Maternal Postnatal Depression and Completion of Infant Immunizations:

A UK Cohort Study of 196,329 Mother-Infant Pairs, 2006–2015

Holly C. Smith, MSc[a,*]; Sonia Saxena, MBBS, Msc, MD, FRCGP[b]; and Irene Petersen, PhD, MSc[c]

ABSTRACT

Objective: To examine the relationship between maternal postnatal depression and completion of infant vaccinations.

Methods: We conducted a cohort study using data from The Health Improvement Network (THIN), a large UK primary care electronic health record database. We identified 196,329 mother-infant pairs in which the infant was born between 2006 and 2015. Postnatal depression was identified through antidepressant prescriptions or diagnoses or symptoms of depression in first year after childbirth. Primary outcome was completion of three 5-in-1 vaccination doses in infants before 1 year of age; this vaccine protects against diphtheria, tetanus, whooping cough, polio, and *Haemophilus influenzae* type b. We used Poisson regression models to compare likelihood of infant 5-in-1 vaccine uptake among children of women with a record of postnatal depression to likelihood among those without.

Results: Of the 196,329 women, 20,802 (10.6%) had a record of postnatal depression and/or antidepressant prescription. There was no difference in infants' 5-in-1 vaccination completion between those of mothers with a record and those of mothers' without (adjusted incidence rate ratio [IRR] = 1.01; 95% CI, 0.99–1.02). Those from more socially deprived areas were less likely to complete infant vaccinations compared to those from the least deprived areas (IRR = 0.92; 95% CI, 0.90–0.93). Likelihood of completing infant vaccination decreased over time, comparing 2014–2015 to 2006–2007 (IRR = 0.90; 95% CI, 0.89–0.92).

Conclusions: Among mothers who engage with primary care, maternal postnatal depression is not associated with lower rates of infant vaccination, though more research is needed to conclude if either more severe depression or unrecognized depression is associated with lower completion rates.

J Clin Psychiatry 2022;83(4):20m13575

To cite: Smith HC, Saxena S, Petersen I. Maternal postnatal depression and completion of infant immunizations: a UK cohort study of 196,329 mother-infant pairs, 2006–2015. *J Clin Psychiatry.* 2022;83(4):20m13575.

To share: https://doi.org/10.4088/JCP.20m13575

[a]Department of Primary Care and Population Health, University College London, London, United Kingdom

[b]School of Public Health, Faculty of Medicine, Imperial College London, London, United Kingdom

[c]Department of Primary Care and Population Health, Institute of Epidemiology & Health, University College London, London, United Kingdom

**Corresponding author:* Holly Christina Smith, MSc, University College London Research Department of Primary Care & Population Health, Upper 3rd Floor, Royal Free Hospital, Rowland Hill Street, London NW3 2PF, United Kingdom (Holly.dorning.18@ucl.ac.uk).

Postnatal depression affects up to 1 in 5 mothers[1–4] and can have a devastating impact on both mothers and infants.[5–7] There is some evidence that depression in mothers could affect the quality of care and support they give their infant, and there is increasing evidence that it can alter the level of health care infants receive,[8,9] although the causal mechanism is not well understood. Previous studies[8] have shown that infants of women with postnatal depression are higher users of urgent/unplanned care, but it is not clear if these infants have more complex health needs that could have an impact on the mental health of the mother or vice versa. Adding to this, studies[9–14] have shown that the infants of mothers with depression may be less likely to attend preventative or planned health care measures.[9–11] A small number of studies[9–14] have explicitly examined adherence to infant immunization schedules in mothers with postnatal depression; however, no such studies have been conducted in the United Kingdom (UK). The results from these studies are mixed, and the link between postnatal depression and infant vaccine uptake remains inconclusive. Previous studies have been limited by small sample sizes or being restricted to specific subpopulations, making it difficult to draw broader conclusions; our study thus draws on a large general population in the UK.

In the UK, the 5-in-1 vaccine was introduced in 2006 and was replaced by the 6-in-1 vaccine in 2017.[15] All infants should receive 3 doses of the vaccination, 1 dose each at 2, 3, and 4 months of age.[15] The 5-in-1 combined vaccination protects against diphtheria, tetanus, pertussis (whooping cough), polio, and Hib disease (*Haemophilus influenzae* type b)[15]; nonadherence to this immunization schedule puts an infant at risk of developing these life-threatening diseases.[16,17] This vaccination is one of the first preventative health measures an infant receives and is an essential part of the UK vaccination program.

UK rates of vaccinations are broadly comparable to those in other similar countries and in line with the World Health Organization (WHO) target of 95.0%.[18] In 2015, the Organization for Economic Cooperation and Development (OECD) data on the percentage of children who received their diphtheria, tetanus, and pertussis vaccination at 1 year of age (the most comparable indicator available) identified that in the UK, 95.0% of children were vaccinated compared with 95.0% in the United States (US), 93.0% in Germany, and 97.0% in France.[19] While national coverage is generally high, there is substantial regional variation. In particular, London consistently reports lower vaccination coverage than other regions. In 2015–2016, only 89.2% of infants in London had received their 5-in-1 vaccination at 1 year of age.[16] Barriers to vaccine uptake may include capability, health beliefs, and

Clinical Points

- Previous studies investigating the link between postnatal depression and infant vaccine uptake have found mixed results.
- Postnatal depression was not associated with lower rates of infant vaccination in a large UK mother-infant cohort.

opportunities.[20] For example, uptake is lowest among infants of teenage/younger mothers, those living in poorer areas, and some ethnic groups who are susceptible to misinformation or fear or mistrust of vaccination programs.[21,22]

In the UK, electronic health records from primary care provide a detailed picture of the care both mothers and infants receive. Thus, primary care is the first source of support for most women experiencing postnatal depression. Likewise, it is the typical setting for infant vaccinations. In this study, using linked mother and infant primary care records, we aimed to determine if infants were less likely to receive their 5-in-1 vaccination if their mother had sought support for postnatal depression.

METHODS

UK Health Care

In the UK, health care is free at the point of delivery for all residents as part of the National Health Service (NHS). Primary care is typically the first point of contact and is largely delivered by general practitioners (GPs) and other health care professionals (nurses and health visitors) within a practice. Information about patients and their health is collected during primary care consultations and recorded on the practice computer system. This information is primarily used for clinical care but is also widely used for research through large, anonymized health care databases such as The Health Improvement Network (THIN).

Most women in the UK give birth in a hospital setting and are discharged home 1–2 days after childbirth, although this may be longer for those who have a cesarean or complex delivery. For the first few days and weeks after childbirth, women and newborns have access to midwives and health visitors through community services, which are responsible for supporting with feeding, safe-sleeping advice, newborn checks, women's initial recovery from childbirth, and how everyone is adjusting to a new baby.[23] This care typically involves home visits and telephone support. Some women are seen more often and for longer depending on their needs. They are then discharged to their GP, and responsibility for their care returns to primary care.

