GAVIN PUBLISHERS

Journal of Nursing and Women's Health

Kitson-Reynolds E and Rogers J. J Nurs Womens Health: JNWH-124.

DOI:10.29011/JNWH-124. 100024

Review Article

Service evaluation for the 'Enhanced Recovery after Planned Caesarean Section'

Ellen Kitson-Reynolds[1*], Jane Rogers[2]

[1*]University of Southampton, Post Doc Clinical Academic Midwife, UK

[2]University Hospital Southampton Foundation NHS Trust, Consultant Midwife, UK

[*]**Corresponding author:** Ellen Kitson-Reynolds, University of Southampton, Post Doc Clinical Academic Midwife, Highfield Campus, SO17 1BJ UK. Tel: +4402380597846; Email: E.L.Kitson-Reynolds@soton.ac.uk

Citation: Kitson-Reynolds E and Rogers J (2017) Service evaluation for the 'Enhanced Recovery after Planned Caesarean Section'. J Nurs Womens Health 2: 124. DOI:10.29011/2577-1450.100024

Received Date: 03 June, 2017; **Accepted Date:** 03 July, 2017; **Published Date:** 11 July, 2017

Introduction

The 'Enhanced-Recovery after Planned Caesarean Section Pathway' [ER Pathway] [1] provides a framework for UK planned caesarean section in a healthy woman, at a term gestation, from the pre-operative assessment to the end of the midwife's care during the postnatal period. The purpose of the ER Pathway is the same as for any other surgical group: to enable quick recovery from surgery by preparing in advance for early 'Normalisation' through a reduction in length of stay [2,3]. It is to assist new mothers to recover from their caesarean section by ensuring administration of effective analgesia, early drinking and food intake, removal of the urinary catheter within 12 hours and early mobilisation [4,5]. In 2013/14 a service evaluation of the then pathway for elective caesarean section, within a UK regional unit maternity services, was conducted using discharge data highlighting length of postnatal stay in hospital; time spent in recovery; starvation duration (fluids); indwelling catheter duration; time to mobilisation; factors delaying mobilisation; and use of, and administration of analgesia. A multi-professional project team convened to develop the 'Enhanced Recovery after Planned Caesarean Section' pathway for implementation from October 2015 following the findings from the 2013/14 evaluation and information from other units and departments within the wider National Health Service (NHS) Trust. This group comprised the Consultant Midwife (Project Lead), Consultant Obstetrician, Consultant Anaesthetist, Midwives, Pharmacist and Post Doctorate Clinical Academic midwife (lead for the enhanced recovery service evaluation).

The role of the 'Post Doc Clinical Academic Midwife' is a unique collaboration between the partnered University (employing organisation) and local NHS Trust. The role equates to a 0.2 whole time equivalent post and is different to that of the role of 'Research midwife' as currently employed within the Trust. An honary contract is in place with the linked NHS Trust to ensure liability is covered and to ensure robust links are maintained through credibility and transparency within the role whilst fulfilling the UK Nursing and Midwifery Council (NMC) registrant requirement's [6].

Background and Literature Review

Enhanced recovery or 'Fast Track Surgery' in general and colorectal surgery has been practised for many years and much has been written about the benefits to patient outcomes in terms of 'normalisation' processes [4,5]. It appears that Kings College Hospital NHS Foundation Trust were the first to introduce and report upon an Enhanced Recovery in Obstetric Surgery namely elective caesarean sections [3,7,8]. There is very little robust evaluation of enhanced recovery in maternity care although audits in several comparable hospitals have shown good clinical results, reduced hospital stay and patient satisfaction [2,9].

