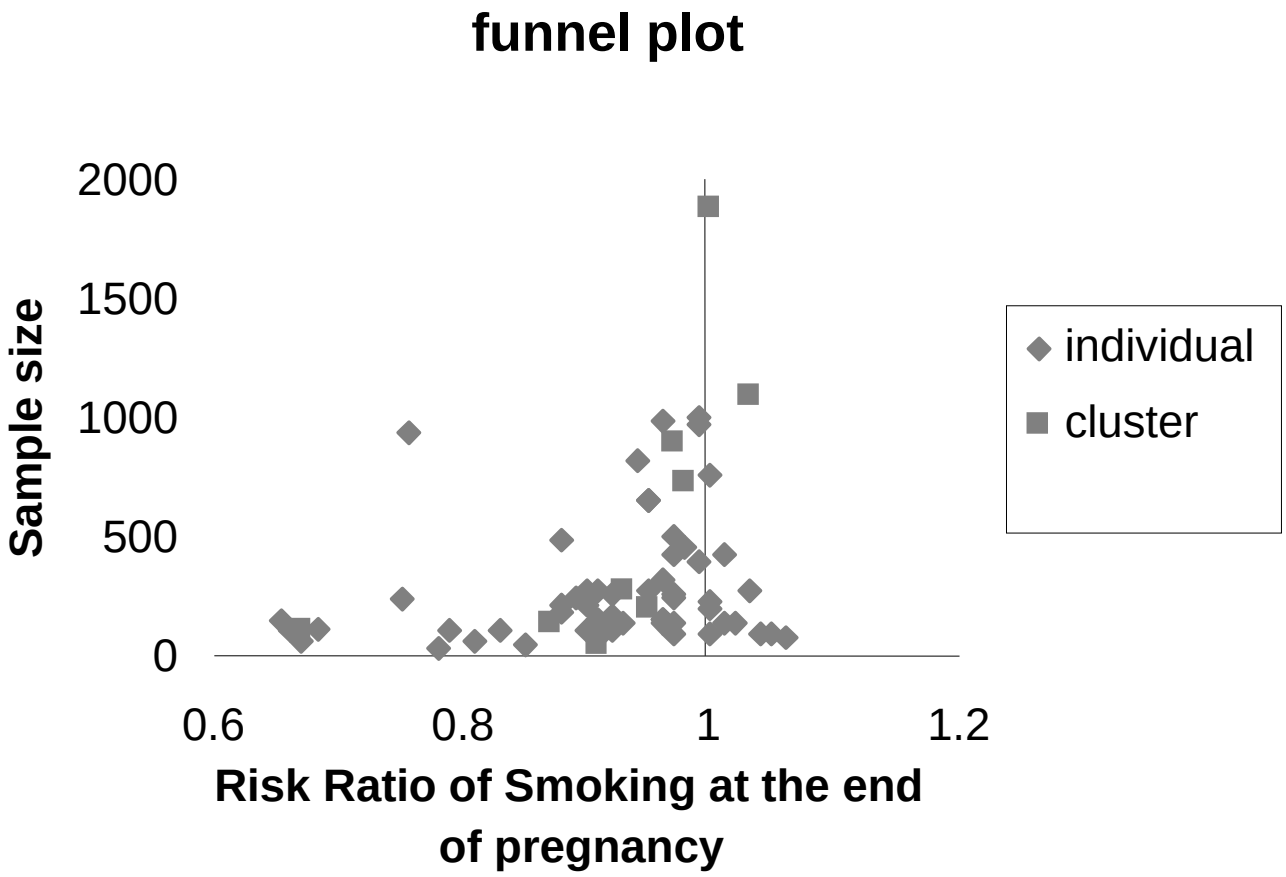
Agenda

- CPIT Trial
  - Background & context
  - Design
  - Main Results
- Economic Evaluation
  - Within-trial analysis
  - Lifetime analysis
  - Results
- Conclusions

Background & benefits of smoking cessation during pregnancy

- **80%** women have babies so pregnancy is an ideal opportunity to help nearly all women who smoke to quit while still healthy
- Women are **less than 40 years old** when pregnant so **cessation returns normal life expectancy**
- **> 20%** of pregnant women smoke in Scotland - **< 1 in 20** quit
- Protects from miscarriage, stillbirth, 4000 UK deaths annually pre-term birth & low birth weight, asthma and other illness
- If mother quits, **children are less likely to become smokers**
- Extra pregnancy **(£100-£700**) & first year health services costs **(£150 - £300**) per smoker

Interventions to help pregnant smokers to quit (Cochrane Review)



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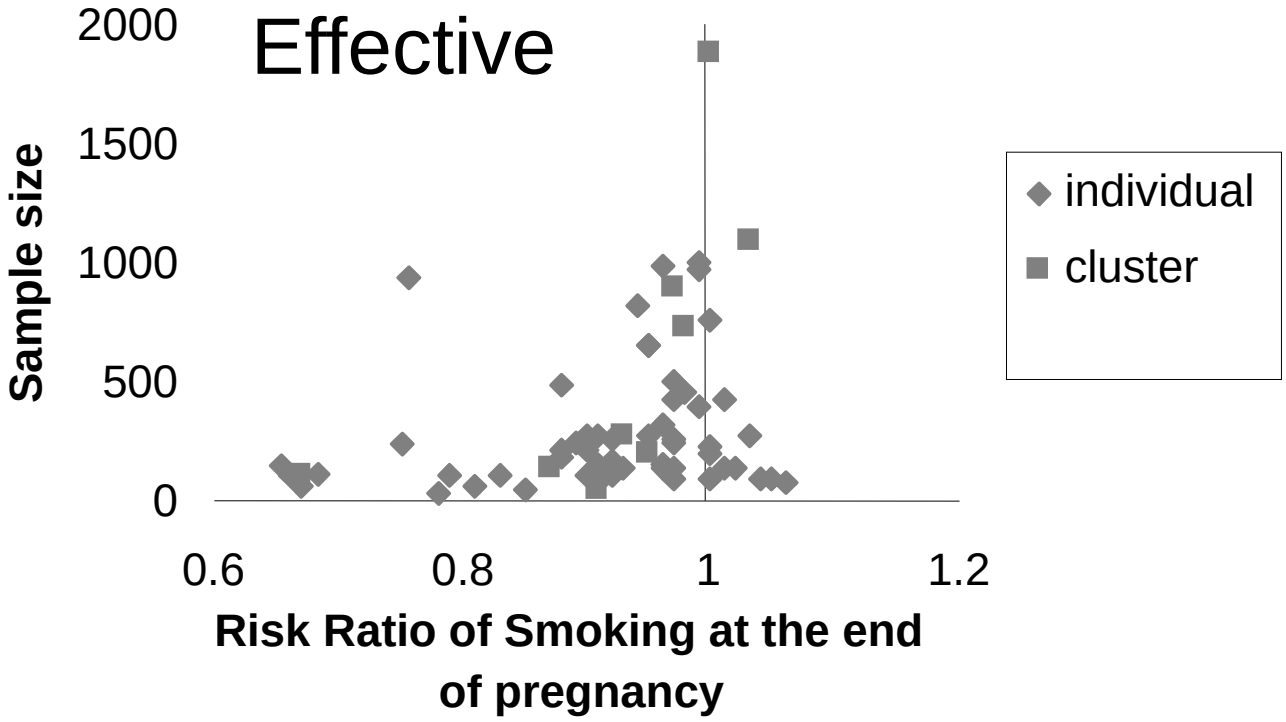

