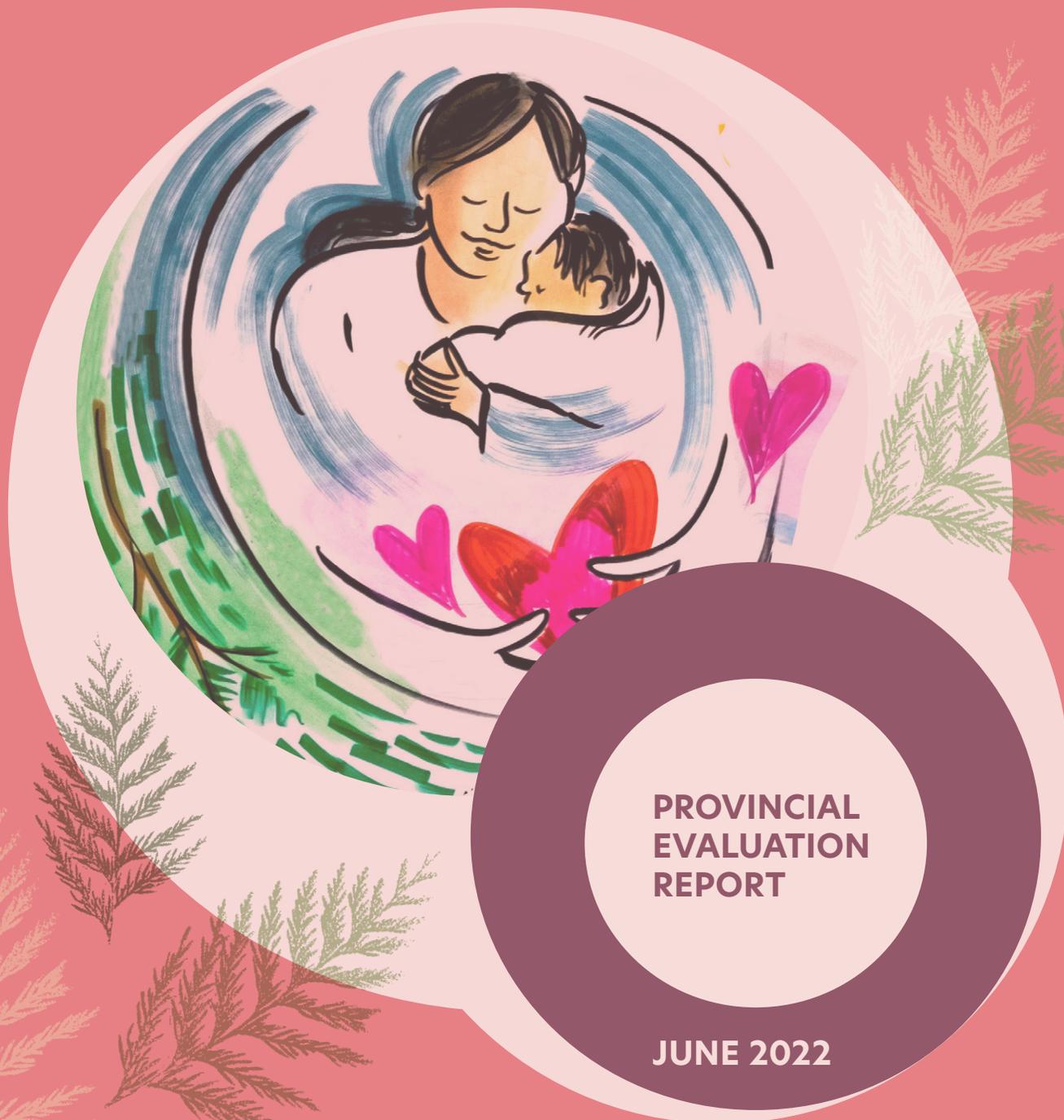


IMPLEMENTING

EAT SLEEP CONSOLE



PROVINCIAL
EVALUATION
REPORT

JUNE 2022

PROVINCIAL PERINATAL SUBSTANCE USE PROGRAM

PREPARED BY
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EAT SLEEP CONSOLE EVALUATION EXECUTIVE SUMMARY

Introduction

The Provincial Perinatal Substance Use Program (PPSUP), BC Women’s Hospital, Provincial Health Services Authority (PHSA) was established in 2018/19 to provide centralized leadership of systems transformation efforts to improve perinatal substance use services and supports for pregnant and parenting women using substances.

Eat Sleep Console (ESC) was identified as essential training and education critical to supporting mother-baby togetherness. ESC is an evidence-informed model focusing on the comfort and care of infants exposed to substances by maximizing non-pharmacological interventions and increased family involvement in the care of the infant; pharmacological treatment such as PRN morphine could also be used as a part of second-line therapy.

Champions across the province, including BC Women’s Hospital + Health Centre, Perinatal Services BC (PSBC), Fraser Health, and Island Health, have led significant efforts in advancing both the non-pharmacological and pharmacological treatment options for infants experiencing Neonatal Abstinence Syndrome (NAS). The Provincial Perinatal Substance Use Program (PPSUP) has leveraged the collaborative efforts across the province to support the advancement of ESC through the development of tools, resources, and supports to manage NAS and inform ESC implementation across regions. This has included the development of Perinatal Substance Use (PSU)/ESC online training modules in partnership with University of British Columbia (UBC) Continuing Professional Development (CPD) in collaboration and guided by provincial and regional subject matter experts. The modules focus specifically on ESC as a model for the non-pharmacological management of NAS and neonatal opioid withdrawal syndrome (NOWS) as first-line treatment.

Evaluation Objectives and Process

The provincial ESC evaluation was conducted in phases and aimed to be utilization-focused, starting with a formative evaluation. The evaluation also employed a highly collaborative approach and was guided by an Evaluation Advisory Committee (AC) with provincial representation. The evaluation commenced in August 2021 with the following objectives:

TO ASSESS UPTAKE AND IMPACTS of the online PSU/ESC training modules on care provider knowledge and practice

TO DOCUMENT the site-based experiences of implementing ESC

TO IDENTIFY KEY FACTORS associated with ESC implementation at acute care hospital sites across the province

The evaluation used both quantitative/survey and qualitative/interview data, collected between December 2021 and May 2022, to describe and document implementation processes successes, challenges, and lessons learned across BC Health Authorities. A literature review/jurisdictional scan was also conducted.



Findings and Discussion

The evaluation revealed that the pace and progress of ESC implementation was variable both within and across Health Authorities. A key finding was that a number of hospitals across the province had made considerable strides toward: providing staff training and education foundational to ESC; shifting attitudes, practices, and policies; and garnering essential operational capacity to support ESC implementation. In nearly all Health Authorities, two or more hospitals had fully or mostly implemented ESC.

The evaluation's review of the literature also showed that BC's experience was consistent with that of other jurisdictions. Specifically, the key drivers of success cited in the literature were also found to be important "enablers" in BC. Chief among these was having committed champions/leaders and regular opportunities for education and training for hospital staff.

Enablers of ESC implementation

The presence of strong regional leadership and a full-time PSU/ESC lead with clear responsibility for the planning and delivery of the roll-out of ESC was an important factor facilitating uptake of ESC. The leads were instrumental in encouraging staff, promoting ESC best practices, developing site-specific training, advocating, and problem-solving. Health Authorities that had fully committed to having these positions and that weren't experiencing staff turnover were further along in their ESC journey; conversely, Health Authorities that had experienced disruption and turnover in these positions weren't as far along.

- The development and delivery of the foundational PSU/ESC training modules, offered through UBC's Continuing Professional Development since 2020, were pivotal to perinatal care providers developing an understanding and appreciation of the practice shifts that were necessitated by ESC. Additional regional and site-specific training was also extremely important
- This tailored training and practice support, offered in ways that were most responsive to sites' needs and offered to health care providers working in various care settings and even across service sectors, helped to introduce, guide, and sustain the practices and attitudinal shifts embodied by ESC.
- The use of a phased approach meant the Health Authorities were free to choose how to implement ESC and as such introduced practice components that were more easily managed, such as use of the ESC Care Tool, while continuing to look for solutions to other operational, staffing, and care provider readiness challenges.
- Receiving dedicated funding allowed health care providers to complete the foundational PSU/ESC training during their regular working hours (for many trainees, or at least for those who completed the training in 2020/2021), while providing backfill for clinical, patient care roles and supporting the PSU/ESC lead positions.



Challenges

- The primary challenges identified in the literature were also evident in the BC experience.
- These included insufficient nursing resources, difficulty promoting skin-to-skin contact and consoling when the parent wasn't present or had been discharged, limitations of maternity units with respect to rooming-in, and hospital-based protocols and/or attitudes that potentially slowed the implementation of ESC.

Recommendations

Based on the findings from this evaluation, it is recommended that:

- Funding be provided/allocated for PSU/ESC foundational training for all multidisciplinary perinatal health care providers. Ideally, this education should be organized such that providers are able to complete the training during their regular working hours, rather than during their non-work time.
- The role of PSU/ESC lead continue to be supported. It is essential that PSU leads have dedicated time to plan and implement ESC in hospital sites within their Health Authority and are not undertaking the work of ESC implementation off the sides of their desks.
- As part of their role, the PSU leads continue to plan and deliver tailored, site-specific education and training opportunities on ESC and related best practice approaches such as trauma-informed care for health care staff. In addition, it is recommended that the PSU Leads continue to explore best practice alternatives for supporting ESC and providing non-pharmacological care to infants in the absence of a consistent care provider.
- The PSU leads employ a phased and collaborative approach to implementing ESC, starting with the PSU ESC online training, then working closely with birthing facilities in their region to determine operational and care provider readiness and an agreed-upon process and timeline to undertake implementation.
- To work through practice issues and strengthen/sustain ESC, a virtual Community of Practice be created and that regular meetings be offered at a regional and/or provincial level for perinatal care staff involved in ESC care.
- The PPSUP team coordinate discussions with the PSU/ESC leads regarding key ESC outcomes and indicators that would be feasible to collect through health systems data and from patients'/families' perspectives, to further assess and evaluate ESC impacts.



CONTENTS

SECTION 1: INTRODUCTION AND OVERVIEW	1
1.1 Objectives of evaluation	2
1.2 Highlights of the Literature Review	2
SECTION 2: METHODOLOGY	4
2.1 Evaluation approach and design	4
2.2 Evaluation research questions	5
2.3 Evaluation framework	6
2.4 Data collection methods, participants, and tools	6
2.5 Evaluation challenges and limitations	9
SECTION 3: FINDINGS	10
3.1 Uptake and impacts of the ESC training modules	10
3.1.1 Who has completed the UBC ESC training modules (Modules 1 and/or 3)?	10
3.1.2 What has been the impact of the training in terms of increases in learners' knowledge and motivation to make shifts in attitudes or practice?	11
3.1.3 What has been the impact of the training over time in terms of increases in learners' knowledge and changes/shifts in their practice?	13
3.2 Implementing Eat Sleep Console in British Columbia	16
3.2.1 What is the status of implementing ESC in maternity care hospitals in BC?	17
3.2.2 What have been key milestones in implementing ESC in BC?	20
3.2.3 What are the key barriers or challenges to implementing ESC?	22
3.2.4 What are key factors that influence implementation of ESC in BC?	28
3.2.5 What are markers of success and emerging outcomes of ESC in BC?	31
SECTION 4: DISCUSSION AND RECOMMENDATIONS	34
4.1 Summary and discussion of findings.....	34
4.2 Recommendations.....	36
APPENDICES	37
A. Eat Sleep Console Annotated Bibliography and Reference List	
B. ESC Evaluation Data Collection Tools	
C. Summary data on UBC CPD Follow up survey respondent demographics	





SECTION 1: INTRODUCTION AND OVERVIEW

The Provincial Perinatal Substance Use Program (PPSUP), BC Women’s Hospital, Provincial Health Services Authority (PHSA) was established in 2018/19 to provide centralized leadership of systems transformation efforts to improve perinatal substance use services and supports for pregnant and parenting women¹ using substances. The program is funded by the BC Ministry of Health and the BC Ministry of Mental Health and Addictions.

As part of initial efforts to integrate perinatal and substance use care, Eat Sleep Console (ESC) was identified as essential training and education critical to supporting mother-baby togetherness². ESC is an evidence-informed model that focuses on the comfort and care of infants exposed to substances by maximizing non-pharmacological interventions and increasing family involvement in the care of the infant; pharmacological treatment such as PRN morphine may also be used as a part of second-line therapy. Champions across the province, including BC Women’s Hospital + Health Centre, Perinatal Services BC (PSBC), Fraser Health, and Island Health, have led significant efforts in advancing both the non-pharmacological and pharmacological treatment options for infants experiencing Neonatal Abstinence Syndrome (NAS).

PPSUP has leveraged the collaborative efforts across the province to establish ESC as leading practice by supporting the development of Perinatal Substance Use (PSU)/ESC education and training for health care providers with the goal of integrating perinatal health and substance use care. PSU/ESC online training modules were launched in partnership with University of British Columbia (UBC) Continuing Professional Development (CPD). PSU focus specifically on ESC as a model for the non-pharmacological management of NAS and neonatal opioid withdrawal syndrome (NOWS) as first-line treatment. ESC education is truly a provincial effort, with important contributions from subject matter experts across the province culminating in the four modules. By June 2021, all four modules of Perinatal Substance Use/ESC were released; an initial evaluation of the modules conducted by UBC CPD showed promising results. Acute care units throughout the province have also engaged in significant activities to support ESC implementation. There is also national interest in the BC experience of ESC implementation.

In August 2021, the PPSUP team engaged Nota Bene Consulting Group to carry out a provincial evaluation, focusing on milestones, strengths, and challenges of ESC implementation in BC Health Authorities. The intent of the ESC evaluation was to plan and undertake a mixed-method, utilization-focused evaluation as a means to inform further implementation efforts.

¹ A note about gender and sexual orientation terminology: In this report, the terms *woman*, *women*, *individual*, and *people* are used throughout. This is to acknowledge health inequities that exist for both women and people who do not identify with gender-binary terms. These different terms, in particular gender-additive terms such as women and people, are meant to be inclusive of gender-diverse individuals who are pregnant, and to respect those who wish to continue to be identified as pregnant women or mothers. We encourage all providers not to assume binary genders, gender identity, or sexual orientation of the pregnant person (or their partner) and to respectfully and non-judgmentally ask all pregnant people about their preference for how they wish to be addressed.

² In this report, the terms *mother-baby togetherness* and *dyad care* are used interchangeably.



1.1 Objectives of evaluation

The objectives of the evaluation were to:

- Assess uptake and impacts of the online PSU/ESC training modules on care provider knowledge and practice
- Document the site-based experiences of implementing ESC
- Identify key factors associated with ESC implementation at acute care hospital sites across the province

The primary components of the Provincial ESC Evaluation included:

- Literature review
- Review of UBC CPD PSU/ESC training Evaluation Questionnaires
- Primary data collection with UBC CPD trainees and PSU/ESC leads and care providers working in acute/maternity care hospitals

1.2 Highlights of the Literature Review

In the past decade, a growing number of studies and systematic reviews have been conducted that examine the impacts and implementation of ESC and/or its core components, such as rooming-in/dyad care.

The literature review undertaken as part of the ESC evaluation included 25 articles, reports, and presentations (see **Appendix A** for the Annotated Bibliography and Reference List):

- 4 systematic reviews
- 8 peer-reviewed studies on impacts of ESC or rooming-in³ or process of implementing ESC
- 3 peer-reviewed studies on patients' experiences of ESC or rooming-in
- 2 peer-reviewed studies surveying the state of NAS management/care and practices
- 3 peer-reviewed Practice Points/ Commentaries on impacts of ESC or rooming-in
- 5 “grey literature”/non-peer-reviewed presentations or reports on ESC

The literature review affirmed the evidence of positive impacts of ESC and rooming-in, including:

- Reduced need for and use of pharmacological treatment for infants with NAS/NOWS symptoms
- Reduced need for Neonatal Intensive Care Unit (NICU) care for infants with NAS symptoms
- Reduced hospital length of stay (LOS) of infants with NAS symptoms
- Increased mother-infant togetherness/dyad care
- Increased breastfeeding of infants with NAS symptoms
- Reduced acute care hospital costs

Most of the studies included in the review employed a quality improvement (QI) methodology, involving Plan-Do-Study-Act (PDSA) cycles over a multi-year period. Projects typically began by creating a multidisciplinary team of perinatal care providers.

³ Rooming-in is one component of ESC.



Based on the literature, key drivers of successful implementation of ESC included:

- Committed champion leader(s)
- Strong, collaborative, committed multidisciplinary team(s)
- Provider education and understanding of shifts in NAS care
- QI approach that facilitates implementation and provides timely feedback to guide further change
- Prenatal parent education re: NAS and non-pharmacological approaches to managing NAS symptoms

Primary challenges to implementing ESC, as identified by the literature, were:

- This is a significant practice shift
- Need for additional education/training for providers
- Multiple assessment tools; inconsistent scoring of some tools
- Judgmental/stigmatizing attitudes of providers
- Limited promotion of breastfeeding
- Insufficient nursing resources for rooming-in
- Limited skin-to-skin if parent isn't present or when discharged

Studies examining the state of ESC implementation in Canada indicated that ESC had not been fully adopted at a national level, although increasingly ESC was being recommended as the model of care for infants at risk of having symptoms of NAS. That said, care providers in BC were long-time leaders and champions of ESC. In particular, rooming-in and ESC-specific practices and approaches to assessment had been initiated in BC hospitals as exemplar practice, replacing the previously widely used Finnegan approach. These BC practices were noted by US experts and later documented in US studies intending to advance ESC practice.