When babies are 6 to 8 weeks old, both mother and infant are invited for separate checkups with their GP, although they are usually scheduled together in the same visit. The purpose of the infant check is to conduct a thorough physical examination. In addition, infants will begin their routine vaccination schedule (see "Infant 5-in-1 Vaccination Adherence" later in the Methods section). In the UK, infants do not see a pediatrician unless they require specialist care, but will have 2 further routine reviews at 9–12 months and 2–2.5 years old. The purpose of the mothers' 6- to 8-week check is to evaluate their mental and physical health and assess how women are recovering after pregnancy and birth. As they would at any other time, women and infants can use hospital care in an emergency or for planned care when they are referred through their GP.

Data Source

We used data from the THIN database from between January 1, 2006, and December 31, 2016. This database contains the electronic medical records of more than 12 million patients across the UK from over 700 general practices.[24] THIN contains patient-level information on characteristics (such as sex, age, and social deprivation), symptoms, diagnoses, medications, and preventative health care measures—including vaccinations. Each individual can be linked to members of their household by a unique family number. Symptoms, diagnoses, and health care information are entered by GPs and nurses using Read codes, a hierarchical medical coding system.[25] Additional Health Data (AHD) records contain information on preventative care, including immunizations and vaccinations. A number of studies have confirmed patients in THIN are representative of the UK population in terms of sex, age, ethnic group, and medical conditions.[26,27] However, practices that contribute data to THIN tend to be from more affluent areas, and as such, there may be an underrepresentation of women from the most deprived areas. In THIN, the Townsend index provides an area-based measure of deprivation based on postcode, unemployment, car ownership, home ownership, and household overcrowding.[28] The Townsend index is used to create 5 groups using quintiles, 1 being least deprived and 5 being most deprived.

We excluded practices that did not meet our data quality criteria of acceptable computer use (ACU) or acceptable mortality rates (AMR) by the infant's date of birth. ACU is the date a practice was continuously entering on average at least 2 therapy records, 1 medical record, and 1 additional health data record per patient per year,[29] and AMR is the date a practice has mortality rates comparable to those of the rest of the UK, given the size and demographics of the practice.[30] We included only women who had been registered at a practice for at least 6 months to ensure their current practice had their full medical information. A small proportion of individuals were also missing information on Townsend scores and were excluded from the study.

Study Population

Mother-infant cohort. Potential mother-infant pairs were identified by a recorded childbirth in a woman's electronic health record and an infant first registered within the same household at the time of birth. In a mother's record, childbirths and date of childbirth were determined using a combination of an antenatal record, delivery record, postnatal care record, and/or date of last menstrual period. If women

had multiple infants in the study, 1 was selected at random for inclusion.

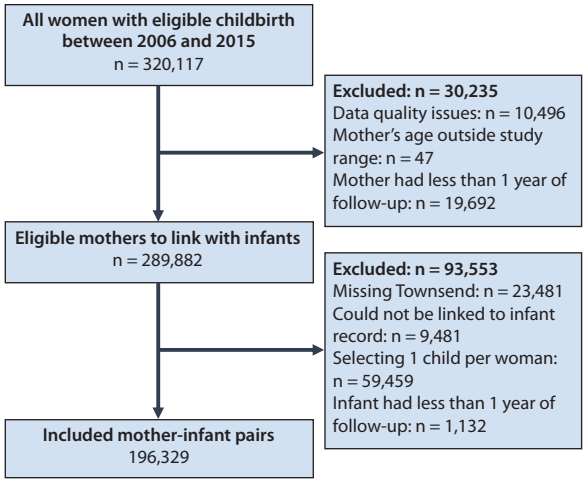
To coincide with the 5-in-1 vaccine, we included women of childbearing potential (aged 15 to 49 years) who gave birth between January 1, 2006, and December 31, 2015. This allowed for a final year of follow-up for infants born in 2015 and their mothers. Infants or mothers with less than 1 year of follow-up information (if they had died or transferred practice in this time) were excluded.

Definition of Variables

Maternal postnatal depression. From the date of childbirth, women were followed up for 12 months to identify a record of postnatal depression. Previously, it was anticipated women would recover from pregnancy within the first 6 to 8 weeks after childbirth (the puerperium), and much of the research and clinical care had focused on this time window. However, there is increasing evidence that women have ongoing health needs throughout the first year after childbirth, and so we extended our follow-up period to include the first year after childbirth. Mothers were defined as having sought support for postnatal depression if their records contained at least one of either a symptom of depression (such as "low mood"), a diagnosis of depression (such as a record of "postnatal depression"), or an antidepressant prescription.[31] Read codes were used to identify a symptom or diagnosis and British National Formulary (BNF) codes to identify antidepressant prescriptions issued. A full list of the Read codes used is included in Supplementary Appendix 1. A small number of women may be prescribed antidepressants for reasons other than depression; however, only relying on recorded symptoms and diagnoses is likely to underestimate the number of women with depression after giving birth. There may be a delay in women's reporting symptoms and seeking treatment for depression. Hence, a large proportion of women have a first record of depression at their planned postnatal check,[31] which typically takes place 6–8 weeks after birth. As there is some variation in the time these checks take place, women may have their postnatal depression identified on the same day as their infant's first vaccination dose or later, even though symptoms started earlier. Therefore, we took any record of depression in the 12 months after childbirth to be those with the exposure, not just those that were recorded before first vaccine dose.

Infant 5-in-1 vaccination adherence. Infants should receive 3 doses of the 5-in-1 vaccination, typically scheduled at weeks 8, 12, and 16 after birth. To allow for some flexibility in the timing of these doses, national coverage to receive all 3 doses is measured at 12 months after birth.[32] Thus, our primary outcome was 3 doses of the 5-in-1 vaccine in infants between date of birth and up to 1 year after birth. The 5-in-1 vaccine was identified through an infant's AHD record. Multiple vaccination records on the same day were grouped and considered to be 1 dose. The stage or dose of the vaccination (1–3) was also extracted. As contraindications to the 5-in-1 vaccine are extremely rare, we considered all infants as being eligible for this vaccination.

Figure 1. Flow Diagram Showing Application of Study Inclusion and Exclusion Criteria



Maternal characteristics. We stratified our analysis by maternal age (years), Townsend score, and calendar year. Maternal age was grouped into 5-year bands. Calendar year was grouped into 2-year bands.