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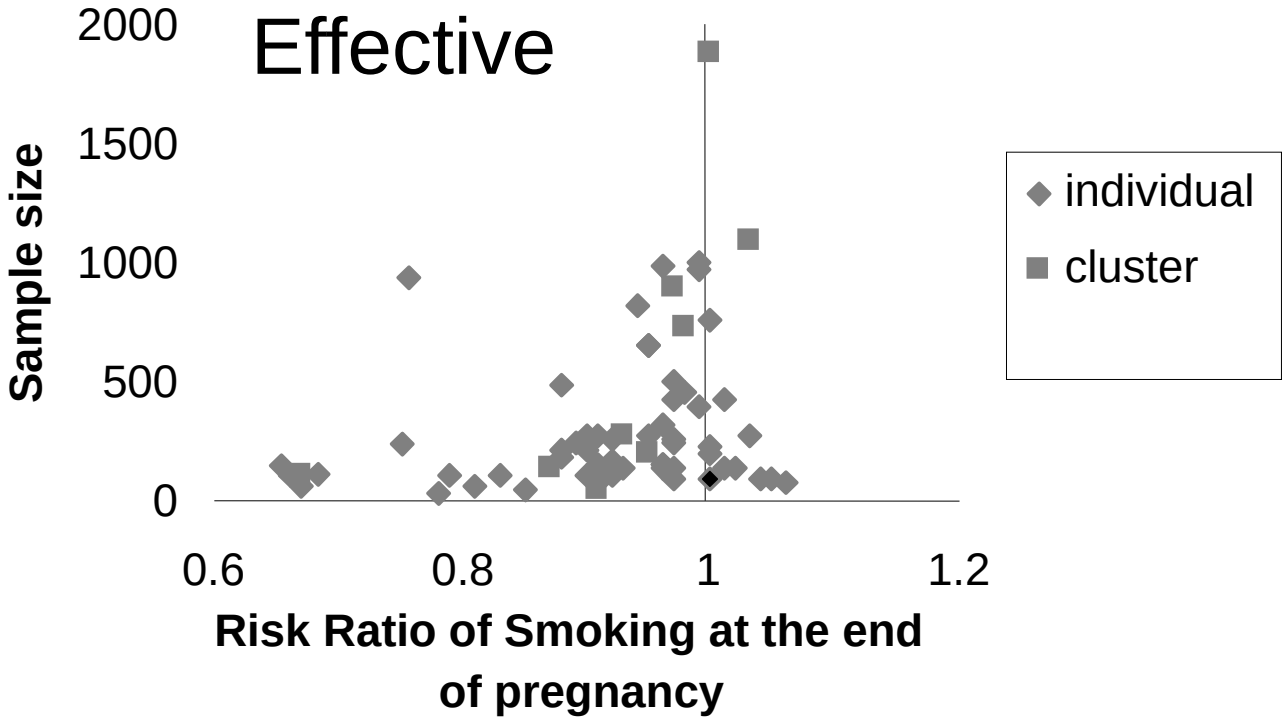

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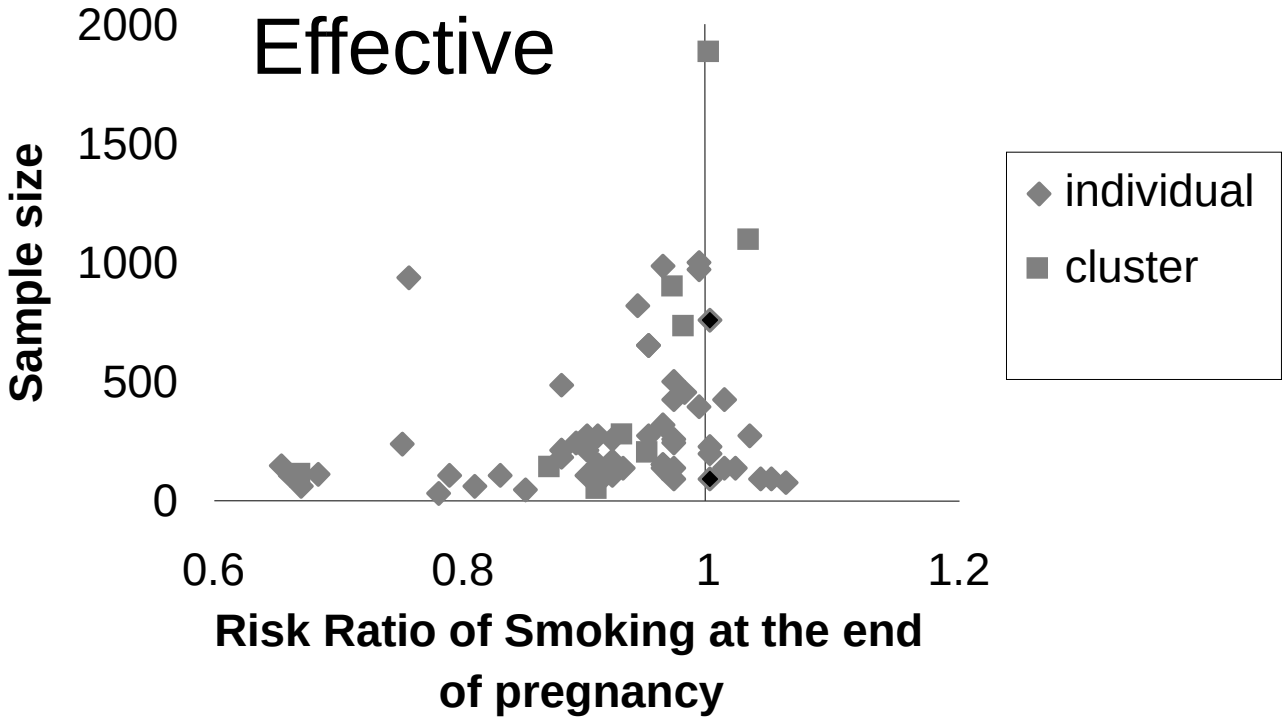