Whilst specific clinical procedures and activities, such as re-insertion of urinary catheter [7], adequacy of pain relief and readmission of babies, need thorough evaluation, there is also a requirement to consider cost efficiency savings within the NHS given current global and national austerity measures [8]. There was an edict from QIPP (Quality, Innovation, Productivity and Prevention) seeking to find £20 billion savings by 2015 [10,11] placing huge pressures on hospital budgets [12,13]. It is intended that an efficient service will increase patient outcomes and satisfaction and enhance quality standards of care [8]. The multi-disciplinary group set up to introduce a change of service delivery required an evaluation to describe the change of service and its effectiveness in terms of finances, length of stay, catheter removal and re-insertion rates, mobility, pain management and patient satisfaction.

Enhanced Recovery after Planned Caesarean Section Overview

The 'ER Pathway' provides a framework for planned Caesarean section in a healthy woman, at a term gestation, from the pre-operative assessment to the end of the midwife's care in the postnatal period (Figure 1). The pathway is designed to be used in conjunction with Trust guidelines.

The ER Pathway
antenatal processes
pre-operative assessment
planned caesarean section surgery
postnatal in-hospital care
community midwifery care within the community prior to discharge to further health care professional services

Figure 1: The ER Pathway Journey.

The purpose of the ER pathway is the same as for any other surgical group: to enable quick recovery from surgery by preparing in advance for early 'Normalisation' [2,3]. In this case, it is to assist new mothers to recover from their caesarean section more quickly by ensuring administration of effective analgesia, early drinking and food intake and early mobilisation [4,5] (Figure 2).

Aim of ER Pathway
Reduction of length of stay in hospital
Improvement in pain relief and linked to self-medication
Earlier mobilisation
Early removal of urinary catheter (12 hours post-surgery)
Earlier eating and drinking i.e. sitting out in the chair and getting dressed - part of the normalisation process

Figure 2: The aim of the ER Pathway.

The ER pathway was developed in consultation with Obstetricians, Anaesthetists, and Midwives and in liaison with the pharmacy department through a multi-disciplinary task and finish group. The group embraced the inclusion of contemporary aspects of evidence based practice and formally incorporated delayed cord clamping (DCC) [14,15], the mobilisation assessment tool [16,17], early removal of indwelling urinary catheter [18] and self-medication [19] as standards practices. There was a seized opportunity in emphasizing current procedures such as the administration of the second PR Diclofenac 12 hours post-surgery and skin to skin in theatre and/or recovery.

Prior to the inception of the pathway, training sessions were made available for all staff especially those staff working in key areas such as pre-clerking, admissions, theatres, theatre recovery and postnatal wards. Community integrated midwives were also encouraged to attend due to the change in discharge process within 24 hours of surgery. The training was essential due to the radical changes to aspects of the care management.

Women were given a parent information booklet (that had been agreed through the clinical governance route) at the time the planned caesarean section was decided. This booklet includes specific information on enhanced recovery, what the expectations of women are and rationale for aspects of care. There is a section relating to surgical consent aiming to give parents the chance to understand the implications of surgery prior to signing consent on the day of the operation. Early mobilisation and diet intends to lead to early discharge from hospital (soon after 24 hours) into the woman's typical environment [8,20]. Risk assessment is critical to safety and in maternity the foetus/baby is included in the enhanced recovery programme [21].

The pathway includes ensuring new mothers have the opportunity to achieve expressing breastmilk if their new born is in the neonatal unit [22]. The service enhancement has provided opportunity to implement updated evidence based practices such as deferred cord clamping (1-2 minutes) [23] in theatre unless contra-indicated. New mothers are encouraged to be discharged home the following day assuming no complications arise with either the mother and/or her new born baby. The midwife performs a face-to-face home postnatal visit on the first day of discharge home to assess wellbeing of both mother and infant.

Aim and Objectives of the ER Pathway Service Evaluation

The aim of the ER pathway service evaluation was to review and evaluate the changed service delivery through the following objectives:

- To determine the fitness for purpose of the ER Pathway and documentation
- To facilitate compliance with the pathway
- To identify blocks to use of the pathway
- To identify the experiences of women and their birth partners who have undergone the ER Pathway

The service evaluation comprised three parts: Part A is a 'records proforma' (for pilot and main evaluation), Part B is a questionnaire for staff involved in the ER Pathway to complete at the end of the three-week pilot phase to elicit general feedback of the overall pathway and Part C is a service user 'experience questionnaire' for use with the main evaluation (Figure 3).

