Université de Montréal
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Ce rapport de stage intitulé :
Intervention éducationnelle infirmière visant la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein

présenté par
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Résumé

La transition du gavage vers l'allaitement au sein constitue un défi important pour les nouveau-nés prématurés lors de leur hospitalisation à l'unité de soins intensifs néonatals (USIN). Plusieurs interventions favorisent cette transition, telles que la succion non-nutritive et la stimulation orale, ainsi que la promotion de l'allaitement au sein et l'évitement des biberons. Cependant, celles-ci sont peu utilisées par les infirmières dans les USIN. La persistance de croyances contraignantes, ainsi que le manque de connaissances spécifiques reliées à l'allaitement au sein des nouveau-nés prématurés, peuvent expliquer la présence de cette pratique infirmière sous-optimale non basée sur les résultats probants dans les USIN. Afin de pallier cette situation, une intervention éducationnelle visant une transition des nouveau-nés prématurés du gavage à l'allaitement au sein a été développée, mise à l'essai et évaluée auprès de six infirmières d'une USIN.

Basée sur le modèle Iowa Model for Evidence-Based Practice (Titler et al., 2001), cette intervention éducationnelle, divisée en trois ateliers, visait une pratique basée sur les résultats probants lors de la transition des nouveau-nés prématurés vers l'allaitement au sein et ciblait un changement dans la pratique, les croyances et les connaissances des infirmières. Un questionnaire pré et post-intervention, ainsi qu'un questionnaire d'appréciation, furent administrés aux infirmières. Aussi, un outil clinique regroupant les stades de développement de l'oralité du nouveau-né prématuré ainsi que les interventions favorisant la transition vers l'allaitement au sein a été développé et remis aux infirmières participantes. Suite à l'intervention, ces dernières ont non seulement rapporté leur satisfaction en lien avec l'intervention éducationnelle, mais aussi une amélioration de leur pratique, de leurs croyances et de leurs connaissances en lien avec la transition des nouveau-nés prématurés vers l'allaitement au sein.

Mots-clés : Intervention éducationnelle, transition, allaitement au sein, nouveau-nés prématurés, modèle d'Iowa

Abstract

Transitioning preterm infants from gavage to direct breastfeeding during their hospitalization in neonatal intensive care units (NICU) is a challenging step. While this vulnerable population could benefit from interventions promoting an evidence-based transition such as non-nutritive sucking and oral stimulation, as well as promotion of direct breastfeeding experience and avoidance of bottles, the implementation of these interventions remains suboptimal in the NICUs. The persistence of restrictive beliefs as well as the lack of specific knowledge related to breastfeeding preterm infants may explain the suboptimal nursing practices related to the transition of preterm infants from gavage to direct breastfeeding in the NICUs. Thereby, an educational intervention supporting an evidence-based transition from gavage to direct breastfeeding was designed, piloted and evaluated with six NICU nurses.

Based on the model Iowa Model for Evidence-Based Practice (Titler et al., 2001), the educational intervention, divided into three workshops, aimed an evidence-based transition of preterm infants to direct breastfeeding through a change in nurses' practice, beliefs and knowledge. A pre and post-intervention questionnaire, as well as an evaluation questionnaire were administered to participant nurses. In addition, a clinical tool encompassing preterm infants' oral development stages and interventions promoting a transition from gavage to direct breastfeeding was designed and given to participating nurses. After the intervention, participants reported their satisfaction with the educational intervention, as well as an improvement in their practice, knowledge and beliefs related to the transition of preterm infants from gavage to direct breastfeeding.

Keywords: Educational intervention, transition, direct breastfeeding, preterm infants, Iowa model

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"Success is not final, failure is not fatal:

it is the courage to continue that counts."

Winston Churchill

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Introduction

L'hospitalisation des nouveau-nés prématurés dans les unités de soins intensifs néonatals (USIN) est parsemée de défis divers, incluant la transition du gavage vers l'alimentation orale. Cette période, relativement critique, débute au moment où une alimentation orale est introduite chez le nouveau-né prématuré jusqu'à l'atteinte d'une alimentation orale exclusive (Thoyre, 2003), idéalement un allaitement au sein (Black, 2012; Buckley et Charles, 2006; Nye, 2008). Une transition réussie du nouveau-né prématuré vers l'allaitement au sein lui permettra, entre autres, de bénéficier d'une amélioration de son oxygénation et de sa thermorégulation, d'influencer positivement son développement oral et de profiter des avantages du contact peau à peau avec sa mère (Buckley et Charles, 2006).

Pour accompagner efficacement les nouveau-nés prématurés durant cette période de transition, les écrits scientifiques proposent plusieurs interventions ayant montré un impact positif sur l'augmentation des taux d'allaitement partiel et exclusif (Pimenta et al., 2008; Pineda, 2011), la réduction du temps de transition du gavage vers un allaitement partiel ou exclusif (Kirk, Alder, et King, 2007; Nyqvist, 2008) et la diminution de la durée d'hospitalisation (Yildiz et Arikan, 2012). Ces interventions permettent de promouvoir la transition du gavage vers l'allaitement au sein et peuvent être regroupées sous quatre catégories (Ziadi, Héon, et Aita, soumis), soit la succion non-nutritive et la stimulation orale (Bache, Pizon, Jacobs, Vaillant, & Lecomte, 2014; Harding, Frank, Van Someren, Hilari, et Botting, 2014; Medeiros et al., 2011; Pimenta et al., 2008; Yildiz et Arikan, 2012), la promotion de l'allaitement au sein et l'évitement des biberons (Collins, Makrides, Gillis, et McPhee, 2008; de Aquino et Osorio, 2009; Pineda, 2011; Yilmaz, Caylan, Karacan, Bodur, et Gokay 2014), l'exposition à l'odeur du lait maternel (Raimblault, Saliba, & Porter, 2007; Yildiz, Arikan, Gözüm, Tastekin, et Budancamanak, 2011), ainsi que l'alimentation orale

basée sur le développement oromoteur du nouveau-né prématuré (Kirk et al., 2007; Nyqvist, 2008).

Toutefois, l'implantation de ces interventions, dont les effets positifs ont été étudiés dans les écrits scientifiques, demeure sous-optimale dans les USIN (Dodrill, McMahon, Donovan, et Cleghorn, 2008). Cette pratique infirmière non basée sur les résultats probants peut être expliquée par la persistance de croyances erronées entourant la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein (Nyqvist, 2013), ainsi que le manque de connaissances spécifiques reliées à l'allaitement au sein des nouveau-nés prématurés (Bernaix, Schmidt, Arrizola, Iovinelli, et Medina-Poelinez, 2008; Nyqvist et Kylberg, 2008). Certains auteurs rapportent effectivement une grande variabilité des pratiques de transition vers une alimentation orale (Breton et Steinwender, 2008; Dodrill et al., 2008; Jones, 2011) et l'absence d'une pratique de transition basée sur les résultats probants (Dodrill et al., 2008). Par exemple, la prédominance d'une culture de transition basée sur les quantités ingérées par les nouveau-nés prématurés persiste dans les USIN (Brière, McGrath, Cong, et Cusson, 2014). Comme l'atteinte d'une alimentation orale exclusive est fréquemment un critère de congé de l'USIN (American Academy of Pediatrics, 1998; Pickler, Best, et Crosson, 2008), les nouveau-nés prématurés sont souvent amenés à progresser rapidement, et ce, aux dépens de leur développement oral (White et Parnell, 2013). Ainsi, la capacité orale du nouveau-né prématuré n'est souvent pas prise en considération lors de la transition du gavage vers une alimentation orale (Brière et al., 2014; White et Parnell, 2013). Par conséquent, les nouveau-nés prématurés se retrouvent aux prises avec des difficultés, telles que le développement d'une aversion orale, pouvant retarder davantage l'obtention du congé de l'USIN (Jones, Morgan, et Shelton, 2002).

Par ailleurs, plusieurs croyances erronées en ce qui a trait à la transition vers l'allaitement maternel persistent encore chez les infirmières dans les USIN (Black, 2012; Nyqvist, 2005; Nyqvist, 2013), et peuvent retarder la mise au sein du nouveau-né prématuré (Nyqvist, 2013). Ces croyances erronées, non basées sur les résultats probants, incluent par exemple que la succion non-nutritive devrait être retardée jusqu'à l'atteinte d'un certain âge gestationnel, que le nouveau-né prématuré qui s'alimente bien au sein devrait démontrer les mêmes signes qu'un nouveau-né à terme, qu'un allaitement réussi implique que le nouveau-né prématuré ingère un certain volume de lait avec un horaire pré-établi, et que les nouveau-nés prématurés allaités au sein sont hospitalisés plus longtemps à cause d'un gain pondéral insuffisant (Nyqvist, 2013).

Enfin, dans le contexte particulier des USIN, un soutien adéquat des nouveau-nés prématurés et de leurs mères lors de la transition vers l'allaitement au sein nécessite des connaissances spécifiques de la part des infirmières (Callen et Pinelli, 2005; Nye, 2008; Spatz, 2004). Or, les mères rapportent non seulement plusieurs incohérences dans les conseils qu'elles reçoivent des infirmières concernant la transition vers l'allaitement au sein de leurs nouveau-nés prématurés, mais constatent aussi leur manque de connaissances (Bernaix et al., 2008; Pineda, Foss, Richards, et Pane, 2009). Les infirmières estiment aussi manquer de connaissances concernant la gestion de l'allaitement, malgré les mesures et les politiques implantées en vue de promouvoir l'allaitement (Spatz, 2005). En conséquence, des programmes de formation abordant les éléments cruciaux et spécifiques à la population des USIN, telle que la transition à l'allaitement au sein, devraient être suggérés aux infirmières (Bernaix et al., 2008).

À l'instar d'unités néonatales sondées dans les écrits (Dodrill et al., 2008), l'USIN où s'est déroulée l'intervention éducationnelle ne possède pas de politique claire et formelle encadrant la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés. Afin de mieux soutenir la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein, il s'est avéré pertinent de développer, de mettre à l'essai et d'évaluer, auprès d'infirmières de cette USIN, une intervention éducationnelle. Cette intervention éducationnelle, basée sur les résultats probants, aspirait à accroître les connaissances des infirmières et à ébranler leurs croyances en lien avec cette transition. Le cadre conceptuel *Iowa Model for Evidence-Based Practice* (Titler et al., 2001) a été utilisé pour guider cette intervention éducationnelle. Ce modèle se présente sous la forme d'un processus qui facilite la prise de décision et dont la finalité est l'implantation d'une pratique basée sur les résultats probants (Titler et al., 2001).

Ce rapport de stage se divise en plusieurs parties. Dans un premier temps, les modalités du stage, incluant le but du stage, les objectifs de stage et d'apprentissage, le milieu de stage, l'intervention éducationnelle, ainsi qu'une analyse réflexive sur l'atteinte des objectifs de stage et d'apprentissage, seront exposées. Dans un deuxième temps, un article scientifique sera présenté. Ce dernier vise à disséminer les résultats en lien avec le développement, la mise à l'essai et l'évaluation d'une intervention éducationnelle favorisant la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés. L'article clarifiera la méthode utilisée dans le cadre de l'intervention éducationnelle et présentera les résultats obtenus. Enfin, dans la discussion, les retombées de l'intervention éducationnelle seront discutées et des recommandations pour la pratique infirmière ainsi que pour la recherche seront émises.

Modalités de stage

But du stage

Le but de ce stage était de développer, de mettre à l'essai et d'évaluer, auprès d'infirmières d'une USIN, une intervention éducationnelle visant une pratique basée sur les résultats probants lors de la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

Objectifs de stage

Cinq objectifs ont été visés lors de ce stage : (1) évaluer, à l'aide d'un questionnaire, la pratique actuelle, de même que les croyances et les connaissances d'infirmières dans le milieu de stage en ce qui a trait à la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés; (2) développer, en collaboration avec l'infirmière clinicienne spécialisée, une intervention éducationnelle visant une pratique infirmière basée sur les résultats probants en lien avec la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés; (3) mettre à l'essai l'intervention éducationnelle auprès d'infirmières de l'USIN; (4) évaluer, à l'aide d'un questionnaire, la satisfaction des infirmières au regard de l'intervention éducationnelle et (5) évaluer, à l'aide du même questionnaire qu'en pré-intervention, la pratique, de même que les croyances et les connaissances des infirmières ayant reçu l'intervention éducationnelle quant à transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

Objectifs d'apprentissage

L'étudiante avait ciblé plusieurs objectifs d'apprentissage dans le cadre de son stage de maîtrise, notamment : (1) bonifier, à travers la recension des écrits, ses connaissances en ce

qui a trait au développement de l'oralité et aux interventions infirmières favorisant la transition du gavage vers l'allaitement chez les nouveau-nés prématurés; (2) développer ses compétences de pratique infirmière avancée, telles que le coaching, la collaboration, le leadership, l'enseignement, la pratique basée sur les résultats probants, et la recherche (Hamric, Spross, et Hanson, 2008) et (3) mener le développement, la mise à l'essai et l'évaluation d'une intervention visant une pratique basée sur les résultats probants en lien avec la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

Milieu de stage

Le stage s'est déroulé à l'USIN de l'Hôpital Général Juif (HGJ) de Montréal. Cette unité, divisée en trois sections (les soins intensifs, les soins intermédiaires et la convalescence), a une capacité de 34 lits et accueille des nouveau-nés à terme et prématurés. L'HGJ compte plus de 4500 accouchements à chaque année (HGJ, 2014). Selon les données les plus récentes datant de 2012-2013, l'USIN de l'HGJ admet environ 619 nouveau-nés annuellement. L'unité emploie 110 infirmières.

Intervention

L'intervention éducationnelle a eu lieu de novembre à décembre 2014 et comptait trois ateliers. Sept infirmières de l'USIN de l'HGJ ont participé au premier atelier et six infirmières ont complété les trois ateliers de l'intervention éducationnelle.

Le cadre de référence qui a soutenu cette intervention est le *Iowa Model for Evidence-Based Practice to Promote Quality Care* (Titler et al., 2001). Ce modèle a été utilisé comme guide lors du développement, de la mise à l'essai et de l'évaluation de l'intervention éducationnelle qui visait à instaurer une pratique basée sur les résultats probants en lien avec

la transition du gavage vers l'allaitement au sein. Le *Iowa Model for Evidence-Based Practice to Promote Quality Care* (Titler et al., 2001) se présente sous la forme d'un algorithme qui facilite la prise de décision et l'implantation d'une pratique basée sur les résultats probants (Titler et al., 2001). Selon ce modèle, le changement de pratique s'opère en huit étapes : 1) l'identification d'un déclencheur, 2) l'identification de la priorité de la problématique au sein de l'organisation, 3) la formation d'une équipe responsable du développement, de l'implantation et de l'évaluation des meilleures pratiques, 4) la recension des écrits, 5) la critique et la synthèse des écrits, 6) la mise à l'essai du changement de pratique, 7) l'adoption du changement de pratique, et 8) l'analyse du processus et des résultats (Titler et al., 2001). La sixième étape, qui consiste en la mise à l'essai du changement de pratique, inclut pour sa part: 1) sélectionner des indicateurs et résultats à atteindre, 2) recueillir des données de base, 3) développer l'intervention éducationnelle, 4) mettre à l'essai l'intervention éducationnelle, 5) évaluer le processus et les résultats obtenus, et 6) adapter l'intervention éducationnelle. Pour les besoins du stage, seules les cinq premières étapes de la mise à l'essai du changement de pratique ont été mises à l'œuvre.

L'intervention éducationnelle a été divisée en trois ateliers de 45 minutes qui ont été offerts au même groupe d'infirmières sur une période de trois semaines. Le choix des ateliers comme modalité de l'intervention éducationnelle a été motivé par plusieurs raisons. Selon Ploeg, Davies, Edwards, Gifford, et Miller (2007), une intervention éducationnelle visant un groupe réduit de participants et favorisant les interactions sociales facilite l'implantation d'un changement de pratique basée sur les résultats probants. De plus, selon Bernaix et ses collaborateurs (2008), une intervention éducationnelle brève, en lien avec l'allaitement et

incluant des marches à suivre pratiques, permet d'améliorer significativement les connaissances des infirmières.

Par ailleurs, l'étude de cas a été la stratégie pédagogique retenue pour l'intervention éducationnelle. Cette stratégie se base sur l'exposition d'un scénario aux participants qui doivent résoudre une problématique intégrant les apprentissages visés par l'intervention éducationnelle (Bradshaw et Lowenstein, 2013). Le scénario proposé lors de cette dernière est inspiré d'une situation réelle pouvant être rencontrée par les infirmières dans leur pratique et fut révisé par des professionnels de la santé impliqués dans la gestion de la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein, soit la nutritionniste, l'infirmière clinicienne spécialisée et une conseillère en lactation de l'USIN. Cette approche comporte plusieurs avantages. En effet, l'implication des participants dans leur apprentissage favorise grandement leur motivation et leur capacité à résoudre des problèmes reliés à la problématique exposée (Chamberland, Lavoie, et Marquis, 2011). De plus, les discussions en plénière favorisent les confrontations d'idées entre les participants, enrichissant ainsi les apprentissages (Chamberland et al., 2011). Cette approche aide à augmenter la confiance des participants en leur capacité à résoudre des problèmes qui surviennent dans leur pratique (Chamberland et al., 2011). Ainsi, le cas étudié a servi de point d'ancrage pour les participantes puisqu'elles pourront s'y référer lorsqu'elles auront à gérer une situation de transition vers l'allaitement au sein. En combinant plusieurs méthodes lors de l'intervention éducationnelle (étude de cas, exposé magistral, discussions en plénière, outil clinique), les chances de réussite du transfert de connaissances sont augmentées (Grimshaw et al., 2001).