Glasgow Pregnancy Stop Smoking Service

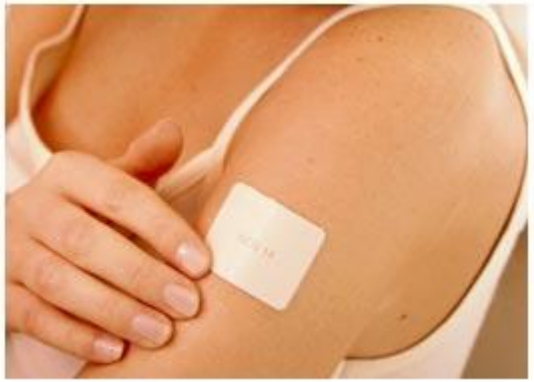
- Well developed pro-active smoking cessation service for pregnant women that adheres to NICE guideline
- All self-reported smokers referred to specialist advisers (opt-out) electronically at maternity booking who make contact by phone to ask about smoking and cessation and to make a face to face appointment
- Free prescription of Nicotine Replacement Therapy

Treating pregnant smokers

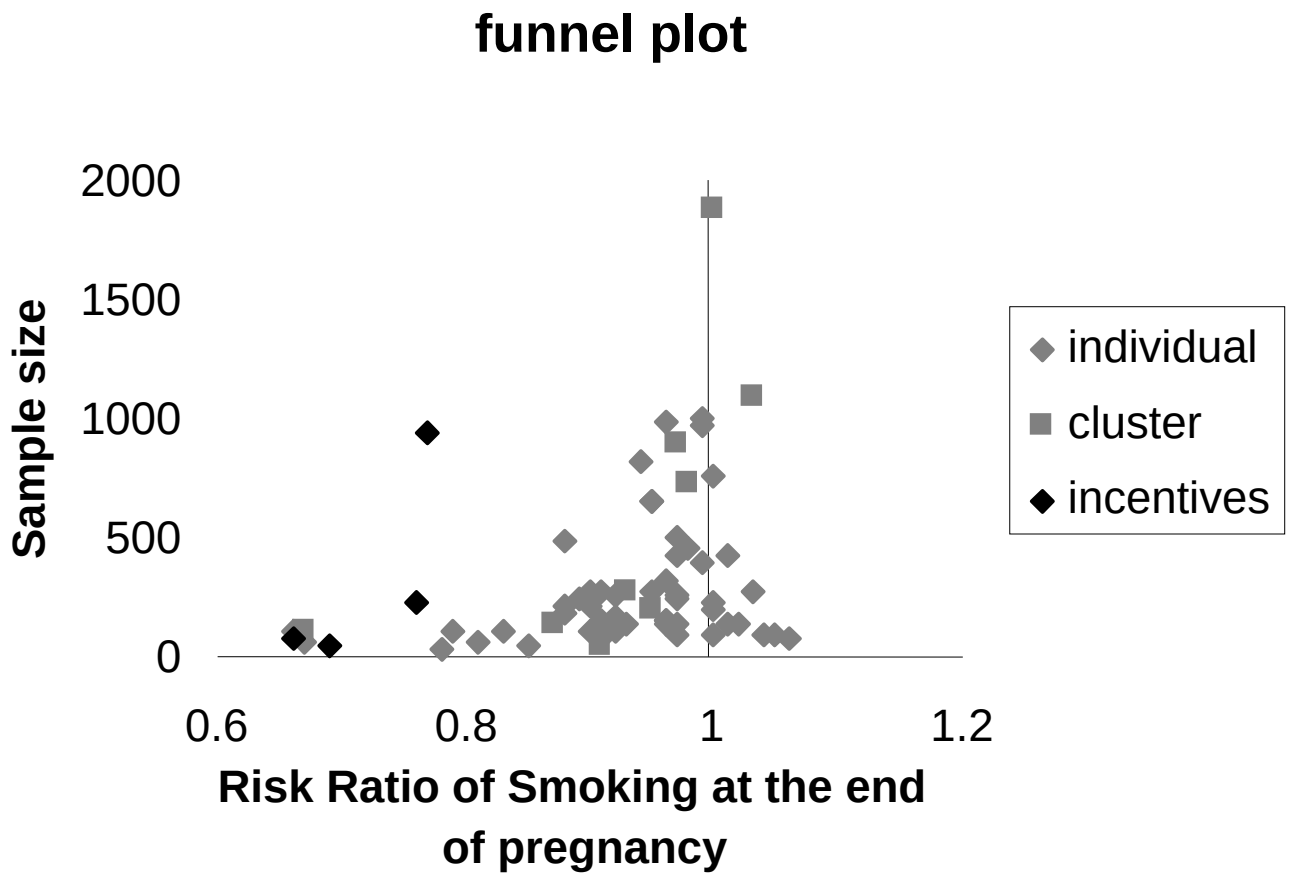
If pregnant smokers set a quit date they are treated using Withdrawal Orientated Therapy

Treating pregnant smokers

If pregnant smokers set a quit date they are treated using Withdrawal Orientated Therapy and are offered free Nicotine Replacement Therapy



