

# Implementing a Clinical Practice Change: Adopting the Nutrition Care Process

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## ABSTRACT

The Nutrition Care Process (NCP), created by the Academy of Nutrition and Dietetics, provides a framework that encourages critical thinking and promotes uniform documentation by Registered Dietitians (RD). Additionally, it creates a link between the nutrition assessment, nutrition intervention, and the predicted or actual nutrition outcome. NCP has been integrated into a number of institutions in Canada and internationally. A committee of nonmanagement RDs at the Hospital for Sick Children led the Department of Clinical Dietetics in adopting the NCP. The committee developed and consecutively delivered a tailored education plan to 5 groups of RDs within the department. Additional resources were developed to complement the learning plan. The committee administered informal pre- and post-education surveys to measure outcomes. RDs reported receiving adequate training and felt confident implementing NCP into their practice. Adopting the NCP was well-received and RDs within the department continue to integrate it into their current practice.

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## RÉSUMÉ

Le processus de soins en nutrition (PSN), créé par l'Academy of Nutrition and Dietetics, fournit un cadre qui favorise la pensée critique et qui promeut la documentation uniforme chez les diététistes. De plus, il crée un lien entre l'évaluation nutritionnelle, l'intervention nutritionnelle et le résultat nutritionnel escompté ou réel. Le PSN a été intégré dans certains établissements au Canada et ailleurs dans le monde. Un comité de diététistes non gestionnaires au Hospital for Sick Children a dirigé l'adoption du PSN par le service de diététique clinique. Le comité a élaboré puis mis en œuvre un plan de formation sur mesure pour cinq groupes de diététistes au sein du service. Des ressources additionnelles ont été conçues pour compléter le plan d'apprentissage. Le comité a mené des sondages non officiels avant et après la formation pour mesurer les résultats. Les diététistes ont indiqué avoir reçu une formation adéquate et se sentaient à l'aise de mettre en œuvre le PSN dans leur pratique. L'adoption du PSN a été bien reçue, et les diététistes du service continuent de l'intégrer dans leur pratique actuelle.

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## INTRODUCTION

The Nutrition Care Process (NCP) is a 4-step model designed by the Academy of Nutrition and Dietetics to provide a systematic approach to nutrition care that encourages critical thinking and problem solving while improving consistency in practice [1, 2]. The Nutrition Care Process Terminology provides a set of standardized nutrition care terms and definitions utilized when providing nutrition care [3, 4]. The main objectives of the NCP are to promote uniform documentation between Registered Dietitians (RD) across care services, similar to nursing and other health care professions [5], and to create a link between the nutrition assessment, intervention, and the predicted or actual nutrition outcomes [5, 6]. Over the last decade, the NCP has been implemented into practice at an international level [7–12] and, with support from Dietitians of Canada, has been adopted by practitioners in Canada [3].

The Hospital for Sick Children (SickKids) in Toronto, Ontario, is a major paediatric acute care centre employing 45 RDs. Documentation practices among RDs at SickKids vary widely between programs and practitioners. The College of Dietitians of Ontario states that a RD must demonstrate timely charting following patient interactions, but details of assessment findings and care planning are not standardized or mandated [13]. This highlights the need for standardized

charting and the opportunity to improve quality of care within SickKids.

The need to link clinical care provided by RDs with measurable nutritional outcomes is becoming increasingly important in health care [14]. In an effort to streamline charting and documentation, and in preparation for the launch of the new electronic health record (EHR) at SickKids, it was decided that the Department of Clinical Dietetics would adopt the NCP model. Continuous in-service education was provided to optimize the adoption of the NCP [3, 15].

## METHODS

In 2016, a working group comprised of 6 nonmanagement clinical RDs was formed to begin the process of implementing the NCP. The objective of this committee was to provide a transparent learning plan, evidence-based education sessions, and practical tools and resources to all SickKids RDs to facilitate adoption of the NCP. The primary focus was placed on the nutrition diagnosis, in particular writing problem, etiology, signs and symptoms (PES) statements, the segment of the NCP that marks the most significant change in current dietetic practice [6] (example: altered GI function related to short bowel syndrome as evidenced by total parenteral nutrition dependence for growth and hydration). Over a 6-month period, the committee reviewed and assessed strategies utilized

**Table 1.** Pre- and post-NCP education perceptions within the department of clinical dietetics at the Hospital for Sick Children.