Lastly, there were relatively few published studies focusing on patients' experiences with ESC/rooming-in, meaning that this is a knowledge gap and an important area for future research and evaluation. Some studies/systematic reviews criticized the existing literature as lacking high-quality research on the impacts and (cost-) effectiveness of ESC, based on the level of detail of the data, the study design, and the interpretation of the findings. Similarly, one article noted that additional research is needed to identify the components of the intervention that make it effective. Finally, several articles noted that there is a lack of evidence regarding the long-term outcomes associated with NAS and the treatment of its symptoms.





SECTION 2: METHODOLOGY

2.1 Evaluation approach and design

Phased evaluation informed by a developmental evaluation approach

The provincial Eat Sleep Console evaluation was conducted in phases and has been informed by a developmental evaluation approach. This type of evaluation is useful in projects such as ESC as it is well-suited to tracking developments and to documenting emergent issues and dynamic realities in a complex environment – e.g., the acute care health care system amidst a global pandemic. Information gathered during will help to guide planning and data collection processes in subsequent phases of the evaluation.

Utilization-focused, formative evaluation, highlighting ESC implementation across BC

The provincial evaluation of ESC placed value on being utilization-focused and starting with a formative (also known as process) evaluation, describing and documenting implementation processes, successes, challenges, and lessons learned across Health Authorities. The purpose of utilization-focused evaluations is to be useful to its intended users⁴ (Patton, 2008); in the ESC evaluation, the primary intended users are ESC leaders, champions, and perinatal care providers involved in ESC implementation at a provincial, regional, and site-specific level.

Collaborative and guided by a provincial Evaluation Advisory Committee

The evaluation also employed a highly collaborative approach and was guided by an Evaluation Advisory Committee (AC). The AC was instrumental in:

- Providing feedback on the Draft Evaluation Framework (e.g., appropriate outcomes, indicators, and data sources for)
- Providing input into and feedback on the proposed data collection processes and tools
- Sharing insights about the feasibility of and realistic timeframes for data collection during the Covid-19 pandemic, informed by their knowledge of acute care staffing and health systems data
- Inviting their regional colleagues and PSU/ESC leads to participate in data collection (survey, interviews, or focus group);
- Participating as key informants in the evaluation
- Offering feedback on key findings and their implications

The AC was comprised of ESC champions and regional representatives from Fraser Health, Interior Health, Northern Health, BC Women's Families in Recovery (FIR), and Perinatal Services BC.

⁴ For more on utilization-focused evaluation, please see: Patton, M. (2002). *Utilization-Focused Evaluation. 4th Edition*. Sage Publications.



The AC met 6 times between October 2021 and April 2022.

Mixed methods design

- The evaluation used a mixed methods approach to data collection, involving both quantitative/survey and qualitative/interview data.

2.2 Evaluation research questions

The ESC evaluation research questions were closely linked to the project's objectives and are presented in the following Textbox.

TEXTBOX 1: ESC Evaluation Objectives and Research Questions

OBJECTIVE: Assess uptake and impacts of the PSU/ESC online training on care provider knowledge and practice

Evaluation Research Questions

- Who has completed the UBC PSU/ESC online training (Modules 1 and/or 3)? Have there been changes in the participant demographics over time?
- What has been the impact of the training in terms of gains in learners' knowledge and motivation to make shifts in attitudes or practice?
- What has been the impact of the training over time in terms of gains in learners' knowledge and changes/shifts in their practice?

OBJECTIVE: Document the site-based experiences of implementing ESC

Evaluation Research Questions

- What are key milestones, strengths, and markers of success in implementing Eat Sleep Console at acute care hospitals, from acute care providers' perspectives?
- What are the key barriers or challenges to implementing Eat Sleep Console?

OBJECTIVE: Identify key factors associated with ESC implementation at acute care hospital sites across the province

Evaluation Research Questions

- What are key factors that influence implementation of Eat Sleep Console within hospital sites in BC?
- What are factors that impede implementation of Eat Sleep Console at acute care hospital sites in BC?



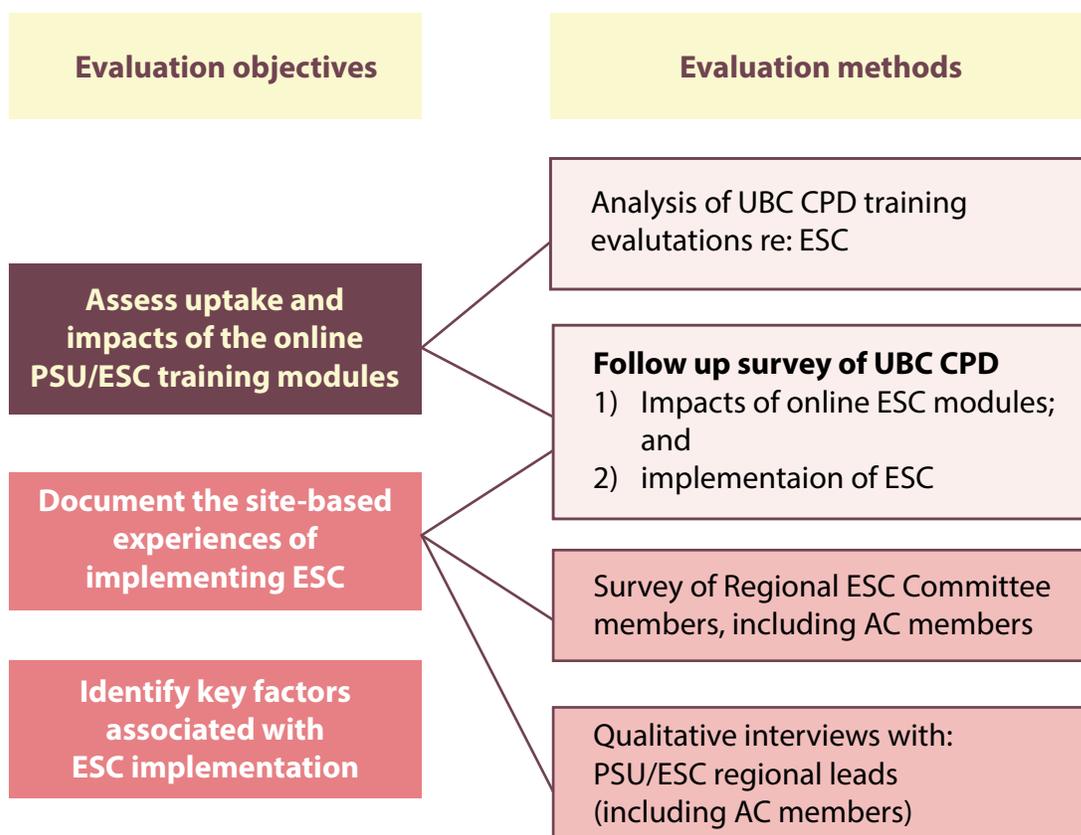
2.3 Data collection methods, participants, and tools

Several methods of data collection were employed in the provincial evaluation of ESC as means to produce rich information relating to the evaluation’s objectives and research questions. At the same time, adjustments to the data collection plan and processes needed to be made as the evaluation unfolded, in response

to the quickly shifting realities of undertaking the study during the Covid-19 pandemic.

Figure 1 presents a visual depiction of the ESC evaluation components and data collection methods. An additional description of each method of data collection follows.

Figure 1: ESC Evaluation components and data collection methods



Analysis of PSU/ESC Online Training Evaluation Questionnaire data

The evaluation team received and analyzed Evaluation Questionnaire summary data related to Module 1 (“Principles of Care”) and Module 3 (“Care of the Newborn Exposed to Substance Use During Pregnancy”) of the PSU/ESC online training administered through UBC’s Continuing Professional Development department. The 18 months of Evaluation Questionnaire data spanned August 2020 to February 2022; during this period, a total of 2,568 people completed the Evaluation Questionnaire related to Module 1, and 2,032 people completed the Evaluation Questionnaire related to Module 3.

In keeping with the ESC evaluation’s first objective and related research questions, the analysis of these Evaluation Questionnaire data focused on summarizing who had taken the UBC CPD modules, and what had been the impact of the training in terms of changes in learners’ knowledge and motivation to make shifts in their attitudes or practice.

Follow-up survey of UBC CPD trainees

Trainees who completed either Module 1 or Module 3 of the PSU/ESC online training were invited to answer the Follow-up Survey of UBC CPD trainees. The survey was launched on February 2, 2022, and was live for one month. To augment the response rate, the evaluation then used a snowball sampling approach whereby the AC circulated the survey link to health care providers whom they knew had completed the PSU/ESC online training.

As of May 1, 2022, a total of 74 people had completed the survey; of these respondents, 13 (18%) were from outside BC; they did not complete any other questions in the survey.

The survey focused on the impacts of the PSU/ESC online training on each perinatal care provider’s practice. The survey also included questions regarding implementation of ESC in

the respondent’s acute care hospital. A copy of the **Follow-up Survey** is provided as part of **Appendix B**. Summary information regarding survey respondents’ health region, profession, and primary practice setting is provided in **Appendix C**.

Survey of PSU/ESC leads

As an early data collection activity and as a means to gather information related to ESC implementation across BC Health Authorities, the evaluation team and the AC collaboratively developed a survey for the PSU/ESC leads and those closely involved in planning and implementing ESC at a regional level. Many of the proposed survey respondents were members of the AC. The survey was launched in mid-December 2021 and was live until early February 2022; a total of 16 people completed the survey.

The survey focused on respondents’ perspectives on the degree to which ESC was being implemented at the acute/maternity care hospitals within their Health Authority (including the key components of ESC, such as rooming-in/dyad care and non-pharmacological approaches to infant care), as well as the barriers and enablers of ESC implementation. **Appendix C** includes a copy of the **Survey for PSU/ESC leads/ESC Planners**.



Interviews or focus groups with PSU/ESC leads/ESC Planners

As a mean to gather more detailed information regarding the processes of ESC and experiences of implementing ESC at both a Health Authority-wide and a hospital site level, the evaluation team conducted individual interviews and focus groups with regional PSU/ESC leads and “champions.” As with the survey, many of the interview informants were members of the Advisory Committee. A total of 17 people took part in an interview or focus group, and there was representation from all BC Health Authorities as well as the Provincial Health Services Authority and Perinatal Services BC. The focus groups were held between January and April 2022. A copy of the **Interview Guide for PSU/ESC leads** is provided as part of **Appendix C**.

Evaluation participants – Breakdown by Health Authority

Overall, the majority of the online training follow-up survey respondents and the interview/focus group participants in the ESC evaluation came from Fraser Health and Island Health.

Table 1 provides information regarding participants’ self-identified health region by each method of data collection.



Table 1: ESC evaluation participants/survey respondents, by health region
*Vancouver Coastal region includes Vancouver Coastal Health, Providence Health Authority (PHA), and Provincial Health Services Authority (PHSA).

	Fraser	Interior	North	Van Coastal*	Van Island
	%	%	%	%	%
ESC Evaluation Survey, Module 1 (n=1,633)	36%	16%	5%	26%	17%
UBC CPD Evaluation Survey, Module 3 (n=1,322)	35%	15%	3%	29%	18%
UBC CPD Follow-up Survey (n=54)	50%	13%	6%	9%	22%
Survey of PSU/ESC leads/ESC Planners (n=16)	31%	13%	25%	0%	31%
Interviews or Focus Groups with Regional PSU/ESC Leads/Planners (n=17)	24%	6%	6%	17%	47%



2.4 Evaluation challenges and limitations

While significant nursing shortages existed in BC prior to the Covid-19 pandemic, the realities of Covid and its impacts on staffing and re-deployment of health care providers within acute care hospitals had major ramifications for the evaluation, including the health care providers' capacity/interest in participating in the evaluation.

These challenges were reflected in initial conversations with the Advisory Committee. With recognition of these challenges, prior to commencing data collection, the Evaluation Plan was revised and scaled back. For example, instead of launching a province-wide survey of acute care perinatal care providers regarding ESC implementation (the original plan), the ESC evaluation teamed up with the UBC CPD staff to carry out a follow-up survey of trainees who had completed one or more of the online modules related to Perinatal Substance Use, focusing on those who had completed training on ESC. Although it was important to keep this survey brief, the survey nonetheless included several questions related to the implementation of ESC in the respondent's acute care hospital. Invitations to trainees to complete the survey were emailed to over 1,100 trainees; in the end, 74 people completed the survey – clearly, a very low response rate. Moreover, it is likely that those completing the survey were highly tuned in to ESC implementation, and thus it is possible that their views were not representative of perinatal care providers across BC.

Fortunately, the evaluation's survey data was complemented by qualitative interviews and focus groups with PSU leads. This Evaluation Report reflects the richness of these interviews and focus groups. Nevertheless, in keeping with the varying pace, processes, and progress of ESC implementation across BC health regions, there were more evaluation participants from some Health Authorities than from others. It will be important to ensure that there is ample representation from diverse Health Authorities in subsequent phases of the ESC evaluation.

As well, the provincial ESC evaluation originally included the objective of identifying and providing preliminary analysis of health system-level data on the health system impacts of ESC. However, based on the guidance of the Advisory Committee, it was determined that this objective would not be feasible to achieve.

Lastly, it is important to keep in mind that this was a formative, utilization-focused evaluation with an aim to offer a high-level picture of the implementation of ESC across the province, based on input from Health Authorities/hospital sites. As such, it cannot be considered comprehensive in that there was neither the time nor the resources to conduct a detailed, site-specific documentation and analysis of the ways in which and degree to which ESC was being implemented. Nevertheless, this evaluation's key findings and themes of ESC milestones, barriers, and enablers are highly useful to help inform future directions and activities related to ESC implementation in hospital sites across BC.





SECTION 3: FINDINGS

The following presentation of findings has been guided by the evaluation objectives and/or research questions.

3.1 Uptake and impacts of the PSU/ESC Online Training

The UBC CPD Perinatal Substance Use online course is divided into four modules. Module 1 (“Principles of Care”) and Module 3 (“Care of the Newborn Exposed to Substance Use During Pregnancy”) are particularly relevant to the

implementation of ESC; hence, the results from the evaluation surveys of those two modules were reviewed as part of this evaluation. The results are for the 18-month period of August 2020 to February 2022.

3.1.1 Who has completed the PSU/ESC online training (Modules 1 and/ or 3)? Have there been changes in the participant demographics between reporting periods?

A total of 4,600 evaluation surveys (not unique individuals) were completed for Modules 1 and 3 over 18 months (three reporting periods): 2,568 questionnaires were completed in relation to Module 1, and 2,032 were completed in relation to Module 3. Hereafter, this section will report the evaluation results overall.

Professional role

Across the three reporting periods, “Nurse” was the top professional role of those completing the survey; for the first two reporting periods, they represented between 84% and 88% of survey respondents. However, in the last six-month period, nurses represented just two-thirds of respondents. At the same time, there was an increase in the percentage of respondents who were “Residents/Students” (to 15%).

Practice Setting

A similar trend emerged in relation to respondents’ practice setting – i.e., initially 86-90% of respondents worked primarily in a hospital; this decreased to 76-78% by the last reporting period, while the percentage of respondents who selected “community health centre,” “not in clinical practice,” and “other” slightly increased.

Province (of respondents’ primary practice)

Overall, most survey respondents were based in BC, although the percentage of respondents from Ontario and Nova Scotia increased noticeably (to 24% and 16%, respectively) in the last six-month reporting period.⁵

5 Of the respondents living outside BC, responses were most prevalent from health care providers in Ontario, Saskatchewan, New Brunswick, and Nova Scotia.



Health Authority (of respondents' primary practice)

Based on respondents' answer to the questionnaire item "If you selected BC (as your province), please specify the city in which you primarily practice," trainees came from all five Health Authorities⁶. The largest percentage of survey respondents were from the Fraser and Vancouver Coastal Health Authorities. Respondents working at the Provincial Health Services Authority were distributed across the province and were most likely to be located in the Fraser and Vancouver Coastal regions/catchment areas.

Thus, in answer to the evaluation research question as to whether there was a shift over the 18 months of reporting with respect to demographics, the survey results showed that:

- For both Modules 1 and 3, the number of evaluation responses (and, thus, presumably the training participation rate) declined over time. For Module 1, there were approximately one-third fewer evaluation respondents in the third reporting period than for the preceding six months. For Module 3, there were approximately one-quarter fewer evaluation respondents in the third reporting period relative to preceding periods.
- Where the evaluation respondents were living/working shifted as well. While the vast majority of trainees/evaluation respondents came from BC (i.e., at least 75% were from BC), these percentages changed in the third reporting period, when a higher percentage of evaluation survey respondents came from other jurisdictions (24% rather than 16%).
- Regardless of module, the majority of responses were from four BC Health Authorities (listed in order of number of surveys): Fraser, Vancouver Coastal, Island, and Interior. This likely reflects the varied pace of the focused implementation process in the different Health Authorities.

3.1.2 What has been the impact of the training in terms of gains in learners' knowledge and motivation to make shifts in attitudes or practice?

As part of the evaluation survey, trainees were asked to rate their agreement or disagreement with several statements that corresponded to the achievement of the module's learning objectives and any perceived bias in the module.

Responses to these statements were overwhelmingly positive: for all statements except one ("I am able to describe the incidence of substance exposure in the newborn population in BC"), more than 90% of respondents indicated that they "agreed"

or "strongly agreed" with the sentence related to gains in their knowledge as a result of the training modules. There was no difference in the pattern of findings across the reporting periods. These findings are shown in additional detail in **Tables 2 and 3**.

⁶ As of August 2021, the survey specifies both the city in which the respondent primarily practices and the Health Authority of their employment.