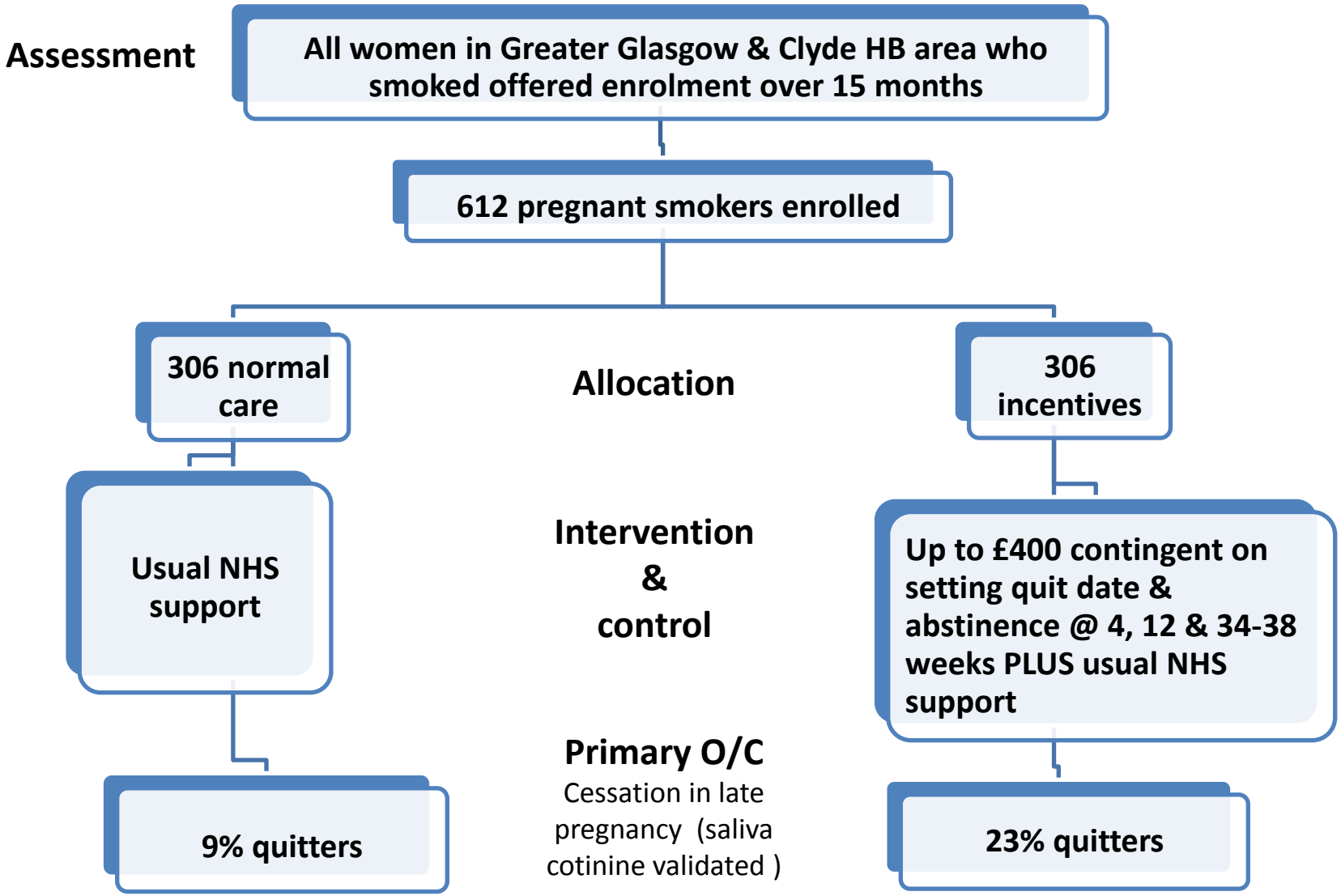
Financial incentives to help pregnant smokers to quit (Cochrane Review)



Why Financial Incentives?

- Used in other areas of public health with some success
- Evidence that increase engagement, retention & cessation
- Best evidence of efficacy for incentives in pregnancy
- Cochrane review - financial incentives more effective than other intervention strategies
- Growing evidence of ‘real world’ effectiveness from incentives schemes across UK
- NICE Recommendation for UK trial of financial incentives