Statistical Analysis

A table was derived to show characteristics of women at time of childbirth, comparing those with and without postnatal depression. For the primary outcome measure, the proportion of infants who completed all 3 doses of the 5-in-1 vaccination is given, comparing those with and without postnatal depression, stratified by characteristic. Random-effect Poisson regression models were constructed to compare the likelihood of infant 5-in-1 vaccine uptake in women with postnatal depression to that in women with no recorded postnatal depression. Three models were developed: unadjusted, age-adjusted, and age- and deprivation-adjusted. To account for clustering with GP, GP practice was included as a random-effects term, and the log of follow-up time was included as an offset. All analyses were conducted using Stata V.16 (StataCorp; College Station, Texas).

Ethical Approval and Data Access

Approval was received from the Scientific Review Committee on June 17, 2019 (THIN protocol number: 19THIN053). THIN is a registered trademark of Cegedim SA in the UK and other countries. Reference made to the THIN database is intended to be descriptive of the data asset licensed by IQVIA. This work uses deidentified data provided by patients as a part of their routine primary care.

RESULTS

Participants

We identified 196,329 mother-infant pairs in which the infant was born between January 1, 2006, and December 31, 2015 (Figure 1).

Table 1. Characteristics of Women at Childbirth and Proportion of Infants Who Received all 3 Doses of 5-In-1 Vaccination, Comparing Those With and Without Maternal Postnatal Depression

Characteristic	All infants, n (% across)		Infants who received the 5-in-1 vaccination, n (%)	
	No postnatal depression	Postnatal depression	No postnatal depression	Postnatal depression
All	175,527 (89.4)	20,802 (10.6)	165,691 (94.4)	19,786 (95.1)
Maternal age, y				
15–19	5,039 (83.2)	1,014 (16.8)	4,705 (93.4)	964 (95.1)
20–24	22,269 (85.6)	3,750 (14.4)	20,714 (93.0)	3,533 (94.2)
25–29	42,272 (88.9)	5,294 (11.1)	39,749 (94.0)	5,005 (94.5)
30–34	56,118 (91.0)	5,579 (9.0)	53,273 (94.9)	5,342 (95.8)
35–39	39,029 (90.8)	3,935 (9.2)	37,060 (95.0)	3,774 (95.9)
40–44	10,237 (89.7)	1,170 (10.3)	9,653 (94.3)	1,109 (94.8)
45–49	563 (90.4)	60 (9.6)	537 (95.4)	59 (98.3)
Townsend score quintile				
1 (least deprived)	38,535 (91.0)	3,796 (9.0)	36,965 (95.9)	3,667 (96.6)
2	34,847 (90.4)	3,698 (9.6)	33,187 (95.2)	3,571 (96.6)
3	39,421 (89.8)	4,490 (10.2)	37,228 (94.4)	4,274 (95.2)
4	36,253 (88.5)	4,696 (11.5)	33,882 (93.5)	4,430 (94.3)
5 (most deprived)	26,471 (86.5)	4,122 (13.4)	24,429 (92.3)	3,844 (93.3)
Calendar year group				
2006–2007	38,305 (88.8)	4,851 (11.2)	36,636 (95.6)	4,616 (95.2)
2008–2009	37,238 (88.9)	4,654 (11.1)	35,521 (95.4)	4,423 (95.0)
2010–2011	36,009 (89.1)	4,386 (10.9)	34,487 (95.8)	4,200 (95.8)
2012–2013	35,040 (90.0)	3,910 (10.0)	33,045 (94.3)	3,725 (95.3)
2014–2015	28,935 (90.6)	3,001 (9.4)	26,002 (89.9)	2,822 (94.0)

Table 2. Completion of all 3 Doses of Infant 5-In-1 Vaccination by Maternal Postnatal Depression, Maternal Age, Townsend Score and Year, Unadjusted and Adjusted for Age and Deprivation[a]

Characteristic	Unadjusted, IRR (95% CI)	Adjusted for age and deprivation, IRR (95% CI)
Postnatal depression		
No	1	1
Yes	1.00 (0.99–1.02)	1.01 (0.99–1.02)
Maternal age, y		
15–19	0.96 (0.93–0.98)	0.97 (0.95–1.00)
20–24	0.96 (0.94–0.97)	0.97 (0.95–0.98)
25–29	0.98 (0.97–0.99)	0.98 (0.97–1.00)
30–34	1	1
35–39	1.00 (0.99–1.01)	1.00 (0.98–1.01)
40–44	0.99 (0.96–1.01)	0.98 (0.96–1.00)
45–49	1.01 (0.93–1.09)	1.01 (0.93–1.09)
Townsend score quintile		
1 (least deprived)	1	1
2	0.99 (0.97–1.00)	0.99 (0.97–1.00)
3	0.97 (0.95–0.98)	0.97 (0.96–0.98)
4	0.94 (0.93–0.96)	0.95 (0.94–0.96)
5 (most deprived)	0.92 (0.90–0.93)	0.92 (0.91–0.94)
Year group		
2006–2007	1	…
2008–2009	1.00 (0.99–1.01)	…
2010–2011	1.01 (0.99–1.02)	…
2012–2013	0.99 (0.97–1.00)	…
2014–2015	0.90 (0.89–0.92)	…

[a]Practice is included as a random-effects term and follow-up time as an offset term in all models.
Abbreviation: IRR = incidence rate ratio.

Maternal Characteristics

Of the women included in this study, 10.6% (n = 20,802) had a record of postnatal depression. Around half of these women (48.6%, n = 10,112) were identified by a symptom or diagnostic Read code of depression, 32.7% (n = 6,810) were identified as having an antidepressant prescription, and the rest (18.7%, n = 3,880) had records of both (data not shown). A higher proportion of women in teenage groups had postnatal depression (16.8% of those aged 15–19 years vs 9.0% of those aged 30–34 years) and those from more deprived areas were more likely to have depression (14.9% in most deprived group compared to 9.4% in least deprived group). Groups were broadly similar across calendar time (Table 1).

Infant 5-in-1 Vaccination Adherence

The overall vaccination rate in this study was high (94.5%), and was similar in those with and without a record of postnatal depression (95.1% vs 94.4%) (Table 1). After adjusting for age and social deprivation, we found no difference in vaccination rates between the two groups (adjusted IRR = 1.01; 95% CI, 0.99–1.02) (Table 2) or in time to complete all vaccination doses (Figure 2). Likelihood of completing infant 5-in-1 vaccination increased with age, comparing those aged 30–34 years to those aged 15–19 years (adjusted IRR = 0.97; 95% CI, 0.95–1.00). Those from more socially deprived areas were less likely to complete infant vaccinations compared to those from the least deprived areas (IRR = 0.92; 95% CI, 0.90–0.93). Likelihood of completing infant 5-in-1 vaccination decreased over time, comparing 2014–2015 to 2006–07 (IRR = 0.90, 95% CI, 0.89–0.92) (Table 2).