Table 2: Module 1 Evaluation survey respondents' perspectives regarding gains in knowledge and motivation to make shifts in practice

MODULE 1	
As a result of completing this module....	Aug 2020 - Feb 2022 % strongly agree or agree
I can describe the importance of Mother-Baby togetherness.	95%
I can describe and integrate trauma-informed care into practice.	93%
I can describe and deconstruct the stigma that surrounds perinatal substance use.	93%
I am able to adopt a principle-based approach to care in the context of perinatal substance use.	91%
I can identify and apply harm-reduction strategies.	91%
I found this module to be useful for my day-to-day practice/work.	88%

Table 3: Module 3 Evaluation survey respondents' perspectives regarding gains in knowledge and motivation to make shifts in practice

MODULE 3	
As a result of completing this module....	Aug 2020 - Feb 2022 % strongly agree or agree
I can apply the Guiding Principles outlined in this module when caring for the newborn exposed to substances.	93%
I can recognize the signs and symptoms of NAS.	92%
I understand the pathophysiology of NAS.	92%
I am able to describe the various definitions and terminology used to describe the newborn experiencing withdrawal from substance use.	92%
I can decrease severity of withdrawal symptoms by utilizing non-pharmacological and pharmacological management strategies.	92%
I am able to assess the effects of withdrawal symptoms on normal newborn growth and behaviour using the ESC approach.	91%
I am able to describe the incidence of substance exposure in the newborn population in BC.	79%
I found this module to be useful for my day-to-day practice/work.	89%



In addition to these findings based on the fixed-choice responses, several additional themes were noteworthy, including:

- The online training was useful; however, in-person training and coaching would be beneficial to provide opportunities for trainees to ask questions and strengthen skills.
- From a content perspective, a frequent comment was about the need to consider a more multicultural perspective in relation to people who use substances.
- The modules took much longer to complete than the recommended time, and trainees suggested synthesizing content as well as providing summaries in each section.

3.1.3 What has been the impact of the online training over time in terms of gains in learners' knowledge and changes/shifts in their practice?

Findings from the follow-up survey of the trainees showed that a strong majority (80-88%) of respondents agreed or strongly agreed that, as a result of the PSU/ESC online training (Module 3), they had:

- Applied knowledge about trauma-informed care into [their] practice
- Employed strategies to increase mother/ birthing parent and infant togetherness care whenever possible
- Applied knowledge about Indigenous cultural safety into [their] practice
- Applied and integrated harm-reduction strategies into [their] practice
- Supported parents to be involved in decisions related to their infant and the use of ESC

Moreover, a majority of respondents (71-74%) agreed or strongly agreed that as a result of the PSU/ESC online training, they:

- Felt prepared to assess the effects of withdrawal symptoms using the ESC Care Tool
- Advocated for application of ESC principles where [they] work

Overall, 79% of the follow-up survey respondents were satisfied with the Perinatal Substance Use module(s) that they had completed and believed that the training met their knowledge needs. There were no demonstrable differences in any of these survey findings across Health Authorities. The findings are shown in additional detail in **Table 4**.



Table 4: Follow-up survey respondents' perspectives regarding gains in knowledge and practice as a result of the online training (n = 53)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	NA
I have applied knowledge about trauma-informed care into my practice.	4%	2%	8%	33%	54%	0%
I employ strategies to increase mother/birthing parent and infant togetherness care whenever possible.	4%	0%	8%	42%	46%	0%
I have applied knowledge about Indigenous Cultural Safety into my practice.	4%	0%	14%	39%	42%	2%
I have applied and integrated knowledge about harm reduction strategies into my practice.	6%	2%	8%	46%	37%	2%
I support parents to be involved in decisions related to their infant and the use of ESC.	2%	0%	10%	48%	37%	4%
I advocate for application of ESC principles where I work.	2%	2%	19%	44%	31%	2%
I feel prepared to assess the effects of withdrawal symptoms using the ESC Care Tool.	0%	4%	25%	53%	17%	2%
I am satisfied with the Perinatal Substance Use module(s) that I completed; the training met my knowledge needs.	0%	4%	14%	58%	21%	4%

As an additional open-ended question, respondents were asked: “Thinking about the PSU/ESC online training, what were the top 3 things that you gained in terms of your practice?”

The top theme that emerged, in its broadest form, was:

- **Gained knowledge about how to implement ESC within hospitals**

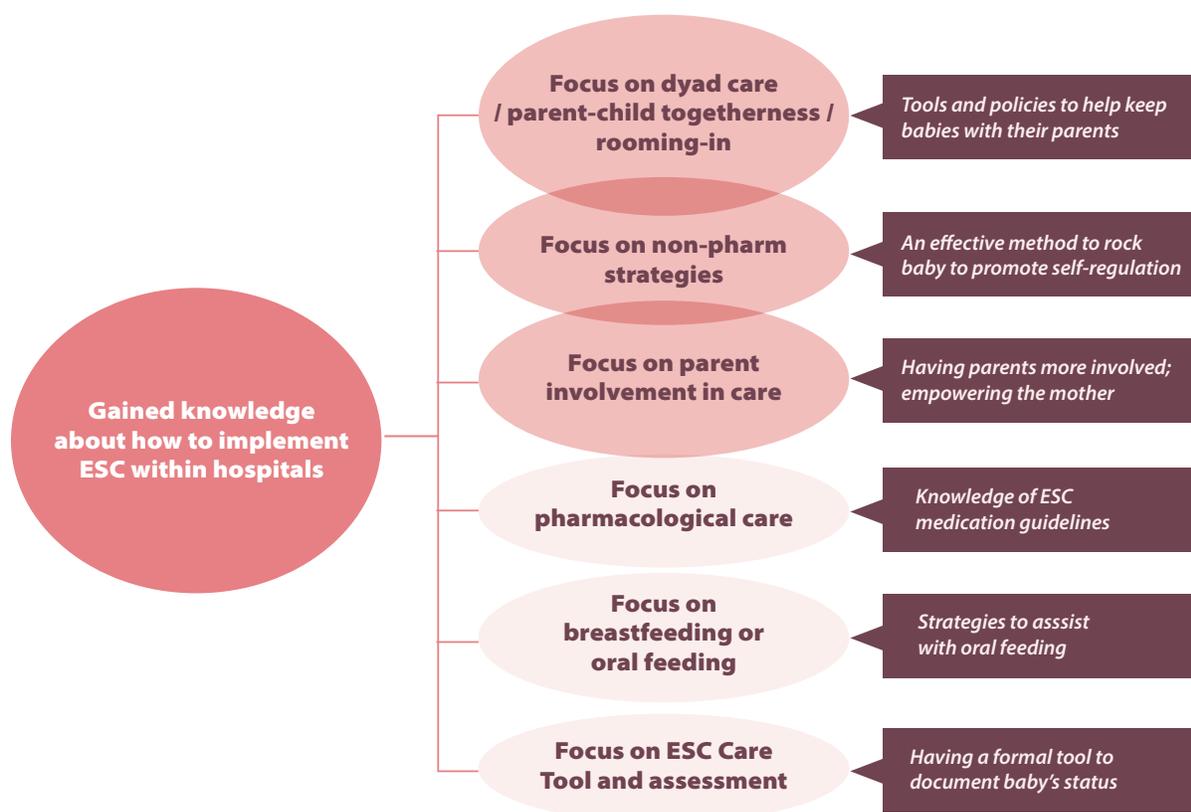
Subsequent analysis revealed a number of key sub-themes or areas in which trainees reported knowledge gains related to implementation of ESC. These were (listed in order of frequency):

- Focus on **non-pharmacological strategies**
- Focus on **dyad care**/parent-child togetherness/rooming-in
- Focus on **parent involvement in care**
- Focus on **ESC Care Tool** and assessment
- Focus on **pharmacological care**/administering PRN medication
- Focus on **breastfeeding or oral feeding**

Figure 2 provides a visual depiction of these themes, along with illustrative quotes from survey respondents.



Figure 2: Top theme and sub-themes related to “What were the top 3 things gained from the Perinatal Substance Use training?”



In addition to the top theme, other key themes emerging in response to this question were:

- Gained knowledge about **trauma-informed practice**
- Gained knowledge about how to provide **culturally safe care**
- Gained knowledge about **effects/symptoms of prenatal substance exposure** on newborns

In survey respondents' words:

How to approach an uncomfortable subject in a respectful way.

How to ask pregnant women about drug use / always be aware of own bias regarding substance use / ensure other medical health staff is careful about the terminology they use.

Indigenous cultural safety and importance in practice.

Understanding the vast effects of substance use on the newborn and how to implement interventions.



Lastly, paralleling the findings from the Follow-up Evaluation Survey with UBC CPD trainees, findings from the survey of Regional ESC Planners/PSU Leads indicated that respondents

believed that the foundational ESC training resulted in increases in care providers' knowledge and practice shifts, supporting the implementation of Eat Sleep Console (see **Table 5**).

Table 5: ESC Regional Planners' perspectives regarding trainees' gains in]knowledge and practice as a result of the PSU/ESC online training ($n = 14$)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	NA
The foundational ESC training helped support the roll-out of ESC in our Health Authority.	0%	0%	6%	44%	44%	6%
The foundational ESC training helped prepare care providers in our Health Authority to implement the ESC Care Tool.	0%	7%	0%	47%	40%	7%
The training helped prepare care providers in our Health Authority to implement rooming-in/skin-to-skin care.	0%	7%	7%	47%	33%	7%
The training helped care providers in the Health Authority shift their practice in keeping with principles and core components of ESC.	0%	7%	7%	40%	40%	7%

3.2 Implementing Eat Sleep Console in British Columbia

Documenting the degree to which ESC has been implemented in BC maternity care hospitals is complex and is challenged by the lack of a singular definition of “full” implementation. Indeed, several evaluation participants queried how “full” implementation was being defined.

According to some PSU/ESC leads, “full” implementation typically referred to dyad care or keeping the mother and infant together; another facet of implementation noted by participants was the use of the ESC Care Tool rather than the

Finnegan assessment instrument. For example, these informants stated:

A huge component of it is mom and baby dyad together, like they're being cared for together.

It depends on what you mean by “fully implemented ESC.” Most hospitals in our Health Authority have discontinued Finnegan scoring in favour of the ESC care model.



At the same time, several PSU Leads noted that while dyad care was typically a key marker of ESC implementation, it was not necessarily the defining criterion for ESC implementation or its implementation success. As this informant noted:

We came to understand that dyad care was important, but at the root of that was that the patient...meets her goals and her parenting goal, and that she is

feeling safe, respected and supported in the whole process. Even if there's a removal (by child welfare authorities), can we maintain the togetherness as much as possible? That's really where the root of this is.

Additional discussion of the markers of ESC implementation is provided in **Section 3.2.5**.

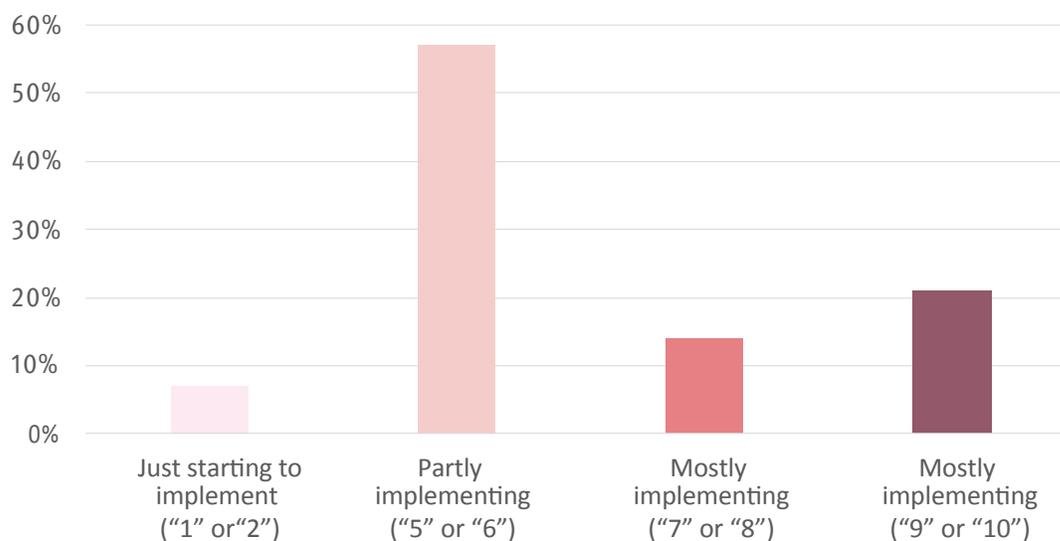
3.2.1 What is the status or progress of implementing Eat Sleep Console in maternity care hospitals in BC?

Eat Sleep Console is at different stages of implementation both between and within BC Health Authorities. Nevertheless, in nearly all health regions, two or more hospitals have fully or mostly implemented ESC.

As a means to get at the overall status of ESC implementation in BC's Health Authorities, the survey for the ESC planning leads asked: "Overall, on a scale of 1-10, where would you say your Health Authority is at in terms

of implementing ESC?" As shown in **Figure 3**, approximately one-third of respondents believed that, overall, the hospitals in their Health Authority had "mostly" or "fully" implemented Eat Sleep Console.

Figure 3: ESC Planning Leads' perspectives on the survey question: "Where would you say your Health Authority is at in terms of implementing ESC?" (n=14)



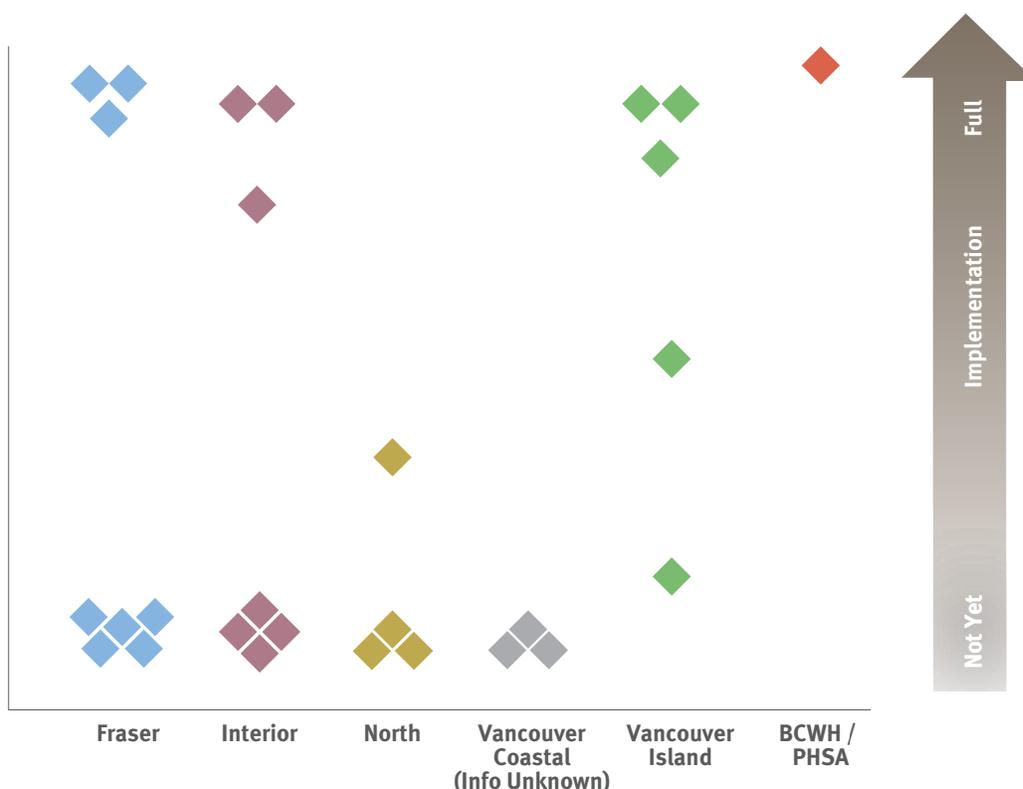
The PSU/ESC regional leads were also asked, both in the initial survey and as part of their interview or focus group, to identify the hospitals in their Health Authority that had fully or mostly implemented ESC.

As noted previously, while “full” implementation was not explicitly defined, there was general agreement amongst the participants in a given Health Authority about which hospitals in the region had

implemented ESC. Moreover, in three of the four Health Authorities for which there were data, at least two hospitals had fully implemented ESC.

As means to illustrate these findings, **Figure 4** presents findings for all BC birthing facilities with more than 250 births annually, shown by Health Authority. As well, **Appendix E** provides a visual depiction of these findings for each of four BC Health Authorities.