Lors du premier atelier, le formulaire de consentement (Annexe A), préalablement approuvé par le comité d'éthique de l'HGJ (Annexe B), a été expliqué aux participantes afin

d'obtenir un consentement libre et éclairé. Elles ont par la suite été invitées à compléter le questionnaire pré-intervention, de type échelle de Likert, comportant 26 énoncés (Annexe C). Ces dernières abordaient la pratique, les croyances, et les connaissances en lien avec la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein. Une section sociodémographique à la fin du questionnaire a permis de dresser un bref portrait des participantes à l'intervention éducationnelle (Annexe C). Par la suite, une présentation magistrale a permis d'exposer les différents stades de développement de l'oralité chez le nouveau-né prématuré aux infirmières. Enfin, le cas type (Annexe D) a été présenté aux infirmières. En équipe, elles ont été invitées à proposer des interventions pour soutenir la transition du gavage vers l'allaitement au sein. Les plans thérapeutiques infirmiers (PTI) qui en ont résulté ont été recueillis par l'étudiante comme références pour l'atelier 3.

Lors du deuxième atelier, chacune des catégories d'interventions en lien avec la transition du gavage vers l'allaitement au sein a été présentée (Annexe E). Une description de chacune des catégories d'interventions ainsi que les méthodes de leur mise en application auprès des nouveau-nés prématurés ont été exposées aux infirmières participantes. Par la suite, les résultats des questionnaires pré-intervention ont été dévoilés aux participantes. L'objectif principal derrière cette présentation était d'exposer les croyances les plus répandues au sein du groupe et de les confirmer ou les réfuter avec des données probantes.

Enfin, lors du troisième atelier, les infirmières ont dû revoir leur PTI élaboré lors du premier atelier, à la lumière des apprentissages effectués. L'outil clinique, sous forme d'aide-mémoire, leur a été remis lors de cet atelier (Annexe F). Elles ont ainsi pu s'en servir pour réviser le PTI développé lors du premier atelier. Un retour en plénière a permis le partage de la mise à jour des PTI. À la fin de l'atelier, un questionnaire post-intervention (Annexe G),

comportant les mêmes 26 énoncés du questionnaire pré-intervention, a été administré afin d'évaluer l'évolution de la pratique, des croyances et des connaissances des participantes. De plus, l'appréciation de l'intervention éducationnelle a été évaluée grâce à un questionnaire, de type échelle de Likert, comportant 10 questions (Annexe H).

Dans le but de promouvoir la formation continue des infirmières, l'intervention éducationnelle a été accréditée par la Faculté des sciences infirmières (FSI) de l'Université de Montréal (Annexe I). Un total de 2.5 heures a été octroyé comme heures de formation continue aux six infirmières ayant pris part aux trois ateliers de l'intervention éducationnelle.

Analyse réflexive sur l'atteinte des objectifs de stage et d'apprentissage

Le stage a été une expérience fort enrichissante qui a permis non seulement d'acquérir mais aussi de consolider plusieurs connaissances et de développer des compétences en lien avec une pratique infirmière avancée. Dans le but d'identifier les éléments facilitateurs et les barrières rencontrés afin d'en extraire des apprentissages pouvant être utilisés ultérieurement, un retour sur les objectifs de stage et les objectifs d'apprentissage préalablement ciblés par l'étudiante s'avère nécessaire.

Analyse réflexive sur l'atteinte des objectifs de stage

Objectif 1 : Évaluer, à l'aide d'un questionnaire, la pratique actuelle, de même que les croyances et les connaissances d'infirmières dans le milieu de stage en ce qui a trait à la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

La transition des nouveau-nés prématurés du gavage vers l'allaitement au sein est un processus complexe impliquant plusieurs étapes et s'étalant sur une durée variable. Étant donné la durée relativement courte du stage et la nature des soins en USIN, une observation de la pratique directe en lien avec la transition à l'USIN aurait été difficile à mettre en œuvre. Dans cette optique, un questionnaire pré-intervention éducationnelle a été développé par l'étudiante. Ce questionnaire, de type Likert à 5 niveaux (Annexe C), comportait 26 énoncés évaluant la pratique, les croyances et les connaissances des infirmières de l'USIN. Les libellés étaient formulés en se basant sur la recension des écrits effectuée avant le début du stage et regroupaient les croyances les plus répandues en USIN ainsi que les connaissances et la pratique en lien avec la transition du gavage vers l'allaitement au sein. L'utilisation de ce questionnaire a effectivement permis d'atteindre l'objectif principal et a aussi permis de cibler les besoins en formation des infirmières de l'USIN, notamment en ce qui a trait aux interventions permettant de promouvoir la transition du gavage vers l'allaitement au sein et aux particularités de l'allaitement au sein des nouveau-nés prématurés.

Objectif 2 : Développer, en collaboration avec l'infirmière clinicienne spécialisée, une intervention éducationnelle visant une pratique infirmière basée sur les résultats probants en lien avec la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

L'étudiante a débuté le développement des documents en lien avec l'intervention éducationnelle en même temps qu'elle rédigeait son document du comité d'approbation. Comme il n'existe actuellement pas de questionnaire permettant d'évaluer les pratiques, les croyances et les connaissances des infirmières en lien avec la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein, l'étudiante s'est basée sur les résultats de sa

recension des écrits afin de développer un questionnaire qui a été utilisé à cet effet en pré et en post-intervention. Par la suite, des démarches ont été entreprises afin d'obtenir l'approbation de l'intervention éducationnelle par le comité de la convenance et le comité d'éthique de l'hôpital où a eu lieu le stage. Une fois l'approbation des deux comités obtenue, l'étudiante a pu rencontrer différents professionnels de la santé œuvrant au sein de l'USIN afin d'évaluer la pratique actuelle en lien avec la transition. Dans cette optique, une rencontre organisée par l'infirmière clinicienne spécialisée a permis de regrouper l'expertise d'une nutritionniste, ainsi que d'une infirmière éducatrice et conseillère en lactation. Les questions posées par l'étudiante (Annexe J) lors de cette rencontre ont permis de dresser un portrait fiable de la pratique actuelle de transition du gavage vers l'allaitement au sein dans l'USIN, ainsi que du travail de collaboration de ces professionnels lors de cette transition. Les résultats de cette rencontre ont été pris en considération lors du développement de l'intervention éducationnelle. Le contenu de la formation a été élaboré en se basant sur les résultats cette rencontre ainsi que ceux du questionnaire pré-intervention, l'objectif ultime étant de répondre aux besoins spécifiques en formation des infirmières participantes.

L'apport et le soutien de l'infirmière clinicienne spécialisée lors du stage ont été, indéniablement, des facteurs facilitant l'atteinte de cet objectif. Bien que la recension des écrits ait permis le regroupement des connaissances en lien avec la transition du gavage vers l'allaitement au sein, la mise en œuvre de l'intervention éducationnelle n'aurait été possible sans l'étroite collaboration de l'étudiante avec l'infirmière clinicienne spécialisée. Son expertise a notamment permis d'orienter les besoins en formation des infirmières de l'USIN. De plus, sa connaissance de la culture et des particularités du milieu de soins a permis le développement d'une intervention éducationnelle adaptée à l'USIN.

Par ailleurs, on ne peut passer sous silence la contribution des directrices de maîtrise dans le développement de l'intervention éducationnelle. En effet, leurs rétroactions dans des délais relativement serrés ainsi que leur soutien constant ont permis à l'étudiante de rencontrer l'échéancier de l'intervention éducationnelle.

Objectif 3 : Mettre à l'essai l'intervention éducationnelle auprès d'infirmières de l'USIN.

L'atteinte de cet objectif a été particulièrement ardue dû au fonctionnement par rotation des horaires des infirmières et les courts délais entre la tenue des ateliers. Cependant, l'objectif a été atteint grâce à la mise en place de plusieurs éléments. Ces derniers englobent l'utilisation de mesures incitatives sous la forme d'heures de formation continue (2,5 heures) accréditées par la Faculté des sciences infirmières de l'Université de Montréal (Annexe I) ainsi qu'un outil clinique (Annexe F) qui ont été offerts aux infirmières participant aux trois ateliers de l'intervention. De plus, un autre élément clé ayant favorisé l'atteinte de cet objectif est la grande implication de l'infirmière clinicienne spécialisée. Cette implication a été particulièrement appréciable lors du recrutement des infirmières participantes à l'intervention éducationnelle et de la planification des ateliers. Tout d'abord, avec la collaboration de l'infirmière clinicienne spécialisée, un message de recrutement rédigé par l'étudiante a été envoyé à l'ensemble des infirmières de l'USIN (Annexe K). L'étudiante s'est aussi rendue sur l'unité de soins afin de présenter son intervention éducationnelle aux infirmières de l'USIN. À la suite de ce processus de recrutement, l'étudiante a dû faire preuve de beaucoup de flexibilité et de disponibilité afin d'offrir les ateliers aux infirmières participantes à des moments qui leur convenaient. La conjugaison de toutes ces mesures a grandement favorisé l'atteinte de l'objectif.

Objectif 4 : *Évaluer, à l'aide d'un questionnaire, la satisfaction des infirmières au regard de l'intervention éducationnelle.*

L'atteinte de cet objectif a été réalisée à travers l'administration d'un questionnaire d'appréciation de l'intervention éducationnelle. Ce questionnaire, comportant six questions, fut administré à la fin du troisième atelier et a permis aux infirmières d'exprimer leurs opinions concernant le contenu de l'intervention éducationnelle et son format. Comme l'intervention éducationnelle fut accréditée comme formation continue par la FSI, l'étudiante s'est aussi conformée aux exigences facultaires en ce qui a trait à l'évaluation de l'appréciation de l'intervention.

Objectif 5 : *Évaluer, à l'aide du même questionnaire qu'en pré-intervention, la pratique, de même que les croyances et les connaissances des infirmières ayant reçu l'intervention éducationnelle quant à transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.*

Un questionnaire post-intervention, comportant les mêmes 26 libellés du questionnaire pré-intervention, a été élaboré et administré à la fin du troisième atelier. Cela a permis d'atteindre cet objectif avec succès. L'évaluation de la pratique, des croyances et des connaissances des infirmières participantes à la suite de la mise à l'essai de l'intervention éducationnelle a pu être effectuée ainsi. La comparaison des réponses en pré et post-intervention a permis de constater l'évolution de la pratique, des croyances et des connaissances des infirmières participantes.

Analyse réflexive sur l'atteinte des objectifs d'apprentissage

Objectif 1 : Approfondir, à travers la recension des écrits, les connaissances de l'étudiante en ce qui a trait au développement de l'oralité et aux interventions infirmières favorisant la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

Ce premier objectif personnel a été atteint avec succès, car nonobstant son expertise clinique en néonatalogie, l'étudiante a pu approfondir ses connaissances en lien avec le développement de l'oralité chez les nouveau-nés prématurés, ainsi que les interventions favorisant la transition du gavage vers l'allaitement au sein. Cet approfondissement des connaissances s'est notamment effectué à travers une recension des écrits effectuée dans le cadre du cours SOI 6139 – Thèmes spéciaux. D'ailleurs, les résultats de cette recension ont fait l'objet d'un article qui a été soumis à la revue *Journal of Perinatal and Neonatal Nursing*.

Il est important de souligner le rôle du cheminement académique durant la maîtrise dans le succès de cette recension. En effet, pour être en mesure d'effectuer ce travail, la mobilisation des acquis préalables, tels que l'utilisation des bases de données scientifiques (activité de formation offerte par la bibliothèque paramédicale de l'Université de Montréal) ainsi que le cours SOI 6102 – Recherche et pratique infirmière, a été indispensable.

En élaborant sa recension des écrits, l'étudiante a pu accroître ses connaissances quant au développement de l'intervention éducationnelle. De plus, cela a eu pour effet d'enrichir les échanges avec les professionnels de la santé, de même qu'avec les infirmières participantes lors des ateliers.

Objectif 2 : Développer les compétences de pratique infirmière avancée chez l'étudiante, telles que l'expertise-conseil, la consultation, la recherche, le leadership, la collaboration, la prise de décision éthique.

La pratique infirmière avancée nécessite la mise en place de plusieurs compétences (Hamric, Spross, & Hanson, 2008). Ces dernières ont été sollicitées ou développées à divers stades de l'avancement du projet de stage, ce qui a permis la réalisation de cet objectif. En effet, le recours aux habiletés reliées à la compétence d'expertise-conseil a été mis en pratique lors de la planification et de la réalisation des étapes de l'intervention éducationnelle. Durant le développement et la mise à l'essai de cette dernière, l'étudiante a pu recourir à son expérience en tant qu'auxiliaire d'enseignement à la FSI de l'Université de Montréal. L'expérience d'enseignement en milieu clinique a néanmoins été une nouveauté pour l'étudiante et a permis de consolider ses acquis préalables. Les commentaires, fort encourageants, des infirmières participant à l'intervention éducationnelle ont confirmé l'atteinte de cet objectif.

Par ailleurs, l'étudiante a pu mettre en pratique son rôle de consultante auprès des infirmières participantes lors des ateliers de l'intervention éducationnelle. En effet, elles ont souvent discuté de certaines situations issues de leur pratique clinique dans le but d'obtenir l'avis de l'étudiante ou des suggestions d'interventions pouvant être mises en pratique auprès de leurs patients.

Aussi, la contribution de l'étudiante à la compétence de recherche se traduit par plusieurs activités. Tout d'abord, l'étudiante a présenté les résultats de sa recension des écrits au 84^{e} congrès de l'Association francophone pour le savoir (Acfas). Elle a aussi, de concert

avec les directrices de maîtrise, opté pour la rédaction du rapport de stage par article en anglais, selon les directives de la revue *Journal of Neonatal Nursing* (Annexe L), ce qui permettra de disséminer la démarche suivie durant le développement, la mise à l'essai et l'évaluation des retombées de l'intervention éducationnelle. Des présentations du projet et des résultats à des congrès sont aussi prévues, notamment lors du 6e Congrès mondial du Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIIEF), ainsi que lors du 85e congrès de l'Acfas. L'étudiante a, par ailleurs, complété plusieurs demandes de bourses et de subvention durant son cheminement à la maîtrise afin de sécuriser les fonds nécessaires permettant non seulement la poursuite de ses études au deuxième cycle mais aussi la mise à l'essai de l'intervention éducationnelle. Elle a ainsi pu obtenir, en tant que cochercheure, une subvention du Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ) avec une contrepartie financière de l'HGJ, ainsi que la bourse d'études du 10ème anniversaire de l'approche par compétences remise par la FSI et la bourse de fin de maîtrise du Ministère de l'Enseignement supérieur, de la recherche et de la science (MESRS). L'expérience en lien avec la recherche vécue lors du projet de stage a été fort enrichissante et constitue une première opportunité où l'étudiante a pu s'initier à cette compétence de pratique infirmière avancée.

Les habiletés reliées à la collaboration et au leadership de l'étudiante ont été nécessaires afin d'obtenir l'appui du comité d'approbation ainsi que du comité de la convenance de l'HGJ pour la mise en place de l'intervention éducationnelle. Elles ont aussi été mises en pratique lors de la présentation du projet lors du recrutement des infirmières participantes. Enfin, sans la collaboration dont a fait preuve l'étudiante, une coopération avec

l'infirmière clinicienne spécialisée ainsi qu'avec les directrices et les autres professionnels de la santé lors du développement de l'intervention éducationnelle n'aurait été possible.

Finalement, les habiletés reliées à la compétence de prise de décision éthique ont été mises en marche lors de l'élaboration des formulaires de consentement à l'intention des infirmières de l'USIN et des professionnels de la santé.

Objectif 3 : Mener la mise à l'essai d'une intervention visant une pratique basée sur les résultats probants en lien avec la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés.

Bien qu'épaulée par l'infirmière clinicienne spécialisée du milieu de stage, l'étudiante a expérimenté des défis reliés à la mise à l'essai d'une intervention éducationnelle en milieu clinique, notamment des difficultés de planification des ateliers. Ainsi, elle a dû mobiliser, entre autres, ses savoirs préalablement acquis en gestion de projet afin de mener à bien la mise à l'essai de l'intervention éducationnelle. Un échéancier bien défini, ainsi qu'une communication efficace avec sa personne-ressource, ont permis de pallier les difficultés rencontrées. La constante remise en question du processus de mise à l'essai ainsi que les rétroactions de l'infirmière clinicienne spécialisée de l'USIN et des directrices de maîtrise ont permis un aiguillage des plus efficaces tout au long du projet de stage et l'atteinte de cet objectif.

Article

A Pilot Nursing Educational Intervention Promoting an Evidence-Based Transition from Gavage to Direct Breastfeeding in a NICU

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Abstract

Aim: To describe the development and the evaluation of a pilot nursing educational intervention aiming to promote an evidence-based transition from gavage to direct breastfeeding in preterm infants.

