

Feasibility of Assessing Breastfeeding Status in Electronic Health Records

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DISCLOSURE

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BACKGROUND

- Although breastfeeding status is routinely assessed at postpartum and infant health care visits, data on breastfeeding are difficult to obtain in retrospective studies.
- Claims databases lack this information, and queries to study participants long after the postpartum period are subject to recall bias.
- Electronic health records (EHRs) could possibly fill this knowledge gap.

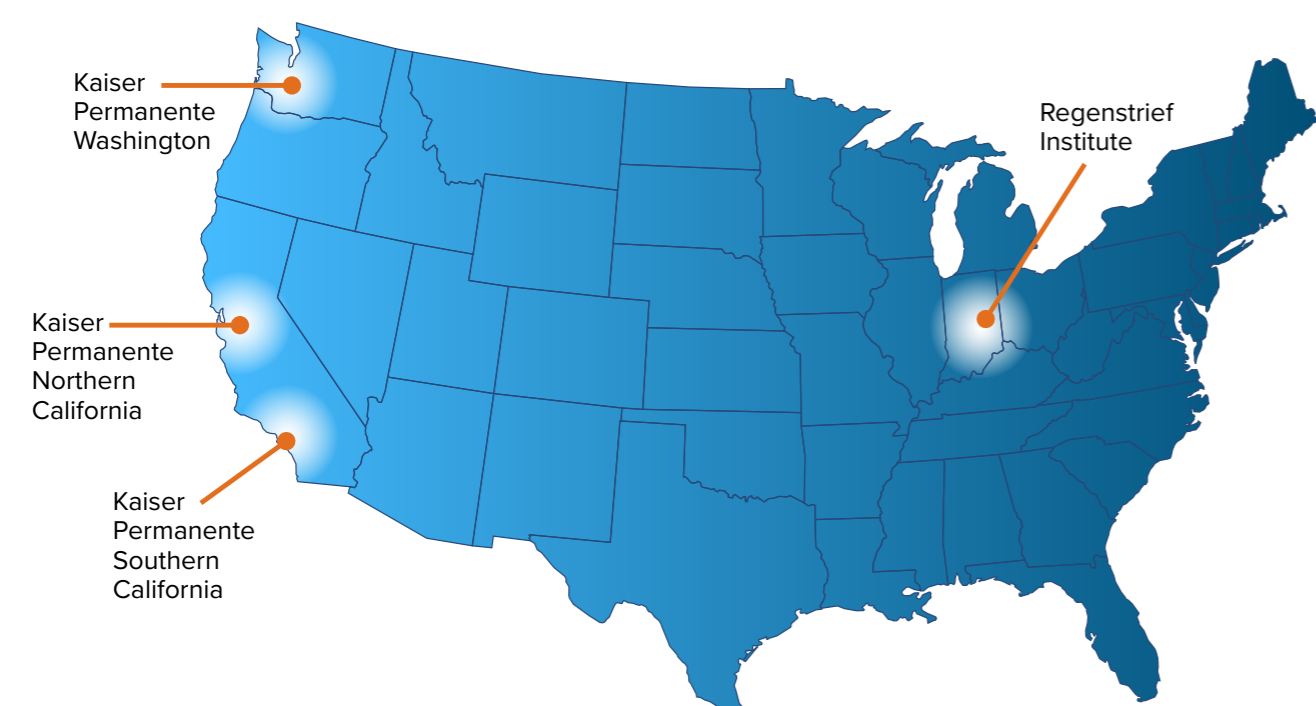
OBJECTIVE

- To assess the feasibility of determining postpartum breastfeeding status at the time of intrauterine device (IUD) placement in preparation for an IUD safety study.

METHODS

- Four United States health care systems with EHRs, including 3 Kaiser Permanente (KP) sites—KP Northern California, KP Southern California, and KP Washington—and Regenstrief Institute in Indiana.