Figure 4: Visual depiction of ESC implementation in BC, by birthing facility



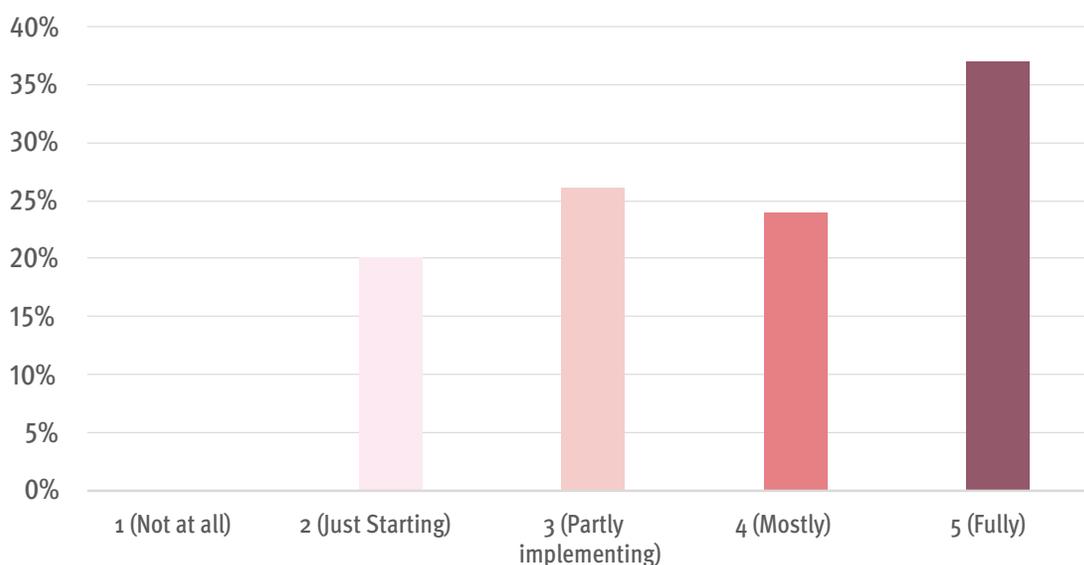
Note: Each diamond represents a BC Birthing Facility that delivers 250+ births per year

In contrast with the regional PSU/ESC planning leads' views, 61% of the UBC CPD trainees who completed the follow-up survey stated that

their hospital was either “mostly” or “fully” implementing Eat Sleep Console (see **Figure 5**).



Figure 5: UBC CPD trainees' perspectives on the survey question: "Where would you say your hospital is at in terms of implementing ESC?" (n=38)



The UBC CPD follow-up survey also asked trainees to indicate the degree to which key elements of Eat Sleep Console were being implemented in their hospital. As shown in **Table 6**, the majority

of respondents believed that most of these components of ESC were “mostly” or “fully” implemented, particularly “encouraging skin-to-skin care” and “encouraging breastfeeding.”

Table 6: Follow up survey respondents' perspectives regarding the degree of implementation of elements of ESC in their hospital (n=50)

	1 (Not implementing at all)	2 (Just starting to happen)	3 (Partly happening)	4 (Mostly happening)	5 (Fully implementing)	DK or NA
Encouraging breastfeeding	0%	2%	14%	34%	46%	4%
Rooming-in; mother-baby togetherness	6%	2%	18%	25%	43%	6%
Encouraging skin-to-skin care	0%	0%	14%	22%	58%	6%
Low light; quiet environment	6%	4%	18%	24%	48%	6%
Avoiding waking the infant	2%	2%	20%	26%	36%	14%
Parent education & support re: ESC	4%	4%	18%	36%	24%	14%

Note, however, that while the ESC regional PSU/ESC planning leads were reflecting on the implementation of Eat Sleep Console in their Health Authority (i.e., in all of the maternity care

hospitals within the region), the UBC CPD trainees answered the survey with their particular hospital site in mind.



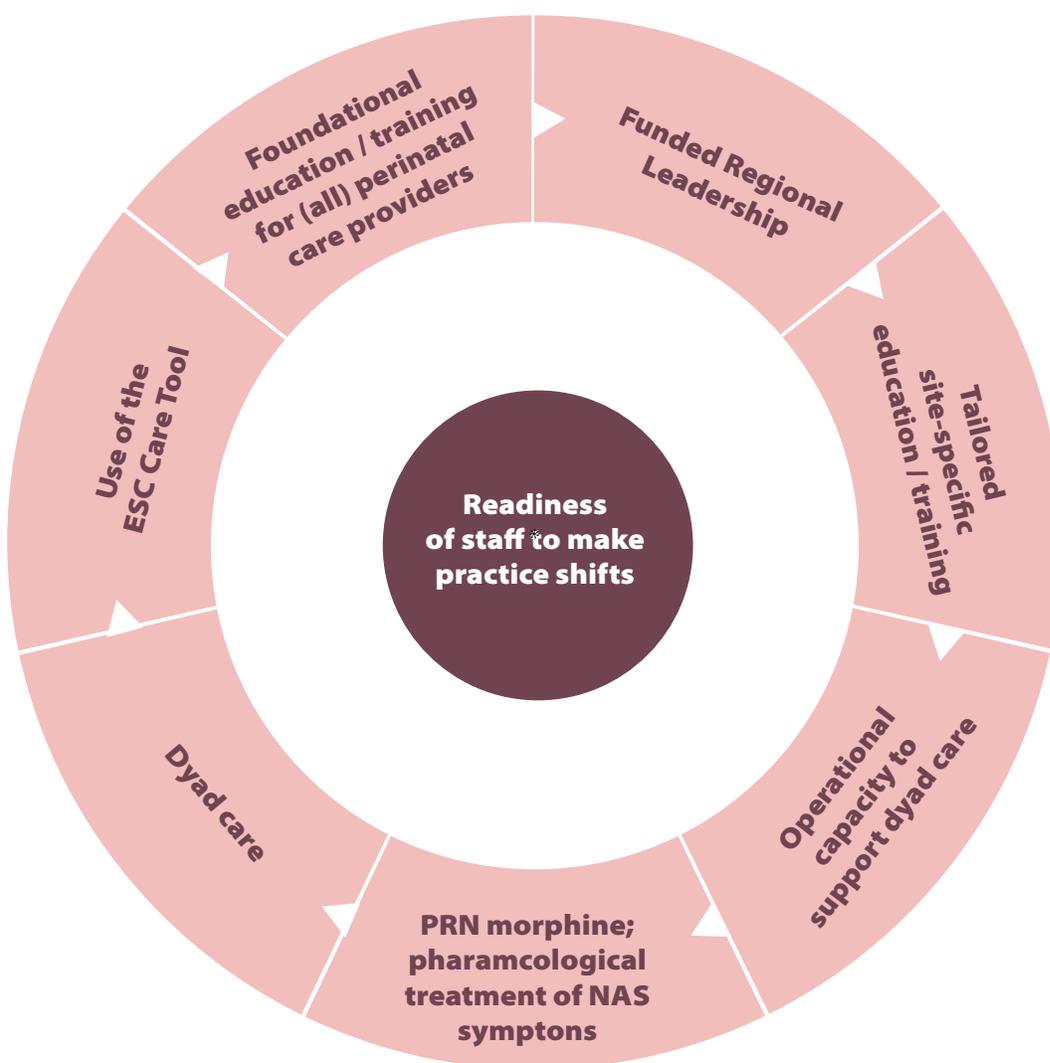
3.2.2 What have been key milestones in implementing Eat Sleep Console in BC?

In the open-ended interviews and focus groups, the PSU Leads were asked to discuss key ESC implementation milestones and/or successes, reflecting upon the sites within their Health Authority in which ESC was further along in implementation.

There was considerable congruency amongst participants in terms of the themes that emerged. Based on interview/focus group findings across Health Authorities, **Figure 6** depicts key ESC implementation milestones/successes. And while the concept of milestones

typically connotes a temporal or step-wise process, and some milestones logically precede others, it is important to note that participants did not discuss ESC milestones as unfolding in a prescribed sequence.

Figure 6: Top milestones/successes in implementing ESC, from regional planners' perspectives



Textbox 2 presents these themes in additional detail, providing illustrative quotes based on participants' implementation experiences.

Many of these themes re-emerged and are discussed more fully in **Section 3.2.4** in relation to “enablers” of ESC implementation.

Table 7: Milestones of ESC implementation

THEME	In evaluation participants' words...
Funded regional and site-based Leadership	<i>[T]his was my job, to really build on all of those strengths, and to keep that ball rolling, and to give [perinatal care providers] education to give them what they needed to do the things and help work on that.</i>
Foundational PSU/ ESC education/ training	<i>At [two sites], perinatal providers accessed Modules 1 and 3 of the PSU/ESC online training. We had all of our folks do those.</i> <i>What was built by the province in those UBC modules was super helpful, to have something you could say: I can offer staff this. Here it is online. Take this course, it's great.</i>
Tailored, site-specific in-service education on PSU, trauma-informed practice and ESC	<i>We had all of our folks do [the UBC CPD course], and then we augmented that with a 3 1/2 hour virtual in-service around Eat, Sleep Console itself, just to augment that, and also to put it into local context.</i> <i>What happens is, people start having conversations about that topic, and then you get more questions coming in, and it sparks that engagement. Those were other things that I did at that hospital over several months before we even rolled it out. Because my goal was: when the rollout day happened, they would be like, “Oh, we’ve been talking about this for so many months. We’ve had all this support.”</i>
Readiness of perinatal care providers to make shifts in their practice	<i>People are really passionate about providing the best evidence-based care for the patient. And when they are provided with the educational resources and the support and the enthusiasm for why this is so good, they really want to do it.</i> <i>It's not just about the implementation of, say, the ESC Care Tool. It's about understanding trauma-informed practice. Changes will take longer than just the training about the ESC Tool. People really have to understand why previous practices weren't working. It's attitudes.</i>



THEME	In evaluation participants' words...
Use of the ESC Care Tool	<i>With the ESC tool it's easier to find the baby's "happy place." We can reach maintenance dosing faster than with the Finnegan, which in turn allows the infants to wean off morphine faster. Shorter duration of morphine treatment because it takes away the subjective component of Finnegan scoring.</i>
Operational capacity to support dyad care/ rooming-in	<i>Some hospitals elected to have a post-partum care room with support for up to 10 days. Or you could set up dyad care in the Pediatric Unit.</i> <i>We have two private rooms in our NICU where we can keep mom and babies together.</i>
Dyad care, including rooming-in and non-pharmacological approaches	<i>The other thing that we recognized in looking at how our rollout went at [hospital] and [hospital] was that we really integrated and did a pretty good job of supporting the transition for the newborn care around the Eat Sleep Console model in the dyad care, the non-pharm (approaches).</i>
Pharmacological treatment of NAS symptoms; PRN morphine	<i>We've realized two things: 1. Staff have come to realize that NICU care isn't always required. In fact, if we start with the PRN morphine and all the structures that are put in place through ESC, we have time before we have to implement regular morphine, which may be where we need to have that close monitoring. But with PRN morphine, it's definitely feasible at a community site, as long as... 2. The providers and staff have the education and ability to provide it.</i>

3.2.3 What are the key barriers or challenges to implementing ESC?

Survey respondents (UBC CPD follow-up survey, PSU/ESC regional planning leads) and interview/ focus group participants (PSU/ESC regional planning leads) identified several barriers and challenges related to implementing ESC, which often were interconnected and overlapping. The top themes of implementation challenges are presented in **Textbox 3** and discussed below.⁷

⁷ Insufficient staffing graphic created by Peter Lakenbrink; Leadership graphic created by Alzam; Lack of physical space graphic created by Saeful Gokil; Protocols graphic created by Ahmad Mubarak; Primary caregiver not involved graphic created by Adrien Coquet; Low volume of patients graphic created by DewDrops; Social/environmental factors graphic created by Shirley Hernandez Ticona. All from the Noun Project: <https://thenounproject.com/>



Table 8: Key barriers/challenges to implementing ESC identified by evaluation participants

	Insufficient staffing / staffing shortages
	Inconsistent leadership
	Lack of physical space for rooming-in
	Site-based protocols, practices, and provider discomfort, particularly when pharmacological intervention is required.
	Mother/caregiver not involved; increased complexity of health issues
	Low volume of patients and perinatal substance use
	Social/environmental factors: lack of post-partum housing and wraparound supports.

Insufficient staffing/staffing shortages



The most frequently cited barrier to implementing ESC was staffing. This theme emerged both in the UBC CPD trainees' responses to the open-ended question: "What, if anything, gets in the way of you being able to implement the guiding principles and practices associated with ESC?" and in the surveys and interviews/focus groups with regional PSU/ESC leads.

There were several dimensions to this theme, but broadly speaking the point related to not having enough staff at bedside or on the unit to enable full and safe implementation of ESC. A compounding issue was the heightened challenge of having adequate staffing to implement Eat Sleep Console during the Covid-19 pandemic.

Time and workload at our site; staffing (nursing) shortages are a persistent and significant issue.

In terms of staffing, it's true that if the baby is crying, we need someone to

respond immediately so that it doesn't affect their state. And there may not be many or any nurses available.

I really value the approach of care and am excited to see it implemented. However, I wonder about the ability to realistically implement this plan on a busy Mother/Babe Unit and/or NICU. Often units are short staffed, and I can see bedside RNs feeling they don't have the time to spend with the mom and babe to effectively evaluate and implement this approach of care.



In discussing this theme, evaluation participants also noted that the challenge was increased when the mother was actively using substances or when parent(s) were not involved in the care of the newborn. Under these circumstances, staffing levels could be insufficient to support ESC's non-pharmacological approaches to consoling and skin-to-skin contact.

Mothers not staying with their infants provide a huge barrier to effectively implement ESC, especially in the NICU where staffing does not allow for ESC.

How do we provide non-pharmacological care when the care provider can't stay? The staff are saying, "This baby got morphine early, and it didn't really need it, but I've got two other babies to care for."

Further, one interview participant observed that in her community, child welfare authorities had an expectation that there would be round-the-clock supervision of the newborn and parent dyad, which presented difficulties for hospitals to accommodate.

Our biggest challenge is staffing. We have a big presence of MCFD (Ministry of Children and Family Development) in [our community]. They require 24-hour supervision for dyads, which is very challenging for us. Sometimes these babies will stay short stints in nursery because we can't always staff 24/7, or sometimes the dyad will come to the NICU even if it isn't a NICU case just to keep the dyads together.

Inconsistent leadership



Related to staffing is leadership; having champions and leaders in place at all levels helped to provide direction, keep implementation moving forward, and ensure that key roles/positions were in place to support ESC. At some sites, there was a designated and consistent PSU/ESC lead to plan and implement ESC, but at other Health Authorities/hospitals, key positions remained unfilled for several months and/or were reduced from full-time to part-time roles.

The biggest blow to sustainment is the leadership turnover. Now we've got to catch new leadership up, if the person wasn't involved in ESC from the start.

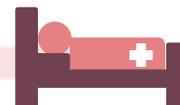
Leadership change is particularly challenging. I think that change in leadership within the health care system is normal. Nurses move up the ladder. Leadership positions are inherently unstable as people move up in seniority. But the nursing shortage is also at play, especially with COVID and the need for nurses to get redeployed to bedside or to go back to clinical positions.

Unfilled Clinical Nurse Educator (CNE) positions were another challenge. CNEs play a central role in supporting ESC by ensuring ongoing problem-solving, training, and learning opportunities.

We haven't had an Educator for the last 9-10 months, so that's been a challenge.



Lack of physical space for rooming-in



Another frequently mentioned challenge was the lack of physical space to accommodate rooming-in or dyad care. This was identified by evaluation participants as a barrier both in relation to the mother-babe unit (family birthing unit) and the Neonatal Intensive Care Unit.

It's finding the physical space for dyad care – e.g., is the room available for 10 days for ESC patients or is the same room used for other patients too? This can have an impact on whether dyad care is available.

The physical space for rooming-in is still a huge challenge. I think that's the biggest thing I've heard when I started to do this with Eat Sleep Console.

Site-based protocols, practices, and attitudes, particularly when pharmacological intervention is required



A number of evaluation participants stated that certain site-based protocols and practices that existed in their hospital or Health Authority were or could be impediments to full implementation of ESC. For example, at some sites, practice guidelines required that newborns needing morphine had to be admitted to the NICU; this potentially prevented rooming-in and other elements of dyad care.

My definition (of full implementation) is keeping mom and baby together. Unfortunately given [our health authority's] current guidelines on morphine administration, we are unable to keep babies who have started on morphine in the mother-babe units – the infant then is admitted to NICU.

We have continued to face significant difficulty in changing the practice of allowing newborns requiring morphine for NOWS to be treated outside of an NICU environment.

required constant monitoring, which in turn could overtax staff. Oftentimes the newborn would be admitted to the NICU instead, where a scheduled dose of morphine could be administered, and the infant could be more easily monitored.

Substance-exposed infants requiring medication are admitted to NICU. We would need increased staff (decreased patient ratios) to have these babies rooming-in on the post-partum unit.

Major barriers to allowing newborns requiring morphine therapy to stay with their parents on the mother babe unit have included staffing shortages and concerns about monitoring needs, particularly oxygen saturation monitoring.

Similarly, several evaluation participants stated that a barrier to dyad care was their hospital's approach and/or care providers' discomfort when PRN⁸ morphine was administered, as this

8 PRN = as needed; PRN requires more frequent monitoring to assess.



Other policies identified by evaluation participants that could impede implementation of ESC included those to do with breastfeeding when the mother was continuing to use substances.

(Barriers are) policies in the hospital around breastfeeding infants when mothers are using substances, policies around mothers who are using substances and their involvement with MCFD, interactions with staff and mothers who are using substances.

Slowness to embrace change amongst care providers as well as paediatricians' and other care providers' comfort level with ESC were also identified as barriers to ESC implementation.

Some of this has to do as well with the comfort level of paediatricians or others responsible for the newborn's care.

An attitude that we've always done it this way.

Mother/caregiver not involved; increased complexity of health issues



Evaluation participants expressed the view that implementing core components of ESC was more difficult when the mother/caregiver wasn't involved in the newborn's care and/or when no other family was available to engage in non-pharmacological strategies of ESC. This challenge again was intertwined with staffing issues, as nurses reported that they didn't have time to adequately respond to the newborn's care needs with non-pharmacological strategies in the absence of a primary caregiver.

One of our current challenges is supporting non-pharmacological care for newborns where their mother chooses not to parent or can't be there to provide consistent newborn care (and there is no other consistent care provider). Staff know that provision of non-pharm is best for the patient, but because of workload, they struggle to provide that care and sometimes pharmacological intervention is prompted as a result.