Statement	Disagree <sup>a</sup>	Neutral	Agree <sup>b</sup>	Pre/Post <i>t</i> test <i>P</i> value	Post $\chi^2$ test <i>P</i> value
I have had sufficient training in NCP.	Pre 25/29 Post 0/25	Pre 3/29 Post 1/25	Pre 1/29 Post 24/25	<0.001	<0.001
I feel confident about writing PES statements.	Pre 19/31 Post 1/16	Pre 5/31 Post 0/16	Pre 7/31 Post 15/16	<0.001	<0.001
I would prefer to continue with my own charting routine.	Pre 5/29 Post 5/25	Pre 15/29 Post 12/25	Pre 9/29 Post 8/25	0.866	0.405

Note: NCP, nutrition care process; PES, problem, etiology, signs and symptoms.

<sup>a</sup>Includes respondents who strongly disagree and somewhat disagree.

<sup>b</sup>Includes respondents who strongly agree and somewhat agree.

by other institutions to develop a comprehensive education plan [11, 16] while also becoming familiar with the NCP and standardized terminology before educating the department.

The NCP was introduced to the department at regularly scheduled department meetings. To promote transparency and group buy-in, detailed background information, rationale for implementing the NCP, and an overview of the committee's education plan was presented. Additionally, the committee provided an explanation of the NCP's alignment with departmental values, including the NCP's status as a benchmarked practice in clinical care as well as its role in facilitating research and innovation and interprofessional collaboration through standardized terminology.

The committee divided the department into 5 groups of RDs (Supplementary File 1<sup>1</sup>) for more comprehensive education based on similarities in practice, a strategy previously identified for successful implementation of the NCP [17]. Each group was invited to participate in three 1-h education sessions offered over 3 weeks. Each group completed all sessions before the subsequent group began their education. Coffee gift cards were drawn at random after completion of each session to encourage attendance and participation. Attendance was taken at each session.

The first education session included a detailed explanation of the NCP, with the primary focus on writing PES statements. Tailored case studies for each groups' unique patient populations were discussed and a PES worksheet, developed by the committee, was completed for each case study. A short video developed by Alberta Health Services including cases, questions, and guidance [18] was viewed at the second session. At the third session, RDs brought case studies from their practice and wrote PES statements with guidance from the committee.

The committee emailed a 3-question survey via SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)) to the RDs prior to introducing the NCP to better understand average time spent charting per note and frequency of charting relative to number of interactions. An informal Pre/Post Education Survey (Supplementary File 2<sup>1</sup>) was administered at the

beginning of the first education session and at the end of the third education session to assess the adequacy of training, skills acquired, confidence level, and participants' desire to incorporate the NCP into practice prior to and after receiving education. An informal 12-Months Follow-up Survey (Supplementary File 3<sup>1</sup>) was emailed to RDs to assess use of the NCP in current practice, and it included questions focused on changes in the length of time spent charting and charting frequency following specific patient interactions. Some of these questions aligned with questions from the email survey while others aligned with the Pre/Post Education Survey. The informal surveys were designed by the NCP Committee at SickKids and were not validated prior to use, but were based on survey questions asked at other centres [4].

Data from all surveys were analyzed using Microsoft Excel 2013. Descriptive statistical analysis, unpaired *t* tests, and  $\chi^2$  tests were conducted. Statistical significance was set at  $P < 0.05$ .

Ethics approval was obtained from the SickKids Research Ethics Board (Approval #1000061071).

## RESULTS

The average attendance at all education sessions was 77% (Supplementary File 4<sup>1</sup>). All RDs in attendance completed pre- and post-education surveys ( $n = 34$  and,  $n = 26$  respectively).

Specific survey questions were analyzed to assess the NCP Committee's efforts on adequacy of training. Most RDs agreed with the statements "I feel I have had sufficient training in NCP" and "I feel confident about writing PES statements" ( $P < 0.001$ ) (Table 1). RDs did not have a statistically significant shift in their attitude when commenting on the statement "I would prefer to continue with my own charting routine" pre- and post-education. The majority of RDs ( $n = 15$ ) were neutral in their attitude to this change in practice pre-education; 48% of RDs ( $n = 12$ ) had a neutral response post-education.

<sup>1</sup>Supplementary data are available with the article through the journal Web site at <http://dcjournal.ca/www.nrcresearchpress.com/doi/suppl/10.3148/cjdp-2019-003>.