Method: The Iowa Model for Evidence-Based Practice to Promote Quality of Care was used as the conceptual framework guiding the development and implementation of the pilot nursing educational intervention in a NICU. Six nurses participated in all of the three workshops of the educational intervention. Their nursing practice, beliefs, and knowledge were assessed pre and post-intervention. Their satisfaction with the educational intervention was also assessed post-intervention.

Results: Post-intervention, nurses reported improved practice, beliefs, and knowledge related to the transition of preterm infants to direct breastfeeding. The educational intervention content has been well received by nurses.

Conclusion: A brief nursing educational intervention can improve NICU nurses' practice, beliefs and knowledge regarding the transition of preterm infants from gavage to direct breastfeeding. However, a review of the format of the educational intervention is recommended to refute more efficiently belief and facilitate nurses' recruitment.

Keywords: Evidence-Based Practice, Iowa Model, Preterm Infants, NICU, Direct breastfeeding, Transition.

INTRODUCTION

Scientific literature abounds with human milk benefits for preterm infants. It is known to significantly reduce the occurrence of necrotizing enterocolitis (NEC) and sepsis, to improve feeding tolerance, to accelerate the attainment of full enteral feeding, as well as to decrease the incidence of hospital readmissions after discharge (American Academy of Pediatrics [AAP], 2012). While human milk holds many advantages, direct breastfeeding is considered to be more physiologically suitable for preterm infants, compared to bottle feeding expressed human milk (Buckley and Charles, 2006; Chen, Wang, Chang, and Chi, 2000). Indeed, many benefits for preterm infants have been reported for direct breastfeeding in the literature, such as an increase in oxygen saturation, a better coordinated sucking-swallowing-breathing pattern, and the absence of apneas and bradycardias during feeding sessions (Buckley and Charles, 2006; Chen et al., 2000).

In spite of all these well-documented advantages, transition to direct breastfeeding in preterm infants remains suboptimal in NICU (Buckley and Charles, 2006; McGrath, 2012; Nyqvist, 2013). Current practices vary among health care providers (Jones, 2011), mainly because of a lack of formal policies to manage transitional feeding issues in preterm infants (Dodrill, McMahon, Donovan, and Cleghorn, 2008). Transition practices are also, at times, not evidence-based (Nyqvist, 2013). For instance, the use of volume intake and feeding time to characterize a successful feeding (Ludwig and Waitzman, 2007; McCain, 2003) are among non-evidence based practices in the NICUs (Ludwig and Waitzman, 2007; McCain, 2003; White and Parnell, 2013). The lack of an individualized progression of preterm infants at their own developmental rhythm may then expedite their transition to full oral feedings (White &

Parnell, 2013). During this process, gavage feeds are replaced by breastfeeding or bottle feedings until exclusive oral feeding is attained, regardless of the preterm infant's readiness (White & Parnell, 2013). Another practice that is widely used in the NICU is to start the preterm infants on bottle feedings and transition them to the breast only when oral feedings are well tolerated (Nye, 2008). In Siddell and Froman's survey (1994), more than 93% of staff nurses claimed that bottle feedings were started first, versus 6.7% for breast feedings. Almost two decades later, preterm infants are still started on bottle feedings in some NICU and only transitioned to direct breastfeeds after a few successful bottle feedings are achieved (Nye, 2008). These non-evidence based practices contribute to the challenges encountered by preterm infants during their transition to direct breastfeeding.

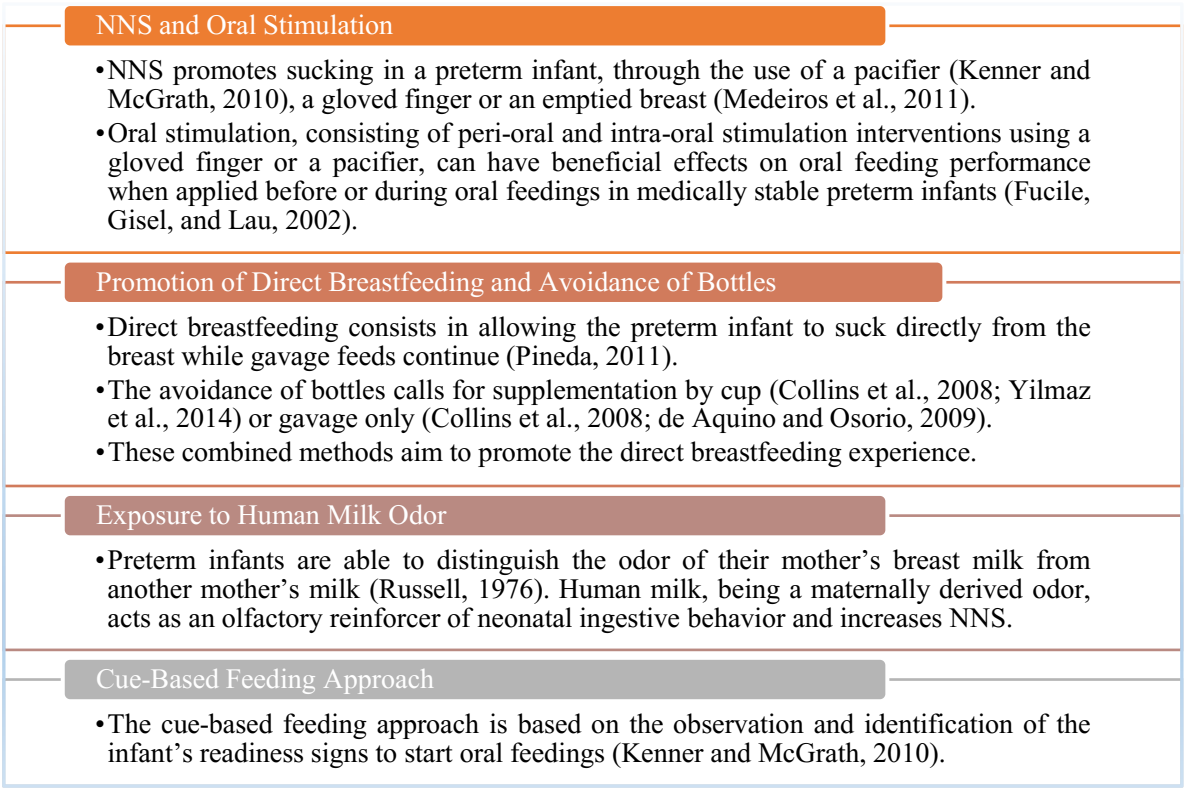
In addition to the suboptimal transition practices, many beliefs related to the transition to direct breastfeeding still persist among NICU nurses (Black, 2012; Nyqvist, 2005; Nyqvist, 2013). Nyqvist (2013) summarized statements that continue to be made in NICUs regarding preterm infants' breastfeeding and their feeding capacity (Nyqvist, 2013). These false beliefs include, the inability of preterm infants to coordinate their sucking, swallowing and breathing before 32 to 34 weeks post-menstrual age (PMA), the need to delay the introduction of non-nutritive sucking until a certain PMA is reached, successful breastfeeding in preterm infants is achieved when they show the same signs at the breast as term infants, as well as the fact that breastfed preterm infants stay longer in the NICU (Nyqvist, 2013). These beliefs that are prevalent in NICUs may delay the transition of preterm infants to breast feeds (Nyqvist, 2013).

While mothers consider healthcare professionals as a keystone for successful breastfeeding (Björk, Thelin, Petersson, and Hammarlund, 2012), NICU nurses often lack specific knowledge related to the transition of preterm infants from gavage to direct

breastfeeding (Bernaix, Schmidt, Arrizola, Iovinelli, and Medina-Poelinez, 2008; Black, 2012; Pineda, Foss, Richards, and Pane, 2009), especially regarding the benefits and challenges of breastfeeding a preterm infant (Black, 2012). Consequently, mothers of preterm infants do not always receive knowledgeable support to help them transition to direct breast feeds (Buckley and Charles, 2008). As this lack of knowledge may influence the support they offer to preterm infants and their mothers, NICU nurses should receive adequate training regarding this challenging step.

Support during the transition to direct breastfeeding can be achieved through the use of several interventions promoting the transition from gavage to direct breastfeeding in preterm infants. The effectiveness of these interventions was reported in multiple studies and could be implemented in NICU. An extensive critical review of the studies evaluating these interventions led to the identification of four intervention categories (Ziadi, Héon, and Aita, 2015, submitted) (Box 1). These include non-nutritive sucking (NNS) and oral stimulation (Bache, Pizon, Jacobs, Vaillant, and Lecomte, 2014; Harding, Frank, Van Someren, Hilari, & Botting, 2014; Medeiros et al., 2011; Pimenta et al., 2008; Yildiz & Arikan, 2012), promotion of direct breastfeeding experience and bottle avoidance (Collins, Makrides, Gillis, & McPhee, 2008; de Aquino & Osorio, 2009; Pineda, 2011; Yilmaz, Caylan, Karacan, Bodur, Gokay, 2014), exposure to human milk odor (Raimbault, Saliba, & Porter, 2007; Yildiz, Arikan, Gözüm, Tastekin, & Budancamanak, 2011), and the cue-based feeding approach (Kirk, Alder, and King, 2007; Nyqvist, 2008). Studies evaluating these interventions report encouraging outcomes such as an increase in breastfeeding rates at discharge (Bache et al., 2014; de Aquino and Osorio, 2009; Pimenta et al., 2008; Pineda, 2011; Yilmaz et al., 2014), a decrease in transition time to partial or full direct breastfeeding (de Aquino and Osorio, 2009; Kirk et

al., 2007; Nyqvist, 2008; Yildiz et al., 2011), as well as a decrease in the length of hospitalization (Harding et al., 2014; Raimbault et al., 2007; Yildiz and Arikan, 2012).



Box 1: Categories of the evidence-based interventions promoting the transition of preterm infants from gavage to direct breastfeeding (Ziadi et al., 2015, submitted)

To sum up, persistence of suboptimal transition practices is often linked to inaccurate beliefs (Black, 2012; Briere, 2015; Nyqvist, 2005; Nyqvist, 2013) coupled with a lack of knowledge related to the transition to direct breastfeeding (Bernaix et al., 2008; Spatz, 2005).

Similar to other NICU (Dodrill et al., 2008), the NICU where the pilot project took place did not have a formal written policy to manage the transition of preterm infants from gavage to direct breastfeeding. Also, the current breastfeeding training in this NICU did not specifically tackle the transition management. This situation calls for a change of practice, as well as an improvement in the beliefs and knowledge related to the transition to direct

breastfeeding. A few studies have reported that NICU nurses' breastfeeding knowledge could be improved through educational interventions (Bernaix et al., 2008; Siddell, Marinelli, Froman and Burke, 2003; Spatz, 2005). However, while very few studies aimed to examine the impact of educational interventions on NICU nurses' breastfeeding knowledge (Bernaix et al., 2008; Spatz, 2005) and beliefs (Bernaix et al., 2008), none, to our knowledge, focused specifically on the transition of preterm infants from gavage to direct breastfeeding. Therefore, an educational intervention, based on the Iowa Model for Evidence-Based Practice (Titler et al., 2001), and aiming to promote the transition of preterm infants from gavage to direct breastfeeding through an improvement in nursing practice, beliefs and knowledge, has been designed, piloted, and evaluated in this NICU.

CONCEPTUAL FRAMEWORK - IOWA MODEL OF EVIDENCE-BASED PRACTICE

The Iowa Model for Evidence-Based Practice is an algorithm, with decision points and feedback loops, guiding nurses and healthcare professionals in the use of research findings to improve patients' quality of care (Titler et al., 2001; Figure 1). The model has been previously used to successfully pilot a change of practice based on evidence in different healthcare settings (Farrington, Lang, Cullen, & Stewart, 2009; Gordon, Bartruff, Gordon, Lofgren, & Widness, 2008; Haxton, Doering, Gingras, & Kelly, 2012). Since the nursing educational intervention was piloted in this project, only the first six steps of the Iowa Model were performed (Figure 1). This model effectively guided the implementation of the pilot project by providing a step-by-step framework to design and assess the nursing educational intervention. As recommended by the Iowa Model, a change of practice needs to be endorsed by the

hospital and unit where it is taking place to increase the likelihood of its adoption (Titler et al., 2001). This topic was a priority for the NICU where the educational intervention took place, since it not only encourages and supports initiatives that aim to enhance breastfeeding rates, but this educational intervention could also substantiate their newly developed feeding protocol.

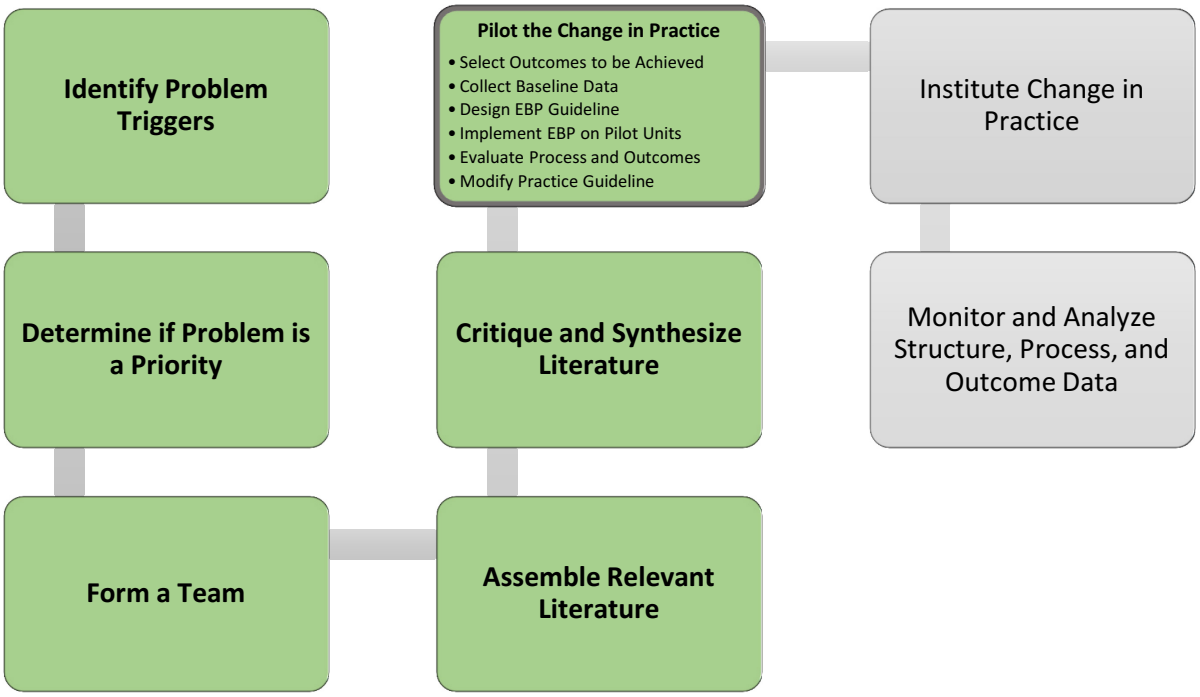


Figure 1: Adapted from the Iowa Model for Evidence-Based Practice (Titler et al., 2001)

METHODS

Educational intervention site

The educational intervention has been conducted in a level III NICU, where, each year, about 600 infants are admitted. The unit employs 110 nurses and is divided into three unit sections: intensive care, intermediate care, and the step-down.

Ethical considerations

Before carrying out the pilot, the project was approved by the hospital's ethics and feasibility committees. Written consent was obtained from all NICU nurses that participated in the educational intervention.

Participants

This pilot educational intervention project aimed to recruit 6 to 12 NICU nurses, representing 5 to 10% of the total number of nurses employed on the unit, for the educational intervention. There were no restrictions as to years of experience as a nurse, years of experience as a NICU nurse or whether the nurse was a lactation consultant.

Intervention

The educational intervention was developed based on evidence and a twofold assessment: a pre-intervention evaluation of nursing practice, beliefs and knowledge, and a meeting with healthcare professionals involved in the management of preterm infants' transition from gavage to direct breastfeeding. The pre-intervention evaluation of nursing practice, beliefs and knowledge aimed to identify participant nurses' educational needs. A meeting with the NICU nurse educator and lactation consultant, as well as the nutritionist and NICU clinical nurse specialist ensured that based on their experience, the training content met the NICU nurses' needs regarding the transition to direct breastfeeding and respected the unit's characteristics.

The teaching strategy that was selected in the nursing educational intervention was problem-solving. This is an active teaching strategy based on exposing the participant nurses

to a scenario resembling a real-life situation that can be encountered by nurses in their practice (Bradshaw and Lowenstein, 2013). Hence, a case scenario (baby Noah's case) was developed and reviewed by the NICU's nutritionist, clinical nurse specialist and nurse educator. To bring this case scenario closer to a real-life situation, participant nurses had to complete a Therapeutic Nursing Plan (TNP) for baby Noah at the beginning of the pilot educational intervention and was reviewed at the end of the training, in the light of what the participant nurses have learned during the educational intervention. A description of the three 45-minute workshops composing the pilot nursing educational intervention is detailed in Figure 2. Two main subjects were covered during the workshops: oral feeding development in preterm infants and interventions that promote the transition from gavage to direct breastfeeding. Common practices, beliefs and knowledge, as reported by nurses in the pre-intervention assessment, were addressed during the second workshop in a group discussion (Figure 2). A clinical tool, a quick reference guide, was also developed and was handed to the participant nurses that took part in all three workshops. It included a summary of the oral development stages in preterm infants (Figure 3), and the interventions that promote the transition from gavage to direct breastfeeding (Figure 4). The development of the clinical tool was based on the Alberta Health Services (Lasby & Dressler-Mund, 2011) and White and Parnell evidence-based guidelines (2013).