If she had a support person in her corner that could stay in the room with her, that would be great. ...But when they present in hospital, they haven't had any of that. Then what? And then you have a unit that has five moms and babies to one nurse. And we want to safely room-in. We're at a bit of a loss sometimes. Those things are huge barriers. We're still getting a lot of those patients.

In addition, several evaluation participants observed that, increasingly, patients were presenting with more complexity and physical ill-health, which meant that they were less likely to have had good prenatal care and also to be able to be involved in the newborn's care.

And there is also the challenge or issue of the mums not having enough family support for them to be engaging right from the start in Eat Sleep Console. So, to enable them to participate in the baby care, because they're just so physically ill. They're needing medical treatment, like blood transfusions or injectable OAT.

People are really ill and haven't had prenatal care when they come in to deliver, and that's because the drugs are so toxic, and people aren't getting good health care during their pregnancy.



Low volume of patients, which can impede providers' capacity to put training into practice



Regional ESC/PSU Leads identified that the low volume of patients in some hospitals was a barrier to ESC implementation, as this resulted in perinatal care providers not having adequate ongoing opportunities to put the ESC training they received into practice. For example, evaluation participants stated:

We're seeing that the volume of patients coming through is not high. We anticipated that we would see about 20 per year, and our numbers are coming in at about how we thought. So, with that, the challenge is for the practitioners to be able to use the knowledge and skills they obtained through education, with that low volume of patients.

Not having enough patients to continue your roll-out of a model, in terms of sustaining people's education and their practice and their ability to continue to provide this, in a good way.

Similarly, without higher patient numbers, nurse educators were challenged to find the

means to continue to foster confidence and competence in staff when staff didn't have regular opportunities to use their knowledge and practice their skills.

Staff would like more opportunity to practice using ESC. They've been excited about the rollout and they're engaged in the conversations, and they're engaged in the learning and then it's hard for staff if that can't be applied right away. ...The challenge I would face as an educator is: how do you continue to foster that confidence and competence without the patient population to do it, when you have those lulls (in patient numbers), and how do you maintain that?

Social/environmental factors: lack of post-partum housing and wraparound supports



Lastly, several evaluation participants noted that communities' lack of safe housing and wraparound services for new parents, including access to pharmacological care for mothers needing Opioid Agonist Therapy, complicated the implementation of ESC. This was because ESC often resulted in reduced hospital length of stay for the infant. Yet if the family didn't have safe housing, then the infant could not be discharged. At the same time, and as an unintended consequence, the shorter hospital length of stay typically associated with ESC could also put the infant at high(er) risk of being removed from the parent's care in situations in which adequate post-partum housing was lacking.

We had a mom just recently who lived in a trailer with her spouse, and there were some abuse issues. She was doing everything she could to keep her baby. ...They actually did rooming-in, and the baby did great. They couldn't find a

different housing model for her, and they ended up removing the infant. And that's hard on staff, really hard on staff, to feel like they're doing all the things and they're supporting this mom, and then the housing doesn't exist for them.



3.2.4 What are key factors that influence implementation of ESC in BC?

In keeping with the milestones of implementation, interview participants described a number of factors that acted as enablers to ESC. The top enabling factors are discussed below.

LEADERSHIP AND A DESIGNATED LEAD

- Having a designated/dedicated, dynamic PSU/ESC lead to implement ESC in a hospital site

Having a dedicated PSU/ESC lead position that focused on supporting the implementation of ESC was identified as being a key to its implementation success. In the three Health Authorities where such roles existed and were filled, the leadership and advocacy that the leads provided were seen as catalysts that helped with ESC's forward momentum.

Having the dedication, the ability to have someone to really drive it forward is really important, and we were lucky in the beginning to have two people who were really working together.

Further, the enthusiasm of the leads served as an inspiration to perinatal care providers.

They electrified this program, and it was contagious to the frontline workers as well, and to the physicians.

As well, the leads understood the unique characteristics of the hospital units that were involved and the population/regions they served.

They paid attention to what staff wanted or needed in terms of additional training and thus could develop and deliver site-specific training to support ongoing implementation of ESC.

We focussed on the education at [hospital] during the same year that we did the education at [hospital] and [hospital], and we did some concentrated trauma-informed practice training identifiable at that time that we didn't offer everyone else.

Stability in leadership also was important. Moreover, leadership needed to occur at all levels of the hospital or Health Authority, as decisions throughout the system could affect its execution.

Leadership still has to support officially.

Two key factors are having leadership that is not change averse and having stability in leadership.



FOUNDATIONAL AND SITE-SPECIFIC TRAINING & EDUCATION

- Perinatal care providers having the foundational UBC training and – importantly – having paid time to do the training

Health care providers' uptake of the PSU/ESC online training was an important enabler of ESC implementation as it meant that there was a common language and understanding of ESC within different practice settings and across Health Authorities. Having adequate funding meant that staff didn't have to do it during their "spare" time at work or their off-work time.

[On the UBC model]: it was offered in the last couple of years and ever since that started, people have had paid time to do it, which for sure is super important.

Having the training be available to partners such as public health nurses and staff of community agencies was a related "enabler" so that service providers who worked with pregnant or parenting women who used substances were all "speaking the same language."

I think that this should be on-boarded for all staff, like that should be part of their training for perinatal staff, and I think it should be aligned with public health staff as well. I think we should all be doing the same training so we're all speaking the same language and doing the same things.

- Developing and delivering tailored site-specific training on key elements related to ESC

A key benefit of having a dedicated PSU/ESC lead was their ability to be responsive to what was needed by way of training at each site.

One thing that I've heard consistently, both from other Health Authorities but also ours, is that they need more

training/education on harm reduction, and on cultural competency, and on trauma informed practice. As much as you can teach Eat Sleep Console, you need all of those building blocks to also make it successful.

SUSTAINED FUNDING

Evaluation participants in several Health Authorities emphasized the importance of having sustained funding to facilitate ESC implementation, particularly to support the PSU/ESC lead position and also to allow perinatal care providers to complete both the foundational and the relevant training and in-services on ESC and related topics such as trauma-informed practice.

It's taken a tremendous amount of resources and time. And, definitely, the provincial funding has been a huge factor in allowing us to be successful in providing that education.

Having [name] come on as a real leader of this project has been a huge success. And it's helping us move it forward, because it really has been [...] their full-time job for the last six months.



PHASED, COLLABORATIVE APPROACH

- Taking a phased, collaborative approach, based on sites' readiness and patient volume

PSU/ESC Leads in several regions observed that a phased approach to implementing ESC was very beneficial, as it allowed sites to progress at a pace that recognized care providers' readiness along with operational readiness and other factors. Typically, this approach began with a focus on training.

The reason we went with [hospital] and [hospital] first was because they had full-on readiness, and the teams at those two sites were ready to start exploring, moving into a new model of care.

With all the other environmental and operational constraints with staffing and pandemic and everything else that was happening, what we felt was the best option to go forward was to lay the foundation for a model of care shift to improving our care to be more trauma-informed.

Similarly, evaluation participants emphasized the importance of working with site-based teams to map out an implementation approach; working collaboratively, teams could consider factors such as the impact of the Covid-19 pandemic on their health care resources.

If we hadn't worked with the local teams and kind of taken a staged approach around "what can we reasonably achieve in this timeframe?" then we wouldn't have gotten much traction at all.

As well, evaluation participants noted that patient volume was another key factor influencing the sequencing of ESC implementation in the hospitals within their region. In one Health Authority, the PSU/ESC leads began their implementation planning by researching the sites at which there was the highest volume of infants with symptoms of NAS/NOWS. These sites then were selected as the first hospitals within the region in which ESC would be implemented.

Part of that work was pulling a data set to say: Who are the patients who we're servicing in [Health Authority], and how many of them are there, and where do they come from? [...] So, focusing the efforts on the Referral Centres was really the best option because we knew that's where they were delivering.

STAFFING AND OPERATIONAL CAPACITY

- Having the staffing capacity to take on ESC

Just as lack of staffing capacity was identified as being a top barrier to ESC implementation, having staffing capacity was viewed as being a pivotal "enabler."

[Hospital] was, in theory, ready to start exploring, but it really didn't have the capacity; they were going through a lot of changes.



■ Having operational support / physical space for dyad care in the NICU

Similarly, evaluation participants noted that having physical space in the NICU facilitated ESC implementation and identified this as a component of operational capacity or readiness.

We have two private rooms in our NICU where we can keep mom and babies together.

It depends on the NICU. [Hospital] and [hospital] in a few months will have the ability for the mums to stay.

PILOTING DIFFERENT APPROACHES TO HAVE ALTERNATE CUDDLERS

■ Trying out new ideas to address implementation challenges

Lastly, several evaluation informants described the importance of devising and testing out creative strategies to address implementation challenges, especially those pertaining to staffing.

for longer if the parent or nurse isn't available. I think ideally, we would like to be able to branch that out to our postpartum area to have that support out there as well.

We rolled out a pilot project with care aides in the NICU that assist with cuddling, so that babies can be cuddled

Hospitals need to find solutions beyond nurses; it doesn't have to be expensive nurses that do this.

3.2.5 What are markers of success and emerging outcomes of ESC in BC?

As part of the interviews/focus groups, PSU/ESC regional planners were asked to discuss ESC implementation successes. In doing so, they identified ways in which they were reframing and expanding their thinking regarding important markers of success and emerging outcomes of ESC. A brief discussion of the key themes follows.

Dyad care

Several participants began their discussion by stating that a core facet of “full” ESC implementation, and thus a marker of implementation success, was dyad care.

When we started off, we were looking at dyad care, and we were wanting to make sure we tried to do that whenever possible and minimize transitions and all those pieces of Eat Sleep Console that, you know, define its success.



Family togetherness or involvement, even if only for a short time

At the same time, PSU/ESC leads who had implemented ESC at several hospitals in their Health Authority reflected that while dyad care was traditionally a key goal of ESC, another indicator of success was involving the family or keeping dyads together, even if for only a short time.

We had defined success as togetherness. It can also be about reframing conversations and changing the approach and involving the family. For example, we kept two families together, even for a small time.

Even if it's really, really small or it seems small, we compare it to what we did before and we pick those things out and try and really highlight and celebrate for the team, because those are big changes. And it took a huge model shift really and shift in thinking to actually achieve that one little small change.

Patients' experiences of ESC: feeling respected and supported

Similarly, several evaluation participants stated that as the roll-out of ESC unfolded in hospitals in their Health Authority, they increasingly appreciated the value of redefining ESC implementation and its success so that the perspective of the pregnant patient was foremost in their minds – i.e., the patient's sense of safety, being respected, and supported.

So that's the real thing: are the woman's goals respected, and does she feel respected in the end? In the end it really does come down to the mother, and we want to make sure this is the best experience that it can be for her within what she defines as success.

And so, I talked to [staff] a lot about like, yeah, that baby may be in the nursery, but how can you make the mom feel like she's a part of the care team in the NICU? How can you make her feel comfortable to come in and spend as much time as she safely and possibly can?

Common training for multidisciplinary care providers

Another indicator of success noted by PSU/ESC leads in two regions was provision of the same education to care providers in multiple practice settings, including perinatal care providers (working in family birthing units, pediatric units, or the NICU) and allied health professionals.

(Another) success is to provide the same education to all three streams: NICU, perinatal and allied health providers (social workers, physiotherapists, occupational therapists, dietitians, etc). ...We don't really have many opportunities to combine education for pediatric, NICU and perinatal nurses because our areas of focus are usually quite different.

Moreover, participants observed that completing the same training led to staff's readiness and excitement to make key practice shifts and implement ESC.

And so, it's really helping to move the work forward because we're really trying to create a shared vision with our teams. And they're the ones now bringing it forward. They're saying, "I think we can do this change. Let's do this next."

Further, participants from different Health Authorities emphasized the significance of staff's eagerness to make practice shifts related to ESC in light of the challenges of implementing ESC during the height of the Covid-19 pandemic and related staff shortages.



They had every reason to say that they weren't going to do this, and instead they said, "This is the best thing for the patient, and it has good outcomes, and we need to do this right now. And yes, please!" And they got on board. ...So, I think that that's a huge success.

Increased collaboration with multisectoral partners

An additional emerging indicator of success identified by evaluation participants was increased collaboration with key partners, such as organizations dedicated to child welfare or mental health and substance use.

We've also reached out and worked with a lot of our partners. We've started meeting regionally with the MCFD Directors of Clinical Practice, which has opened up dialogue for us to better understand each other and our roles and also create a shared vision together so that we're all supporting and working under the same idea of mother baby togetherness and dyad care.

There's the partnership with [Ministry of] Mental Health and Addictions too, so assisting mums getting Methadone so they don't have to leave for long periods. I think that's been a really good win and a bonus, just including them in our in our discussions.

Reduced hospital length of stay

Lastly, across different Health Authorities, PSU/ESC leads stated that in the sites(s) in which ESC had been implemented, there was a reduction in the hospital length of stay for infants with symptoms of NAS/NOWS.

I think that already we can see huge drops in the number of days that babies are in hospital.

[Hospital] has decreased hospital length of stay from 27 days to 10 days.





SECTION 4: DISCUSSION AND RECOMMENDATIONS

4.1 Summary and discussion of findings

The province-wide introduction of Eat Sleep Console expands upon the model of care previously used at BC Women’s Hospital + Health Centre and FIR for the care of newborns exposed prenatally to substances. Implementation of ESC across BC’s Health Authorities and complex health care system can be considered a major initiative; it is also a truly provincial effort, with contributions from experts and practitioners across the province.

This evaluation, undertaken to gain a better understanding of implementation milestones, successes, and challenges, revealed that the pace and progress of ESC implementation was variable both within and across health regions. This is not surprising, given the unique characteristics of the Health Authorities and the realities of implementing ESC during the Covid-19 pandemic and other systemic challenges. Nevertheless, a key finding of this evaluation is that a number of hospitals across the province have made considerable strides in: providing staff training and education foundational to ESC; shifting attitudes, practices, and policies; and garnering essential operational capacity to support ESC implementation.

With respect to the successes of implementing ESC, the evaluation’s review of peer-reviewed literature showed that BC’s experience is consistent with that of other jurisdictions. Specifically, the key drivers of success cited in the literature were also found to be important “enablers” in BC. Chief among these is having committed champions/leaders and regular opportunities for education and training for hospital staff.

Indeed, the evaluation showed that a strong factor in the ongoing uptake of ESC was the presence of strong regional leadership, in particular having a full-time PSU/ESC lead with clear responsibility for planning and delivering the roll-out of ESC. The Leads have been instrumental in encouraging staff, promoting ESC best practices, developing site-specific training, advocating, and problem-solving. Health Authorities that had fully committed to having these positions and that weren’t experiencing staff turnover were further along in their ESC journey; conversely, regions that had experienced disruption and turnover in these positions weren’t as far along.

The development and delivery of the foundational Perinatal Substance Use/ESC training modules, offered through UBC’s Continuing Professional Development since 2020, have been additional markers of success. They were pivotal to perinatal care providers developing an understanding and appreciation of the practice shifts that were necessitated by ESC. At the same time, the evaluation highlighted the critical importance of additional regional and site-specific training, not only on components of ESC but also in relation to key elements of best practice with pregnant and parenting patients who use substances – e.g., trauma-informed care. This tailored training and practice support, offered in ways that were most responsive to sites’ needs and also offered to health care providers working in various care settings and even across service sectors, helped to introduce, guide, and sustain the practices and attitudinal shifts embodied by ESC.



The use of a phased approach emerged as an important “enabler” to implementation in BC. This factor wasn’t discussed in these terms in the published literature, but this is likely due to the nature of the studies comprising the literature review, in that nearly all of these studies reported on the implementation and outcomes of ESC within a single hospital site rather than being multi-site, as is the case in BC. A parallel driver of implementation reported in the literature was sites’ employment of a Quality Improvement approach to implementation (“Plan, Study, Do, Act”), which has similarities to the phased and collaborative approach employed in BC. In BC, the Health Authorities were free to choose how to implement ESC and, as such, introduced practice components that were more easily managed, such as use of the ESC Care Tool, while continuing to look for solutions to other operational, staffing, and care provider readiness factors. In other words, it wasn’t an all-or-nothing start, and the ESC narrative is not one story but several.

A key enabler to ESC implementation in BC that was not specifically identified in the literature was the existence of dedicated and sustained funding. This annual funding has enabled health care providers to complete the foundational PSU/ESC training during their regular working hours (for many trainees, or at least for those who completed the training in 2020/2021), while providing backfill for clinical, patient care roles and supporting the PSU/ESC lead positions. From the perspective of many evaluation participants, ongoing funding for these foundational components of ESC is essential.

Mirroring the “enablers,” the primary challenges identified in the literature were also apparent in the BC experience. These included insufficient nursing resources, difficulty promoting skin-to-skin contact and consoling when the parent

wasn’t present or had been discharged, limitations of maternity units with respect to rooming-in, and hospital-based protocols and/or attitudes that potentially slowed the implementation of ESC. Interestingly, the ESC evaluation in BC did not identify the need for additional education and training as a barrier, likely because delivery of both foundational and tailored training has been such a key implementation activity in BC, particularly in the Health Authorities that are farthest along in their ESC journeys.