DISCUSSION

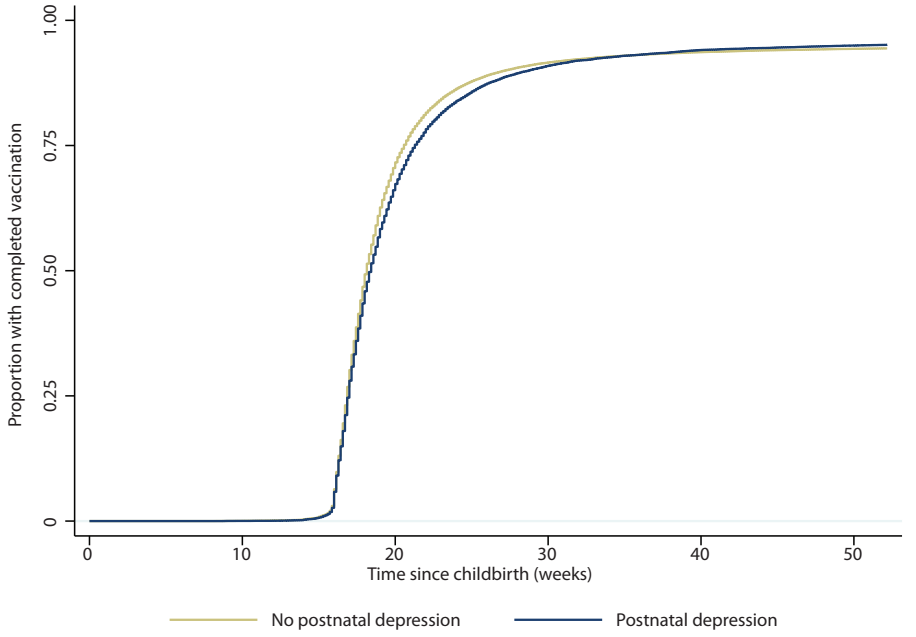
Main Findings

The vast majority of infants in our study (94.5%) completed their 5-in-1 vaccination by 1 year of age. We found no difference in uptake when comparing mothers with and without a record of postnatal depression (adjusted IRR = 1.01; 95% CI, 0.99–1.02). Those from the most socially deprived areas were 8% (7%–10%) less likely to complete their infant vaccination relative to those from the least deprived areas. The likelihood of completing infant 5-in-1 vaccination decreased over time, infants in 2014–2015 were 10% (8%–11%) less likely to complete their vaccination relative to those in 2006–2007.

Study Strengths and Limitations

This study is one of the largest (196,329 mother-infant pairs) representative, population-based studies to date to examine the impact of maternal postnatal depression on infant vaccination, and the first in a UK setting. The use of primary care electronic health records provides a reflection of real-world clinical practice that limits the impact of recall and selection bias. Our study may be limited by our interpretation of the temporal relationship between postnatal depression and vaccine uptake. We considered those with any record of depression in the 12 months after childbirth to be in the exposed group, not just those for whom depression was recorded before first vaccine dose.

Figure 2. Time to Complete Vaccinations for Infants of Mothers With and Without Postnatal Depression



We recognize that having a record of depression toward the end of the first year after birth may not always be reflective of a woman's health in the early postnatal period prior to first vaccine dose. However, as the majority of women with postnatal depression are identified in the first 8 weeks after childbirth,[31] we anticipate this would have an impact on only a small number of women in our study and is unlikely to change our findings. Some women may have depression but do not seek support from their GP. It is possible that women who do not engage with postnatal primary care because they are depressed would also be less likely to have their infant vaccinated; however, it is not possible to identify these women in our study. Lastly, our cohort has an overrepresentation of women from more affluent areas. Thus, our overall estimates of vaccine uptake may be slightly overestimated.

Findings in Relation to Previous Studies

A small number of studies have explored the relationship between maternal postnatal depression and infant vaccination uptake and found mixed results. Two small studies ($n < 200$)[9,12] found a relationship, with infants of mothers with postnatal depression being less likely to be vaccinated. These studies were, however, based on specific study populations: Zajicek-Farber[9] examined non-White women with high-risk pregnancies, and Turner et al[12] included only participants from older age groups. On the other hand, one slightly larger study ($n = 4,874$) found no difference in infants receiving 3 doses of diphtheria, tetanus, and pertussis (DTP) vaccines by 7 months of age (adjusted odds ratio = 0.85; 95% CI, 0.71–1.01).[11]

From two larger studies (> 10,000) using population datasets, one study[13] found no difference and the other[10] found that vaccine uptake was lower in mothers with depression. Similar to our findings, a 2013 American study[13] of 24,263 infants born between 1998 and 2007 found no difference in infant vaccination uptake in relation to a mother's perinatal depression status (authors did not distinguish between depression in pregnancy or postpartum). In mothers with depression compared to no depression, the likelihood of infants receiving all recommended immunizations was the same (adjusted IRR = 1.0; 95% CI, 1.0–1.0). The rate of perinatal depression in that study (13.4%) is roughly comparable with our estimate (10.6%). In contrast, a 2018 Danish study[10] investigating health care use in 853,315 women between 2000 and 2013 found a significant difference in infant vaccination uptake in mothers with depression. Those with previous depression were 3% (95% CI, 1%–5%) less likely to attend diphtheria/tetanus/pertussis/polio (DiTe) infant vaccination appointments compared to those with no record of depression, and those with recent depression were 7% (95% CI, 4%–10%) less likely to attend. The difference between these findings and ours may be due to the narrow definition of postnatal depression used in the Danish study. As the authors note, the Danish database contains information on hospital care only, and identifying depression required multiple antidepressant prescriptions or hospital visits. These specific criteria resulted in a relatively low overall rate of maternal depression in their study (estimates of "recent" depression across the first year after childbirth ranged from 1.4% to 2.7%). This suggests the study identified a difference in infant vaccination uptake in women with more severe depression. In contrast, we used a broader definition of depression, which included prescribing, symptomatic, and diagnostic information

within a primary care setting. This resulted in identifying a larger proportion of women with postnatal depression (10.6%).

The rate of postnatal depression we identified (approximately 10%) is similar to that in other studies that have used electronic health records,[31] but will inevitably underestimate depression that is not identified or recorded during primary care consultations. Other studies that specifically screen for depression typically identify higher proportions. Therefore, we are limited by the information contained within electronic health records, but have used as broad a definition as possible by examining any indication of depression in the year after birth. Our overall infant vaccination rate (94.5%) is also similar to UK national coverage statistics (93.6%).[16]

Implications of Findings

It is reassuring that infant vaccination uptake in mothers with a record of postnatal depression is similar to that in children of mothers without. There remains much stigma in experiencing a mental health condition after childbirth, and our findings suggest that the majority of women continue to access essential early preventative care for their children despite experiencing potential difficulties with their own health. These positive findings may indicate that health systems that routinely screen for postnatal depression are protective of women who have it. In particular in the UK, women are invited to a postnatal check with their GP 6 weeks after birth, which is an essential point of screening for postnatal depression.[31] This planned check is not routinely offered in all countries, and this may in part explain that even if they have depression, women in the UK have good access to essential primary care services and prevention for themselves and their infants.