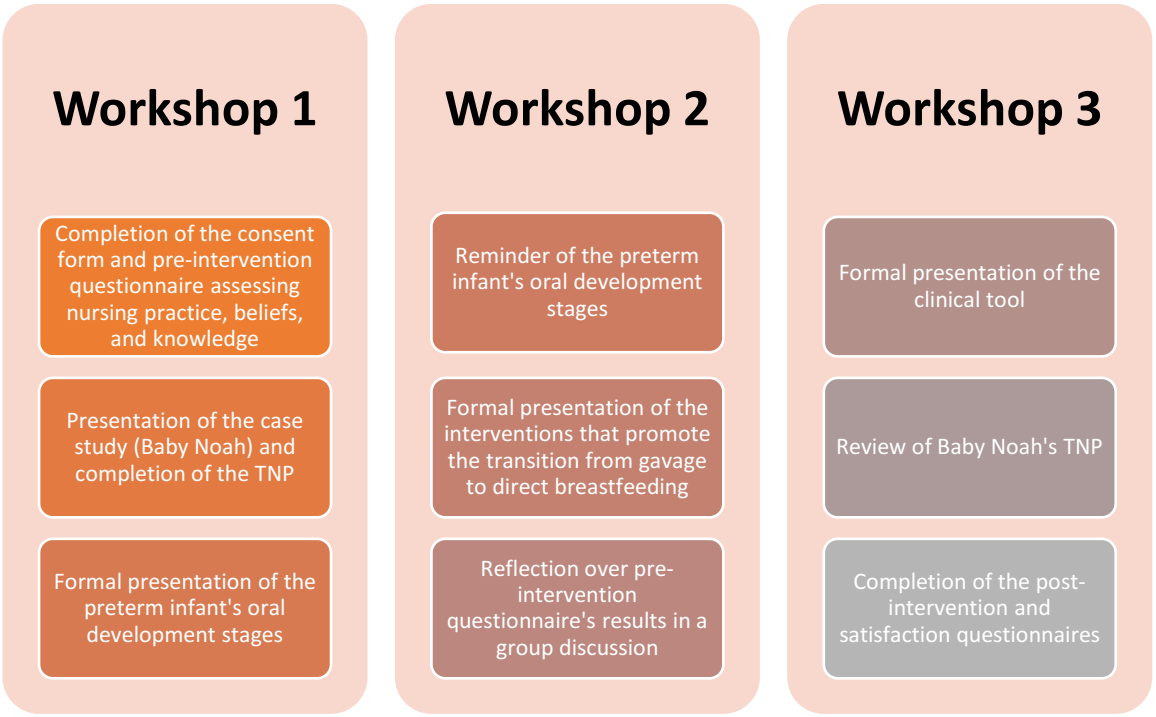


Figure 2: A detailed description of the three workshops composing the pilot educational intervention

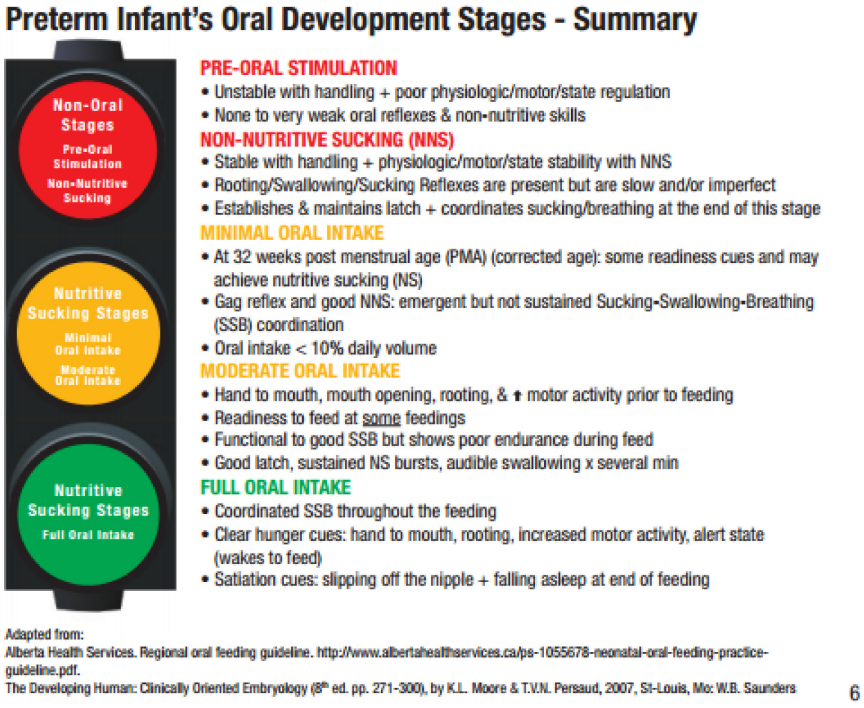


Figure 3: Summary of the preterm infant's oral development stages (Quick reference guide)

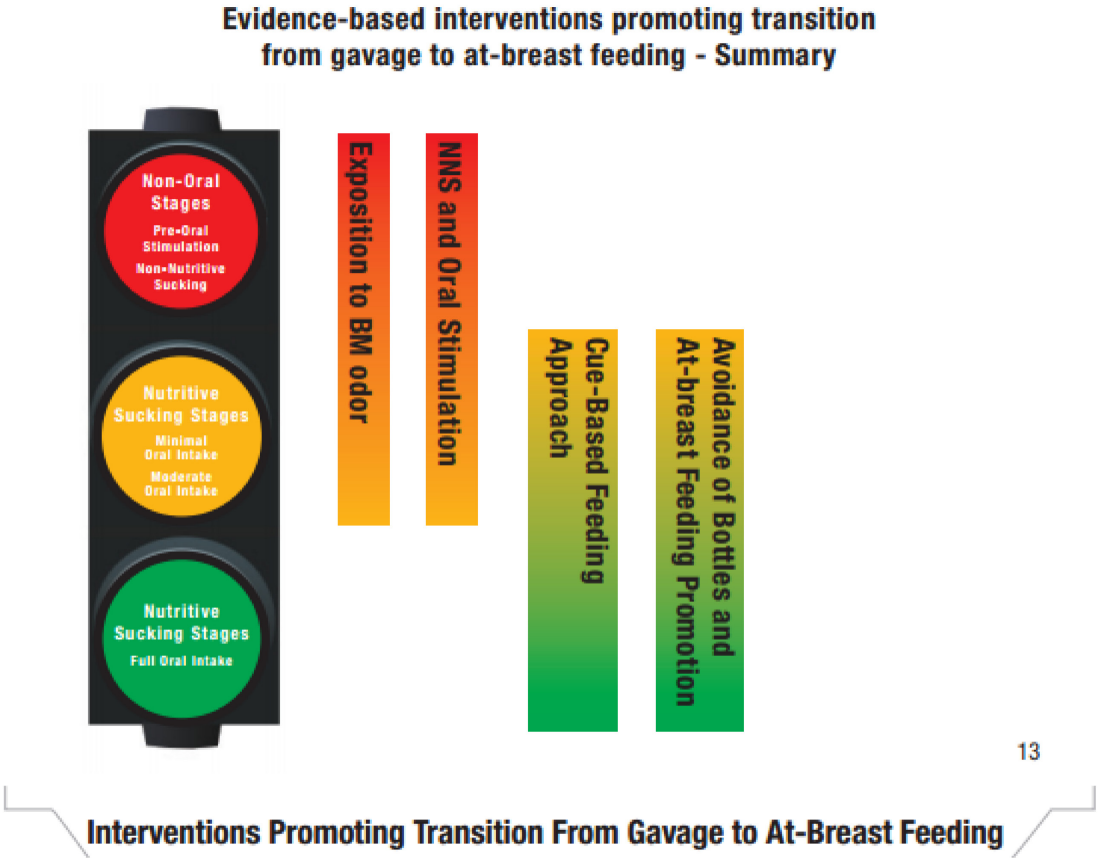


Figure 4: Summary of the interventions promoting an evidence-based transition from gavage to direct breastfeeding (Quick reference guide)

Measures

To comply with the Iowa Model for Evidence-Based Practice (Figure 1) and published research findings (Bernaix et al., 2008; Nyqvist, 2013; Spatz, 2005), three outcomes were selected to assess the effectiveness of this pilot nursing educational intervention: practice, beliefs and knowledge related to the transition of preterm infants from gavage to direct breastfeeding. A questionnaire was developed based on a review of recent evidence pertaining to the transition from gavage to direct breastfeeding, since no instrument measuring nurses' practice, beliefs and knowledge was found in the literature. The categorization of the three

outcomes (practice, beliefs, and knowledge) was made in a way to facilitate the results' analysis. The assessment of nursing practice, beliefs and knowledge was performed through the same questionnaire pre and post-intervention, and included 26 items. The questionnaire covered the themes that were deemed important in the transition from gavage to direct breastfeeding: preterm infants' oral feeding development, interventions promoting the transition from gavage to direct breastfeeding, and particularities related to breastfeeding a preterm infant. Thirteen statements aimed to assess nursing practice and eleven statements aimed to assess beliefs. Knowledge was explicitly evaluated through two statements, and assessed implicitly in the remaining statements of the pre and post-intervention questionnaires. The questionnaire also contained a sociodemographic section that included questions about years of experience as a nurse, years of experience as a NICU nurse, date of the last breastfeeding training, and whether the participant nurse was a lactation consultant.

A total of three weeks separated the completion of the pre and post-intervention questionnaires. Such distribution intended to give participant nurses enough time to assimilate the different components of the educational intervention and apply them in their day-to-day practice. At the end of the third workshop, participant nurses also completed a satisfaction survey that aimed to evaluate the effectiveness and format of the educational intervention. The survey included 10 Likert-type questions and a section for comments.

RESULTS

Demographics

The educational intervention was carried out from November to December 2014. Seven nurses were recruited and six of them participated in all three workshops, thus fully completing the pilot educational intervention. One nurse chose to withdraw from the educational intervention because she reported being too busy.

The participants (n=7) had a mean nursing experience of 8 years, with an experience of 5 months for the least experienced nurse, and 34 years for the most experienced nurse. They had a mean experience as NICU nurses of 7.4 years, ranging from 5 months to 31 years. Four International Board Certified Lactation Consultants (IBCLC) were part of the first workshop, and three IBCLC completed all three workshops. Lastly, three nurses had received a breastfeeding training in the past year.

Pre and post-intervention results

Seven participants completed the pre-intervention questionnaire and six of them completed the post-intervention questionnaire. Results regarding nursing practice, beliefs and knowledge related to the transition from gavage to direct breastfeeding in preterm infants in pre and post-intervention are presented in Table 1.

Statements	Pre/ Post intervention	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Practice-Related Statements						
1. I can initiate direct breast feeds without a medical prescription.	Pre (n=7)	0% (n=0)	29% (n=2)	0% (n=0)	29% (n=2)	43% (n=3)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	17% (n=1)	83% (n=5)
2. I am able to recognize oral feeding readiness cues in a preterm infant.	Pre (n=7)	0% (n=0)	0% (n=0)	0% (n=0)	29% (n=2)	71% (n=5)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
3. When a preterm infant shows oral feeding readiness, I initiate direct breast feeds.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	86% (n=6)	0% (n=0)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	50% (n=3)	50% (n=3)
4. I feel confident in assessing a preterm infant's oral feeding readiness.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	71% (n=5)	14% (n=1)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	33% (n=2)	67% (n=4)
5. I feel confident in supporting a preterm infant during his/her transition from gavage to breastfeeding.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	43% (n=3)	43% (n=3)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	33% (n=2)	67% (n=4)
6. I routinely give a pacifier to preterm infants during gavage feeds.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	43% (n=3)	43% (n=3)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	33% (n=2)	67% (n=4)
7. I assess a preterm infant's oral feeding ability with a bottle, even if he/she will be breastfed.	Pre (n=7)	14% (n=1)	43% (n=3)	43% (n=3)	0% (n=0)	0% (n=0)
	Post (n=6)	50% (n=3)	50% (n=3)	0% (n=0)	0% (n=0)	0% (n=0)
8. When a mother wishes to breastfeed exclusively, I make sure that breastfeeding takes priority over bottle feeding.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	29% (n=2)	57% (n=4)
	Post (n=6)	17% (n=1)	0% (n=0)	0% (n=0)	0% (n=0)	83% (n=5)

Statements	Pre/ Post intervention	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
9. I encourage mothers to be present on the unit as often as possible to promote breastfeeding (if they wish to breastfeed their preterm infant).	Pre (n=7)	0% (n=0)	0% (n=0)	0% (n=0)	43% (n=3)	57% (n=4)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
10. I put gauze soaked in breast milk near the preterm baby's nose during gavage feeds for olfactory stimulation.	Pre (n=7)	43% (n=3)	57% (n=4)	0% (n=0)	0% (n=0)	0% (n=0)
	Post (n=6)	0% (n=0)	0% (n=0)	17% (n=1)	50% (n=3)	33% (n=2)
11. I often resort to the lactation consultant or the occupational therapist when I have questions regarding the transition from gavage to breastfeeding.	Pre (n=7)	0% (n=0)	14% (n=1)	14% (n=1)	29% (n=2)	43% (n=3)
	Post (n=6)	0% (n=0)	17% (n=1)	0% (n=0)	17% (n=1)	67% (n=4)
12. I take the time needed to position the preterm infant at the breast.	Pre (n=7)	0% (n=0)	0% (n=0)	0% (n=0)	57% (n=4)	43% (n=3)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
13. I feel confident when positioning a preterm infant at the breast.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	57% (n=4)	29% (n=2)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	17% (n=1)	83% (n=5)
Belief-Related Statements						
14. Introduction of non-nutritive sucking should be held until the preterm infant reaches a certain gestational age.	Pre (n=7)	71% (n=5)	14% (n=1)	14% (n=1)	0% (n=0)	0% (n=0)
	Post (n=6)	83% (n=5)	17% (n=1)	0% (n=0)	0% (n=0)	0% (n=0)
15. A preterm infant shows the same behaviour while breastfeeding as a full term baby who is successfully breastfeeding.	Pre (n=7)	0% (n=0)	43% (n=3)	14% (n=1)	43% (n=3)	0% (n=0)
	Post (n=6)	50% (n=3)	0% (n=0)	0% (n=0)	33% (n=2)	17% (n=1)
16. A preterm infant who desaturates or who has apnea/bradycardia episodes while being bottle-fed will have the same behaviour when breastfed.	Pre (n=7)	29% (n=2)	71% (n=5)	0% (n=0)	0% (n=0)	0% (n=0)
	Post (n=6)	100% (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)
17. A preterm infant who shows good suction with a pacifier will be able to feed orally more easily.	Pre (n=7)	14% (n=1)	57% (n=4)	14% (n=1)	14% (n=1)	0% (n=0)
	Post (n=6)	0% (n=0)	17% (n=1)	0% (n=0)	50% (n=3)	33% (n=2)

Statements	Pre/ Post intervention	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
18. It is easier to give breast milk in a bottle than to put a preterm infant at his/her mother's breast.	Pre (n=7)	29% (n=2)	57% (n=4)	14% (n=1)	0% (n=0)	0% (n=0)
	Post (n=6)	67% (n=4)	17% (n=1)	0% (n=0)	17% (n=1)	0% (n=0)
19. Giving human milk in a bottle has the same benefits as direct breastfeeding.	Pre (n=7)	43% (n=3)	57% (n=4)	0% (n=0)	0% (n=0)	0% (n=0)
	Post (n=6)	67% (n=4)	33% (n=2)	0% (n=0)	0% (n=0)	0% (n=0)
20. A successful breastfeed involves ingestion of certain volume of breast milk, according to a preset schedule.	Pre (n=7)	57% (n=4)	29% (n=2)	14% (n=1)	0% (n=0)	0% (n=0)
	Post (n=6)	50% (n=3)	33% (n=2)	17% (n=1)	0% (n=0)	0% (n=0)
21. A preterm infant can be exclusively breastfed before NICU discharge.	Pre (n=7)	14% (n=1)	0% (n=0)	0% (n=0)	14% (n=1)	71% (n=5)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
22. Breastfed preterm infants have longer hospital stays because of insufficient weight gain.	Pre (n=7)	29% (n=2)	43% (n=3)	14% (n=1)	14% (n=1)	0% (n=0)
	Post (n=6)	33% (n=2)	33% (n=2)	0% (n=0)	17% (n=1)	17% (n=1)
23. A preterm infant who successfully makes the transition to direct breastfeeding during his/her stay in the NICU has a higher chance of continued breastfeeding at 6 months of age.	Pre (n=7)	0% (n=0)	0% (n=0)	14% (n=1)	43% (n=3)	43% (n=3)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
24. Direct breastfeeding make the preterm infant more tired than bottle feeding.	Pre (n=7)	14% (n=1)	43% (n=3)	14% (n=1)	29% (n=2)	0% (n=0)
	Post (n=6)	33% (n=2)	17% (n=1)	17% (n=1)	33% (n=2)	0% (n=0)
Knowledge-Related Statements						
25. A preterm infant may start direct breast feeds before 32 weeks gestational age.	Pre (n=7)	0% (n=0)	14% (n=1)	14% (n=1)	0% (n=0)	71% (n=5)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=6)
26. I believe I have sufficient and adequate knowledge regarding the transition from gavage to direct breastfeeding in preterm infants.	Pre (n=7)	0% (n=0)	0% (n=0)	57% (n=4)	29% (n=2)	14% (n=1)
	Post (n=6)	0% (n=0)	0% (n=0)	0% (n=0)	33% (n=2)	67% (n=4)

Table 1: Results of the pre and post-intervention questionnaires related to practice, beliefs and knowledge as reported by participant nurses

Practice-related statements

The improvement that was noted between the pre-intervention and post-intervention questionnaires for nursing practice was reflected in multiple statements. After the educational intervention, nurses answered in higher percentages regarding the initiation of direct breastfeeding without a medical prescription (100% nurses agreed with this statement post-intervention versus 72% pre-intervention), assessing a preterm infant's oral feeding readiness (100% post-intervention agreed with this statement versus 85% pre-intervention), and supporting a preterm infant during his/her transition from gavage to direct breastfeeding (100% agreed post-intervention versus 86% pre-intervention).