Staffing shortages were the most frequently identified barrier to implementing ESC. Staffing levels are required when providing care to infants experiencing symptoms of NAS/NOWS and when supporting ESC, including when managing non-pharmacological care, administering PRN morphine, supporting the birth parent’s involvement in the baby’s care, or supporting dyad care when the mother or a primary caregiver wasn’t regularly involved. At least one site responded to this latter challenge by initiating a pilot study to test the use of care aides to help with cuddling and changing the infant. This may be a promising approach, and the findings of this study warrant close consideration as a strategy to facilitate dyad care and ESC implementation. Overall, however, what may be most important to keep in mind is that despite staffing challenges – all the more heightened by the Covid-19 pandemic – at least two hospitals in the majority of BC Health Authorities were implementing ESC, and perinatal care providers were excited to be engaging in what they viewed as being “the best evidence-based care for the patient.”

Lastly, in addition to highlighting the challenges, milestones, and successes of implementation, the evaluation of ESC has endeavoured to shine a light on PSU leads’



reflective practice, which is leading them to broaden and reframe ESC outcomes and markers of success and, in particular, to reflect upon outcomes both from the perspectives of pregnant and parenting patients and at a

community level, in terms of multi-sectoral partnerships. These will be important outcomes to explore in greater depth as subsequent phases of ESC implementation and evaluation unfold in British Columbia.

4.2 Recommendations

Based on the findings from this ESC evaluation, it is recommended that:

- Funding is provided/allocated for PSU/ESC foundational training for all multidisciplinary perinatal health care providers. Ideally, this education should be organized such that providers are able to complete the training during their regular working hours, rather than during their non-work time.
- The role of PSU/ESC lead continues to be supported. It is essential that PSU Leads have dedicated time to plan and implement ESC in hospital sites within their Health Authority and are not undertaking the work of ESC implementation off the sides of their desks.
- As part of their role, the PSU Leads continue to plan and deliver tailored, site-specific education and training opportunities on ESC and related best practice approaches, such as trauma-informed care, for health care staff. In addition, it is recommended that the PSU leads continue to explore best practice alternatives for supporting ESC and providing non-pharmacological care to infants in the absence of a consistent care provider.
- The PSU Leads employ a phased and collaborative approach to implementing ESC, starting with the Perinatal Substance Use Online training, then working closely with birthing facilities in their region to determine operational and care provider readiness and an agreed-upon process and timeline to undertake implementation.
- As a way to work through practice issues and strengthen/sustain ESC, a virtual Community of Practice be created and that regular meetings be offered at a regional and/or provincial level for perinatal care staff involved in ESC care.
- The PPSUP team coordinate discussions with the PSU/ESC leads regarding key ESC outcomes and indicators that would be feasible to collect through health systems data and from patients'/families' perspectives, in order to further assess and evaluate ESC impacts.



EAT SLEEP CONSOLE

EVALUATION
REPORT

APPENDICES





Appendix A:

Eat Sleep Console Annotated Bibliography and Reference List



Eat Sleep Console Annotated Bibliography and Reference List

(Canadian literature is flagged in red.)

1. Peer-reviewed (brief) systematic reviews/literature reviews on impacts of Eat Sleep Console, rooming-in, or skin-to-skin contact

Grisham, L., Stephen, M., Coykendall, M., Kan, M., Maurer, J., & Bader, M. (2019). Eat Sleep Console approach: A family-centred model for the treatment of Neonatal Abstinence Syndrome. *Advances in Neonatal Care*, 19(2), 138-144. DOI: 10.1097/ANC.0000000000000581

Historically, infants with Neonatal Abstinence Syndrome have been treated by first introducing and then slowly weaning off pharmaceuticals. Eat Sleep Console (ESC) is a new model that focuses on the comfort and care of these infants by maximizing non-pharmacological methods, increasing family involvement in the treatment of their infant, and the “as needed” use of morphine. This evidence-based practice brief summarizes and critically reviews emerging research on the ESC method of managing NAS and offers a recommendation for implementing an ESC model. The article is based on a literature review conducted using PubMed, Cochrane, and Google Scholar, with a focus on ESC programs developed for treating infants with NAS. Several studies were found with successful development and implementation of the ESC model. Studies supported the use of ESC to decrease length of stay, exposure to pharmacological agents, and overall cost of treatment.

Lee, E., Schofield, D., Azim, S.I., & Oei, J.L. (2021). Economic evaluation of interventions for treatment of Neonatal Opioid Withdrawal Syndrome: A review. *Children*, 8, 534-545. doi.org/10.3390/children8070534

This study assessed the economic evidence on the pharmacological and non-pharmacological management of infants with neonatal opioid withdrawal syndrome (NOWS). Six databases were searched up to October 2020 for peer-reviewed studies. After titles and abstracts were screened, 79 studies remained for full-text review, and, ultimately, eight studies were included in the review. The researchers also assessed the methodological quality of the included studies and found significant limitations, with one study being rated as good and the remaining seven being deemed poor quality due to methodological issues such as a lack of detail on cost categories and extending the timeframe to enable consideration of longer-term outcomes.

Despite these limitations, existing evidence suggests non-pharmacological strategies such as rooming-in were associated with a shorter hospital stay and a decreased need for pharmacological treatment, thereby lowering hospitalization costs.

The review highlights the paucity of high-quality studies assessing the cost-effectiveness of intervention strategies for NOWS. There is also a lack of evidence on long-term outcomes associated with NOWS and the treatment of NOWS.



MacMillan, K.D.L., Rendon, C., Verma, K., Riblet, N., Washer, D., & Volpe Holmes, A. (2018). Association of rooming-in with outcomes for Neonatal Abstinence Syndrome: A systematic review and meta-analysis. *JAMA Pediatrics*, 172(4), 345-351.

This article is a systematic review and meta-analysis of research examining the outcomes of rooming-in for newborns with NAS. The study included randomized clinical trials and research using cohort and quasi-experimental designs, as well as pre- and post- quality improvement studies comparing rooming-in with NICU care for newborns with NAS. Of the initial 413 publications, six met the inclusion criteria. Analysis of findings from these six studies showed that rooming-in was preferable to NICU care for reducing both the use of pharmacotherapy and the length of stay in hospital. As well, three studies found that costs were reduced with rooming-in relative to NICU care, and qualitative analyses in at least one study found that rooming-in was associated with increased breastfeeding. Further, rooming-in was not associated with any adverse effects, including rates of readmission to hospital.



MacVicar, S., & Kelly, L.E. (2019). Systematic mixed-study review of non-pharmacological management of neonatal abstinence syndrome. *Birth*, 46, 428-438. DOI: 10.1111/birt.12427.

This mixed-methods systematic review aimed to explore the non-pharmacological management of infants at risk of neonatal abstinence syndrome after prenatal exposure to opioids.

The researchers searched databases for relevant articles published between January 2007 and June 2018; quantitative and qualitative data were extracted, and thematic analysis was undertaken, with the findings synthesized as a narrative summary. Fourteen studies were included, of which nine were quality improvement initiatives and five explored complementary therapies. Three of the studies were Canadian, nine were American, and two were European (UK and Austria). The studies were also rated in terms of quality, and only three (all from the US) were deemed “good.”

The most common components of non-pharmacological management were rooming-in and consolation therapy (e.g., parental presence; reduction of environmental stimuli). Implementation strategies focused on both families/volunteer care providers and perinatal care providers, incorporating family-integrated care and practitioner training in the evaluation of neonatal withdrawal. When non-pharmacological management was applied, there was a reduction in the need for pharmacotherapy and a shorter hospital stay for newborns.

Potential barriers to effective management included: unreliable assessment tools (e.g., some studies started with use of Finnegan tool and then switched to ESC Care Tool; another study noted that infants were woken up to do the Finnegan, which resulted in higher scores); judgmental practitioner attitudes (and the need for increased practitioner understanding of substance use during pregnancy); and limited breastfeeding promotion.

Based on the systematic review, the authors concluded that providing and optimizing non-pharmacological management for the infant at risk of NAS improves outcomes by reducing both their length of hospital stay and the need for pharmacotherapy.



2. Peer-reviewed studies on impacts of Eat Sleep Console or rooming-in and/or process of implementing ESC

Achilles, J.S., & Casteneda-Lovato, J. (2019). A quality improvement initiative to improve the care of infants born exposed to opioids by implementing the Eat, Sleep, Console Assessment Tool. *Hospital Pediatrics*, 9(8), 624-631. DOI: <https://doi.org/10.1542/hpeds.2019-0144>.

This study, conducted in a Santa Fe, New Mexico, hospital, used a quality improvement methodology to conduct plan-do-study-act cycles. The project began through the creation of a multidisciplinary team that included physicians, nurses, nurse managers, social workers, and pharmacy, IT, and data specialists. Key interventions included:

- PDSA Cycle 1:
 - Prenatal education – booklet developed for families, distributed to prenatal families via prenatal/primary care providers
 - Improving infant assessment
 - Improving family engagement (booklet for families was developed and distributed to families upon admission, with info on how to help console the infant using non-pharmacological methods. Parents sign letter saying that they understand the importance of their involvement and they commit to participate in plan of care)
 - Non-pharmacological treatments: low-stimulation environment; swaddling, rocking, skin-to-skin contact, breastfeeding; non-nutritive sucking
 - Provider education

- PDSA Cycle 2:
 - Pharmacological treatment/morphine as needed

- PDSA Cycle 3:
 - Use of the Eat Sleep Console assessment tool

Primary metrics were the proportion of newborns exposed to opioids requiring pharmacological treatment and the cumulative dose of opioids per exposed newborn requiring pharmacological treatment.

There were 81 infants in the baseline period (January 2015 to September 2016) and 100 infants in the post-intervention group (October 2016 to August 2018). For infants who required medication for treatment, the post-intervention group had significantly lower total cumulative dose in methadone equivalents (1.3 mg vs 6.6 mg), shorter length of stay (11 days vs 19 days), and non-significant lower direct costs (\$11,936 vs \$15,039). In view of the findings, the team concluded that ESC effectively replaced the Finnegan Neonatal Abstinence Scoring System and had improved outcomes, i.e., more infants received no opioid treatment; when medication was required, the total cumulative dose of opioids was lower; shorter average length of stay; and lower costs.



Dodds, D., Koch, K., Buitrago-Mogolion, T., & Horstmann, S. (2019). Successful implementation of the Eat Sleep Console model of care for infants with NAS in a community hospital. *Hospital Pediatrics, 9*(8), 632-638. DOI: [10.1542/hpeds.2019-0086](https://doi.org/10.1542/hpeds.2019-0086)

This study reports on the implementation of ESC within a 28-bed community children's hospital within a larger hospital complex in a mid-size city in the Southern US. The team's goal was to decrease the average length of stay without having an increase in readmissions.

The article describes key components of the ESC implementation process, including: a) creating a multidisciplinary team; b) creating and distributing educational materials on ESC for the team, including information on non-pharmacological interventions; c) meeting monthly as a team to track progress and sustain engagement; and d) changing the location of care for the qualifying mother-infant dyads to allow for rooming-in. The study's implementation evaluation data showed the average length of stay decreased to 5.94 days, with zero patients readmitted or transferred for NAS-related complications; as well, there was a 79% reduction in the use of patient morphine.

Grossman, M.R., Berkwitz, A.K., Rachel R. Osborn, R.R., Xu, Y., Esserman, D.A., Shapiro, E.D., & Bizzarro, M.J., (2017). An initiative to improve the quality of care of infants with Neonatal Abstinence Syndrome. *Pediatrics, 139*(6), e20163360; DOI: <https://doi.org/10.1542/peds.2016-3360>. (Note: This is considered a hallmark study on ESC.)

This New Haven, Connecticut-based study aimed to reduce the ALOS for infants with NAS by 50% by implementing the Eat Sleep Console approach to care. In 2010, a multidisciplinary team began several plan-do-study-act cycles at Yale New Haven Children's Hospital. Key interventions were implemented over a six-year period, including:

- 1) Standardizing non-pharmacological care with rooming-in and optimal feeding practices
- 2) Transferring infants requiring increased observation to the pediatrics unit, rather than the NICU
- 3) Developing and implementing a novel approach to assessment (ESC)
- 4) Administering morphine on an as-needed, rather than scheduled, basis
- 5) Developing and delivering prenatal parenting education
- 6) Providing empowering messaging to parents, stressing parental presence as treatment

This study involved 287 infants, including 55 from the baseline period (January 2008 to February 2010) and 44 from the post-implementation period (May 2015 to June 2016). The outcome measures included ALOS, morphine use, and hospital costs. ALOS decreased from 22.4 to 5.9 days. Proportions of methadone-exposed infants treated with morphine decreased from 98% to 14%; costs decreased from \$44,824 to \$10,289. No infants were readmitted for treatment of NAS, and no adverse events were reported.

Based on their findings, the authors of this study concluded that interventions focused on non-pharmacological therapies and a simplified approach to assessment for infants exposed to methadone in utero led to both substantial and sustained decreases in ALOS, the proportion of infants treated with morphine, and hospital costs, all with no adverse events.



Hein, S., Clouser, B., Tamim, M.M., Lockett, D., Brauer, K., & Cooper, L. Eat, Sleep, Console and adjunctive Buprenorphine improved outcomes in Neonatal Opioid Withdrawal Syndrome. *Advances in Neonatal Care*, 21(1), 41-48.

This study discusses implementation of the ESC model, optimized non-pharmacological bundle, and prescribed buprenorphine therapy instead of morphine as needed for adjunctive therapy. The team utilized a QI methodology for this project, which incorporated plan-do-study-act cycles. The article includes a useful figure that shows the project's aims, key drivers, and interventions. Data were collected over a three-year period, involving 191 infants.

Key results of implementing ESC included: a) admissions of opioid-exposed infants from the Mother-Baby Unit (MBU) to the NICU decreased by 22%; and b) the number of infants who required pharmacotherapy was reduced by 50%. The average length of pharmacotherapy fell from 14 to 6.5 days. Further, the successful implementation of the ESC model helped keep the mother-infant dyad together, reduced admissions to the NICU, and lessened the need for pharmacotherapy. The change to buprenorphine further reduced the average length of treatment.

Miller, P.A., & Willier, T. (2021). Baby STRENGTH: Eat Sleep Console for infants with Neonatal Abstinence Syndrome. *Advances in Neonatal Care*, 21(2), 99-106. DOI: 10.1097/ANC.0000000000000840

In this study, Eat Sleep Console is described as an approach for the care of neonatal infants with NAS, whereby: “Instead of using a tool to assign a score to withdrawal symptoms, infants are evaluated for their ability to manage their withdrawal symptoms while maintaining the essential newborn functions of eating and sleeping. This method encourages families to stay with their infant to help manage their infant’s withdrawal symptoms by learning to identify and respond to behavior cues with non-pharmacological interventions. Soothing techniques, breastfeeding, and skin-to-skin holding are used as first lines of treatment, and medication is reserved for times when infants have withdrawal symptoms that interfere with their functional well-being.” (p. 99)

This study aimed to determine whether using the ESC model of care to treat infants with opioid withdrawal resulted in decreased length of stays (LOSs) and number of infants receiving morphine when compared with traditional medication management. The study employed a retrospective medical review for all patients admitted for NAS 12 months before and 12 months after implementing the ESC model of care. Data collected from electronic health records included demographic data, maternal history, infant LOS, infants receiving morphine, and birth weight/weight on day of life (DOL) 5. The study’s findings showed that: a) LOS decreased from a mean of 18 days to a mean of 6 days ($P < .0001$); b) the number of infants receiving morphine decreased from 20 (59%) to 1 (3%) ($P < .0001$); and c) there was an increase in breastfeeding rates from 41% to 65% ($P = .05$).



Minear, S., & Wachman, E. (2019). Management of newborns with prenatal opioid exposure: One institution's journey. *Clinical Therapeutics*, 41(9), 1663-1668.

This article describes a Boston-based hospital's implementation of ESC, which was initiated in 2016 by a multidisciplinary QI collaborative. The step-wise, multipronged approach included:

- 1) A commitment to non-pharmacological care as first-line treatment (rooming-in, skin-to-skin)
- 2) A simplified function-based approach to observation of the infant (Eat Sleep Console)
- 3) Improved prenatal education for parents to prepare for the newborn's postnatal course
- 4) A cuddler program to provide continuous consoling when mothers are exhausted
- 5) Strategies to help parents remain at the bedside
- 6) Change from morphine to methadone for infants who require medication for NAS

The team developed partnerships between obstetrics care providers and outpatient pediatric colleagues in order to prepare mothers for delivery by strengthening them in their recovery prenatally and helping them maintain their recovery after discharge (via Project RESPECT).

After one year, key outcomes of the ESC implementation included:

- A decrease in medication treatment for NAS (from 87% to 40%)
- A decrease in the need for adjuvant medication (from 34% to 2%)
- A decrease in length of hospital stay (from 18 days to 10 days)

The three most significant factors contributing to the team's success were:

- 1) A committed champion leader
- 2) A strong collaborative multidisciplinary team (e.g., prenatal care via Project RESPECT)
- 3) A quality improvement approach that facilitated implementation of ideas easily and provided timely feedback to guide further change





Newman, A.I., Mauer-Vakil, D., Coe, H., Newton, L., Wilkerson, E., McKnight, S., & Brogly, S.B. (2020). Rooming-in for infants at risk for Neonatal Abstinence Syndrome: Outcomes 5 Years following its introduction as the standard of care at one hospital. *American Journal of Perinatology*. doi: 10.1055/s-0040-1719182

From the Abstract:

Objective: The practice of rooming-in for opioid-dependent infants was introduced in 2015 at Kingston General Hospital as the standard of care following a pilot study demonstrated that these infants had shorter lengths of stay and were less likely to require pharmacological treatment. The objective of the current study was to determine whether these benefits have continued, and whether outcomes support continuing to use rooming-in as standard care.