Infant vaccinations are an important opportunity not only to provide infant care but also to review the health of the mother: since many infants attend their vaccinations, it may be possible to identify concerns relating to a mother's mental health that could be followed up in subsequent appointments. Non-attendance or a delay in immunization can be very serious for infant health but could also indicate a mother needs additional care or follow-up. It is important to understand and address reasons for missed vaccinations, and in particular why vaccination rates have decreased over time and are lower among more deprived groups; further research could also examine regional variation identified by other studies. There are many reasons an infant may not be vaccinated, and mothers with undiagnosed or untreated depression may be a factor. Further research should examine if vaccination adherence is similar in those with depression who did not seek support and if adherence is different in mothers with more severe depression, which may be indicated in a previous study.[10]

Conclusion

Our findings add further evidence that, among new mothers who engage with primary care, symptoms of or receiving treatment for maternal postnatal depression is not associated with lower rates of infant vaccination in a large UK mother-infant cohort, though further research may be needed to examine if unrecognized depression is associated with lower adherence.

Submitted: July 6, 2021; accepted December 6, 2021.

Published online: June 13, 2022.

Relevant financial relationships: **Ms Smith**, **Professor Saxena**, and **Professor Petersen** have no conflicts of interest to disclose for this study.

Funding/support: Ms Smith is funded by the National Institute for Health Research (NIHR) School for Primary Care Research (SPCR) (project reference 549832). Professor Saxena is funded by the National Institute for Health Research (NIHR) School for Public Health Research (SPHR) and NIHR Northwest London Applied Research Collaboration (ARC). The School for Public Health Imperial College London is also grateful for support from the Imperial NIHR Biomedical Research Centre. Professor Saxena also holds funding from the Daily Mile Foundation.

Role of the sponsor: The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Disclaimer: The views expressed are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

Data availability: No additional data are available as this work draws on de-identified data provided by patients as a part of their routine primary care. The Health Improvement Network (THIN) data are available upon application after Scientific Review Committee (SRC) approval through a licensed organization. More information is available at: https://www.the-health-improvement-network.com/

Supplementary material: Available at PSYCHIATRIST.COM.

REFERENCES

1. Gavin NI, Gaynes BN, Lohr KN, et al. Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol*. 2005;106(5 Pt 1):1071–1083.
2. O'hara MW, Swain AM. Rates and risk of postpartum depression: a meta-analysis. *Int Rev Psychiatry*. 1996;8(1):37–54.
3. Beck CT. Predictors of postpartum depression: an update. *Nurs Res*. 2001;50(5):275–285.
4. Hahn-Holbrook J, Cornwell-Hinrichs T, Anaya I. Economic and health predictors of national postpartum depression prevalence: a systematic review, meta-analysis, and meta-regression of 291 studies from 56 countries. *Front Psychiatry*. 2018;8:248.
5. Santona A, Tagini A, Sarracino D, et al. Maternal depression and attachment: the evaluation of mother-child interactions during feeding practice. *Front Psychol*. 2015;6:1235.
6. Paulson JF, Dauber S, Leiferman JA. Individual and combined effects of postpartum depression in mothers and fathers on parenting behavior. *Pediatrics*. 2006;118(2):659–668.
7. McLearn KT, Minkovitz CS, Strobino DM, et al. Maternal depressive symptoms at 2 to 4 months post partum and early parenting practices. *Arch Pediatr Adolesc Med*. 2006;160(3):279–284.
8. Chung EK, Mccollum KF, Elo IT, Lee HJ, Culhane JF. Maternal depressive symptoms and infant health practices among low-income women. 2004;113(6)e523–e529.
9. Zajicek-Farber ML. Postnatal depression and infant health practices among high-risk women. *J Child Fam Stud*. 2009;18(2):236–245.
10. Lyngsøe BK, Vestergaard CH, Rytter D, et al. Attendance of routine childcare visits in primary care for children of mothers with depression: a nationwide population-based cohort study. *Br J Gen Pract*. 2018;68(667):e97–e104.
11. Minkovitz CS, Strobino D, Scharfstein D, et al. Maternal depressive symptoms and children's receipt of health care in the first 3 years of life. *Pediatrics*. 2005;115(2):306–314.
12. Turner C, Boyle F, O'Rourke P. Mothers' health post-partum and their patterns of seeking vaccination for their infants. *Int J Nurs Pract*. 2003;9(2):120–126.
13. Farr SL, Dietz PM, Rizzo JH, et al. Health care utilisation in the first year of life among infants of mothers with perinatal depression or anxiety. *Paediatr Perinat Epidemiol*. 2013;27(1):81–88.
14. Watson JM, Kemper KJ. Maternal factors and child's health care use. *Soc Sci Med*. 1995;40(5):623–628.
15. Vaccine Knowledge Project, Oxford Vaccine Group. 5-in-1 Vaccine (also called Pentavalent Vaccine). University of Oxford website. https://vk.ovg.ox.ac.uk/vk/5-1-dtapipvhib-vaccine. Published 2019. Accessed April 7, 2020.

16. Screening & Immunisations Team (NHS Digital). NHS Immunisation Statistics: England, 2015–2016. NHS Digital website.https://files.digital.nhs.uk/publicationimport/pub21xxx/pub21651/nhs-imms-stat-eng-2015-16-rep.pdf. 2016.
17. Screening & Immunisations Team (NHS Digital). COVER Team (Public Health England). Childhood Vaccination Coverage Statistics: England, 2018–2019. https://files.digital.nhs.uk/4C/09214C/child-vacc-stat-eng-2018-19-report.pdf. 2019.
18. World Health Organization. European Vaccine Action Plan: 2015–2020. Copenhagen. WHO website. http://www.euro.who.int/__data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1. 2014.
19. OECD. Child vaccination rates (indicator). OECD website. https://data.oecd.org/healthcare/child-vaccination-rates.htm. 2022.
20. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*. 2011;6(1):42.
21. Bhanu C, Gopal DP, Walters K, et al. Vaccination uptake amongst older adults from minority ethnic backgrounds: a systematic review. *PLoS Med*. 2021;18(11):e1003826.
22. Razai MS, Osama T, McKechnie DGJ, et al. Covid-19 vaccine hesitancy among ethnic minority groups. *BMJ*. 2021;372:n513.
23. NHS. Your baby's health and development reviews. NHS website. https://www.nhs.uk/conditions/baby/babys-development/height-weight-and-reviews/baby-reviews/. 2020
24. Quintiles IMS. The Health Improvement Network Data Guide for Researchers. THIN website. https://www.the-health-improvement-network.com. Published 2017. Accessed October 28, 2021.
25. Booth N. What are the Read Codes? *Health Libr Rev*. 1994;11(3):177–182.
26. Blak BT, Thompson M, Dattani H, et al. Generalisability of The Health Improvement Network (THIN) database: demographics, chronic disease prevalence and mortality rates. *Inform Prim Care*. 2011;19(4):251–255.
27. Bourke A, Dattani H, Robinson M. Feasibility study and methodology to create a quality-evaluated database of primary care data. *Inform Prim Care*. 2004;12(3):171–177.
28. Townsend P, Phillimore P, Beattie A. *Health and Deprivation: Inequalities and the North*. London: Routledge; 1989.
29. Horsfall L, Walters K, Petersen I. Identifying periods of acceptable computer usage in primary care research databases. *Pharmacoepidemiol Drug Saf*. 2013;22(1):64–69.
30. Maguire A, Blak BT, Thompson M. The importance of defining periods of complete mortality reporting for research using automated data from primary care. 2009;18(1):76–83.
31. Petersen I, Peltola T, Kaski S, et al. Depression, depressive symptoms and treatments in women who have recently given birth: UK cohort study. *BMJ Open*. 2018;8(10):e022152.
32. NHS Digital. Fall in coverage for all routine childhood vaccinations in England in 2018–2019: NHS Digital website. https://digital.nhs.uk/news-and-events/latest-news/childhood-vaccination-coverage-statistics-2018-19. Published 2019. Accessed April 22, 2020.