Figure 1. Data Sources and Research Partner Sites



Breastfeeding Data Collection

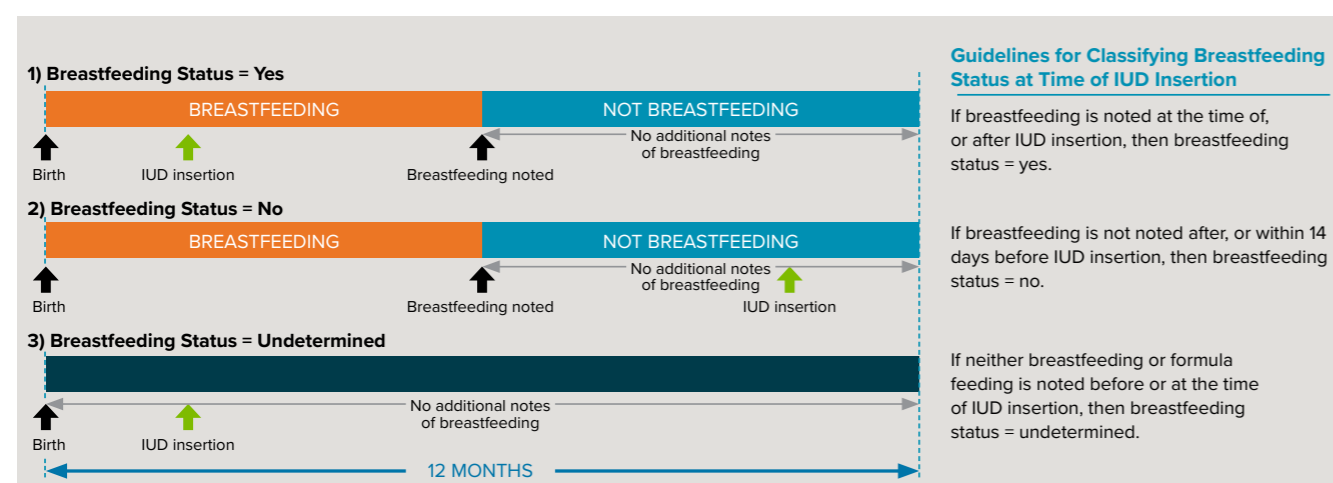
- A random sample of 125 women with an IUD insertion between delivery and 52 weeks postpartum was chosen at each site, usually 25 women in each of 5 time intervals based on time since delivery (Table 1).

Table 1. Study Population

Postpartum Time Interval	Site 1	Site 2	Site 3	Site 4	All Sites
≤ 3 days	25	25	25	3	78
> 3 days and < 4 weeks	25	25	25	4	79
≥ 4 weeks and < 6 weeks	25	25	25	68	143
≥ 6 weeks and ≤ 14 weeks	25	25	25	25	100
> 14 weeks and ≤ 52 weeks	25	25	25	25	100
All postpartum intervals	125	125	125	125	500

- Evidence of breastfeeding at IUD insertion for the random sample was derived at each site using various combinations of the following methods:
 - Electronic extraction from mother (postpartum visits) and infant (well-child care visits) EHR records
 - Natural language processing of records and clinical notes from EHRs
 - Manual review of records and clinical notes from EHRs
- Women were defined as breastfeeding if they pumped their breasts or breastfed their baby at least once in a 24 hour period.
- Breastfeeding status was classified as breastfeeding, not breastfeeding, or undetermined at the time of IUD insertion (guidelines in Figure 2) and confirmed via chart review by study personnel.