Study Design: Opioid-dependent infants delivered at 36 weeks' gestation or later between January 1, 2015, and December 31, 2019, were eligible for rooming-in. The clinicians continued to use the modified Finnegan assessment tool for determining whether pharmacotherapy was required; however, they were “more consistent” with non-pharmacological interventions during the latter half of the study period, especially since pharmacotherapy would require NICU admission and would interrupt the benefits of rooming-in. In July 2020, the hospital began using the ESC tool rather than the Finnegan tool and also now permits initiation of pharmacotherapy without NICU admission.

Charts were reviewed and data were extracted regarding maternal and infant conditions, whether neonatal pharmacological treatment was required, and total length of hospital stay. Outcomes were compared with two historical groups reported in a previous pilot study: 24 healthy near-term opioid-dependent newborns who were admitted directly to the neonatal intensive care unit (NICU) prior to the introduction of rooming-in (May 1, 2012–May 31, 2013), and 20 similar opioid-dependent infants who were the first to room-in at our hospital (September 1, 2013–September 30, 2014).

Results: Only 3.5% of 57 infants who roomed-in during the 5-year study period required pharmacological treatment, compared with 15% who roomed-in during the first year of the program's introduction and 83% who had been admitted directly to the NICU. The median length of stay remained 5 days for infants rooming-in, compared with 24 days for opioid-dependent infants in the cohort admitted to the NICU.

Based on the study's findings, the researchers concluded that the early observations of the benefits of rooming-in on neonatal outcomes had been sustained. Infants allowed to room-in were significantly less likely to require initiation of pharmacotherapy and a prolonged hospital stay than similar infants prior to the implementation of rooming-in as standard care. A large proportion of the infants who might have benefited from rooming-in required admission to the NICU for reasons other than neonatal abstinence syndrome (NAS).



Parlaman, J., Deodhar, P., Sanders, V., Jerome, J., & McDaniel, C. (2019). Improving care for infants with Neonatal Abstinence Syndrome: A multi-center, community hospital-based study. *Hospital Pediatrics, 9*(8), 608-614.

This article reports findings of a study focusing on the implementation of ESC at two community-based hospitals in Seattle (to date, most if not all known studies on the implementation of ESC have been conducted at children's hospitals). The study used a multidisciplinary quality improvement approach, wherein data from a total of 304 patients were extracted for two years (2017 and 2018; 155 were from the post-intervention period); primary indicators were LOS and reduced use of pharmacological therapies. ESC interventions included an emphasis on non-pharmacological care, the initiation of one-time morphine dosing, flexible weaning schedules for infants on morphine, and the use of ESC scoring. Data were analyzed by using statistical process control. The research found that, after ESC implementation, mean LOS decreased from 9.0 to 6.2 days, and morphine use decreased from 57% to 23%. The researchers concluded that the implementation of ESC within two community hospitals led to significant and sustained improvement in LOS and morphine exposure without compromising safety. **Note:** The article includes a helpful “key driver” diagram for community hospital implementation of ESC and a non-pharmacological-based protocol as well as a table summarizing ESC interventions.

3. Peer-reviewed research re: patients' perspectives on rooming-in and/or Eat Sleep Console

Atwood, E.C., Sollender, G., Hsu, E., Arsnow, C., Flanagan, V., Celenza, J., Whalen, B., & Holmes, A.V. (2016). A qualitative study of family experience with hospitalization for Neonatal Abstinence Syndrome. *Hospital Pediatrics, 6*(10), 626-632.

This New England-based (part of Vermont Oxford Network NAS Collaborative) qualitative study aimed to shed light on families' experiences of hospitalization for NAS in order to guide quality improvement efforts to improve family-centred care. During the study, infants at risk for NAS symptoms initially roomed-in with their mother and were transferred into the NICU if NAS symptoms were severe enough to warrant closer observation or pharmacotherapy. Semi-structured interviews were conducted with 20 families of newborns with NAS at hospital discharge; all families were White, English-speaking, and publically insured. The interview guide is included in the article.

Based on a thematic analysis, five domains of family experience were identified:

- 1) Parents desired improved pre- and postnatal education about NAS and its treatment
- 2) Parents valued their role as partners in the care team, including in assessing NAS symptoms (e.g., use of a “symptom diary”), and in consoling the infant via rooming-in
- 3) Communication, honouring confidentiality, and quality of interactions with staff (supportive versus judgmental) were key to the hospital experience as being positive or negative



- 4) Transfers between units and inconsistencies among providers also shaped families' experiences
- 5) External factors, e.g., addiction recovery, supportive social networks, economic challenges, including transportation for visits, and child welfare issues also affected families' experiences

By way of conclusion, the authors stated that addressing parental needs through improved perinatal education, increased involvement in the care team, consistent care and communication, and minimized transitions in care could improve the NAS hospital experience.

McGlothen-Bell, K., Recto, P., McGrath, J.M., Brownell, E., & Cleveland, L.M. (2020). Recovering together: Mothers' experiences providing skin-to-skin care for their infants with NAS. *Advances in Neonatal Care*, 21(1), 16-22.

Skin-to-skin care (SSC) is a method of parent-infant holding and is also a recommended non-pharmacological intervention for managing NAS symptoms. SSC has the potential to reduce withdrawal symptoms while positively influencing parent-infant attachment. The purpose of this qualitative study was to explore the SSC experiences of mothers of infants with NAS, including perceived barriers to SSC in the hospital and following discharge to the home. The researchers conducted semi-structured interviews with 13 postpartum mothers of infants with NAS in San Antonio, Texas.

Four themes emerged from the data analysis: “a little nerve racking” (concern that SSC would not comfort their infant); “she needed me, and I needed her” (SSC was an opportunity to bond with their infant and to strengthen their emotional and physical connection; also, SSC promoted self-compassion and healing and reduced the mother’s stress level); dealing with the “hard times” (positive/supportive and negative/judgemental interactions with nurses); and “a piece of my puzzle is missing.” SSC was described as a conduit for healing and bonding. In addition, several barriers to SSC were reported, including mother’s lack of privacy, stigmatizing attitudes of nurses, and having limited time for SSC once the mother was discharged from hospital. The study’s findings highlighted the benefits of SSC for mothers and infants with NAS. As well, the study identified that changes in hospital practices are needed to create an environment supportive of SSC.

McRae, K., Sebastian, T., Grossman, M., & Loyal, J. (2021). Parent perspectives on the Eat, Sleep, Console approach for the care of opioid-exposed infants. *Hospital Pediatrics*,

DOI: 10.1542/hpeds.2020-002139.

From the Abstract (actual article is not currently available):

This study aimed to explore the experience of parents whose infants have been treated with the Eat Sleep Console approach to care. The research team conducted semi-structured interviews with 18 parents of infants with NAS. Most participants were ≥ 30 years, were White, and had a high school or equivalent level of education.



Four major themes emerged:

- 1) Parents were supportive of fewer interventions and normalizing newborn care with ESC
- 2) Parents felt encouraged to lead their infant's NAS care
- 3) Parents perceived gaps in communication about what to expect in the hospital immediately after delivery and during their infant's hospital stay
- 4) Parents experienced feelings of guilt, fear, and stress and expressed the need for increased support

Based on the study's findings, the authors concluded that the families in their study had an overall positive experience with the ESC approach. This engagement probably contributes to the success of the ESC approach in their institution. Future opportunities include better preparation of parents prenatally and continued emotional support after delivery.

4. Peer-reviewed descriptive/survey research re: care of infants with NAS



Murphy, K., Coo, H., Warre, R., Shah, V., & Dow, K. (2017). Variations and similarities in clinical management of neonatal abstinence syndrome: Findings of a Canadian survey. *Paediatrics & Child Health, 22(3), 148-152.*

From the Abstract:

There are no evidence-based national guidelines for managing neonatal abstinence syndrome (NAS), and surveys from other countries have demonstrated considerable variations in practice. The objective of this study was to describe NAS management practices in Canada. To conduct this study, the directors of all Level 2 and Level 3 neonatal intensive care units (NICUs) were contacted to request their participation in a structured telephone survey. Personnel at 65 of 103 sites (63.1%) participated. The survey found that most (92%) stated their hospital has a written NAS practice guideline. The majority (90%) use a version of Finnegan's scoring system to monitor signs. If pharmacological treatment is required, 89% admit infants to the NICU, and 94% routinely use cardiorespiratory monitors when treatment is initiated.

Morphine is the first-line medication at most sites (97%). There was greater variability in terms of other practices: 45% observe at-risk infants in the NICU, while 52% allow them to room-in with their mothers; 65% use adjunct medications; 37% and 39% will discharge infants on the first-line and adjunct medications, respectively; and 54% reported that breastfeeding is always encouraged, while 45% discourage breastfeeding if the mother continues to use illicit drugs. Few practice variations were associated with unit type or size.

The study's authors concluded that while most NICUs surveyed have an NAS practice guideline, there are some notable differences in how NAS is managed. This underscores the need for research that can be translated into best practices.





Puvitharan, D., Dow, K., Lacaze-Masmonteil, T., Do, M.T., Nelson, C., Little, J., & Khurshid, F. (2019). Neonatal Abstinence Syndrome: Variations and barriers to care in Canada. *Paediatrics & Child Health, 24*, Supplement 2, e50. <https://doi.org/10.1093/pch/pxzo66.126>

In view of the increase in rates of NAS in Canada and in response to the Canadian Paediatric Society issuing a Practice Point on NAS in 2018, this research team carried out a survey to examine “the state of NAS management in Canada.” The study’s dual objectives were to: 1) determine the variation in practice across Canada, and 2) gauge knowledge/perceptions around NAS care.

The survey was distributed in 2018 to 2,800 physicians across Canada; a total of 878 physicians completed the survey (31%). Of those:

- 59% provided care to infants with NAS
- 64% of physicians’ care settings had guidelines regarding NAS; 29% used the Practice Points
- 90% used the Finnegan scoring system or its modified version
- 46% used rooming-in (30% mainly used NICU; 22% used special care nurseries)

The largest barriers to adopting rooming-in care were staff concern over monitoring and evaluation, insufficient nursing resources, and the need for education and training.

5. Commentary/practice point/letters to the editor in peer-reviewed literature re: impacts of ESC, rooming-in, or skin-to-skin contact



Lacaze-Masmonteil, T., O’Flaherty, P., & Canadian Paediatric Society. (2020). Managing infants born to mothers who have used opioids during pregnancy. *Paediatrics & Child Health, 23*(3), 220-226. (<https://academic.oup.com/pch/article-pdf/23/3/220/25448956/pxx199.pdf>)

Based on Canadian Institute for Health Information data from 2016-2017, an estimated 0.51% of all infants born in Canada (approximately 1,850/year, Quebec excluded) had Neonatal Abstinence Syndrome (NAS), primarily due to opioid withdrawal. The average length of stay in acute care facilities for these infants was 15 days. Recent reports indicate that the number of infants requiring observation for withdrawal symptoms is increasing annually and that cases are generally underreported. This practice point focuses specifically on the effects of opioid withdrawal, including its clinical presentation, and current management strategies in the care of infants born to mothers with opioid dependency.



The Practice Point recommends that, for all opioid-exposed infants, a reliable assessment scoring system should be used to measure the severity of withdrawal symptoms and to determine whether additional monitoring and interventions, including pharmacotherapy, are required. The Finnegan scale is noted as the most widely used assessment tool; ESC as an assessment mechanism is not discussed. In terms of management of NAS, the article notes that recent literature supports keeping mother and infant together from birth (i.e., rooming-in). As well, the article recommends non-pharmacological interventions: “Non-pharmacological interventions have been shown to reduce the effects of withdrawal and should be implemented as soon as possible following birth. Examples of supportive interventions include skin-to-skin contact, safe swaddling, gentle waking, quiet environment, minimal stimulation, lower lighting, developmental positioning, music or massage therapy. Breastfeeding should be encouraged because it can delay the onset and decrease the severity of withdrawal symptoms as well as decrease the need for pharmacological treatment” (p. 223).

McQueen, K. (2018). “Rooming-in” could be an effective non-pharmacological treatment for infants with neonatal abstinence syndrome. *Evidence Based Nursing*, 21(4), 110.

This one-page commentary on MacMillan et al’s (2018) systematic review and meta-analysis of research examining the impacts of rooming-in makes the point that while MacMillan and colleagues’ research strengthens the evidence in support of rooming-in, more research is needed in order to substantiate the intervention’s benefits and to identify the components of rooming-in that make it effective. The article argues that future research should provide detailed descriptions of how rooming-in operates and how the approach has been implemented in acute care settings.



Thiessen, P. (2018). Neonatal abstinence Syndrome – A better way. *Paediatrics & Child Health*, 428. doi: 10.1093/pch/pxy092

In this letter to the editor, Vancouver-based physician Paul Thiessen amplifies the practice point made in a previous *Paediatrics & Child Health* article, stating that rooming-in should be the normative way of managing infants with NAS. Thiessen states that since 2001 at BC Women’s Hospital, rooming-in has been the standard model of care for infants at risk of having NAS. Moreover, BC Women’s has demonstrated that rooming-in leads to reduced length of stay and reduced used of pharmacological treatment, as well as increases in rates of breastfeeding and in the number of infants who remain in their mother’s care.



6. Grey literature on implementation and/or outcomes of Eat Sleep Console

Kimbrough, T. (2019). Eat, Sleep and Console: Changing Landscape for Neonatal Opioid Withdrawal Syndrome. Children’s Hospital of Richmond (Virginia) at VCU.

This PowerPoint presentation aimed to: 1) review the magnitude of Neonatal Opioid Withdrawal Syndrome in Virginia; 2) discuss the Traditional Care Model for NOWS; 3) describe Eat, Sleep and Console as a novel assessment tool; and 4) share the Eat, Sleep and Console implementation journey at VCU. In discussing the traditional model of caring for infants with NOWS, the PowerPoint states that NICU involvement results in parental separation, which in turn leads to: poorer attachment and bonding; decreased breastfeeding; and disturbed infant emotional and cognitive development and self-regulation skills. When staff care for the infant, mothers feel misunderstood, guilty, judged, and distrusting of the health care team. In addition, in terms of pharmacotherapy rate, under the traditional model of care, 50-80% of infants exposed to methadone had been deemed to require pharmacotherapy (22-63% of infants exposed to Buprenorphine had pharmacotherapy).

In contrast to the traditional model of care, ESC places the family at the centre of the care model. Slide 40 of the PowerPoint states: “Changing mindset to focus on normal functions of a newborn. Eating, sleeping, ability to be consoled/comforted. Emphasis on non-pharmacological care, focuses on: rooming-in; breastfeeding promoted; enhance parental efficacy; change dialogue from ‘What WE have to do TO the patient’, to ‘How can we empower MOMS to care FOR their infant.’”

Slide 41- 59: Summary of Grossman et al’s (2017) key research:

Built multidisciplinary team – Yale/Dartmouth five-year QI study run by Yale/Dartmouth team and involved 50 full-term methadone-exposed infants. Focused on multiple PDSA cycles.

- PDSA 1: Standardize non-pharmacological care (interventions: low-stimulation environment; non-nutritive sucking; skin-to-skin placement; breastfeeding, with caloric supplementation if needed)
- PDSA 2: Admit to General Peds (instead of NICU)
- PDSA 3: Change the assessment tool (Eat, Sleep and Console: 1. Can the baby eat? 2. Can the baby sleep? 3. Can the baby be consoled?)
- PDSA 4: Wean dose multiple times per day
- PDSA 5: Go to PRN dosing
- PDSA 6: Empowering messaging

Grossman et al’s study found that of the 50 infants, 12% required morphine based on ESC, whereas 62% would have required morphine based on the Finnegan assessment tool. Infants experienced no seizures, NICU admissions, or readmissions (i.e., balancing measures). LOS went from 22.4 to 5.9 days; morphine treatment decreased from 98% of infants to 14%.



Slides 60-62: Implementation of ESC at Virginia CU:

The process included six months of meetings with key stakeholders; in-person education for care providers; learning exchange for nursing staff; and the development of a new unit protocol.

Implementation barriers included: this being a huge practice shift; dual use of Finnegan and ESC tool; staffing model was challenging when the caregiver was not present.



Rourke, S., & Kaufman, S. (2020). Eat, Sleep, Console – Strategies for Implementation Planning. Presentation at Healthy Mothers, Healthy Babies conference, Vancouver.

This PowerPoint conference presentation outlines the process of planning and implementing Eat Sleep Console in the Fraser Health region of BC.

- **Step 1 was “Collect Your Data,”** and it includes gathering background data on: the rate of opioid-exposed infants in the health region; characteristics of the mothers of these infants (average maternal age, average baseline length of stay in hospital for deliveries, percentage of deliveries that were C-sections); characteristics of the newborns (average gestational age; birthweight; average length of stay in hospital).
- **Step 2 was “Identify Your Opportunities”** – i.e., set objectives for improvements in care (e.g., improve patient experience; increase dyad care; decrease newborn LOS; decrease morphine therapy rates; improve breastfeeding rates; decrease NICU admissions).
- **Step 3 was “Assemble a Steering Committee”** within Fraser Health, to support local sites develop and implement plans for ESC. As part of this, the FH ESC Committee developed regional guiding principles (PowerPoint slide 7).
- **Step 4 was “Assemble Site Teams,”** to develop a local implementation plan for ESC, including identifying knowledge translation needs re: ESC and TIP.
- **Step 5 was “Prepare for Site Meeting #1”** (e.g., gather resource materials, videos, etc.; draft meeting aim/focus and agenda; identify ESC “required components”
- **Step 6 was “Plan/Prepare for Site Meeting #2.”**





Thiessen, P. (2019). Optimizing care for Neonatal Abstinence Syndrome.