Trial Design



Main Trial Results

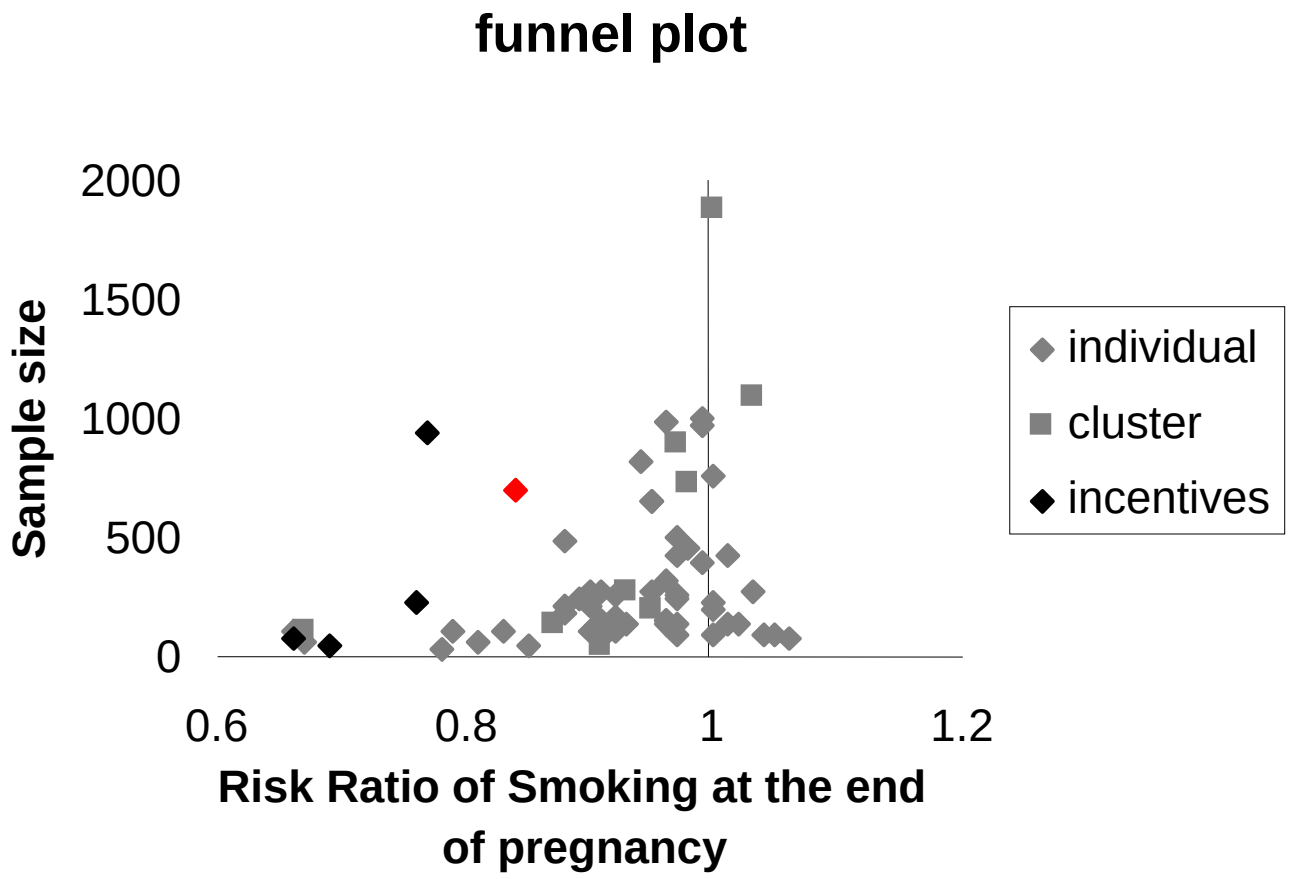
Primary Outcome

- **14%** absolute increase in quit rates late pregnancy **9%** vs **23%**
- Number needed to be offered incentives **7**.
- Relative risk of cessation at end of pregnancy **2.63** [95% CI 1.73-4.01, p<0.0001]

Secondary Outcomes

- Improved postnatal cessation at 6 months post delivery **4%** vs **15%**
- **Increase in birthweight** **150g** for extra 14% who quit with incentives

Financial incentives to help pregnant smokers to quit



Qualitative & Health Economic Results

- **Qualitative analysis indicates:**
  - accounts of trial participation positive
  - home based monitoring visits acceptable
  - incentives generally acceptable to women & HCPs
  - women & HCPs thought 'gaming' was possible

- **Health economic analysis indicates:**
  - short term cost effectiveness **£1127** per additional quitter
  - lifetime analysis incremental cost of **£482** per QALY gained

Voucher Spend

Retailer	Spend		Retailer	Spend
Argos	£11,053		Matalan	£3,915
BHS	£755		Mothercare	£4,872
Boots	£3,312		New Look	£4,485
Comet	£50		Officers Club	£72
Debenhams	£1,842		Peacocks	£114
DW Fitness	£139		Poundstretcher	£1,360
Early Learning Centre	£153		River Island	£2,666
Ernest Jones	£25		Semichem	£462
H Samuel	£149		Shoezone	£202
Halfords	£248		Superdrug	£1,183
HMV	£418		The Factory Shop	£1,184
Homebase	£287		TJ Hughes	£313
House Of Fraser	£40		Toys R Us	£3,891
Iceland	£8,626		Wilkinson	£461
JJB Sports	£170		**Total**	**£51,363**