Editor's Note: We encourage authors to submit papers for consideration as a part of our Focus on Women's Mental Health section. Please contact Marlene P. Freeman, MD, at mfreeman@psychiatrist.com.

See supplementary material for this article at PSYCHIATRIST.COM.

THE JOURNAL OF
CLINICAL PSYCHIATRY
THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: Maternal Postnatal Depression and Completion of Infant Immunizations: A UK Cohort Study of 196,329 Mother-Infant Pairs, 2006–2015

Author(s): Holly C. Smith, MSc; Sonia Saxena, MBBS, Msc, MD, FRCGP; and Irene Petersen, PhD, MSc

DOI Number: https://doi.org/10.4088/JCP.20m13575

List of Supplementary Material for the article

1. **Appendix 1** British National Formulary Codes for Antidepressant Prescriptions

Disclaimer

This Supplementary Material has been provided by the author(s) as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Appendix 1. British National Formulary Codes for Antidepressant Prescriptions

Read code	Description
1B17.00	Depressed
1B17.11	C/O - feeling depressed
1B17.12	C/O - feeling unhappy
1B1U.00	Symptoms of depression
1B1U.11	Depressive symptoms
1BO..00	Mood swings
1BP..00	Loss of interest
1BP0.00	Loss of interest in previously enjoyable activity
1BQ..00	Loss of capacity for enjoyment
1BT..00	Depressed mood
1BT..11	Low mood
1BT..12	Sad mood
1BU..00	Loss of hope for the future
1JJ..00	Suspected depression
1S...00	Mental and psychological observations
1S4..00	Mood observations
2257.00	O/E - depressed
3885.00	Edinburgh postnatal depression scale
388a.00	Depression anxiety stress scales stress score
388b.00	Depression anxiety stress scales anxiety score
388f.00	Patient health questionnaire (PHQ-9) score
388g.00	Beck depression inventory second edition score
388J.00	Hospital anxiety and depression scale
388N.00	HAD scale: anxiety score
388P.00	HAD scale: depression score
388Z.00	Depression anxiety stress scales depression score
389L.00	Psychological assessment
389L000	Psychological wellbeing assessment
38C1.00	Mental health assessment
38Dp.00	HAMD - Hamilton rating scale for depression
38Dp.11	HRSD - Hamilton rating scale for depression
38Dq.00	MADRS - Montgomery-Asberg depression rating scale
38GJ000	EuroQol five dimension five level anxiety depression score
38Q0.00	Warwick-Edinburgh Mental Well-being Scale
62T1.00	Puerperal depression
6653.00	Initial psych. assessment
6654.00	Follow-up psych. assessment
6657.00	On lithium
6657.11	Lithium monitoring
6658.00	Psych. treatment change
6658000	Antidepressant drug treatment changed
6659.00	Psych.treatment started
6659000	Antidepressant drug treatment started

665A.00	Psych.treatment stopped
665A000	Antidepressant drug treatment stopped
67...11	Counselling
671..00	Counselling - general
6712.00	Counselling offered
6713.00	Counselling not wanted
6714.00	Counselling carried out
6715.00	Counselling by other agency
671Z.00	Counselling - general NOS
672..00	Person counselled
6721.00	Patient counselled
6731.00	Counselled by a doctor
6733.00	Counselled by a health visitor
6736.00	Counselled by a counsellor
6779.00	Psychological counselling
677A.00	Psychosexual counselling
67IK.00	Advice about psychological well-being
6891.00	Depression screen
6891000	Assessment using Whooley depression screen
6896.00	Depression screening using questions
69C2.00	Individual psych. exam.
6A6..00	Mental health review
6A60.00	Mental health review follow-up
6A8..00	Psychological review
6G0..00	Postnatal counselling
6G00.00	Postnatal depression counselling
7L1a.00	Cognitive behavioural therapy
7L1a000	Cognitive behavioural therapy by unidisciplinary team
7L1a100	Cognitive behavioural therapy by multidisciplinary team
7L1ay00	Other specified cognitive behavioural therapy
7L1az00	Cognitive behavioural therapy NOS
8A2..00	Psychiatric monitoring
8A21.00	Psychiatric observation
8A2Z.00	Psychiatric monitoring NOS
8BK0.00	Depression management programme
8CAa.00	Patient given advice about management of depression
8CE9.00	Mental health information leaflet given
8CM2.00	Psychiatry care plan
8CQ..00	Mental health crisis plan
8CR7.00	Mental health personal health plan
8CV3.00	Psychological therapy started
8Cx1000	Discussion about mental health for maternal wellbeing
8G...11	Psychotherapy
8G10.00	Psychotherapy - behavioural