Part A	Part B	Part C
The multi-professional team and Head of Midwifery reviewed the records proforma to ensure it captured the service changes.	A questionnaire for staff involved in the ER Pathway	A service user 'experience questionnaire' that asks questions of women and their birth partners [as appropriate] throughout the phases of the pathway
Records proforma was used to review:	Staff identified from their profession only and from a generic profession rather than grade/role level	It mimics a diary that women can complete from the date the decision is made for the planned caesarean section until the date of their discharge to next health care professional i.e. Health Visitor or General Practitioner
the fitness for purpose of new ER pathway and related documentation	This questionnaire asks questions to consider the compliance of the pathway and practicalities of implementing the pathway and related documentation	Addresses areas, such as information provided at point of planned caesarean section, early removal catheter, pain relief, eating and drinking, early mobilisation, support with feeding methods and general support
changes to medication regime which mainly includes the self-medication by women, implementation of amended guidelines by midwives and prescribing staff		All women who had a planned caesarean section were given the experience questionnaire to complete and hand back to the midwife at day of discharge. If they chose not to complete this questionnaire they were not coerced to in any way.
the administration of second dose PR Diclofenac Sodium (Volterol) at time of removal of urinary catheter and its impact upon early mobilisation		This leaflet was reviewed by the Maternity service user group as part of the development of the questionnaire. The overall leaflet was reviewed by the Trust Patient Experience and Engagement Steering Group [PEESG] as part of the Service Evaluation process
completion of new documentation, that includes maternal and neonatal care such as feeding methods (including hand expression if neonate care of the neonatal unit), skin to skin in theatre or recovery, neonatal care, for example		

Figure 3: ER Pathway service evaluation parts.

Phase 1: The Pilot

The pilot phase aim was to ensure that the documentation within the ER pathway was fit for purpose. This was evaluated through reviewing the documentation of all case records within the first three weeks [Pilot Phase] using and testing the main proforma (Part A). The pilot study considered all case records for a three-week period between October and November 2015. All cases recorded within the birth register had their completed records reviewed. Three weeks was deemed appropriate based on the maximum potential of cases of three per day, five days per week. A maximum of 45 sets of records were anticipated. Twenty-seven women underwent the ER Pathway during this period of time. Unusually, this period of time was one of the quietest on record and may have been affected by the Junior Doctor planned strikes [24] and considered related risk assessment of workloads across the larger NHS Trust. Twenty-five records were reviewed due to two sets of records not being available at the time of review. A number of key sections were not completed in several sets of records. These were predominantly in the sections of the documentation once the woman was transferred from the delivery suite to postnatal wards. These data were analysed as part of an 'in-house' review. The ER Pathway was reviewed to enhance the areas that appeared to be omitted and training/education was provided to staff regarding the ER Pathway and completion of the documentation. Staff were able to provide insight into their use of the pathway and/or concerns during the educational interface and also feedback was sought through the staff questionnaires (Part B). A maternity services wide email was sent out for all staff to view the questionnaire, print it out and return anonymously or have the option to complete electronically and return. These data were anonymised but identified through profession, for example, Midwife, Obstetrician, Maternity Support Worker, Anaesthetist, Other; one obstetrician and four midwives completed the questionnaire. Whilst potentially limiting, all results and feedback was used to amend aspects of the documentation before implementing a revised second version of the ER pathway long term. There was a

delay in undertaking the main service evaluation in order to permit time to undertake the educational sessions, amend the documentation and implement it in practice.