Also, after the educational intervention, there was an increase in the application of interventions as shown in Table 1. Post-intervention, higher numbers of participant nurses reported using non-nutritive-sucking and oral stimulation, promotion of direct breastfeeding experience and avoidance of bottles, exposure to human milk odour, and cue-based feeding approach.

Belief-related statements

The educational intervention strengthened facilitating beliefs such as the fact that exclusive direct breastfeeding could be achieved before discharge from the NICU (100% post-intervention versus 71% pre-intervention) and that a preterm infant that transitions to full direct breastfeeding during his/her stay in the NICU has higher chances of continued breastfeeding (100% post-intervention versus 43% pre-intervention) (Table 1). It also has

influenced a few beliefs such as comparing physiologic responses during bottle feeds with those noticed while breastfeeding (100% strongly disagreed post-intervention versus 29% pre-intervention), comparing putting the infant at the breast versus bottle-feeding (67% strongly disagreed with this statement post-intervention versus 29% pre-intervention), and comparing giving human milk in a bottle with direct breastfeeding benefits (67% strongly disagreed post-intervention versus 43% pre-intervention). Other beliefs remained unchanged such as the belief that non-nutritive sucking should be held until the preterm infant reaches a certain gestational age (71% strongly disagreed with this statement pre-intervention versus 83% post-intervention), and that a successful breastfeeding involves the ingestion of a certain volume of milk (57% strongly disagreed pre-intervention versus 50% post-intervention (Table 1). Lastly, some false beliefs persisted or worsened post-intervention, including the belief that a breastfeeding preterm infant shows the same behaviour as a breastfeeding full term infant (50% agreed with this statement pre and post-intervention), that a preterm infant showing a good suction with a pacifier will be able to feed orally (14% agreed with this statement pre-intervention versus 83% post-intervention), that breastfed preterm infants stay longer in the NICU because of insufficient weight gain (14% agreed with this statement pre-intervention in comparison with 34% post-intervention), and that direct breastfeeding makes the preterm infant more tired than bottle feeding (57% disagreed or strongly disagreed with this statement pre-intervention versus 50% post-intervention) (Table 1).

Knowledge-related statements

There was a positive improvement of results in the participants' knowledge (Table 1). At the end of the educational intervention, 100% of the participant nurses reported having

sufficient knowledge regarding the transition from gavage to direct breastfeeding in comparison to 43% of the nurses pre-intervention. Also, 100% of the nurses agreed that direct breastfeeding could be started before 32 weeks post intervention, in comparison with 71% pre-intervention.

Satisfaction Survey

The satisfaction questionnaire was completed by six nurses at the end of the educational intervention. The questionnaire results are presented in Table 2. Almost all participants (n=5) appreciated the educational intervention. One participant (n=1) strongly disagreed with all statements in the satisfaction survey.

Five nurses strongly agreed that the objectives were clearly defined, that the content met their expectations, namely that the workshops were well organized and the time allotted was sufficient. Four nurses strongly agreed that the educational intervention format was stimulating, and one nurse agreed with this statement. Two nurses verbally expressed however their dissatisfaction towards the workshops division into three sessions, one workshop per week, for three weeks.

Statements	1 – Strongly disagree	2 - Disagree	3 - Neutral	4 - Agree	5 – Strongly agree
1. The objectives of the training were clearly defined.	1	0	0	0	5
2. The training content met my expectations.	1	0	0	0	5
3. The training content was well organized and easy to follow.	1	0	0	0	5
4. The time allotted for the workshops was sufficient.	1	0	0	0	5

Statements	1 – Strongly disagree	2 - Disagree	3 - Neutral	4 - Agree	5 – Strongly agree
5. The format of the workshops was stimulating.	1	0	0	1	4
6. The activities allowed me to meet the training objectives.	1	0	0	1	4
7. I am satisfied with the help received from the facilitator during the workshops.	1	0	0	0	5
8. The instructions given by the facilitator during the activities were clearly stated.	1	0	0	0	5
9. The quick reference guide I was given was useful during the workshop.	1	0	0	1	4
10. This training experience will be useful in my work.	1	0	0	0	5

Table 2: Satisfaction survey results

Four nurses stated that the educational intervention activities met the training objectives. Five nurses were satisfied with the help received from the facilitator, reported that the instructions given were clearly stated, and considered that the educational intervention would be useful in their work. Finally, four nurses also appreciated the quick reference guide that they were given. These results were supported by the written comments collected in the satisfaction surveys. Indeed, one nurse stated that she "really liked the pocket guide". Another nurse found the quick reference guide "useful on a day-to-day basis at work, also to help parents identify the cues in their baby".

DISCUSSION

A pilot educational intervention based on the latest evidence has been designed using the Iowa Model for Evidence-Based Practice (Titler et al., 2001) to optimize the transition of preterm infants from gavage to direct breastfeeding. The educational intervention aimed to palliate the persistence of restraining beliefs related to the transition from gavage to direct

breastfeeding (Nyqvist, 2013), the lack of specific knowledge related to this critical process (Bernaix et al., 2008) and encourage an evidence-based practice.

The educational intervention implemented through this pilot project had positive results that were reflected in the overall improvement of post-intervention results in comparison to pre-intervention results. Participant nurses have reported an improvement in their practice, which has been reflected through an increase in the use of interventions promoting the transition from gavage to direct breastfeeding. Those interventions consisted of giving pacifiers during gavage feeds, direct exposure to the breast, and exposure to human milk odour. The increased use of these interventions may be due to the ease of their utilization. Indeed, very little is necessary to implement these interventions and the equipment used, such as a pacifier to provide non-nutritive sucking during gavage and a gauze for the exposition to human milk odour, can be easily found in the NICU. Also, it appears that participant nurses encouraged more mothers to be present at their infant's bedside to allow direct exposure to the breast, as well as to perform these specific interventions. The ease of implementation of the interventions promoting the transition of preterm infants from gavage to direct breastfeeding constitute a facilitating factor that will hopefully encourage other NICU nurses to implement these evidence-based in their day-to-day practice.

Overall, nurses' beliefs regarding the transition from gavage to direct breastfeeding have improved. Some beliefs have been strengthened, especially those regarding breastfeeding benefits to preterm infants. Since this subject is covered during the initial breastfeeding training offered by the NICU, the pilot educational intervention might have acted as a reminder and reinforced nurses' beliefs regarding breastfeeding preterm infants. Some constraining beliefs, including those related to preterm infant behaviour at the breast and the

use of weight gain and ingested volumes as indicators of a successful transition, persisted. The most common participants' beliefs based on pre-intervention results were presented and reflected upon more specifically during workshop 2 (Figure 2). Evidence-based arguments were also presented to refute false beliefs related to the transition from gavage to direct breastfeeding. The persistence of these beliefs post-intervention may then be explained by the fact that perhaps too many themes were covered during the second workshop and not enough time was left to refute the most predominant beliefs (Figure 2). Even though educational interventions are known to influence personal knowledge and beliefs (Melnyk et al., 2001), refuting them is a difficult task, especially since each individual has their own triggers for a change of state (Maturana, 1988; Wright and Levac, 1992). Also, according to Maturana (1988), inviting the individuals to a reflection on their beliefs creates an adequate context for change (Maturana, 1988; Wright and Levac, 1992). However, when time constraints come into play, the individuals may not be in an ideal context for change and may not have sufficient time to reflect upon their beliefs. Indeed, the second workshop was particularly loaded with new content related to the transition to direct breastfeeding (Figure 2) and participant nurses showed some signs of fatigue and a reduced attention span when the pre-intervention questionnaire results were addressed. Hence, a restructuration and a rebalance of the themes covered throughout the educational intervention could be recommended to avoid losing the participants' attention span and to address beliefs accordingly. For instance, reflection upon the pre-intervention questionnaire results could be transferred to workshop 3 to allow participant nurses more time to reflect on their beliefs related to the transition from gavage to direct breastfeeding (Figure 2).

The participant nurses also reported having gained sufficient knowledge about the transition from gavage to direct breastfeeding immediately after the educational intervention. The improvement in nurses' knowledge was reflected in the improvement of practice, as reported in the post-intervention questionnaire. The improvement of nurses' knowledge was also demonstrated in relation to preterm infants' oral development, and knowledge regarding interventions promoting an evidence-based transition from gavage to direct breastfeeding. This improvement might be in part due to the teaching strategy that was selected. Indeed, the problem-solving teaching strategy enhances the learning experience by allowing participants to use theoretical knowledge in a realistic situation (Khatiban and Sangestani, 2014). Participant nurses did appreciate this strategy, as expressed verbally at the end of the pilot educational intervention and they also found the format of the training stimulating, as reported in the satisfaction survey (Table 2).

Even though there was an overall improvement in the nursing practice, beliefs and knowledge post-intervention, it is noteworthy, however, that the pre-intervention questionnaire results were already encouraging and reflected in existing knowledge and facilitating beliefs regarding the transition of preterm infants from gavage to direct breastfeeding. This could be explained by the fact that four IBCLCs over seven nurses were part of the first workshop when the pre-intervention questionnaire was completed, and three IBCLCs completed all three workshops. Indeed, NICU IBCLCs deal with a larger array of breastfeeding difficulties in their day-to-day practice (Riordan and Wambach, 2010) and may have a more extensive experience related to the transition of preterm infants to direct breastfeeding. Hence, in all other NICU nurses, the pre-intervention findings could have been different as the improvement in practice, beliefs and knowledge related to the transition of preterm infants

might have been more striking in NICU nurses without the lactation consultant certification. Further research with a more representative sample of NICU nurses should then be considered to confirm this assumption.

This pilot had some serious limitations. First of all, the measurement of the impact of the educational intervention was based on a non-validated and self-administered questionnaire. According to Ajzen and Fishbein (1980), a self-reported behaviour may differ from a person's actual actions. Thus, participant nurses may report behaviours that differ from their actual transition practices. Therefore, the observation of the actual practice during the step of collecting baseline data could have helped to precisely identify areas to be improved and the ones that were improved. Another limitation for the pre/post-questionnaire is that the assessment of knowledge was explicitly measured via two statements and its measurement was implicit in the other statements. Thus, the impact of the educational intervention on this outcome was not thoroughly evaluated. Further research is needed to develop a reliable and valid instrument that would assess nurses' practice, beliefs and knowledge regarding the transition to direct breastfeeding and allow an adequate identification of education needs.

Moreover, the effects of the educational intervention were measured immediately at the end of the third workshop. While the comparison of pre and post-intervention results did show an improvement in the practice, beliefs, and knowledge related to the transition, it would have been interesting to examine if the educational intervention has long-lasting benefits. In a Bernaix and colleagues study (2008), the lactation education program aiming to improve nurses' lactation knowledge, attitudes, beliefs, and intention to support breastfeeding mothers had long-lasting results that were maintained 3 months after the education program. The authors suggest, however, that a reinforcing education session no later than 3 months might

contribute to improve knowledge retention (Bernaix et al., 2008). Thus, an assessment of evidence-based nursing practice, beliefs, and knowledge retention a few weeks post-intervention could be recommended to identify areas to be reinforced in future training sessions. Furthermore, in addition to nurses' practice, beliefs, and knowledge, other outcomes related to the transition from gavage to direct breastfeeding, such as *time to reach exclusive or partial direct breastfeeding* (de Aquino and Osorio, 2009; Kirk et al., 2007; Nyqvist, 2008; Yildiz et al., 2011)*, length of hospital stay* (Harding et al., 2014; Raimbault et al., 2007; Yildiz and Arikan, 2012), and *exclusive or partial direct breastfeeding rate at discharge* (Bache et al., 2014; de Aquino and Osorio, 2009; Pimenta et al., 2008; Pineda, 2011; Yilmaz et al., 2014) could be monitored.

Lastly, recruiting NICU nurses for this pilot intervention was a difficult task. Efforts were put to encourage nurses to participate and many incentives were used, such as providing continuing education hours and planning workshops according to their schedule. Participant nurses have verbally reported that instead of having three different workshops, they would have preferred having one lecture lasting two or three hours. This one-time lecture would have been less difficult to fit in their rotating work schedule and would alleviate the difficulties related to participants' recruitment as well as workshop planning. Therefore, it would be interesting to assess whether one workshop would have the same positive results as the pilot project on NICU nurses' practice, beliefs and knowledge. Also, in order to decrease the challenges related to nurses' recruitment and workshop planning, the educational intervention could be included in the orientation programme for new NICU nurses. This would increase the likelihood of the adoption of an evidence-based transition of preterm infants from gavage to direct breastfeeding and make this practice the only standard of care.

CONCLUSION

This pilot nursing educational intervention, based on the Iowa Model (Titler et al., 2001), seemed to have improved nurses' practice, beliefs and knowledge regarding the transition of preterm infants from gavage to direct breastfeeding. The Iowa Model for Evidence-Based Practice (Titler et al., 2001) recommends a thorough examination of the process and outcomes following the implementation of a pilot project. When the change is deemed appropriate for the organization, the change can be instituted in practice (Titler et al., 2001). While the educational intervention was well received by the participants, a review of the format and a restructuration of the content should be considered to efficiently refute restraining nurses' beliefs and facilitate recruitment. The promising results of this pilot educational intervention will, hopefully, contribute to highlight the potential benefits of such an evidence-based intervention on NICU nurses' practice, beliefs, and knowledge regarding the transition from gavage to direct breastfeeding.

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Annexe A

Formulaire de consentement

Hôpital général juif
Jewish General Hospital

Université de Montréal

Department: Neonatal Intensive Care Unit (NICU)
Student Researcher: Mona Ziadi, supervised at the JGH by Ms Lyne Charbonneau

Informed Consent Form

Implementation of a Nursing Educational Intervention Promoting an Evidence-Based Transition from Gavage to At-Breast Feeding in the NICU

Introduction:

You are invited to be part of an educational intervention whose goal is to promote an evidence-based transition of preterm infants from gavage to at-breast feeding in the NICU.

Before you agree to take part in this educational intervention, it is important that you read this consent form. You should ask as many questions as you wish in order to understand what you will be asked to do. Take as much time as you need to read this consent form. Please note that your participation in the educational intervention is voluntary. You may withdraw from the educational intervention at any time with no penalty.

Purpose of the educational intervention:

Nursing practices regarding the transition from gavage to at-breast feeding in preterm infants remain suboptimal in NICUs. This situation may not only influence the oral development of the preterm infant but may also result in early cessation of breastfeeding. Preterm infants could benefit from nursing interventions that facilitate the transition from gavage to at-breast feeding.

Because nurses spend more time with preterm infants and their mothers than any other healthcare provider, their role is crucial in the success of the transition to at-breast feeding. A nursing educational intervention will provide NICU nurses with evidence-based interventions related to the transition of preterm infants from gavage to at-breast feeding. Based on the Iowa Model for Evidence-Based Practice, this intervention will be evaluated with nurses from the NICU of the Jewish General Hospital [JGH].

How many people will be involved in this educational intervention?

Between 6 and 12 NICU nurses from the JGH will be recruited to be part of this educational intervention.

Procedures:

What will happen if you decide to join the educational intervention?

If you agree to be part of this educational intervention, you will need to sign the consent form and you will be asked to do the following:

- Complete a 10-minute questionnaire both before and after the educational intervention about your knowledge and beliefs regarding the transition of preterm infants from gavage to at-breast feeding. The questionnaire you complete before the educational intervention will also include socio-demographic questions about your years of experience as a nurse, and years of experience in the NICU. You will also have to specify if you are a lactation consultant and the date on which you last attended a breastfeeding workshop or training session.

- Attend 3 workshops related to the transition of preterm infants from gavage to at-breast feeding. These workshops will be held at the JGH over 3 consecutive weeks and will take 45 minutes each. The dates will be communicated to you by your Clinical Nurse Specialist.

- Complete a 5-minute satisfaction survey at the end of the last workshop.

If you choose to be part of this educational intervention, your overall participation will last one month.

Data to be collected:

Data will be collected during the educational intervention through the 3 questionnaires detailed above.

The results of this educational intervention will be published in a scientific journal and presented at conferences and meetings, but your identity will not be revealed.

Risks and discomforts:

There are no physical risks involved with this educational intervention. You may feel uncomfortable about sharing your sociodemographic data. Please note that you may withdraw from the educational intervention at any time.

