Aim
The value of breastmilk feeding for the infant, mother and family is well known. For those providing neonatal services, breastmilk feeding reduces infant mortality and morbidities and therefore has a positive impact on the cost of care. Many mothers of premature babies in neonatal intensive care units aim to provide breast milk for their infants, however women often find this difficult and stressful. We evaluate the impact of several strategies aimed at supporting mothers in providing breast milk for their infant.

Setting
The NICU of the Simpson Centre for Reproductive Health Edinburgh, a large tertiary neonatal intensive care unit serving 7000 deliveries per annum.

Mechanisms
Electronic records (EPR) of all infants admitted to the NICU and discharged home were reviewed and data analysed (Microsoft Excel).

Methods
Patient records of all infants discharged to home between January 2012 and July 2014 inclusive were reviewed and divided into all infants discharged to home and infants born less than 35 weeks gestational age discharged to home. The type of milk feeding at discharge to home was tabulated into only breastmilk, breast milk and formula, only formula milk and specialist milk. Strategies/interventions introduced during 6 monthly periods were plotted against the data. These included:
Period 1: participation in the development and testing of a DVD for parents on breast milk feeding and relationship building; attendance at Unicef neonatal breastfeeding education;
Period 2: introduction of the DEBM;
Period 3: dissemination of DVDs to parents and staff; new feeding charts with supporting information;
Period 4: launch of the Newborn Care Collaborative and the Scottish Patient Safety Agenda; attendance at Unicef neonatal breastfeeding education; commencement of new feeding study;
Period 5: update to website and testing of MOM app

Measures
Percentage of infants receiving any breast milk at discharge.

Data/Results
There were 2251 transfers/discharges/deaths over the time frame and of these 1060 (47%) were discharged to home. 737 (33% of total sample size) were less than 35 weeks gestational age and of these 474 (64%) were discharged to home. The percentage of all infants receiving any breastmilk at discharge increased for all irrespective of gestational age (55% to 86%) and for those less than 35 weeks gestational age (44% to 100%). The six monthly averages for the 5 time periods were 66%, 67%, 71%, 75%, and 71% respectively for all infants and 57%, 67%, 73%, 73% and 79% for infants less than 35 weeks gestation. Because of the small sample sizes and variability in the data, data are presented in figure 1 as three monthly rolling averages.

Discussion
The improvements in breastmilk feeding at discharge can be sustained over time. The introduction of different strategies/interventions may positively and negatively affect feeding outcome as they undergo iterative refinement using the PDSA cycle.
Figure 1. Data for the 5 periods presented using three monthly rolling averages of breast milk feeding in all infants and in those less than 35 weeks gestational age discharged from the NICU. Arrows indicate where strategies/interventions were first introduced.

Optimising breast milk feeding in babies admitted to a Neonatal Intensive Care Unit