Phase 2: The Main Service Evaluation Methods

The main service evaluation period ran from the end of February to the end of May 2016. The end date was pre-determined by reaching the first 100 ER Pathway cases identified through the birth register. The proposed length of time was again based on the maximum of three women per day, five days per week being offered the ER Pathway. All women who underwent the 'Enhanced Recover after Planned Caesarean Section' pathway had their case records reviewed using the proforma (Part A). Women were provided with both the patient information booklet and service user 'Experience Questionnaire' (Part C), at the time the decision was made to book for the ER Pathway, for completion through all the phases of the pathway. There were no identifying features on the questionnaire for matching the responses to client records. The woman was offered the opportunity to supply her contact details if she requested further follow up and/or discussion about her experiences. This was a requirement of the PEESG review. Whilst this was the intention, it was not evident that all women were provided with this documentation. In order to attempt to glean feedback via this route, we targeted the midwives in the pre-clerking clinic to ensure the women were provided with the questionnaires.

The women's hospital records were reviewed using the proforma (Part A) within the local maternity services and not removed from the premises whilst the completed proformas were kept in a locked filing cabinet within the University as per data protection policy [25]. There is currently no requirement for 'Service Evaluation' patient consent forms to be completed as per the Trust Guidelines [26]. University Ethics processes were adhered to due to the project being a joint venture.

The proforma data were analysed to describe the service for wider audience through the use of basic descriptive statistics, such as, central tendency and measures of spread and percentages. The statistical data included, average times of catheter removal post planned caesarean section, mean starvation times, how soon women mobilize post-surgery and the percentage of women discharged home the following day from the caesarean section. The purpose was to describe the service and consider if the service change achieved what it intended to do and how women experience it. A generic thematic analysis of the women's qualitative comments from the qualitative comments within the evaluation questionnaire was planned; however, there were no responses.

Results and Discussion

The birth register highlighted that 101 women experienced an elective CS; 101 sets of records were therefore reviewed. Four cases were wrongly labelled as an elective CS when they were in fact category 3 [20] and hence not on the ER Pathway. One case had no locatable records however, piecemeal data were available through other means. One case had an elective CS within a different department in the wider NHS Trust and no ER pathway was used; again, some data were available through other means.

The mean age of women undergoing the ER Pathway was 31.5yrs [range 18-44years] and the most common nationality was recorded as British white [n=74/97]. The mean Gravida was 3.1 [range 1-11] with parity (after this planned CS) being 2.33 [range 1-5]. The majority of women received their planned surgery at 39+ weeks gestation [n=58] which befits current local guidelines and national recommendation [20]. There was an even spread of ER Pathway cases conducted across the working week days.

The standard agreed practice for all women on the ER Pathway is to record the last food and clear fluid intake for the morning of the planned surgery. A pre-operative drink [20,27,28,] is encouraged for women to consume prior to fasting. Six women were diabetic and correctly did not receive the pre-op drink. The evaluation is concerned with understanding if current practices regarding starvation times reflect the national standard, which is clear fluids at least 2 hours pre-operation and 6 hours for solid food [29,30]. Sixteen case records did not record the time of recommencement of eating and six did not evidence the time of recommencement of oral fluids. From the evidence identified, starvation times range from 14 hours 30 minutes to 26 hours [mode =17 hours]. The re-starting of eating has been taken from time of birth rather than time of starvation and shows the range of 1hour 45 minutes to 8 hours 16 minutes [mode 2 hours +]. Dehydration times range from 3 hours 10 minutes to 15 hours 40 minutes [mode = 6-7 hours]. Drinking resumed, again taken from time of birth, in a range of 40 mins– 11 hours 10 minutes [mode = 1-2 hours].

Women were recovered in the delivery suite environment by core staff. Time spent in recovery was between 3 and 8 hours (calculated from time of birth) prior to being transferred to the postnatal ward. The SBAR [31] tool is typically used to record the handover from one part of the service to another and it was evident that not all information was recorded in the Pathway documentation. For example, often the recording of time of leaving the recovery area and arrival on the postnatal ward was not entered. Ward clerk's complete documentation of times of arrival and discharge to the ward as a matter of fact therefore the information is available through other means.