8G11.00	Psychotherapy - cognitive
8G13.00	Cognitive-behaviour therapy
8G21.00	Family therapy
8G43.00	Disabling psych.problem rehab.
8G51.00	Group psychotherapy
8G51000	Group cognitive behavioural therapy
8G94.00	Anxiety management training
8G95.00	Brief solution focused therapy
8G97.00	Bibliotherapy
8G9B.00	Sleep hygiene behaviour education
8GA..00	Psychological nursing
8H23.00	Admit psychiatric emergency
8H23000	Emerg psychiatric admiss MHA
8H34.00	Psychiatric day care
8H38.00	Non-urgent psychiatric admisn.
8H49.00	Psychiatric referral
8H78.00	Refer to counsellor
8H7A.00	Refer to mental health worker
8H7B.00	Refer to community psych.nurse
8H7B.11	Refer to CPN
8H7T.00	Refer to psychologist
8H7W.00	Refer to TOP counselling
8HB8.00	Mental therapy follow-up
8HBK.00	Mental health triage nurse follow up
8Hc..00	Referral to mental health team
8Hc1.00	Referral to mental health crisis team
8HHq.00	Referral for guided self-help for depression
8HHq000	Referral for depression self-help video
8HHT.00	Referral to psychotherapist
8HkK.00	Referral to IAPTprogramme
8HTc.00	Referral to psychosexual clinic
8HVi.00	Private referral to psychologist
8HVO.00	Private referral to psychiatrist
8I3F.00	Edinburgh postnatal depression scale at 8 months declined
8I3G.00	Edinburgh postnatal depression scale declined
8I3y.00	Psychological therapy declined
8ID..00	Postnatal depression not discussed
8IE5.00	Mental health assessment declined
8IE5100	Hospital Anxiety and Depression Scale declined
8IH3100	Depression screening declined
8IH5200	Referral for guided self-help for depression declined
8M8..00	Counselling requested
9bA..00	Psychiatry
9bA2.00	Child and adolescent psychiatry

9bA4.00	Psychotherapy (specialty)
9H90.00	Depression annual review
9H91.00	Depression medication review
9H92.00	Depression interim review
9HA0.00	On depression register
9k4..00	Depression - enhanced services administration
9k40.00	Depression - enhanced service completed
9kQ..00	On full dose long term treatment depression - enh serv admin
9kQ..11	On full dose long term treatment for depression
9N0B.00	Seen in psychogeriatric clinic
9N1a.00	Seen in plastic surgery clinic
9N1M.00	Seen in psychology clinic
9N1T.00	Seen in psychiatry clinic
9N1yA00	Seen in psychogeriatric clinic
9N2a.00	Seen by community psychiatric nurse
9N2a.11	Seen by CPN
9N2B.00	Seen by counsellor
9N2r.00	Seen by mental health triage nurse
9N2W.00	Seen by psychologist
9N4g.00	DNA - Did not attend psychiatry clinic
9N6h.00	Referral by mental health service
9NI6.00	Psychiatric outreach clinic
9NJ1.00	In-house counselling
9NJc.00	In-house psychiatry discharge
9NJR.00	In-house counselling first appointment
9NJS.00	In-house counselling discharge
9Nk6.00	Seen in mental health clinic
9NlK.00	Seen by psychotherapist
9NN5.00	Under care of psychiatrist
9NN7.00	Under care of mental health team
9NNE.00	Under the care of psychologist
9NNM.11	Under care of CPN
9Ol..00	Mental health monitoring administration
9Ol0.00	Mental health monitoring first letter
9Ol1.00	Mental health monitoring second letter
9Ol2.00	Mental health monitoring third letter
9Ov..00	Depression monitoring administration
9Ov0.00	Depression monitoring first letter
9Ov1.00	Depression monitoring second letter
9Ov2.00	Depression monitoring third letter
9Ov3.00	Depression monitoring verbal invite
9Ov4.00	Depression monitoring telephone invite
E112.00	Single major depressive episode
E112.11	Agitated depression

E112.12	Endogenous depression first episode
E112.13	Endogenous depression first episode
E112.14	Endogenous depression
E112000	Single major depressive episode, unspecified
E112100	Single major depressive episode, mild
E112200	Single major depressive episode, moderate
E112300	Single major depressive episode, severe, without psychosis
E112400	Single major depressive episode, severe, with psychosis
E112500	Single major depressive episode, partial or unspec remission
E112600	Single major depressive episode, in full remission
E112z00	Single major depressive episode NOS
E113.00	Recurrent major depressive episode
E113.11	Endogenous depression - recurrent
E113000	Recurrent major depressive episodes, unspecified
E113100	Recurrent major depressive episodes, mild
E113200	Recurrent major depressive episodes, moderate
E113300	Recurrent major depressive episodes, severe, no psychosis
E113400	Recurrent major depressive episodes, severe, with psychosis
E113500	Recurrent major depressive episodes,partial/unspec remission
E113600	Recurrent major depressive episodes, in full remission
E113700	Recurrent depression
E113z00	Recurrent major depressive episode NOS
E118.00	Seasonal affective disorder
E11y200	Atypical depressive disorder
E11z200	Masked depression
E130.11	Psychotic reactive depression
E135.00	Agitated depression
E200300	Anxiety with depression
E204.00	Neurotic depression reactive type
E204.11	Postnatal depression
E211200	Depressive personality disorder
E290.00	Brief depressive reaction
E290z00	Brief depressive reaction NOS
E291.00	Prolonged depressive reaction
E2B..00	Depressive disorder NEC
E2B0.00	Postviral depression
E2B1.00	Chronic depression
Eu3..00	[X]Mood - affective disorders
Eu32.00	[X]Depressive episode
Eu32.11	[X]Single episode of depressive reaction
Eu32.12	[X]Single episode of psychogenic depression
Eu32.13	[X]Single episode of reactive depression
Eu32000	[X]Mild depressive episode
Eu32100	[X]Moderate depressive episode

Eu32200	[X]Severe depressive episode without psychotic symptoms
Eu32211	[X]Single episode agitated depressn w'out psychotic symptoms
Eu32212	[X]Single episode major depression w'out psychotic symptoms
Eu32213	[X]Single episode vital depression w'out psychotic symptoms
Eu32300	[X]Severe depressive episode with psychotic symptoms
Eu32311	[X]Single episode of major depression and psychotic symptoms
Eu32312	[X]Single episode of psychogenic depressive psychosis
Eu32313	[X]Single episode of psychotic depression
Eu32314	[X]Single episode of reactive depressive psychosis
Eu32400	[X]Mild depression
Eu32500	[X]Major depression, mild
Eu32600	[X]Major depression, moderately severe
Eu32700	[X]Major depression, severe without psychotic symptoms
Eu32800	[X]Major depression, severe with psychotic symptoms
Eu32900	[X]Single major depr ep, severe with psych, psych in remiss
Eu32A00	[X]Recurr major depr ep, severe with psych, psych in remiss
Eu32B00	[X]Antenatal depression
Eu32y00	[X]Other depressive episodes
Eu32y11	[X]Atypical depression
Eu32y12	[X]Single episode of masked depression NOS
Eu32z00	[X]Depressive episode, unspecified
Eu32z11	[X]Depression NOS
Eu32z12	[X]Depressive disorder NOS
Eu32z13	[X]Prolonged single episode of reactive depression
Eu32z14	[X] Reactive depression NOS
Eu33.00	[X]Recurrent depressive disorder
Eu33.11	[X]Recurrent episodes of depressive reaction
Eu33.12	[X]Recurrent episodes of psychogenic depression
Eu33.13	[X]Recurrent episodes of reactive depression
Eu33.14	[X]Seasonal depressive disorder
Eu33.15	[X]SAD - Seasonal affective disorder
Eu33000	[X]Recurrent depressive disorder, current episode mild
Eu33100	[X]Recurrent depressive disorder, current episode moderate
Eu33200	[X]Recurr depress disorder cur epi severe without psyc sympt
Eu33211	[X]Endogenous depression without psychotic symptoms
Eu33212	[X]Major depression, recurrent without psychotic symptoms
Eu33213	[X]Manic-depress psychosis,depressd,no psychotic symptoms
Eu33214	[X]Vital depression, recurrent without psychotic symptoms
Eu33300	[X]Recurrent depress disorder cur epi severe with psyc symp
Eu33311	[X]Endogenous depression with psychotic symptoms
Eu33312	[X]Manic-depress psychosis,depressed type+psychotic symptoms
Eu33313	[X]Recurr severe episodes/major depression+psychotic symptom
Eu33314	[X]Recurr severe episodes/psychogenic depressive psychosis
Eu33315	[X]Recurrent severe episodes of psychotic depression