Benefits:

By choosing to participate in this educational intervention, you will get a **2.5 hour continuing education credit (CEC)**, validated by the Faculty of Nursing of the Université de Montréal. You will receive your CEC certificate **after attending the final workshop**.

You will receive a quick reference guide that summarizes preterm infants' oral stages and the evidence-based interventions promoting their transition from gavage to at-breast feeding.

Your participation will also contribute to the results of this intervention. Information learned from this intervention may help guide nurses in making better interventions during the transition from gavage to at-breast feeding. This intervention will also benefit preterm infants and their mothers during the transition and promote at-breast feeding in the NICU.

Non-participation:

If you choose not to take part in the educational intervention, you will not have to complete the required questionnaires. This will not change your rights as a NICU nurse working at the JGH.

Voluntary participation/withdrawal:

Your participation in this intervention is voluntary. If you choose to participate, you may decide to stop at any time. If you wish to stop taking part in this intervention, it is very important that you inform the student researcher by email, at [redacted]

If you withdraw from this educational intervention, any information collected up to the point of withdrawal for the purpose of this project may still be used in order to protect the scientific integrity of the intervention.

New information:

If new information is learned that could affect your choice to continue in the educational intervention, you will be told about this information and given an opportunity to decide if you want to continue your participation.

Confidentiality:

While you take part in this educational intervention, the student researcher will collect and store personal identifiable information about you in a file. The data collected will be stored for 10 years in the NICU Clinical Nurse Specialist's (Ms. Lyne Charbonneau's) office at the JGH (B-607). This information will only be accessed by the student researcher (Mona Ziadi), her Université de Montréal supervisors (Ms. Marjolaine Héon and Ms. Marilyn Aita), and the NICU Clinical Nurse Specialist (Ms. Lyne Charbonneau). The student will be responsible for the data collected.

Only information necessary for the educational intervention will be collected. All the information collected about you during the intervention will remain confidential within the limits of the Law. To protect your identity, your name and identifying information will be replaced with a code (numbers and/or letters), the link between the code and your identity will be held by the student researcher and her supervisors. No information that discloses your identity will be allowed to leave the JGH.

The educational intervention could be published in medical journals or shared with other people at scientific meetings, but your identity will not be revealed.

Costs and compensation:

There will be no costs or monetary compensation to you for participating in this educational intervention.

Contact information or questions:

If you have any questions about this educational intervention or if you feel you have a problem related to taking part in the intervention, you can communicate with the student (**Mona Ziadi**) at [redacted] or **Ms. Lyne Charbonneau**, at [redacted]

For any questions concerning your rights as a person taking part in this educational intervention, or if you have comments or wish to file a complaint, you can communicate with the JGH Local Commissioner of Complaints & Quality of Services, **Rosemary Steinberg**, at [redacted]

Implementation of a Nursing Educational Intervention Promoting an Evidence-Based Transition from Gavage to At-Breast Feeding in the NICU

Statement of Consent:

I have read the above information and my questions were answered to my satisfaction. A copy of this signed consent form will be given to me. My participation is voluntary and I can withdraw from the intervention at any time without giving reasons. I do not give up any of my legal rights by signing this consent form. I agree to participate in this educational intervention.

Signature: _____ Date: _____

Name of Participant: _____

Consent form administered and explained in person by:

Signature: _____ Date: _____

Name of Investigator: _____

Annexe B

Lettre d'approbation du comité d'éthique

Hôpital général juif
Jewish General Hospital

BUREAU D'ÉTHIQUE DE LA RECHERCHE
RESEARCH ETHICS OFFICE

Dr. Vasiliki Bessy Bitzas, N, PhD, CHPCN(C).
Chair, Research Ethics Committee
[redacted]
Website : jgh.ca/rec

October 2, 2014

Ms. Lynne Charbonneau (Supervising Ms. Mona Ziadi)
Department of Neonantology
McGill University

SUBJECT: **Protocol 14-129 entitled** "Implementation of a Nursing Educational Intervention Promoting an Evidence-Based Transition from Gavage to At-Breast Feeding in the NICU"

Dear Ms. Charbonneau:

Thank you for submitting the following documents pertaining to the above-mentioned protocol to the Research Ethics Office for review:

- Protocol dated 17 July 2014
- English consent form dated September 30, 2014
- English and French Revised Pre-Intervention Questionnaire (Annex G)
- English and French Post-Intervention Questionnaire (Annex G)
- English and French Training Evaluation Form (Annex J)
- ANNEXE A: Développement de l'oralité chez le nouveau-né prematurе
- ANNEXE B : Niveaux de preuve scientifique
- ANNEXE C : Âges gestationnels d'introduction des interventions favorisant la transition du gavage vers l'allaitement au sein
- ANNEXE D : Lignes directrices de l'Alberta Health Services
- ANNEXE E : Protocole de transition du gavage vers l'alimentation orale (allaitement au sein ou biberon) (White & Parnell, 2013)
- ANNEXE F : Cadre de référence Iowa Model for Evidence-Based Practice
- ANNEXE H : Liste de questions (Entrevue avec les professionnels de la santé de l'unité impliqués dans la gestion de la transition du gavage vers l'allaitement au sein)
- ANNEXE I : Cas à l'étude
- ANNEXE K : Échéancier

The Research Ethics Committee of the Jewish General Hospital (Federalwide Assurance Number: 0796) is designated by the province (MSSS) and follows the published guidelines of the TCPS 2 - Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2010), in compliance with the "Plan d'action ministériel en éthique de la recherche et en intégrité scientifique" (MSSS, 1998), the membership requirements for Research Ethics Boards defined in Part C Division 5 of the Food and Drugs Regulations; acts in conformity with standards set forth in the United States Code of Federal Regulations governing human subjects research, and functions in a manner consistent with internationally accepted principles of good clinical practice.

As this study involves no more than minimal risk in accordance with TCPS 2 article 6.12, this protocol received a delegated research ethics review. We are pleased to inform you that the above-mentioned documents are granted Delegated Approval for the period of one year.

For quality assurance purposes, you must use the approved REO stamped consent form when obtaining consent by making copies of the enclosed one. Please note that a French Consent Form, as required by law, must be forwarded to the Research Ethics Office as soon as possible. For your information, the above-mentioned protocol will be presented for corroborative approval at the next meeting of the Research Ethics Committee to be held on **October 24, 2014**.

It is our understanding that this study has received a letter of acceptance by the Science Review Committee of the Université de Montréal School of Nursing (**17 juillet 2014**).

The study is being conducted by **Ms. Mona Ziadi**, under the supervision of **Ms. Lynne Charbonneau,** in partial fulfillment of the requirement for a Master of Science in Nursing.

Delegated Approval Date:	**October 2, 2014**
Expiration date of Delegated Approval:	**October 1, 2015**

Your "Continuing Review Application" must be received by the Research Ethics Office **one month** before the expiration date above in order to ensure timely review. Otherwise, the study will be terminated. If any modification to the study occurs (amendment) over the next twelve months, or should this study be completed during this period, please submit appropriate documentation to the Research Ethics Office. Visit our website for information www.jgh.ca/rec and to access our downloadable forms, or contact us.

Respectfully,

[redacted]

Dr. Vasiliki Bessy Bitzas, N, PhD, CHPCN(C)
Chair, Research Ethics Committee

VBB/Ab
14-129delegatedNursingApp.doc

Annexe C

Questionnaire pré-intervention: Évaluation de la pratique, des croyances et des connaissances infirmières en lien avec la transition du gavage vers l'allaitement au sein

Code: _____

Date: _____

Veuillez cocher la case correspondant à votre niveau d'accord en ce qui a trait aux éléments énoncés.

	1 - Pas du tout d'accord	**2 - Pas d'accord**	**3 - Ni en désaccord ni en accord**	**4 - D'accord**	**5 - Complètement d'accord**
1. Un nouveau-né prématuré peut débuter des allaitements au sein avant 32 semaines de gestation.					
2. Il faut retarder la succion non-nutritive (par exemple avec une tétine) jusqu'à l'atteinte d'un certain âge gestationnel.					
3. Je peux initier la mise au sein sans prescription médicale.					
4. Je suis en mesure de reconnaître les signes qu'un nouveau-né prématuré est prêt à s'alimenter oralement.					
5. Lorsqu'un nouveau-né prématuré démontre des signes qu'il est prêt à s'alimenter oralement, j'initie l'allaitement au sein.					
6. Un nouveau-né prématuré démontre les mêmes signes d'un bon allaitement au sein qu'un nouveau-né à terme.					

7. Je me sens compétente pour évaluer la capacité d'un nouveau-né prématuré à s'alimenter oralement.					
8. Je me sens compétente pour soutenir le nouveau-né prématuré dans la transition du gavage vers l'allaitement au sein.					
9. Un nouveau-né prématuré qui désature ou qui présente des apnées/bradycardies durant son alimentation au biberon aura les mêmes réactions physiologiques lorsque mis au sein.					
10. Un nouveau-né prématuré qui a une bonne force de succion avec une tétine sera en mesure de s'alimenter oralement plus facilement.					
11. Je donne la tétine au nouveau-né prématuré à chaque gavage, systématiquement.					
12. Il est plus facile de donner du lait dans un biberon que de mettre un nouveau-né prématuré au sein.					
13. J'évalue la capacité du nouveau-né prématuré à s'alimenter oralement en lui donnant le biberon, même s'il sera allaité au sein.					
14. Donner du lait maternel dans un biberon équivaut à allaiter un nouveau-né au sein.					
15. Un allaitement réussi implique que le nouveau-né prématuré ingère un certain volume, selon un horaire pré-établi.					

16. Un nouveau-né prématuré peut être allaité exclusivement au sein avant son congé.					
17. Un nouveau-né prématuré allaité au sein risque d'être hospitalisé plus longtemps à cause d'un gain pondéral insuffisant.					
18. Lorsqu'une mère désire allaiter exclusivement, je m'assure que l'allaitement au sein plutôt que l'alimentation au biberon soit privilégié.					
19. J'encourage la présence de la mère au chevet du nouveau-né prématuré pour favoriser les allaitements au sein (si elle désire allaiter son nouveau-né prématuré).					
20. Un nouveau-né prématuré qui réussit une transition vers l'allaitement au sein durant son hospitalisation a plus de chance d'être encore allaité à 6 mois.					
21. Je place une compresse imbibée de lait maternel proche du nez du nouveau-né prématuré lors du gavage afin de lui offrir une stimulation olfactive.					
22. J'ai souvent recours à la conseillère en lactation et l'ergothérapeute pour les questions entourant l'allaitement au sein.					
23. Je prends le temps de positionner correctement un nouveau-né au sein.					
24. Je me sens tout à fait à l'aise lors de la mise au sein d'un nouveau-né prématuré.					
25. J'estime avoir des connaissances					

suffisantes et adéquates en ce qui a trait à la transition du gavage vers l'allaitement au sein chez le nouveau-né prématuré.					
26. L'allaitement au sein fatigue davantage le nouveau-né prématuré que l'alimentation au biberon.					
Quand a eu lieu votre dernière formation sur l'allaitement?	Date approximative:				
Êtes-vous une conseillère en lactation?	Oui: _____ Non: _____ Si oui, veuillez spécifier le nombre d'années: _____				
Veuillez indiquer le nombre d'années d'expérience comme infirmière en néonatalogie à l'Hôpital général juif de Montréal					
Veuillez indiquer le nombre d'années d'expérience comme infirmière					
Notes / Commentaires / Suggestions					

MERCI POUR VOTRE PARTICIPATION!

Annexe D

Cas à l'étude

Baby Noah


Picture credits: www.phys.org

Today, you are taking care of Baby Noah. Your colleague Ann, who took care of him during the night shift, gives you her report.

Baby Noah was born at 29 weeks 3/7 due to a spontaneous rupture of membranes and is now 33 weeks old. He did not need to be intubated after his birth but was on CPAP for about 3 weeks. He has been off CPAP since last week and saturating within the allowed limits for his gestational age with his 0.5l of O^2 administered via nasal prongs. He weighed 2.04 kg at yesterday's weigh in.

He has not had any medical complications since his admission on the unit. Besides his nasal prongs, Baby Noah has a nasogastric feeding tube for his gavage feeds (he receives all his fluids through the gavage tube). He is on Breast Milk 81, and receives 38.25 ml every 3 hours (based on 150ml/kg/day). Baby Noah tolerates well his feeds. You notice on the flowsheet that his girth is stable, his abdomen is soft, and that he did not regurgitate any of his feeds. Ann, who has been taking care of Noah for quite a few days, also mentions that Noah's mother, Lisa, spends the day at her baby's bedside. His dad, John, comes to visit every day after work and gives Noah his daily bath. They usually leave around 9pm.

At 8:30 am, Lisa, arrives on the unit. She notifies you that she just put about 300ml of breast milk in the unit freezer. She proudly tells you that she had been pumping her milk 6 to 8 times a day for the past 4 weeks!

She has a well-established milk production since she provides milk for all of Noah's gavage feeds.

"*I can also provide for the other babies of the unit!*" She says, jokingly.

You notice that Lisa is very comfortable in handling baby Noah. She tells you that she has been able to hold Noah and do his care (changing diapers and starting his gavage feeds on the pump) during her daily visits. She has also been able to hold him skin to skin from time to time.

During your first check, Lisa asks you if she can hold Noah skin to skin. You notice that he starts rooting right away. You ask Lisa if she has ever tried to put him at the breast but she answers:

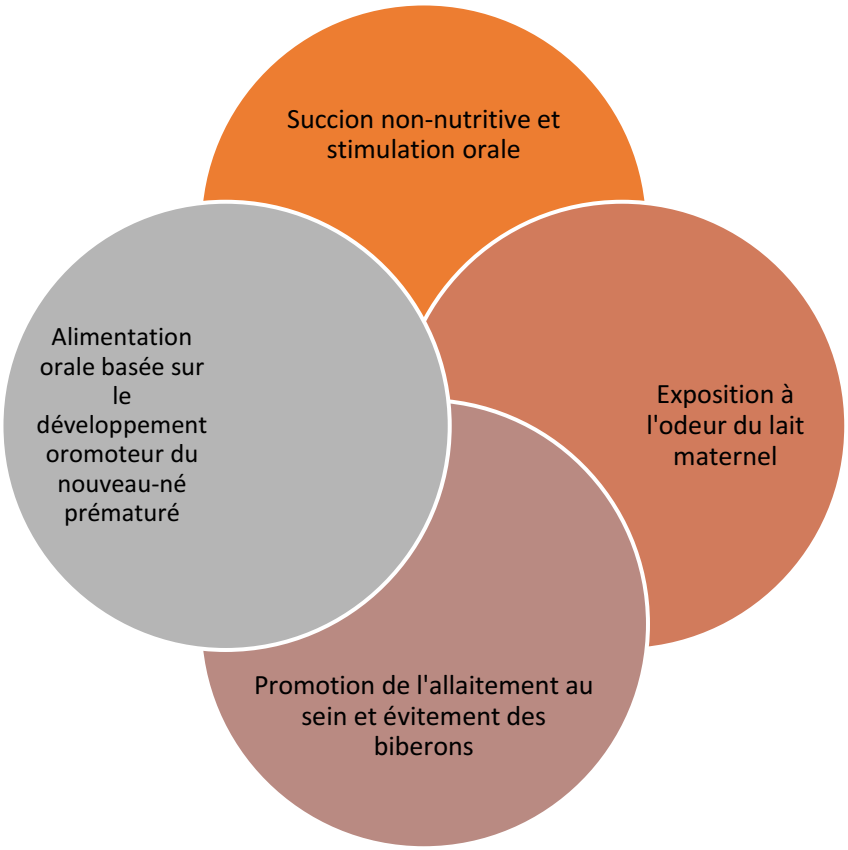
"*I would love to breastfeed him directly instead of pumping my milk! But I am not sure that he is ready. He is still so small! I am afraid he might get too tired. Or that he gets too much milk and regurgitate! However, I noticed that he often has his hands in his mouth in the past week. I would not even know what to check if I put him at the breast...*"

You start thinking about an intervention plan to help baby Noah transition to direct breastfeedings:

- Are there any questions that you wish to ask Lisa?
- Which elements will you assess while evaluating Noah's readiness to feed?
- What are the key elements that you want to include in your intervention plan?

Annexe E

Catégories d'interventions visant la promotion d'une transition du gavage vers l'allaitement au sein basée sur des résultats probants



Adapté de Ziadi et al., (2015, soumis).