The ER Pathway aimed to incorporate self-administration of analgesia post birth. The infra-structure had to be adapted to fully incorporate this change of practice and the anticipated practice change was not fully implemented in time for the review. What was clear is the preference for self-medication which was fully debated within the multi-disciplinary group and educational updates with staff. This is something that will require future interrogation once fully implemented. An indwelling urinary catheter is situated in the theatre after effective anaesthesia and prior to the surgery. The removal of the urinary catheter is expected at approximately 12 hours post-surgery at the same time that a second dose of PR

Diclofenac sodium is administered. However, this is a change to current and historical practices whereby removal was expected the following morning unless otherwise indicated/prescribed. The maternity service and main Trust follow the Trial Without Catheter (TWOC) guidelines [20,32] and anecdotally there was some anxiety among midwives that removing the urinary catheter earlier than approximately 24 hours would cause undue distress to women. From the case records one woman experienced a failed TWOC. The catheter in this case was removed at 06:00hrs some 20hours 8 mins post CS and cannot therefore be attributed to removal within the required 12 hours. (Figure 4) highlights timings of catheter removal. One woman requested her urinary catheter to be removed prior to the 12 hours and was told no because it was not yet 12 hours.

Hours	No. of Women
Under 12 hours	6
12-14 hours	56 (40 of these within 12-13 hours)
Over 14 hours	29 (26 of these removed from 05:00hrs the following am therefore following old regime)
Unclear Records	2
Home with Catheter	1

Figure 4: Timings of urinary catherter removal.

The majority of case records were not completed for the mobilisation assessment. In the main, there was no evidence of early mobilisation other than records documenting the TWOC and first 'Out to Toilet' episode. The assumption could be that mobilisation occurred at that point, but this is not robust evidence.

Best practice is to undertake discharge planning prior to arrival (REF) so that there is an efficient streamlined service for women and services alike. For all cases, the postnatal pathway documentation remained incomplete. This again was a change to practice. Staff continued to use 'Old Style' paperwork rather than the new pathway and hence key assessment activities were not completed. From the pilot, additional information 'Stickers' were added to the pathway to encourage completion, which did have some impact latterly. Whilst 49 women were discharged home the day after surgery as planned, 45 were not (figure 5).

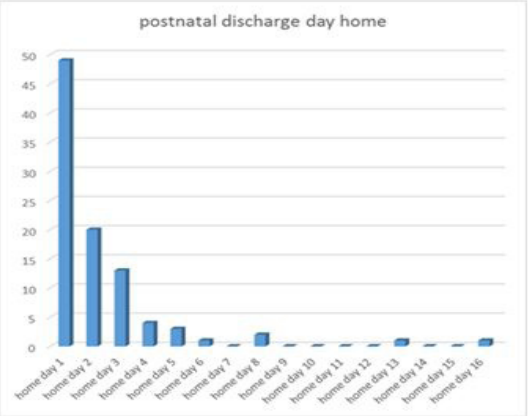

Figure 5: Postnatal discharge day home.

For 28 of the 45 cases, there was no clinical reason, for themselves, to remain in hospital. One woman remained an in-patient for 16 days, but could have been discharged home on day one. However, she was an out of area patient with twins in the neonatal unit. A list of main reasons for not being discharged home on day 1 include:

- Baby care of NNU
- Receiving Intravenous antibiotics
- Experienced a post-partum haemorrhage
- Has a low haemoglobin level?
- Care of the high dependency unit
- Infant feeding issues
- Experiencing pain
- One case of safeguarding
- Having investigations for suspected Pulmonary Embolism
- An uncontrolled gestation diabetic under medical care
- A failed TWOC
- No help at home
- Not ready to go home
- No reasons provided