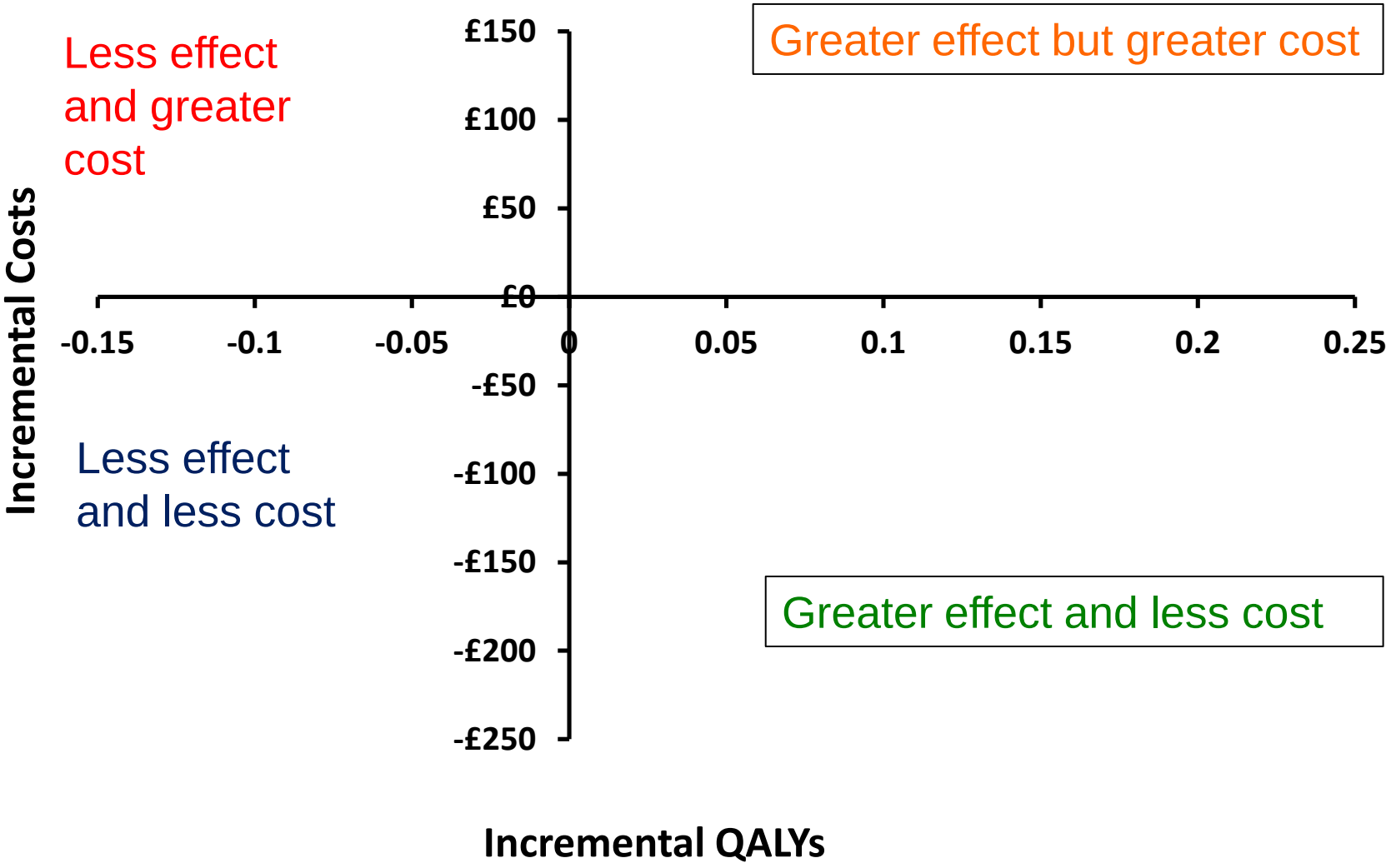
Economic Evaluation

- We know that smoking cessation is cost-effective
- Could Financial Incentives offer value for money compared to other cessation support?
- Financial Incentives+ usual care V's usual care
- Incremental cost-effectiveness ratio (ICER)

$$\text{ICER}: \frac{\text{Cost}_A - \text{Cost}_B}{\text{Effect}_A - \text{Effect}_B} \leq £20{,}000 \text{ per QALY}$$

- Within-trial analysis: Incremental cost per quitter
- Lifetime analysis: Incremental cost per QALY

Other prevention strategies



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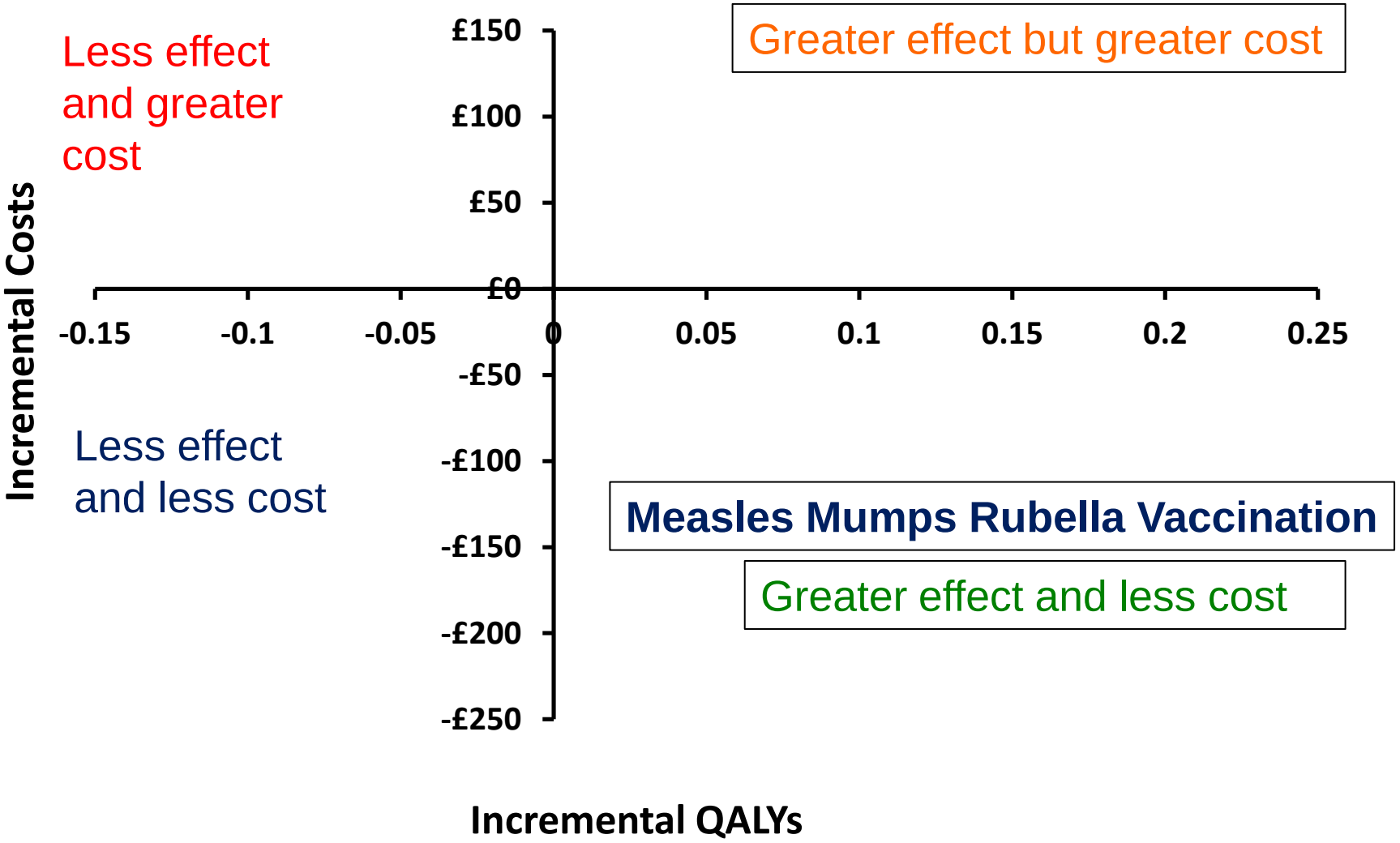

