

Public Health Practice Evaluation Scheme

Addressing the challenges faced by 'front line' practitioners

Evaluation of a complex intervention (babyClear[®]) to reduce smoking rates in pregnant women

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BACKGROUND

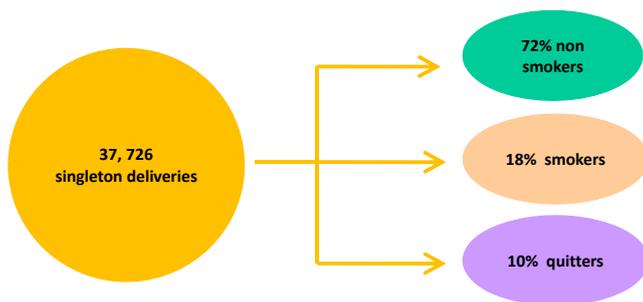
- Smoking in pregnancy has a significant impact on the health of mother and baby by increasing the risks of low birthweight, stillbirths, preterm delivery and pregnancy complications. Smoking rates in the North East are among the highest in England, affecting more than 1 in 5 pregnancies.
- Fresh (the North East tobacco control office) commissioned the babyClear[®] intervention in 2012/13, a comprehensive package to transform NE services in supporting pregnant smokers to stop (figure 1), in line with national guidance.
- Fuse worked in partnership with Fresh and other stakeholders to evaluate the effectiveness and cost-effectiveness of this approach. A qualitative process evaluation (reported separately) explored the implementation of the intervention.

METHODS

- Interrupted time series analysis of routine data before and after introduction of the intervention
- Routine data on all singleton deliveries, including smoking status during pregnancy and at delivery, were obtained from all eight maternity units and linked with referral data from stop smoking services (figure 2)
- Referral and quit rates were compared before and after intervention
- Birthweight was modelled among smokers, quitters and non smokers
- The cost of the intervention and cost-effectiveness per additional quitter was estimated.

FIGURE 2

Cohort of deliveries



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FIGURE 1
 BabyClear[®] intervention



Implemented across maternity units and stop smoking services (SSS) in North East England, comprising:

- Universal carbon monoxide (CO) monitoring at booking by midwife
- Provision of CO monitors
- Routine opt-out referral to stop smoking services
- Explicit referral pathway and follow up protocol
- Underpinned by skills training for all midwives, SSS advisors and administration staff, and those delivering SSS in the community

KEY FINDINGS

- Impact on referral rates:** Referral rates to Stop Smoking Services (SSS) increased progressively in the first three months after implementation, and were 2.5 times higher in month four, compared to the baseline period (95% CI 2.2-2.8).
- Impact on quit rates:** Quit rates nearly doubled after introduction (aOR 1.8; CI 1.5-2.1). They were higher in pregnancies with a recorded referral to SSS (aOR 3.2) and where there was a record of setting a quit date (aOR 4.8).
- Impact of smoking on birth weight:** Babies born to women who quit smoking during pregnancy were, on average, 6 per cent heavier than babies born to women who smoked throughout, equivalent to an additional 210g for a baby born at full term.
- Costs per delivery and per additional quit:** The cost of implementing the babyClear[®] core package over five years is estimated at £31 per delivery, with over 90% of costs attributable to increased referrals to SSS. Nine pregnant smokers needed to be treated for each additional quit at a total cost of £952.
- Impact on smoking rates:** For a Trust with 3,000 deliveries per year and 28% of women smoking at the start of pregnancy, the intervention would result in 96 additional quitters annually, reducing smoking at time of delivery (SATOD) rates by around 3 per cent.



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