The intention was for all women to be advised about the offer of skin-to-skin [33,34] in theatre and or recovery with ten

women declining skin-to-skin. There were mixed proactive practises of skin-to-skin in both theatre and recovery however the documentation of this practice and its duration was sporadic. Increasing breast feeding rates has always been a challenge both locally and nationally [35]. From the evidence 60 women initiated breast feeding, 22 women artificially fed, seven women undertook mixed feeding. Two women undertook a mixed feeding approach with their infants. One woman undertook expressing of her breast milk for her infant. Documented evidence indicated that breast feeding women were encouraged and informed about hand expression of their breast milk prior to discharge home.

The ER Pathway incudes a section (back page) which is to be detached from the pathway and given to the woman as part of her discharge pack ready for the community midwife (or maternity support worker) to complete once discharged home. It appeared to take a long time for postnatal community records to be returned to the main case records. Often this was longer than the review period hence there were minimal data available for consideration. Of the reviewed case records, 31 'Back Pages' were completed prior to discharge from the ward; one of these was not detached and therefore not sent out with the discharge pack. The majority of 'back pages' were not completed or not completed at each contact visit. Within the community documentation there was no evidence of 'Assessment of Pain' in the majority of records therefore the full consideration of adequate analgesia cannot be interpreted.

There are some anomalies with how the ER Pathway has been completed/interpreted with some practitioners completing the provided tick boxes whilst others have annotated. There is a move to 'Freeing Up Time to Care' [36] with the provision of care pathways. Each organisation agrees their practices in line with current national evidence and guidance to limit the amount of documentation being completed to the detriment of individualised care. Having stated this, where numerical values are required some practitioners have ticked the boxes i.e. where a pulse is required. This has been a monumental shift in practice for a number of practitioners who have been trained with the philosophy of 'if it is not written it did not happen' which in a current litigious society can lead to increased anxiety in practitioners and or defensive practice [37]. There have been anecdotal comments from student midwives who have stated that if you read the ER Pathway, every piece of information is included to support practice and support for the women experiencing the planned CS. Completion of the pathway has been consistent in the pre-assessment, theatre and recovery areas. This may be attributed to the fact that there are core staff undertaking the care roles in these areas. This is evident from the records scrutinised during the evaluation period that when members of the core staff are on leave and care is conducted by a 'Stand In' the pathway documentation is not fully completed.

Recommendations for Practice

The service evaluation has highlighted some recommendations for practice, some of which have been implemented or are in the process of being addressed. Extra information training sessions had been implemented but there appears to be a need for the postnatal ward staff to have specifically proactive education. This is likely to be due to the fluid workforce within these environments and the need for better communication. There was also evidence of core staff significantly blocking change to practices and routines which could have been as a result of not knowing the current evidence base or a lack of understanding of the implications of making change.

There is no evidence that removal of the indwelling urinary catheter at 12 hours post CS leads to a failed TWOC outcome. It does permit one to question the practice of removing the urinary catheter earlier prior to transfer from recovery to the postnatal ward. Evidence of early removal in other surgical areas [27] enhances early mobilisation assuming appropriate analgesia is in situ. Early mobilisation and early introduction of diet intends to lead to early discharge from hospital (soon after 24 hours) into the woman's normal environment [9]. There is a need for the self-administration of medication to be reviewed once full implementation of the practice has occurred. A full analgesia review is required to incorporate how women's pain is managed once they are discharged home. Education will need to be provided to ensure appropriate understanding of pharmokinetics, based on the comments made during ER pathway training sessions where midwives did not always demonstrate an awareness of the effects of paracetamol and pre-loading practices [38]. Risk assessment is critical to safety and in maternity the baby is included in the enhanced recovery programme where deferred cord clamping, skin to skin and early breastfeeding are encouraged in the theatre and recovery environments as typical practices. These practices are to be encouraged as areas of best practice and reviewed as part of a future audit.