Annexe F

Outil Clinique: Aide-mémoire

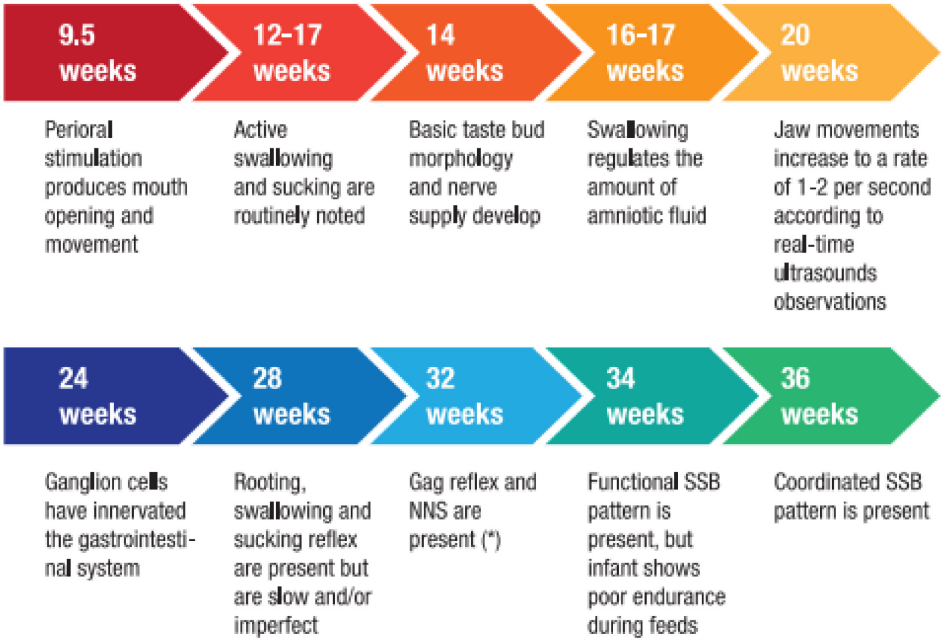
Hôpital général juif
Jewish General Hospital

Promoting an Evidence-Based Transition from Gavage to At-Breast Feeding in the NICU

QUICK REFERENCE GUIDE

Table of contents

Development of Oral Feeding Behavior in the Preterm Infant



(*) Infants born before 32 weeks show a certain sucking movement that is not necessarily associated with NS.
NNS: Non-Nutritive Sucking NS: Nutritive Sucking SSB: Sucking / Swallowing / Breathing
Adapted from Moore, K. L., & Persaud, T. V. N. (2007). The Developing Human: Clinically Oriented Embryology, (pp. 271-300), St-Louis, MO: Saunders. 5

Preterm Infant's Oral Development Stages - Summary

PRE-ORAL STIMULATION
- Unstable with handling + poor physiologic/motor/state regulation
- None to very weak oral reflexes & non-nutritive skills

NON-NUTRITIVE SUCKING (NNS)
- Stable with handling + physiologic/motor/state stability with NNS
- Rooting/Swallowing/Sucking Reflexes are present but are slow and/or imperfect
- Establishes & maintains latch + coordinates sucking/breathing at the end of this stage

MINIMAL ORAL INTAKE
- At 32 weeks post menstrual age (PMA) (corrected age): some readiness cues and may achieve nutritive sucking (NS)
- Gag reflex and good NNS: emergent but not sustained Sucking-Swallowing-Breathing (SSB) coordination
- Oral intake < 10% daily volume

MODERATE ORAL INTAKE
- Hand to mouth, mouth opening, rooting, & ↑ motor activity prior to feeding
- Readiness to feed at some feedings
- Functional to good SSB but shows poor endurance during feed
- Good latch, sustained NS bursts, audible swallowing x several min

FULL ORAL INTAKE
- Coordinated SSB throughout the feeding
- Clear hunger cues: hand to mouth, rooting, increased motor activity, alert state (wakes to feed)
- Satiation cues: slipping off the nipple + falling asleep at end of feeding

Adapted from:
Alberta Health Services. Regional oral feeding guideline. http://www.albertahealthservices.ca/ps-1055678-neonatal-oral-feeding-practice-guideline.pdf.
The Developing Human: Clinically Oriented Embryology (8th ed. pp. 271-300), by K.L. Moore & T.V.N. Persaud, 2007, St-Louis, Mo: W.B. Saunders 6

Pre-Oral Stimulation Stage

Infant characteristics: [1]

- ☑ Responds adversely to handling
- ☑ Poor physiologic, motor & state regulation with or without stimulation
- ☑ None to very weak oral reflexes (transient)
- ☑ None to very weak non-nutritive skills
- ☑ Not managing secretions (neurological infants)

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Pre-Oral

Non-Nutritive Sucking

Non-Nutritive Sucking Stage

Infant characteristics: [1]

- ☑ Stable with handling and able to maintain physiologic, motor and state stability with NNS interventions
- ☑ Oral reflexes present or emerging
- ☑ Demonstrates licking and rooting
- ☑ By the end of this stage, the infant will be able to demonstrate NNS by:
  - o Establishing and maintaining latch
  - o Rhythmical sucking bursts
  - o Coordinating sucking and breathing

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Minimal Oral Intake Stage

Infant characteristics: [1]

- ☑ Breastfed infants may exhibit better O_2 saturations than bottle-fed infants
- ☑ Infants 32 weeks PMA (corrected age) may begin to demonstrate readiness cues and be able to achieve nutritive sucking at this stage
- ☑ Good NNS: emergent but not sustained SSB coordination
- ☑ Oral intake < 10% daily volume

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Minimal Oral Intake

Moderate Oral Intake

Moderate Oral Intake Stage

Infant characteristics: [1]

- ☑ Exhibits identifiable readiness cues such as hand to mouth, rooting, and increased motor activity prior to feeding
- ☑ May demonstrate readiness to feed at some feedings throughout the day, but not necessarily all the feeds
- ☑ Functional to good SSB
- ☑ Improved endurance but not enough to maintain full oral feeding
- ☑ Immature state control (the infant is unable to maintain a quiet state throughout the feeding)
- ☑ A positive at-breast experience is defined as an infant who exhibits a good latch, sustained bursts of nutritive sucking, and audible swallowing for several minutes

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Full Oral Intake Stage

Infant characteristics: [1]

- ☑ Sustains SSB throughout the feeding
- ☑ Demonstrates clear hunger cues such as hand to mouth, rooting, increased motor activity, alert state (wakes to feed)
- ☑ Demonstrates satiation cues such as slipping off the nipple at the end of the feeding, falling asleep at the end of feeding

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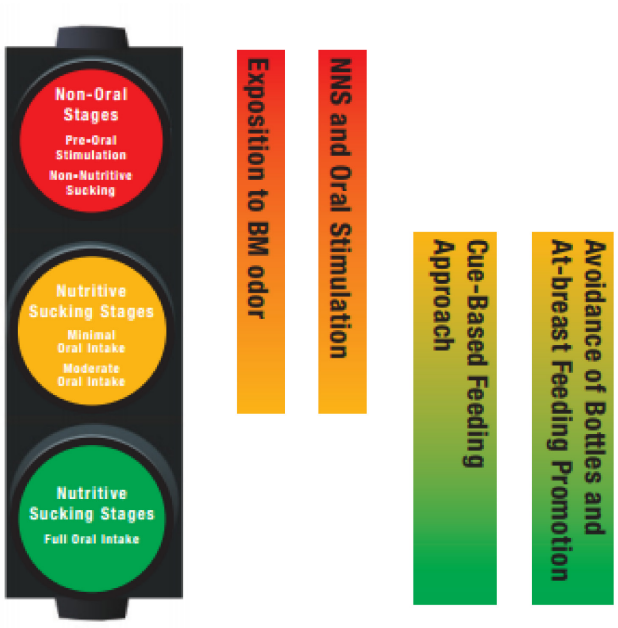
Full Oral Intake

Evidence-based interventions promoting transition from gavage to at-breast feeding - Summary



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Interventions Promoting Transition From Gavage to At-Breast Feeding

NNS and Oral Stimulation

DEFINITIONS:

NNS is an intervention that promotes sucking in a preterm infant, through the use of a pacifier [2], a gloved finger or an emptied breast [3].

Oral stimulation, consisting of peri-oral and intra-oral stimulation interventions using a gloved finger or a pacifier, can have beneficial effects on oral feeding performance when applied before or during oral feedings in medically stable preterm infants [4].

METHOD:

- NNS could be started on the onset of the gavage feed

- Oral stimulation could be administered for 15-minutes, once to three times a day, using a gloved finger for perioral and intraoral stimulation, or a pacifier during gavage feeds [5]. The intervention is to be performed for at least 10 days before oral feeds are started [5].

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Avoidance of Bottles and At-Breast Feeding Promotion

DEFINITION:

Direct breastfeeding is allowing the preterm infant to suck directly from the breast while gavage feeds continue [6].

The avoidance of bottles calls for supplementation by cup or gavage only [7,8].

These combined methods aim to promote the at-breast feeding experience.

METHOD:

The promotion of at-breast feeding experience can be achieved either by exposing preterm infants directly to the breast [6], by supplementing them by tube only [7], or with cups [7,8].

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At-Breast Feeding Promotion – Observable Behaviors at the Breast

ROOKIE

- Licking and tasting predominate
- Areolar grasp: some areola inside the mouth
- Occasional short sucking bursts of ~ 3- 5 sucks
- Pattern of long sucking burst is 1- 5 sucks pause and breath (↑ with PMA)
- Short latching on ≤ 5 minutes

IN TRAINING

- Rooting
- Areolar grasp: some areola inside the mouth
- Repeated sucking bursts of ~ 6-15 sucks
- Swallowing beginning to be integrated into sucking burst
- Pattern of long sucking bursts ~ 6-10 sucks

EXPERT

- Obvious consistent rooting
- Deep latch maintained (≥ 15 min)
- Repeated consecutive bursts of ~ 15-30 sucks
- Swallow audible
- Pattern of bursts - suck swallow breath or suck suck swallow breath
- > 11 minutes of sucking

Adapted from:
Alberta Health Services. Regional oral feeding guideline. http://www.albertahealthservices.ca/ps-1055678-neonatal-oral-feeding-practice-guideline.pdf.
Nyqvist, K. H., Sjödén, P. O., & Ewald, U. (1999). The development of preterm infants' breastfeeding behavior. Early human development, 55(3), 247-264.

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Cue-Based Feeding Approach

DEFINITION:

The cue-based feeding approach is based on the observation and identification of the infant's readiness signs to start oral feedings [2].

METHOD:

The approach consists in the observation of preterm behavioural feeding signals. They are known to be subtle [9].

Prior to feeding, a preterm infant may show the following signs [10]:

- Sucking on an empty breast
- Sucking on fingers or hands or tongue
- Hand to mouth, swipes at mouth
- Tonguing and rooting

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Cue-Based Feeding Approach – Readiness Cues

READINESS CUES:

An infant who is ready to orally feed is [11,12]:

- Stable physiologically
- Tolerating full enteral feeds
- Showing a stable respiratory system (>70 bpm will inhibit oral response)
- Tolerating gentle handling (saturation within the allowed limits for their PMA)
- Swallowing secretions
- Able to transition to an alert state
- Able to lick, nuzzle or suckle on a breast or sustains NNS on a pacifier (rhythmic NNS)
- Rooting in response to touch around the mouth and lips

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Cue-Based Feeding Approach – Stress/Disengagement Cues

STRESS/DISENGAGEMENT CUES:

An infant who is stressed about feeding is [1,12]:

- Crying, grimacing, irritable
- Arching and finger spraying
- Showing significant changes in heart rate (bradycardia, tachycardia)
- Showing O_2 saturation outside of allowed limits for PMA
- Showing color changes (pallor, cyanosis, mottled)
- Showing significant changes in respiratory status (rate, grunting, nasal flaring, retractions, apnea)
- Showing change in state: obvious fatigue, loss of postural tone
- Hiccupping, vomiting, gagging

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Exposition to Breast Milk Odor

DEFINITION:

Preterm infants are able to distinguish the odor of their mother's breast milk from another mother's milk [13]. Breast milk, being a maternally derived odor, acts as an olfactory reinforcer of neonatal ingestive behavior and increases NNS [14,16].

METHOD:

Can be achieved by exposing the preterm infant to a sterile pad soaked with breast milk that was placed either in the incubator during gavage feeds [15] or held about 1cm from baby's nostrils for two minutes before a breastfeeding session is attempted [16].

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Aknowledgements

This quick reference guide has been developed as part of a Faculté des sciences infirmières (Université de Montréal) Master's degree project under the supervision of:

Ms. Marjolaine Héon, R.N., Ph.D., Faculté des sciences infirmières, Université de Montréal
Ms. Marilyn Aita, R.N., Ph.D., Faculté des sciences infirmières, Université de Montréal
Ms. Lyne Charbonneau, R.N., M.Sc., Jewish General Hospital (JGH)

The author gratefully acknowledges the financial support offered by le Réseau de recherche en interventions en sciences infirmières du Québec (RRISIQ) and the JGH.

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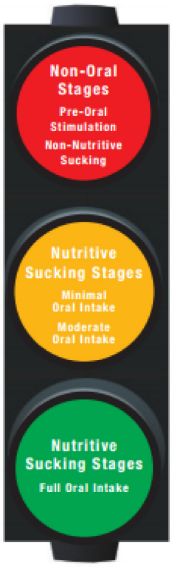
Université de Montréal

Réseau RRISIQ Network
Réseau de recherche en interventions en sciences infirmières du Québec
Quebec Nursing Intervention Research Network

Hôpital général juif
Jewish General Hospital

Oral Development Stages in Preterm Infants



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- Clear hunger cues: hand to mouth, rooting, increased motor activity, alert state (wakes to feed)
- Satiation cues: slipping off the nipple + falling asleep at end of feeding

Adapted from:
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NNS AND ORAL STIMULATION

DEFINITION
NNS is an intervention that promotes sucking in a preterm infant, through the use of a pacifier [2], a gloved finger or an emptied breast [3].
Oral stimulation, consisting of peri-oral and intra-oral stimulation interventions using a gloved finger or a pacifier, can have beneficial effects on oral feeding performance when applied before or during oral feedings in medically stable preterm infants [4].

METHOD
NNS could be started on the onset of the gavage feed
Oral stimulation could be administered for 15-minutes, once to three times a day, using a gloved finger for perioral and intraoral stimulation, or a pacifier during gavage feeds [5]. The intervention is to be performed for at least 10 days before oral feeds are started [5].

AVOIDANCE OF BOTTLES AND AT-BREAST FEEDING PROMOTION

DEFINITION
Direct breastfeeding is allowing the preterm infant to suck directly from the breast while gavage feeds continue [6].
The **avoidance of bottles** calls for supplementation by cup or gavage only [7,8].
These combined methods aim to promote the at-breast feeding experience.

METHOD
The promotion of at-breast experience was achieved either by exposing preterm infants directly to the breast [6], or by avoiding the bottles by supplementing the preterm infants by tube only [7], or with cups [7,8].

CUE-BASED FEEDING APPROACH

DEFINITION
The cue-based feeding approach is based on the observation and identification of the infant's readiness signs to start oral feedings [2].

METHOD
The approach consists in the observation of preterm behavioural feeding signals. They are known to be subtle [9]. Prior to feeding, a preterm infant may show the following signs [10]:
- Sucking on an empty breast
- Sucking on fingers or hands or tongue
- Hand to mouth, swipes at mouth
- Tonguing and rooting

EXPOSITION TO BREAST MILK ODOR

DEFINITION
Preterm infants are able to distinguish the odor of their mother's breast milk from another mother's milk [13]. Breast milk, being a maternally derived odor, acts as an olfactory reinforcer of neonatal ingestive behavior and increases NNS [14,16].

METHOD
Can be achieved by exposing the preterm infant to a sterile pad soaked with breast milk that was placed either in the incubator during gavage feeds [15] or held about 1cm from baby's nostrils for two minutes before a breastfeeding session is attempted [16].

Please refer to the Quick Reference Guide to consult the references list.

Annexe G

Questionnaire post-intervention: Évaluation de la pratique, des croyances et des connaissances infirmières en lien avec la transition du gavage vers l'allaitement au sein

Code: _____

Date: _____

Veuillez cocher la case correspondant à votre niveau d'accord en ce qui a trait aux éléments énoncés.

	1 - Pas du tout d'accord	**2 - Pas d'accord**	**3 - Ni en désaccord ni en accord**	**4 - D'accord**	**5 - Complètement d'accord**
1. Un nouveau-né prématuré peut débuter des allaitements au sein avant 32 semaines de gestation.					
2. Il faut retarder la succion non-nutritive (par exemple avec une tétine) jusqu'à l'atteinte d'un certain âge gestationnel.					
3. Je peux initier la mise au sein sans prescription médicale.					
4. Je suis en mesure de reconnaître les signes qu'un nouveau-né prématuré est prêt à s'alimenter oralement.					
5. Lorsqu'un nouveau-né prématuré démontre des signes qu'il est prêt à s'alimenter oralement, j'initie l'allaitement au sein.					
6. Un nouveau-né prématuré démontre les mêmes signes d'un bon allaitement au sein qu'un nouveau-né à terme.					
7. Je me sens compétente pour évaluer la capacité d'un nouveau-né prématuré à s'alimenter oralement.					
8. Je me sens compétente pour soutenir le nouveau-né prématuré dans la transition du gavage vers l'allaitement au sein.					
9. Un nouveau-né prématuré qui désature ou qui présente des apnées/bradycardies durant son alimentation au biberon aura les mêmes réactions physiologiques lorsque mis au sein.					
10. Un nouveau-né prématuré qui a une bonne force de succion avec une tétine sera en mesure de s'alimenter oralement plus					

facilement.					
11. Je donne la tétine au nouveau-né prématuré à chaque gavage, systématiquement.					
12. Il est plus facile de donner du lait dans un biberon que de mettre un nouveau-né prématuré au sein.					
13. J'évalue la capacité du nouveau-né prématuré à s'alimenter oralement en lui donnant le biberon, même s'il sera allaité au sein.					
14. Donner du lait maternel dans un biberon équivaut à allaiter un nouveau-né au sein.					
15. Un allaitement réussi implique que le nouveau-né prématuré ingère un certain volume, selon un horaire pré-établi.					
16. Un nouveau-né prématuré peut être allaité exclusivement au sein avant son congé.					
17. Un nouveau-né prématuré allaité au sein risque d'être hospitalisé plus longtemps à cause d'un gain pondéral insuffisant.					
18. Lorsqu'une mère désire allaiter exclusivement, je m'assure que l'allaitement au sein plutôt que l'alimentation au biberon soit privilégié.					
19. J'encourage la présence de la mère au chevet du nouveau-né prématuré pour favoriser les allaitements au sein (si elle désire allaiter son nouveau-né prématuré).					
20. Un nouveau-né prématuré qui réussit une transition vers l'allaitement au sein durant son hospitalisation a plus de chance d'être encore allaité à 6 mois.					
21. Je place une compresse imbibée de lait maternel proche du nez du nouveau-né prématuré lors du gavage afin de lui offrir une stimulation olfactive.					
22. J'ai souvent recours à la conseillère en lactation et l'ergothérapeute pour les questions entourant l'allaitement au sein.					
23. Je prends le temps de positionner correctement un nouveau-né au sein.					
24. Je me sens tout à fait à l'aise lors de la mise au sein d'un nouveau-né prématuré.					