Eu33316	[X]Recurrent severe episodes/reactive depressive psychosis
Eu33400	[X]Recurrent depressive disorder, currently in remission
Eu33y00	[X]Other recurrent depressive disorders
Eu33z00	[X]Recurrent depressive disorder, unspecified
Eu33z11	[X]Monopolar depression NOS
Eu34.00	[X]Persistent mood affective disorders
Eu34000	[X]Cyclothymia
Eu34100	[X]Dysthymia
Eu34111	[X]Depressive neurosis
Eu34113	[X]Neurotic depression
Eu34114	[X]Persistant anxiety depression
Eu3y011	[X]Mixed affective episode
Eu3y111	[X]Recurrent brief depressive episodes
Eu3y200	[X]Premenstrual dysphoric disorder
Eu41200	[X]Mixed anxiety and depressive disorder
Eu41211	[X]Mild anxiety depression
Eu53.00	[X]Mental and behav disorders assoc with the puerperium NEC
Eu53000	[X]Mild mental/behav disorder assoc with the puerperium NEC
Eu53011	[X]Postnatal depression NOS
Eu53012	[X]Postpartum depression NOS
Eu53100	[X]Severe mental and behav disorder assoc wth puerperium NEC
Eu53111	[X]Puerperal psychosis NOS
Eu53y00	[X]Oth mental and behav disorders assoc with puerperium NEC
Eu53z00	[X]Puerperal mental disorder, unspecified
L184.00	Mental disorders in pregnancy, childbirth and the puerperium
L184000	Mental disorder - unspec whether in pregnancy/puerperium
L184100	Mental disorder during pregnancy - baby delivered
L184200	Mental disorder in the puerperium - baby delivered
L184300	Mental disorder during pregnancy - baby not yet delivered
L184400	Mental disorder in puerperium - baby previously delivered
L184z00	Mental disorder during pregnancy/childbirth/puerperium NOS
Q018.00	Fetus or neonate affected by maternal postnatal depression
R007z13	[D]Postoperative depression
Z4...00	Counselling
Z48..00	Coping strategy counselling
Z4L..00	Psychological counselling
Z4Q..00	Sexual dysfunction counselling
Z4Q..11	Counselling for sexual dysfunction
Z5...00	Psychotherapy
Z52..00	Cognitive and behavioural therapy
Z521.00	Cognitive - behaviour therapy
Z521.11	CBT - Cognitive - behaviour therapy
Z521.13	Cognitive-behaviour therapy
Z522.11	Behaviour therapy

Z575.00	Expressed emotion family therapy
Z5A3.00	Psychodynamic psychotherapy
Z9M7.00	Emotional support
Z9M7.11	Psychological support
ZL1B.00	Under care of psychiatrist
ZL1B300	Under care of liaison psychiatrist
ZL23111	Under care of CPN
ZL31.00	Under care of counsellor
ZL5B.00	Referral to psychiatrist
ZL62E00	Referral to psychiatric nurse
ZL73.00	Referral to counsellor
ZL73.11	Refer to counsellor
ZL73400	Referral to mental health counsellor
ZL77.00	Referral to psychotherapist
ZL78.00	Referral to psychologist
ZL78.11	Refer to psychologist
ZL9D.00	Seen by psychiatrist
ZL9D300	Seen by liaison psychiatrist
ZLA2E00	Seen by psychiatric nurse
ZLA3100	Seen by community psychiatric nurse
ZLA3111	Seen by CPN
ZLB5.00	Seen by mental health counsellor
ZLBB.00	Seen by psychologist
ZLBC.00	Seen by psychotherapist
ZLD1.00	Discharge by counsellor
ZLD1400	Discharge by mental health counsellor
ZLD2a00	Discharge by psychiatrist
ZLD7C00	Discharge by psychiatric nurse
ZLD8111	Discharge by CPN
ZLDB.00	Discharge by psychotherapist
ZLE9.00	Discharge from psychiatry service
ZLED.00	Discharge from psychotherapy service
ZLF2200	Discharge from psychiatry day hospital
ZR2A.00	Beck depression inventory
ZR2A.11	BDI - Beck depression inventory
ZR2h.00	Brief depression rating scale
ZR2h.11	BDRS - Brief depression rating scale
ZR7..00	Depression anxiety scale
ZR8..00	Depression self rating scale
ZR8..11	DSRS - Depression self rating scale
ZRaH.00	Mood affective checklist
ZRaH.11	MACL - Mood affective checklist
ZRBY.00	Edinburgh postnatal depression scale
ZRBY.11	EPDS - Edinburgh postnatal depression scale

ZRLfH00	Health of the Nation Outcome Scale item 7 - depressed mood
ZRLfH11	HoNOS item 7
ZRLfH12	HoNOS item 7
ZRLfI00	Health of the Nation Outcome Scale item 7 - depressed mood
ZRLr.00	Hospital anxiety and depression scale
ZRLr.11	HAD - Hospital anxiety and depression scale
ZRLr.12	HADS - Hospital anxiety and depression scale
ZRLU.00	Hamilton rating scale for depression
ZRLU.11	HAMD - Hamilton rating scale for depression
ZRLU.12	HRSD - Hamilton rating scale for depression
ZRrc.00	Zung self-rating depression scale
ZRrc.11	SDS - Zung self-rating depression scale
ZRrI.00	Wakefield self-assessment depression inventory
ZRrI.11	Wakefield inventory
ZRrY.00	WHO depression scale
ZRVM.00	Leeds scale for the self-assessment of anxiety & depression
ZV79000	[V]Screening for depression