Part C has to date not achieved its intended outcome therefore the recommendation is to undertake a 'Phase 3' which will consider the woman's experience. A significant requirement to the success of this was through the community midwives collecting in the questionnaires and leaving them in the designated collection area. This did not occur despite continued publication (electronically and verbally) of the service evaluation. A revision of the collection of this part of the service evaluation is currently being undertaken and is due to be conducted as part of a student midwife MSc project this year.

Conclusion

There has been acceptance of the project to date, with enthusiasm most noted in the theatre and recovery area. Engagement of most members of the working group has been good and the team has worked fairly well to represent their professional groups and working areas. The service evaluation of the ER Pathway has gathered meaningful data which is already influencing practice. There is an expectation that the ER Pathway will continue to normalise the birth process for many women and enhance the experiences of all involved.

References

1. Rogers J (2015) Enhanced Recovery Pathway for Planned Caesarean section version 2 Southampton, University Hospital Southampton Foundation NHS Trust.
2. Wrench IJ, Allison A, Galimberti A, Radley S, Wilson MJ (2015) Introduction of enhanced recovery for elective caesarean section enabling next day discharge: a tertiary centre experience. International Journal of Obstetric Anesthesia 24: 124-130.
3. Abell D, Pool AW, Sharafuden S, Skelton V, Dasan J, et al. (2014) Enhanced recovery in obstetric surgery (Kings EROS): early results from one of the UKs first programmes European Journal of Anaesthesiology 31: 192.
4. Aluri S and Wrench IJ (2014) Enhanced recovery for obstetric surgery: a UK survey of practice. International Journal of Obsteric Anesthesia 23: 157-160.
5. Wijk L, Franzen K, Ljungquist O, Nilsson K (2014) Implementing a structured enhanced recovery after surgery (ERAS) protocol reduced length of stay after abdominal surgery ACTA. Obstetrica et Gynecologica Scandinavia 93: 749-756.
6. Nursing and Midwifery Council (NMC) (2015) The Code: Professional standards of practice and behaviour for nurses and midwives London, NMC.
7. Jan H, Long O, Garratt C, Skelton V, Sharafudeen S, et al. (2013) Outcomes following introduction of an Enhanced Recovery in Obstetric Surgery (EROS) protocol for elective caesarean sections, London, Kings College Hospital NHS Foundation Trust.
8. Long O, Garrett C, Jan H, Sharafudeen S, Dasan J, et al. (2013) Impact of early catheter removal following introduction of an enhanced recovery in obstetric surgery (EROS) protocol for elective caesarean sections. London, Kings College Hospital NHS Foundation Trust.
9. Department of Health (2013) Enhanced Recovery Care Pathway: A better journey for patients seven days a week and better deal for the NHS. Leeds, NHS Improving Quality.
10. DH (2015) 2010 to 2015 government policy: NHS efficiency.
11. NHS Improving Quality (2011) Quality, innovation, productivity and prevention initiative.
12. Torbe E, Crawford R, Acheson N (2014) Enhanced recovery programme - improving quality. Obstetrics, Gynaecology and Reproductive Medicine 24: 91-93.
13. Relph S, Bell A, Sivashanmugarajan V, Munro K, Chigwidden K, et al. (2014) Cost effectiveness of enhanced recovery after surgery programme for vaginal hysterectomy: a comparison of pre-and post-implementation expenditures. The International Journal of Health Planning and Management 29: 399-406
14. Raju TNK (2013) Timing of umbilical cord clamping after birth for optimizing placental transfusion. Current Opinion in Pediatrics 25: 180-187.