The learning objectives for this presentation were to increase understanding: 1) of the benefits of rooming-in as a strategy to improve management and outcomes for infants with NAS; 2) that a numeric scoring system may be detrimental to optimal management of NAS; 3) of the “journey” related to rooming-in undertaken by BC Women’s Hospital; and 4) of outcomes for infants with NAS. The presentation discusses:

- Signs and symptoms of NAS
- (Women’s) use of opioids
- NAS incidence in Canada (from 2/1,000 live births in 2004 to 5/1,000 live births in 2014)
- Timing and signs of NAS (because methadone has a long(er) half life, the signs of NAS may not be evident until 2-3 days after birth; thus, practice guidelines are for 3-5 days of observation for methadone)
- Breastfeeding is associated with a decreased need for pharmacological treatment and a decreased duration of treatment, plus negligible transfer of methadone
- Long-term outcomes of NAS: few studies have been conducted that do not have methodological flaws, but mean developmental index is lower at 18 and 36 months; motor delays seen at 9 months; and increased incidence of ADHD/ADD at 7 years
- Overview of Murphy et al’s 2017 survey of Canadian hospitals (re: management of NAS)
- In contrast with the majority of Murphy’s respondents, Thiessen states that BC Women’s Hospital only uses NICU or Level 2 nursery if/when an infant needs a NG feeding tube or IV therapy. Also, in contrast with majority of respondents in Murphy’s study, BC Women’s has “never used the Finnegan assessment tool in over 1,500 infants since 2001”
- Overview of Disher et al’s 2019 meta-analysis of “best NAS treatment,” wherein the primary outcomes were length of stay, length of treatment, need for adjuvant therapy, and adverse events
- Overview of Grossman et al’s 2018 study comparing the Finnegan tool with the ESC assessment/management approach; BC Women’s Hospital staff’s experience with ESC parallels Grossman et al’s findings
- BC Women’s NAS management strategies (non-pharmacological approaches) (pp. 22-24)
- BCWH FIR’s journey (pp. 27-32) ... FIR opened in 2001 as a 12-bed unit that focused on rooming-in for substance-using women
- Concluding messages: 1) rooming-in should be the standard of care; 2) avoid electronic monitoring; 3) avoid the Finnegan scoring system as it results in overtreatment with morphine, so use ESC instead and encourage breastfeeding



Tilberg, A. (2019). Implementing the Eat, Sleep, Console Approach for NAS Management: Review of Literature. Doctor of Nursing Practice (DNP) Practice Innovation Projects. 125.
https://openprairie.sdstate.edu/con_dnp/125

This Doctor of Nursing Practice project was a review of the literature focusing on the implementation of the Eat Sleep Console approach to managing newborns with NAS, with an aim to identify evidence-based practice suggestions for nurses working in acute care hospitals. Three key themes emerged from the literature review: 1) there is a need to improve NAS assessment, and the Finnegan tool is associated with nurse frustration, assessment discrepancies, and inconsistent scoring; 2) family-centred care is essential, rooming-in led to the best outcomes, and nurses need to educate and support parents/caregivers about assessment of withdrawal and effective comfort strategies; and 3) there is a need for well-structured NAS-related protocols, as having these protocols safely reduces pharmacological therapy, length of hospital stay, and health care system costs. In terms of the efficacy of Eat Sleep Console, the literature review concluded: “The ESC approach is an effective, simpler method for the management of infants that utilizes a functional assessment, limiting the subjective assessments applied in the FNAST that can lead to inconsistencies in scores. The ESC offers a standard treatment plan that guides both non-pharmacological and pharmacological care meeting the need for a standardized protocol. Lastly, the ESC approach implements a treatment plan that is family-centered, fostering the family bond by recognizing the mother as the primary caregiver” (pp. 11-12).



Williamson, L. (2020). Neonatal Abstinence Syndrome: A Literature Review.
Saskatchewan Prevention Institute.

The purpose of this report was to provide a thorough description of NAS, including its correlates and effects on mothers and their infants. Information about methods of assessment, care guidelines, and options for managing NAS symptoms are also included, though the author notes that the research literature has been criticized on many grounds, including low sample sizes, lack of consideration of confounding stressors and/or effects of polysubstance exposure, and lack of appropriate comparison groups and/or randomization. The report also briefly discusses NAS prevention strategies and the stigma experienced by pregnant and parenting people who use substances. The report concludes that, overall, there appears to be a lack of cohesive, standardized guidelines for assessing and treating infants with NAS.



Eat Sleep Console reference list

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Thiessen, P. (2018). Neonatal abstinence Syndrome – A better way. *Paediatrics & Child Health*, 428. doi: 10.1093/pch/pxy092



Grey literature on implementation and/or outcomes of Eat Sleep Console

Kimbrough, T. (2019). Eat, Sleep and Console: Changing Landscape for Neonatal Opioid Withdrawal Syndrome. Children's Hospital of Richmond at VCU.

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https://openprairie.sdstate.edu/con_dnp/125

Williamson, L. (2020). Neonatal Abstinence Syndrome: A Literature Review. Saskatchewan Prevention Institute.





Appendix B:

ESC Evaluation Data Collection Tools



Follow-up Survey for UBC CPD Trainees

Introduction & background

You are receiving this brief survey because you completed one or more **PSU/ESC online training** modules offered by **UBC Continuing Professional Development**. This survey is being conducted as part of the Provincial Evaluation of **Eat Sleep Console**.

Eat Sleep Console (ESC) is an evidence-informed model that focuses on the comfort and care of substance-exposed infants by maximizing non-pharmacological interventions and increasing family involvement in the care of the infant. **ESC** has been an important strategy for acute care units in promoting mother-baby togetherness across the province.

To facilitate learning about its implementation, the **Provincial Perinatal Substance Use Project (PPSUP)** has engaged **Nota Bene Consulting Group** (www.notabeneconsulting.ca) to carry out a provincial evaluation of ESC. The information produced through this survey will enable a better understanding of:

- Uptake and impacts of the Perinatal Substance Use Online Modules
- Satisfaction with the training and future training needs
- Application of the training, including in the implementation of Eat Sleep Console

Completing this survey is voluntary. Your responses are anonymous, i.e., individual names and/or hospital names will not be shared or used in any reports.

Personal information is collected under the authority of section 26(c) of the *Freedom of Information and Protection of Privacy Act (FIPPA)*. Survey results will be summarized and used to continue work on improving the implementation of ESC across BC and to identify further training opportunities.

The survey will take about 15 minutes to complete.

Everyone who completes the survey and who provides their email address will be entered in a draw to win **1 of 10 \$25.00 gift cards** to Starbucks. The draw will take place on February 28, 2022.

If you have any questions about this work, please do not hesitate to contact Deborah Rutman or Carol Hubberstey at notabenegroup@shaw.ca.

PLEASE NOTE:

THIS SURVEY IS INTENDED FOR PEOPLE PROVIDING SERVICES OR CARE IN BC, AS WE ARE INTERESTED IN HOW THE TRAINING INFORMATION IS BEING APPLIED IN BC HEALTH CARE SETTINGS



QN 1. Do you provide health care or services in British Columbia?

- Yes
 No

SKIP/DISQUALIFY ACTION:

If the answer to #1 is Yes, go to Section 1. (If the answer is “No,” the respondent will be thanked but will not complete further questions.)

Section 1: Your community and profession/role

QN 2. In what BC health region do you work?

- Fraser Health
 Interior Health
 Northern Health
 Vancouver Coastal Health
 Vancouver Island Health
 First Nations Health Authority
 Providence Health Care
 Provincial Health Services Authority
 Prefer not to say
 Not applicable/not in BC

QN 3. What is your profession/discipline?

- Nurse
 Family Physician
 Nurse Practitioner
 Midwife
 Specialist Physician (please specify)
 Pharmacist
 Resident/Student
 Physio or Physical Therapist
 Other Allied Health
 Other (please specify)



QN 4. In what type of practice setting do you primarily work?

- Maternity and/or birthing unit in a hospital
- Neonatal Intensive Care Unit
- Paediatric Unit in a hospital
- Other unit at a hospital
- Family practice/GP clinic
- Community health centre
- Walk-in clinic
- Speciality clinic
- Other (please specify)
- Not in clinical practice/not applicable

QN 5. Do you provide care/services to perinatal women, birthing parents and/or newborns in an acute care hospital in BC?

- Yes
- No

Section 2: Eat Sleep Console Training/Education (via UBC CPD)

QN 6. I completed the following PSU/ESC online training modules (check all that apply):

- Module 1 (Principles of Care)
- Module 2 (Care During Pregnancy and Labour)
- Module 3 (Care of the Newborn Exposed to Substance Use During Pregnancy)
- Module 4 (Care during transitions and discharge)
- I don't remember



QN 7. Thinking about **Module 3: Care of the Newborn Exposed to Substance Use During Pregnancy**, please indicate your level of agreement with the following statements:

As a result of completing the PSU/ESC online training...	1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree	NA
I have incorporated the principles of ESC and providing care in the context of perinatal substance use into my work						
I have applied knowledge about trauma-informed care into my practice						
I have applied knowledge about Indigenous Cultural Safety into my practice						
I have applied and integrated harm reduction strategies into my practice						
I feel prepared to assess the effects of withdrawal symptoms using the ESC Care Tool						
I employ strategies to increase mother/ birthing parent and infant togetherness care whenever possible						
I support parents to be involved in decisions related to their infant and the use of ESC						
I advocate for application of ESC principles where I work						
I am satisfied with the Perinatal Substance Use module(s) that I completed; the training met my knowledge needs						

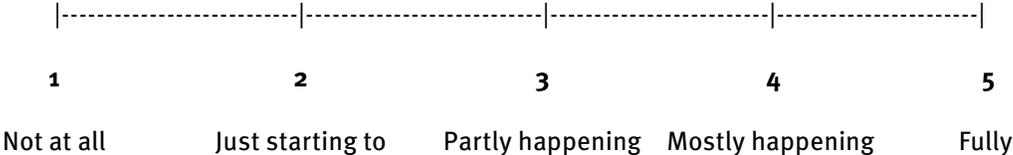
THE NEXT SECTION OF THIS SURVEY IS TO BE ANSWERED BY BC-BASED CARE PROVIDERS WHO WORK IN A HOSPITAL SETTING WITH A PERINATAL AND/OR BIRTHING UNIT.

IF THAT DOESN'T DESCRIBE YOU, PLEASE GO TO SECTION 4. IF YOUR ANSWER TO QUESTION 4 WAS "NO," YOU SHOULD AUTOMATICALLY BE DIRECTED TO SECTION 4.



Section 3: Hospital implementation of Eat Sleep Console

QN 8. Overall, on a scale of 1 to 5, where would you say your hospital is at in terms of implementing Eat Sleep Console?



Central to ESC is the use of the ESC Care Tool and non-pharmacological approaches to caring for infants with symptoms of NAS, including rooming-in; skin-to-skin care; swaddling; low light/quiet environment; breastfeeding; and avoiding waking the infant.

QN 9. Thinking about the hospital in which you work, overall, on a scale of 1-5, please indicate the degree to which it is implementing components of ESC and non-pharmacological approaches to care/management of infants with NAS:

	1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree	NA	Not Applicable
Using the ESC Care Tool							
Rooming-in; mother-baby togetherness							
Encouraging skin-to-skin care							
Encouraging breastfeeding							
Avoiding waking the infant							
Low light; quiet environment							
Parent education & support re: ESC							



Section 4: Eat Sleep Console Implementation

QN 10. Thinking about the PSU/ESC online training, what were the top three things that you gained in terms of your practice?

QN 11. What if anything gets in the way of you being able to implement the guiding principles and practices associated with ESC?

QN 12. Do you have any suggestions to increase or improve implementation of ESC?

QN 13. Do you have any final comments that you'd like to make?

Thank you very much for completing this survey!



Interview Guide for Regional PSU/ESC Leads

Introduction & background

Thank you for taking the time to do this interview. This interview is being conducted as part of the provincial evaluation of **Eat Sleep Console**. As you know, *Eat Sleep Console* is a newer approach and is at different stages of implementation across BC Health Authorities.

To facilitate learning about its implementation, the **Provincial Perinatal Substance Use Project** (PPSUP) has engaged **Nota Bene Consulting Group** (www.notabeneconsulting.ca) to carry out a provincial evaluation of ESC. The evaluation will be in phases.

The information produced through this interview will enable a better understanding of:

Key factors associated with ESC implementation at BC acute care hospital sites

Uptake and impacts of online ESC training and education

Participating in an interview is voluntary. Your responses will be anonymous, i.e., individual names and/or hospital names will not be shared or used in any reports. Interview data will be summarized and used to continue work on improving the implementation of ESC across BC.

The interview will take about 1 hour to complete. If you have any questions about this work, please do not hesitate to contact Deborah Rutman or Carol Hubberstey at notabenegroup@shaw.ca.

Date of interview: _____

Name (Initials?) of interviewee: _____

Discipline/role: _____

Unit/hospital/Health Authority: _____



Re: Eat Sleep Console Implementation Planning

1. How long have you been on the regional ESC planning/implementation committee?

2. What professions/disciplines are represented within the regional planning group?

Implementation strengths/successes

3. Which hospitals in your Health Authority are implementing (or have begun to implement) ESC?

4. In terms of implementation of ESC, what have been your Health Authority's overall top 3 planning or implementation strengths/successes/milestones to date?

5. In terms of implementation of ESC, what have been the top planning or implementation successes within the hospitals that are further along in their implementation journey?

6. What do you think are the key factors enabling these milestones/successes?



7. For the hospitals/units that are beginning to implement/implementing ESC, what does implementation look like?

Probe: for example, what is happening in terms of:

- Using the ESC Care Tool
- Rooming-in/mother-infant dyad care
- Physical space for rooming-in
- Using additional non-pharmacological approaches to care/management of NAS
- NICU admissions
- Pharmacological treatment of NAS symptoms

Implementation challenges/barriers

8. What have been your Health Authority’s top 3 implementation challenges or barriers to date?

9. For the hospitals in your Health Authority that aren’t using the ESC Care Tool as the standard approach, what is/are the main barrier(s)?

10. For the hospitals in your Health Authority that haven’t begun or are only starting to adopt rooming-in and/or other non-pharmacological approaches, what is/are the main barrier(s)?

11. How has implementation of ESC evolved over time? i.e., have you had to adjust your original plans in terms of implementation?



Re: Training of hospital-based care providers

12. In your view, how helpful has the UBC CPD foundational training been in terms of supporting or preparing the Health Authority to adopt ESC?

13. Were there any aspects of the training that could be improved or that you think should be included but weren't? If so, please describe.

Re: Outcomes of Eat Sleep Console

Recognizing it's still early days for most BC hospitals in terms of implementing ESC, we are still interested in your perspective on the possible outcomes of Eat Sleep Console.

14. Do you think that you have seen enough patients in your health authority who have experienced Eat Sleep Console to be able to assess possible outcomes?

15. If so, in your view, what difference is ESC making in terms of:

- How patients with (prior or current) substance use issues during pregnancy are received/treated?
- Percentage of patients accessing rooming-in or mother-infant dyad care?
- Percentage of newborns receiving non-pharmacological treatments as standard practice?
- Percentage of newborns with NAS symptoms admitted to NICU?
- Length of stay in NICU for newborns with symptoms of NAS?
- Percentage of newborns with NAS symptoms receiving pharmacological treatment?





Appendix C:

Summary data on UBC CPD follow-up survey respondent demographics



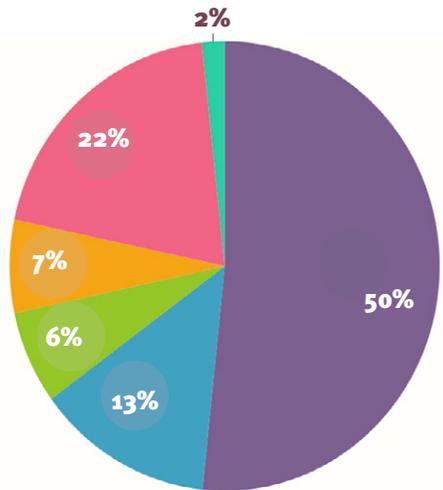
Eat, Sleep, Console (ESC)

UBC CPD Follow up Survey Preliminary Findings

Overview

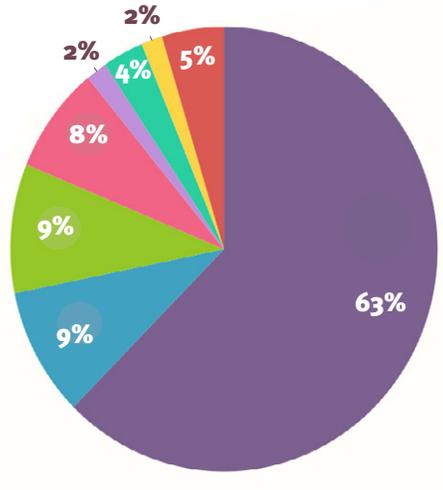
The provincial evaluation of ESC conducted a follow up survey of people who completed one or more PSU/ESC online training modules offered by UBC Continuing Professional Development. The survey invite was emailed to 1,102 people. Of these, 472 opened the email; 629 people did not. A total of 74 completed the survey. This represents a **12% response rate** amongst those who opened the invite. **18%** of respondents (n=14) were from outside BC; they did not complete the other questions in the survey.

Who completed the survey



In what BC health region do you work?

- Fraser Health
- Interior Health
- Northern Health
- Vancouver Coastal Health
- Vancouver Island Health
- Providence Health Care



What is your profession/discipline?

- Nurse
- Family Physician
- Other Allied Health
- Specialist Physician
- Nurse Practitioner
- Midwife
- Resident/student
- Other – Write In