Figure 2. Scenarios for Classification of Breastfeeding Status

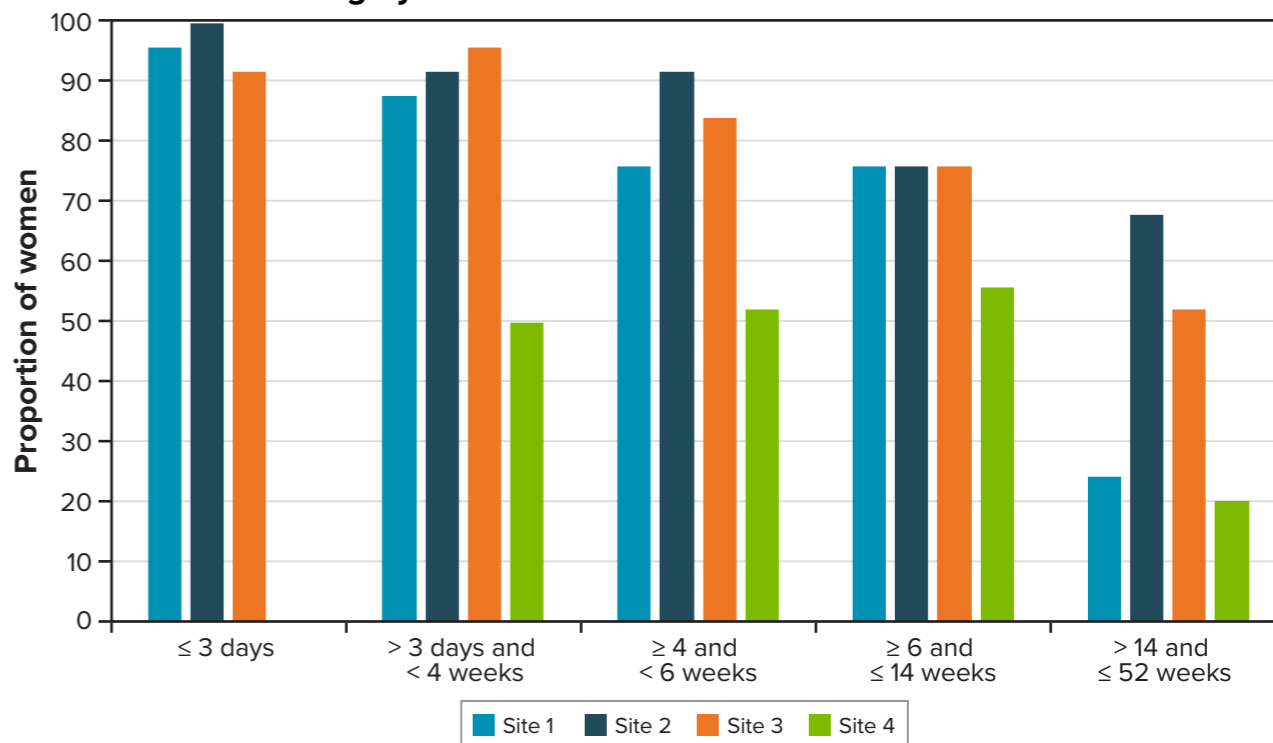


Data Analysis

- The percentage of women breastfeeding, not breastfeeding, or undetermined for each postpartum time interval and site was calculated.
- The proportion of women breastfeeding at each study site was compared with the proportion ever breastfeeding in CDC state-specific data.

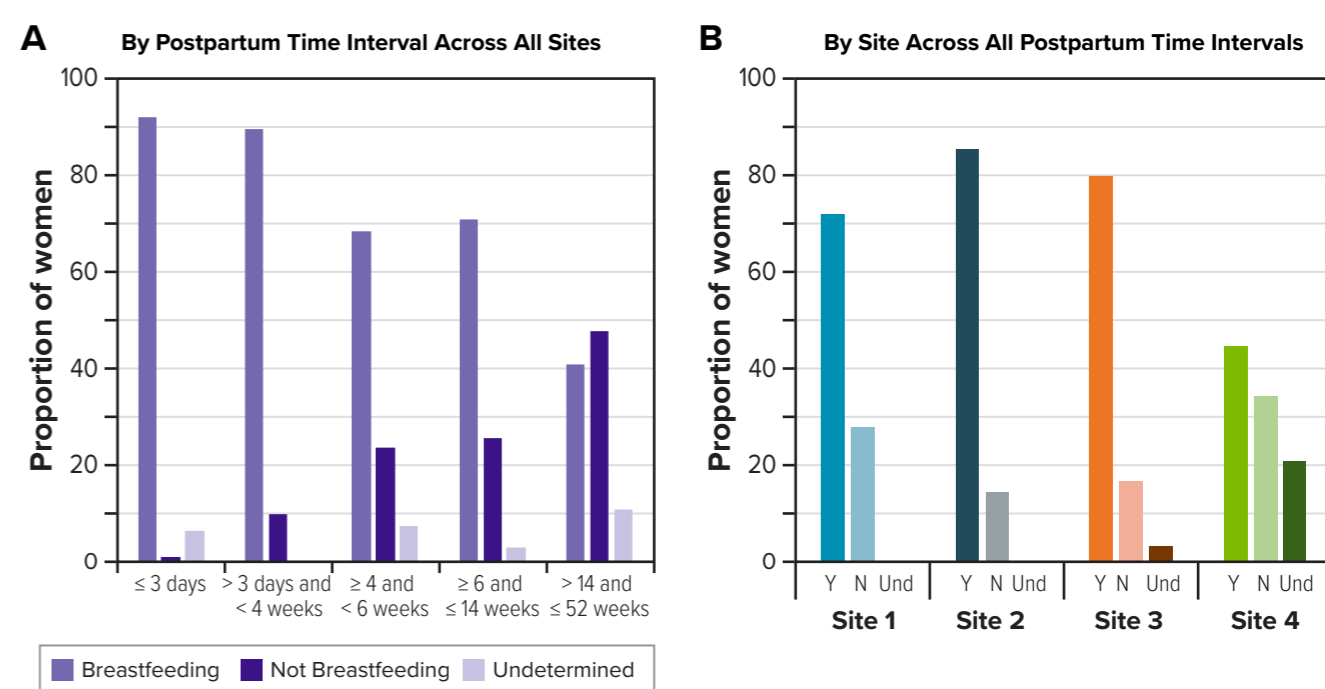
RESULTS

Figure 3. Proportion of Women in Each Postpartum Interval Classified as Breastfeeding by Site