15. Grace L, Duggal N, Garabedian M (2016) Maternal Safety Evaluation Following Implementation of Universal Delayed Cord Clamping [4R]. Obstetrics and Gynecology.
16. Flavio FJ, Tanya C, Nicolò P, Petru N, Saba B, et al. (2016) December Ensuring Early Mobilization Within an Enhanced Recovery Program for Colorectal Surgery: A Randomized Controlled Trial. Annals of Surgery: Post Author Corrections: December 16.
17. Slim K and Le Roy B (2016) Early mobilization in abdominal and thoracic surgery. Surgery 160: 1711.
18. Andersson T and Johnsson E (2017) Early removal of urinary catheter in postoperative patients with epidural analgesia. Clinical Nutrition ESPEN 19: 98.
19. Chu A, Ma S, Datta S (2017) Analgesia in labour and delivery Obstetrics, Gynaecology and reproductive medicine 27: 184-190.
20. National Institute for Health and Care Excellence (NICE) (2011) Caesarean Section Manchester, NICE.
21. Kirkup B (2015) The report of the Morecambe Bay investigation. London, The Stationary Office.
22. NHS Choices (2014) Breastfeeding a premature baby Gov.UK.
23. Duley CMM, Drife JO, Soe A, Weeks AD (2015) Clamping of the umbilical cord and placental transfusion. Scientific Impact Paper No. 4. London, RCOG.
24. Spooner S, Gibson J, Rigby D, Sutton M, Pearson E, et al. (2017) Stick or twist? career decision-making during contractual uncertainty for NHS junior doctors. British Medical Journal open 7: e013756.
25. University of Southampton (2008) Data Protection Policy.
26. Quality Governance Steering Group (QGSG) (2014) Service evaluation Guideline. Southampton, Southampton University Hospital Foundation Trust.
27. Coates E, Fuller G, Wrench I, Wilson M, Stephens T, et al. (2016) A quality improvement clinical pathway for enhanced recovery after elective Caesarean Section: results of a consensus exercise and survey university of Sheffield.
28. Thomas M and Engelhardt T (2017) Think drink! Current fasting guidelines are outdated. British Journal of Anaesthesia 118: 291-293.
29. Fawcet WJ and Ljunqvist O (2017) Starvation, Carbohydrate loading and outcome after major surgery. British Journal of Anaesthesia May.
30. Ramon A and Tong G (2017) preoperative fasting guidelines: why are we not following them? The time to act is now. Anesthesia and Analgesia 124: 1041-1043
31. Looi Lee JA and Kean L (2017) Prioritisation on the labour suite. Obstetrics, Gynaecology and Reproductive Medicine 27: 71-76.
32. Rundle S, Ash J, Kay T (2013) PL.100 Time to Discharge Following Uncomplicated Elective or Emergency Caesarean Section: is Patient Motivation the Major Determining Factor? Archives of Disease in Childhood - Fetal and Neonatal Edition 98: A82.
33. Lowson K, Offer C, Watson J, McGuire B, Renfrew MJ (2015) The economic benefits of increasing kangaroo skin-to-skin care and breastfeeding in neonatal units: analysis of a pragmatic intervention in clinical practice. International Breastfeeding Journal 10:11.
34. Gregson S, Meadows J, Teakle P, Blacker J (2016) skin to skin contact after elective caesarean section-Investigating the effect of breast feeding rates. British Journal of Midwifery 24: 18-25.
35. Hunter L, Magill-Cuerden J, McCourt C (2015) 'Oh no, no, no, we haven't got time to be doing that': Challenges encountered introducing a breast-feeding support intervention on a postnatal ward. Midwifery 31: 798-804.
36. Mickan S, Tilson JK, Atherton H, Roberts NW, Heneghan C (2013) Evidence of Effectiveness of Health Care Professionals Using Handheld Computers: A Scoping Review of Systematic Reviews. J Med Internet Res 15: e212.
37. Peyman A, Nayeri ND, Bandboni ME, Moghadam ZB (2017) Legal complaints about midwifves and the impact on the profession. Nursing Ethics: 1-7.
38. Tariq M and ud Din F (2017) Poor knowledge of university students regarding paracetamol; a wakeup call for public healthcare practitioners. Cogent Medicine 4: 1320848