Assessing the Economic Pay-off of Low-level Interventions in Reducing Postnatal Depression

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Key findings:

A substantial improvement in the quality of life for mothers after birth and an increase in productivity for those who return to work in the first year makes it economically worthwhile to offer a universal screening and intervention programme for postnatal depression even in the very short-term.

They are unlikely to be cost savings associated with the programme in this first year: although treatment costs are lower and there is a decrease in productivity loss this is outweighed by an increase in costs for training up health visitors and the staff costs for the interventions.

In the medium term, it is likely that cost savings can be achieved because treatment costs and productivity loss could be further reduced. This is based on the assumption that depressive symptoms persist after the first year if left untreated. When taking a long-term perspective it is important to include the economic costs of negative behavioural, emotional and cognitive consequences in children. There are also impacts on father’s health and wellbeing to take into account.

Moderate to severe postnatal depression is a common condition that affects approximately 13% of women in the early months following childbirth (Petrou et al 2006, O’Hara and Swain 1996). Left untreated, a significant proportion of these women are still ill one year after giving birth (Oates 2000). The health and wellbeing impacts on the whole family are known to be detrimental, including a substantial reduction in a mother’s quality of life, and negative outcomes in the behavioural, emotional and intellectual development of children (Murray et al 2010, Führer et al 2009, Halligan et al 2007). Increasingly, research suggests that PND also acts as a risk factor for paternal postnatal depression (Paulson and Bazemore 2010). The economic costs of postnatal depression can be conservatively estimated at £45 million for England and Wales at 2009/10 prices.¹

Early identification of mothers who are affected by postnatal depression and the provision of psychologically informed interventions can improve outcomes for mothers and children (Morrell et al 2009, Petrou et al 2006). Universal and targeted interventions provided by health visitors have

¹ This figure is derived from Petrou et al (2002) who estimate the mean mother-infant dyad cost differences between women with and without postnatal depression. This estimate includes additional health and social care services use but does not include indirect costs that accrue to society such as the productivity loss because of mother’s reduced ability to return to work or to work to full the same capacity.
been trialled in the UK and provide information on resource use and effect size (Morrell et al 2009, Petrout et al 2006, Holden et al 1989). The main drivers for the direct costs to the health and social care system of the intervention are associated with the training of health visitors (£1,400 per health visitor derived from Cowley and Bidmead 2009, and Morell et al 2009) and the estimated additional time that health visitors spend with mothers for screening and counseling.

We used a decision model in which we compared a universal intervention programme with routine care over a one year time period. For universal health visiting, it was assumed that all women are screened for postnatal depression after giving birth. In this model, we assume that the screening is carried out by health visitors as part of regular home visits using the Edinburgh Postnatal Depression Score (EPDS), a commonly used tool for the identification of postnatal depression. Women who are identified with postnatal depression and whose depression is not resolved in the short-term are then assumed to receive psychologically informed sessions from their health visitors. If these are not leading to an improved mental health state then treatment as usual is provided.

While NICE (2007) recommends a standardised screening procedure in primary care and which has been assessed by Paulden (2010) in terms of the economic pay off, we did not think that this could be assumed to reflect current practice. Instead, we took evidence from Murray et al (2004) and Kessler et al (2002) which shows a low chance of women being identified with depression in routine care. Those women whose depression does not resolve in the short-term are assumed to be referred on to treatment consisting of seven sessions of cognitive behavioural therapy (CBT) and a nine-month course of antidepressants. In the model, effectiveness was measured in terms of utilities for depression states derived from Bennett et al (2000) and Revicki & Wood (1997). Costs considered in the analysis were associated with the interventions and the loss in productivity for those mothers returning to work in the first year after giving birth. We conservatively assumed that mothers would take the maximum amount of statutory maternity leave before potentially returning to work.

Our model finds that universally applied screening and psychologically informed sessions to women with postnatal depression provided by trained health visitors is a cost-effective alternative to routine care. The incremental cost-effectiveness ratio (ICER) is £4,900 per quality-adjusted life year. The current costs of identification and treatment in routine care were estimated at £35 per mother, while the additional costs associated with intervention were just under £160. This compares with an increase of 0.032 in quality-adjusted life years (QALY). If a willingness-to-pay threshold of £20,000 was applied to monetise quality of life improvements (which is lower than the value often associated with NICE decisions), then these findings translate to a net benefit of £640 per mother. Extrapolated to the national level this amounts to an imputed net benefit of c.£300 million for England.

Gaps in research evidence present challenges in determining the economic pay-off of early interventions after the birth of a child. For example, it is unclear from previous research to what extent postnatal depression resolves naturally, nor how closely it correlates with later episodes of

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2 It is assumed that if women are screened as depressed when in fact they are not, then this will be corrected at their next session with a health visitor.

3 Treatment for moderate to severe depression – in line with NICE recommendations (NICE, 2007) - consists of a course of seven CBT visits and a nine-month course fluoxetine at 20mg per day.
maternal depression. The latter makes it difficult to determine what cost savings or cost-effectiveness gains might be achieved in the longer term.

Modelling a simplified but generalisable screening, identification and treatment pathway allowed us to address some information uncertainties. We tested value ranges for all parameters via sensitivity analysis and found that the findings are robust. However, we were only able to look at the short-term impact on mothers health and productivity. Future development of the model is needed to estimate the economic consequences for children and possibly fathers over a longer time-horizon. We are currently engaged in research to explore these developments.

References


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