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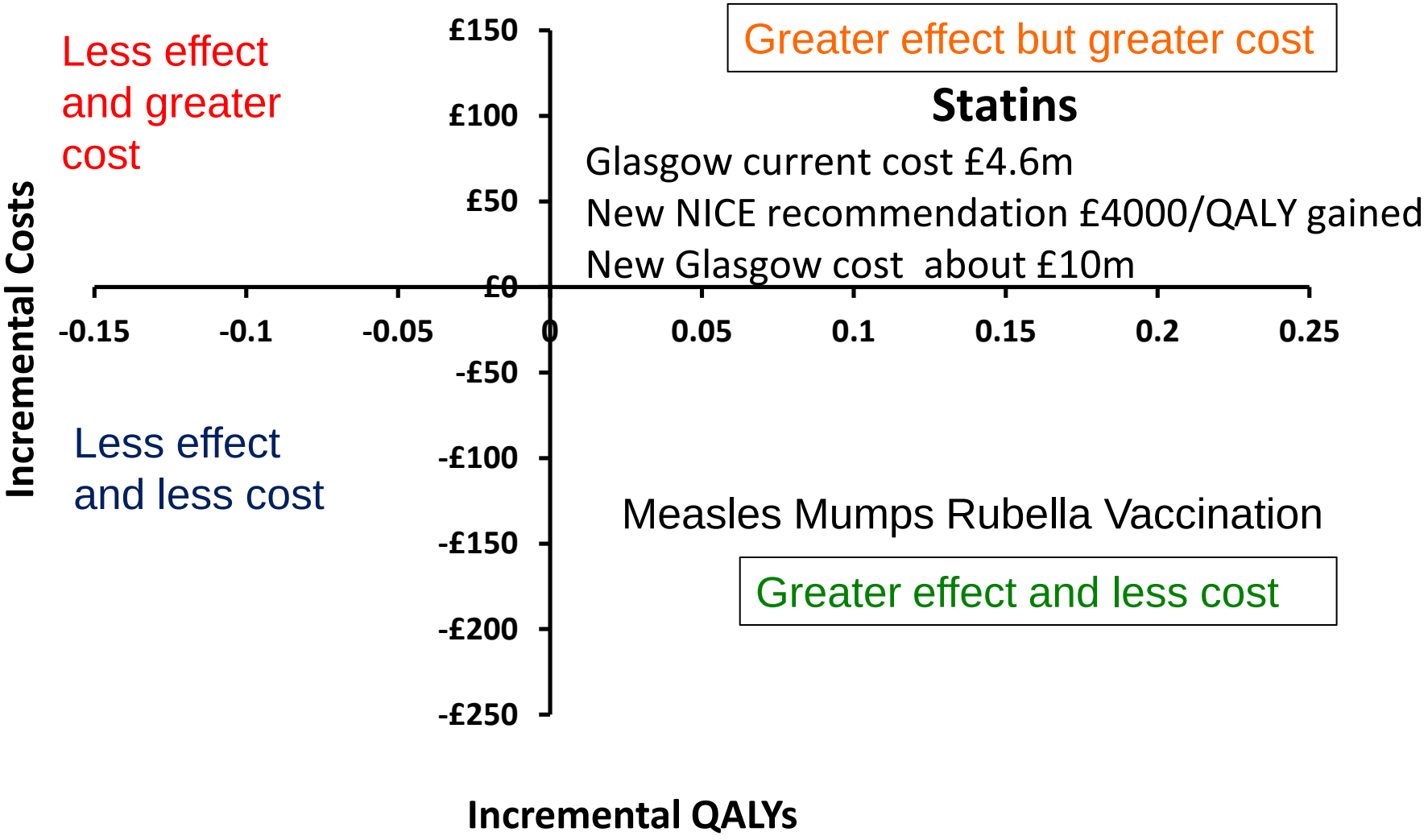
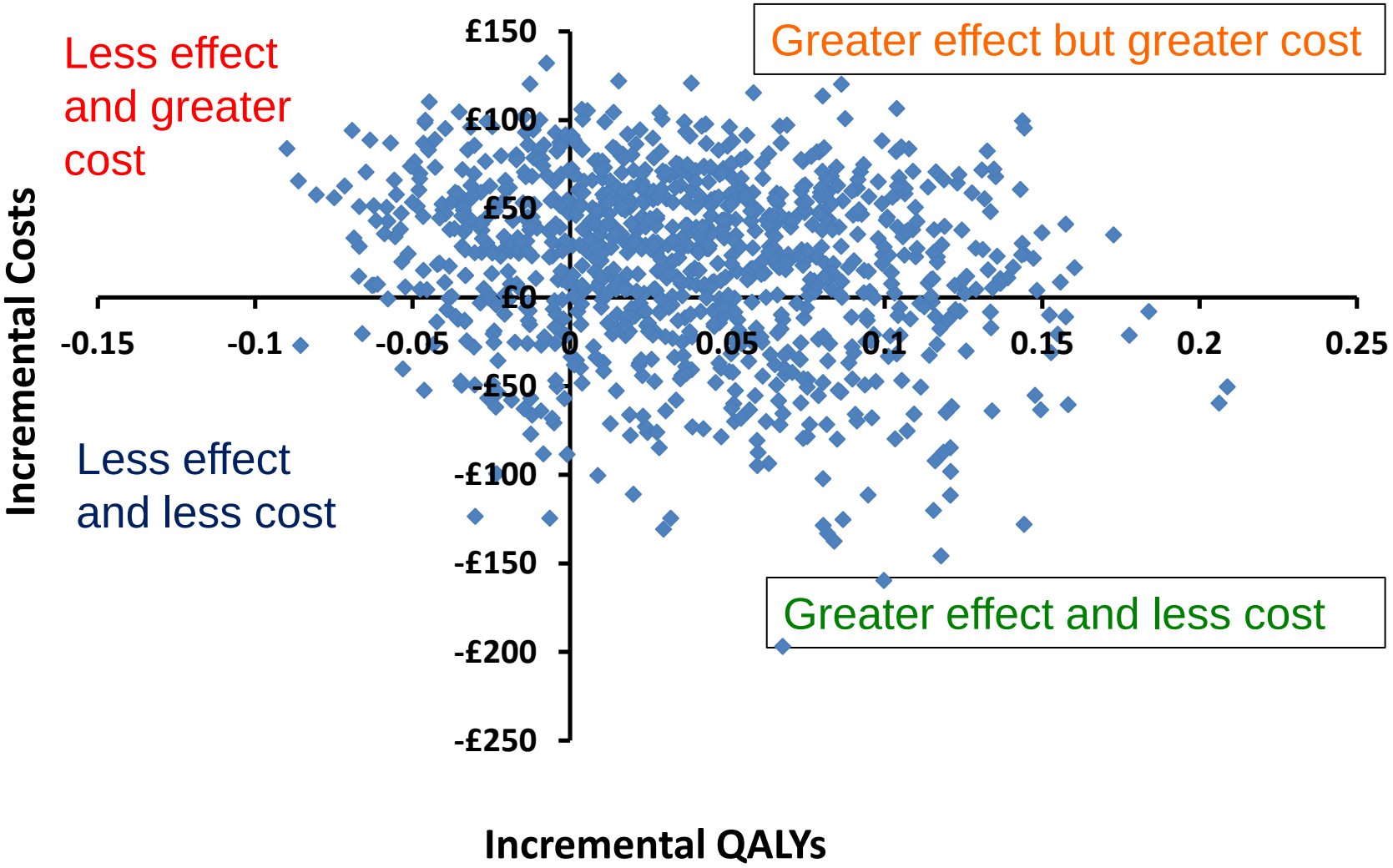