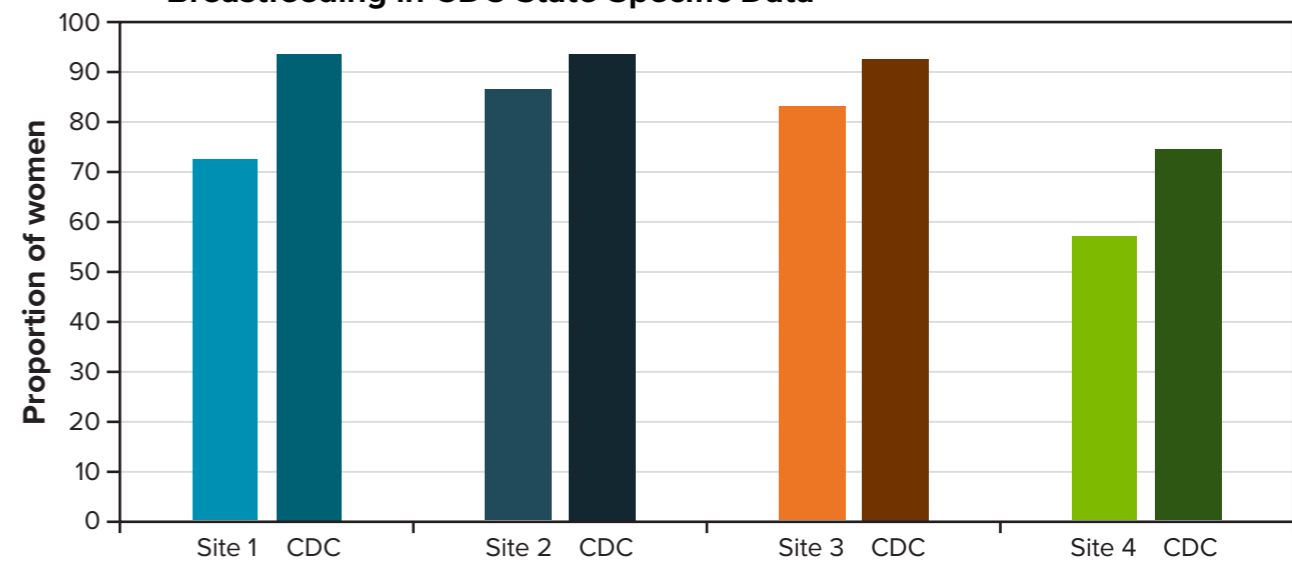
- The proportion of women breastfeeding was different across postpartum time intervals and at different sites (Figure 3).

Figure 4. Proportion of Women Classified as Breastfeeding, Not Breastfeeding, and Undetermined



- The proportion of women breastfeeding tended to decrease as postpartum time interval increased (i.e., further from delivery), and the proportion of women whose breastfeeding status could not be determined was low across all postpartum time intervals (Figure 4a).
- The proportion of women breastfeeding at site 4 was lower than at the other sites, and the proportion whose breastfeeding status could not be determined was higher (Figure 4b).
- Over all sites and time periods, 94% of this random sample of 500 women could be classified as breastfeeding or not breastfeeding at the time of IUD insertion, with only 6% undetermined (data not shown).
- The proportion of women classified as breastfeeding during the 52 weeks postpartum is generally consistent with the state-specific data from the Centers for Disease Control and Prevention (CDC) (Figure 5).

Figure 5. Proportion Breastfeeding at Study Sites Versus Proportion Ever Breastfeeding in CDC State-Specific Data¹



¹Percentage of women breastfeeding, by state in the National Immunization Survey, 2011 births. Source: CDC. Breastfeeding Report Card: United States/2014. Available at: <https://www.cdc.gov/breastfeeding/pdf/2014breastfeedingreportcard.pdf>. Accessed June 5, 2018.

CONCLUSIONS

- Overall, 94% of the women in this random sample could be classified as breastfeeding or not breastfeeding at the time of IUD insertion across postpartum time intervals through 52 weeks postpartum.
- As expected, the proportion of women classified as breastfeeding decreased as postpartum time increased.
- The proportion of women classified as breastfeeding, by site, was consistent with the CDC data for that state.
- There are differences in how breastfeeding information is collected and stored (e.g., structured questionnaire, clinician notes); therefore, it is important to evaluate these data prior to initiating a study.
- This study provides evidence that a retrospective study involving breastfeeding status is feasible to conduct at these sites with EHRs.

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