25. J'estime avoir des connaissances suffisantes et adéquates en ce qui a trait à la transition du gavage vers l'allaitement au sein chez le nouveau-né prématuré.					
26. L'allaitement au sein fatigue davantage le nouveau-né prématuré que l'alimentation au biberon.					
Notes / Commentaires / Suggestions					

MERCI POUR VOTRE PARTICIPATION!

Annexe H

Questionnaire d'appréciation de la formation

Code : _____

Date : _____

Veuillez cocher la case qui correspond à votre niveau d'appréciation de la formation sur les interventions favorisant la transition du gavage vers l'allaitement au sein.

	1 - Pas du tout d'accord	**2 - Pas d'accord**	**3 - Ni en désaccord ni en accord**	**4 - D'accord**	**5 - Complètement d'accord**
1. Les objectifs de la formation ont été énoncés clairement.					
2. Le contenu de la formation a correspondu à mes attentes.					
3. Le contenu de la formation était bien organisé et facile à suivre.					
4. La durée des ateliers était tout à fait appropriée.					
5. Le format de la formation était stimulant.					
6. Les activités d'apprentissage m'ont permis d'atteindre les objectifs de la formation.					
7. Je suis satisfait(e) de l'aide reçue par la formatrice durant les ateliers.					
8. Les consignes pour l'élaboration des activités d'apprentissage ont été énoncées clairement.					
9. L'aide-mémoire m'a été utile lors des activités de la formation et dans ma pratique.					
10. Cette formation sera utile dans le cadre de mon travail.					

L'activité respectait-elle le Guide éthique de la formation continue de la Faculté des sciences infirmières de l'Université de Montréal? (voir page ci-joint)	Oui : _____ Non : _____
Aviez-vous l'impression qu'il y avait un biais commercial durant l'activité éducative?	Oui : _____ Non : _____
Suggestions /commentaires en lien avec la formation reçue:	

Extrait du guide éthique de la formation continue non diplômante
de la Faculté des sciences infirmières (FSI)
Université de Montréal

Le conférencier, l'animateur ou le professeur

À partir des objectifs d'apprentissage ou des compétences visées, la personne ressource nommée conférencier, professeur ou animateur d'un atelier, élabore le contenu de l'activité de formation continue, identifie les méthodes pédagogiques et les activités d'apprentissage, crée le matériel didactique, anime l'activité, évalue les apprentissages et compile les évaluations des compétences et/ou de la satisfaction des participantes à l'activité éducative.

Règles et responsabilités éthiques :

- La personne ressource agit avec loyauté et honnêteté.
- Elle avise le comité organisateur de l'activité éducative et les participantes, de toute alliance, affiliation ou de tout soutien financier ayant un lien avec le contenu de l'activité et ce, pour une période antérieure de 2 ans. À cet effet, elle remplit le Formulaire de divulgation de conflits d'intérêts potentiels (voir à la dernière page de ce document).
- Elle évite de transmettre - aux personnes en formation - des informations visant à les faire adhérer à des organisations, des associations ou autres.
- Elle tient à jour ses compétences et ses méthodes d'enseignement.
- Elle présente un contenu valide qui s’appuie sur les plus récentes données probantes.
- Elle ne doit pas utiliser le contenu de formation appartenant à un autre auteur à moins d'une autorisation écrite de sa part.
- Si des produits ou services sont mentionnés, elle démontre un contenu équilibré entre différents produits pharmaceutiques, médicaux ou autres disponibles sur le marché.
- Les médicaments sont exposés selon leur version générique et non avec leur nom commercial.

- Le logo et/ou des éléments promotionnels d'une entreprise subventionnaire - à but lucratif ou non - qui ne dispose pas d'une entente signée avec l'Université de Montréal sont prohibés dans tous les documents connexes (fiche d'inscription, présentation PowerPoint, cahier du participant, etc.) à l'activité éducative.

- Elle consent à des honoraires reconnus comme acceptables par le comité organisateur de l'activité.

- Elle accepte d'être remboursée pour les frais de déplacement, de repas et d'hébergement, et ce, selon des montants reconnus comme acceptables par le comité organisateur de l'activité.

- En plus de sa rémunération, elle n'accepte aucun avantage personnel, tels un gain financier, un cadeau, un privilège ou une reconnaissance professionnelle.

- La personne ressource s'abstient d'utiliser des méthodes sournoises de concurrence ou de sollicitation.

- Elle vérifie si le contenu de la publicité destinée à l'activité qu'elle va animer est exact.

- Elle évite toute activité de promotion d'un service ou d'un produit dissimulée sous l'apparence d'une activité de formation continue.

La participante

La participante est une infirmière ou un infirmier inscrit au Tableau de l'Ordre des infirmières et infirmiers du Québec (OIIQ). Elle peut représenter, aussi, une autre professionnelle de la santé. En participant à une activité de formation continue non diplômante, la participante infirmière tend à respecter la nouvelle norme professionnelle intitulée *la formation continue pour la profession infirmière au Québec* entrée en vigueur en janvier 2012.

Règles et responsabilités éthiques :

- La participante est à l'affût de tout conflit d'intérêts réel ou potentiel relié à l'activité éducative.

- Elle inscrit sur le formulaire d'évaluation tout conflit d'intérêts possible.

- Elle acquitte les frais reliés aux activités sociales ou autres proposées dans l'activité éducative.
- La participante peut recevoir une compensation financière (frais de déplacement ou repas) dans le cadre d'une formation associée à un projet de recherche.

Annexe I

Lettre de réponse de la Faculté des sciences infirmières de l'Université de Montréal officialisant l'accréditation de l'intervention éducationnelle

Université de Montréal

Faculté des sciences infirmières
Secteur Accréditation

Montréal, le 16 septembre 2014

Madame Mona Ziadi
Faculté des sciences infirmières
Université de Montréal

Objet : Demande d'accréditation d'une activité de formation continue non diplômante
Titre : Intervention éducationnelle visant une pratique infirmière basée sur les résultats probants lors de la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés
Date(s) : Octobre 2014
Lieu : Hôpital général juif de Montréal

Madame,

Tel que demandé, nous avons procédé à l'étude de la demande d'accréditation du projet de formation mentionné en titre et ce, pour l'émission d'heures de formation accréditées (HFA) par la Faculté des sciences infirmières de l'Université de Montréal.

Nous avons ainsi révisé votre demande d'accréditation quant aux critères pédagogiques et éthiques. Voici le résultat de notre analyse.

#	Critères	Conforme	Non conforme	Non applicable
1.	Composition du comité organisateur	x		
2.	Identification de la clientèle cible	x		
3.	Identification des besoins	x		
4.	Objectifs d'apprentissage ou compétences visées	x		
5.	Méthodes pédagogiques utilisées	x		
6.	Activités d'apprentissage employées	x		
7.	Qualifications de la personne ressource	x		
8.	Processus d'évaluation	x		
9.	Respect du *Guide éthique de la formation continue de la FSI*	x		
10.	Budget	x		
11.	Documentation fournie	x		
12.	Paiement des frais d'étude de la demande			x

Cette évaluation a permis de conclure que le contenu de ce programme répond aux exigences de notre *Politique d'accréditation d'une activité ou d'un programme de formation continue non diplômante*. Selon les règles de cette politique, votre demande est:

☒ **Acceptée pour 2,5 heures de formation accréditées (HFA) selon les modalités suivantes :** 3 rencontres de 0,75 heure + 0,25 heure pour questionnaire pré-formation = 2,5 HFA

Veuillez inscrire le libellé suivant sur le programme ou sur le syllabus de l'activité : « La Faculté des sciences infirmières de l'Université de Montréal reconnaît, à la présente activité, **2,5** heures de formation accréditées ».

*La Faculté des sciences infirmières accrédite la formation en titre pour une période d'un an, soit du **16 septembre 2014 au 15 septembre 2015**. Au terme de cette période, une demande de renouvellement pour cette formation devra être soumise. Pour toute demande de renouvellement, veuillez utiliser le Formulaire de renouvellement - demande d'accréditation qui se trouve sur la page « Accréditation » du site web de la Faculté des sciences infirmières à l'adresse suivante : http://www.scinf.umontreal.ca/.*

Une demande de renouvellement peut être faite uniquement deux (2) fois. Par la suite, il faudra réviser le contenu de l'activité de formation selon les résultats probants et soumettre une nouvelle demande d'accréditation.

Pour autoriser l'émission d'une attestation de participation à l'attention de chacun de vos participants, vous devez nous faire parvenir les documents suivants à l'adresse accreditation-fsi@umontreal.ca :

- La liste numérisée des présences complétée avec la signature originale des participantes.
- Le fichier Excel contenant la liste des participantes incluant leur adresse courriel **ET** leurs adresse postale
- La compilation des formulaires d'évaluation.
- Tel que discuté, il n'y aura aucun frais pour l'émission des attestations puisque, à titre d'étudiante à la maîtrise, vous ne disposez d'aucun budget à cette fin.

Veuillez agréer, Madame, l'expression de nos sentiments distingués.

[redacted]

Anne Marie Sutton, coordonnatrice aux affaires académiques

Pour le secteur Accréditation
Faculté des sciences infirmières
Université de Montréal
accreditation-fsi@umontreal.ca

Annexe J

Liste de questions (Entrevue avec les professionnels de la santé de l'unité impliqués dans la gestion de la transition du gavage vers l'allaitement au sein)

Questions en lien avec les pratiques actuelles de transition du gavage vers l'allaitement au sein :

1. Quelles sont les problématiques reliées à la transition à l'alimentation orale les plus rencontrées auprès de cette clientèle?
2. Quelles sont les interventions les plus fréquentes que vous posez auprès des nouveau-nés prématurés en ce qui a trait à l'allaitement au sein?
3. Quelles sont les interventions que vous introduisez auprès des nouveau-nés prématurés afin de favoriser la transition du gavage vers l'allaitement au sein?
4. Remettez-vous de la documentation aux infirmières ou aux parents en ce qui a trait à la transition du gavage vers l'allaitement au sein? Vers l'alimentation orale en général?
5. Abordez-vous la transition du gavage vers l'allaitement au sein auprès des infirmières? De quelle façon?
6. À quelle fréquence êtes-vous impliqué(e) dans les problématiques de transition des nouveau-nés prématurés du gavage vers l'allaitement au sein?
7. Quels changements aimeriez-vous voir en ce qui a trait à la transition du gavage vers l'allaitement au sein sur l'unité?

Questions en lien avec la formation des infirmières en ce qui a trait à la transition du gavage vers l'allaitement au sein :

1- Quand a eu lieu la dernière mise à jour du programme de formation sur l'allaitement des nouveau-nés prématurés?
2- Combien d'heures dure la formation sur l'allaitement?
3- Existe-t-il des programmes de formation continue ou des mises à jour sur l'allaitement des nouveau-nés prématurés?
4- Quels sont les sujets abordés par la formation sur l'allaitement?
5- Est-ce que vous abordez les problématiques spécifiques de transition du gavage vers l'allaitement au sein lors de la formation?
6- Est-ce que tous les acteurs présents sont impliqués dans la formation sur l'allaitement qui est fournie aux infirmières?
7- Quels points aimeriez-vous voir abordés lors d'une formation sur la transition du gavage vers l'allaitement au sein?

Présentation du cas qui sera présenté aux infirmières lors de l'intervention éducationnelle :

1. Est-ce que le cas reflète la réalité sur l'unité?
2. Quelles informations pourraient être rajoutées afin de bonifier le cas présenté?

Annexe K

Message d'invitation

Bonjour,

Vous êtes invité(e) à participer à une intervention éducationnelle visant une pratique infirmière basée sur les résultats probants lors de la transition du gavage vers l'allaitement au sein chez les nouveau-nés prématurés. Cette intervention éducationnelle, développée dans le cadre d'un stage de maîtrise, est divisée en **3 ateliers** de **45 minutes**. Les ateliers seront donnés à une semaine d'intervalle, pendant 3 semaines. Les dates des ateliers vous seront bientôt communiquées par Mme Charbonneau.

En acceptant de participer à cette intervention éducationnelle, vous recevrez un certificat de formation continue de **2.5 heures** validé par la Faculté des sciences infirmières de l'Université de Montréal. Veuillez noter que vous ne recevrez votre certificat de formation continue qu'après avoir participé **aux trois ateliers**.

L'intervention éducationnelle vise à développer les compétences suivantes :

1. **Exercer un jugement clinique infirmier en:**
    - Reconnaissant les signes de capacité d'alimentation orale chez le nouveau-né prématuré ;
    - Sélectionnant des interventions adaptées au stade de développement oral du nouveau-né prématuré pour favoriser sa transition du gavage vers l'allaitement au sein ;
    - Planifiant et en consignant les interventions facilitant la transition du gavage vers l'allaitement au sein dans le plan thérapeutique infirmier (PTI) ou dans le plan de soins du nouveau-né prématuré.
2. **Traiter toute activité professionnelle et disciplinaire avec rigueur scientifique en:**
    - Basant sa pratique sur des résultats probants lors de la transition des nouveau-nés prématurés du gavage vers l'allaitement au sein.
3. **Agir avec professionnalisme en:**
    - Intégrant les apprentissages réalisés à sa pratique infirmière afin d'offrir une meilleur qualité de soins aux nouveau-nés prématurés.

Pour toute question concernant l'intervention éducationnelle, veuillez vous référer à moi [redacted] ou à Mme Lyne Charbonneau.

Sincères salutations,

Mona Ziadi

==========

Subject : Implementation of a Nursing Educational Intervention Promoting an Evidence-Based Transition from Gavage to Direct breastfeeding in the NICU

Hi,

You are invited to be part of an educational intervention whose goal is to promote an evidence-based transition of preterm infants from gavage to direct breastfeeding in the NICU. This educational intervention is part of a Master's degree internship and is divided into **3 workshops** of **45 minutes** each. The workshops will be held over 3 consecutive weeks. The dates will be soon communicated to you by Ms. Charbonneau.

By choosing to participate in this educational intervention, you will get a **2.5 hour continuing education credit (CEC)**, validated by the Faculty of Nursing of the Université de Montréal. Please note that you have to attend **all three workshops** to receive your 2.5 hour CEC certificate.

The educational intervention aims to develop the following competencies:

1. **Practicing a nursing clinical judgement by:**
    - Recognizing signs of oral readiness in a preterm infant,
    - Selecting interventions that are adapted to the oral development of the preterm infant to promote their transition to direct breastfeeding,
    - Planning and recording interventions promoting the transition from gavage to direct breastfeeding in the preterm infant's Therapeutic Nursing Plan (TNP) or in their care plan.

2. **Processing all professional and disciplinary activity with scientific rigor by:**

    - Basing one's practice on evidence during the transition of preterm infants from gavage to direct breastfeeding.

3. **Acting with professionalism by:**

    - Integrating what has been learned during the workshops in one's practice, to offer a better quality of care to preterm infants.

Should you need additional information regarding the educational intervention, please feel free to contact me at [redacted] or Ms. Lyne Charbonneau.

Thank you,

Mona Ziadi

Annexe L

Lignes directrices de présentation

de la revue *Journal of Neonatal Nursing*

Journal of Neonatal Nursing

Introduction

Types of paper

The journal welcomes contributions for publication from the following categories: Research Articles, Reviews, Contemporary Issues, Short Case Studies, Student Experiences, Guidelines and Best Practice Initiatives, Letters to the Editor, Book Reviews and Commentaries.

Research Articles and Reviews should be 2,000-3,500 words, including abstract and references. Supporting statements (Conflict of Interest, Ethical Approval, Acknowledgements) are not included in the word count.

Case Studies are also welcome and these may be shorter in length.

Contemporary Issues should be 1,500-2,000 words. Papers that discuss contemporary issues within neonatal care, and stimulate debate, are welcomed. Authors who have ideas which address issues of substantive interest to the field, including those of a controversial nature, should consider submitting a Contemporary Issue piece. The issues must be current and, although they can be of national agenda, they must have international implications or be of relevance to an international audience. Contemporary Issues should be in editorial format, with no abstract, but with keywords and up to 8 references (following the style as outlined in this Guide).

Letters to the Editor should be up to 1,000 words.

Contact details for submission

All articles should be submitted to Dee Beresford, Editor, email: deeberesford@btinternet.com.

Before You Begin

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