CPIT II: Financial Incentives V's usual care



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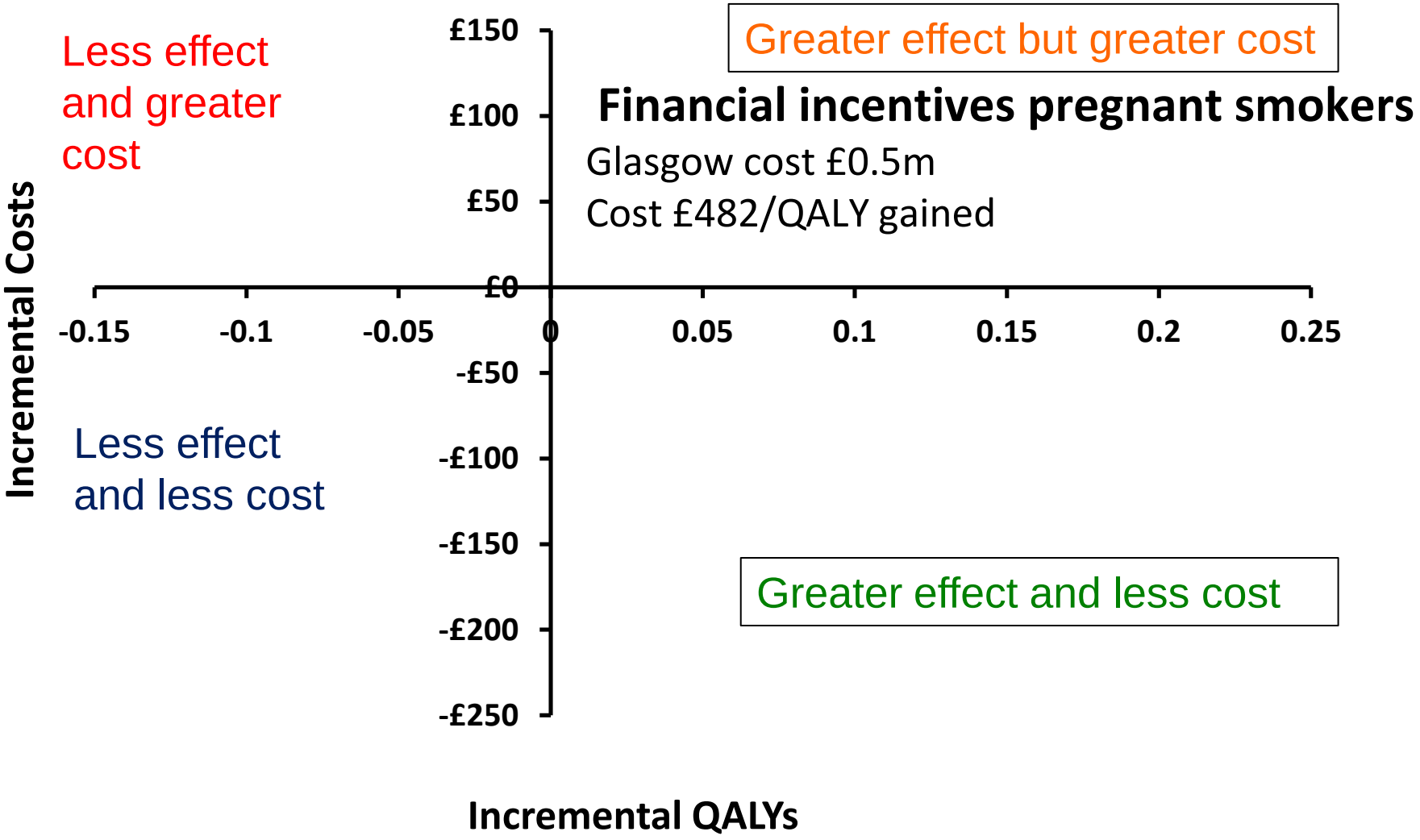

Actual cost for Glasgow

- Incentives £50,000 for 300 incentives participants.

  2,300 self reported smokers each year therefore incentives costs would be £350,000 per annum

- Extra staff costs 20% increase in workload

Year	Attended week 1	Set quit date
2011	875	744
2012	1044	929
2013	869	746

one member of staff

£30,000

- Cotinine assays of residual samples from maternity booking and late pregnancy 200 samples = £4000

Conclusions

- Financial incentives may double the quit rate (8.6% to 22.5%) when added to stop smoking in pregnancy services
- Financial Incentives are likely to be highly cost-effective & well below the NICE threshold of £20,000/QALY

Conclusions

Incentives:

- Promising for motivating women to quit during pregnancy
- Acceptable to women & HCPs without unwanted effects
- Appears to be a cost-effective intervention

Larger trial to demonstrate if works in other areas:

- Will intervention be generalisable?
- Would smokers 'game' self-report entry to trial?
- Do smokers 'game' the cotinine outcome as they 'game' the CO?
- Will outcomes be sustained to 6 months after birth?

Points to consider

- Cost
- Capacity
- Gaming
- Sustainability post-natally

Questions?

Pregnancy Service - April 2011 to Sept 2014