**Table 2.** Pre- and 12 month post-NCP implementation changes within the department of clinical dietetics at the Hospital for Sick Children.

	Since implementing NCP, I spend more time writing chart notes	Since implementing NCP, I spend less time writing chart notes	Pre/post <i>t</i> test; <i>P</i> value	Post $\chi^2$ test; <i>P</i> value
Time spent writing chart notes.	Pre 17/23 Post 18/26	Pre 9/23 Post 8/26	0.627	0.049
	I never/rarely write a chart note after an Initial Assessment	I often/always write a chart note after an Initial Assessment	Pre/post <i>t</i> test, <i>P</i> value	Post $\chi^2$ test, <i>P</i> value
How often would you write a note in an initial assessment?	Pre 1/26 Post 2/27	Pre 25/26 Post 27/29	0.641	<0.001
	I never/rarely include a PES statement in an initial assessment	I often/always include a PES statement in an initial assessment	Pre/post <i>t</i> test <i>P</i> value	Post $\chi^2$ test <i>P</i> value
How often do you include a PES statement in an initial assessment?	Post 8/29	Post 21/29	—	0.015

Note: NCP, nutrition care process; PES, problem, etiology, signs and symptoms.

The length of time spent charting and charting frequency pre-NCP and 12 months post-education was compared. Time spent charting and charting frequency were not statistically affected by NCP implementation (Table 2). On average, most RDs spent 10 minutes or more charting per note pre-NCP introduction and post-NCP implementation, and RDs continued to chart on >80% of initial assessments. After receiving education, 72% of RDs (n = 21) reported including PES statements in their chart notes following initial assessments.

## DISCUSSION

The NCP is an evidence-based model that encourages critical thinking by linking the nutrition assessment to nutrition intervention and outcome monitoring through the identification of a nutrition problem [2, 14, 19, 20]. Our implementation strategy was designed using principles from Kotter's 8-Step Change Model, similar to other centres [16]. Utilizing this model allowed for development of an implementation strategy that focused on learning goals as well as identifying and addressing potential barriers, real or perceived. As part of our implementation strategy, we created an education plan prior to teaching RDs [1, 2, 21] after noting that a lack of formal training has been a barrier to successful implementation at the hospital level [17].

RDs were asked to complete surveys on 4 occasions over the course of NCP-implementation. The purpose of the surveys was to assess training, skill development, and confidence, which was important because the absence of these qualities has been viewed as a significant barrier to implementation by

other centres [1, 8, 9]. Results from our surveys show formal education yields positive results regarding training sufficiency, skills acquired, and confidence level in implementing the NCP, similar to other centres [9].

The majority of the RDs pre-education, and nearly half of the RDs post-education, neither agreed nor disagreed when asked if they preferred to continue with current charting practices. This may show a lack of buy-in. However, we believe RDs were relatively open to learning NCP as opposed to being strongly against the change.

Based on the follow-up survey 12 months post-education, length of time spent charting and charting frequency was unchanged as per RD self-report. It should be noted that it does take time and practice for practitioners to successfully use the NCP [1, 3, 16]. It is a positive sign that an increase in time spent charting was not reported. Charting frequency was high initially, at >80%, so implementing the NCP did not deter charting. In contrast, other centres noted an increase in charting frequency following NCP implementation but may have had lower rates of charting frequency at baseline [1]. In the future, the NCP committee will collect data to see if there is an increase in frequency and a reduction in charting time as a result of implementing the NCP.

Our approach to evaluating the NCP implementation process does have some limitations. Our results are based on a small sample size, though similar to other relevant studies [1, 3]. Our convenience sample makes it difficult to compare results with data published from groups at other institutions. Additionally, we did not use a validated survey, again making it difficult to compare results between studies. Groups looking

to take a similar approach to adopting the NCP model in the future may want to consider evaluating practice change across multiple centres as this may allow for better comparison between groups, a lower time-commitment from each centre's education leader, and allow for sharing of tools and resources.

At this time, the NCP Committee will support the department through the transition to the new EHR system by creating additional NCP-related tools, including incorporating PES statements into electronic note templates, and providing additional education sessions. Inclusion of NCP in note templates in the soon-to-be adopted EHR provided motivation for learning the NCP and adopting it into practice. Utilizing the NCP will be a requirement in the future and updating note templates now may facilitate its adoption [3]. Some studies have shown potential for decreased charting time with implementation in EHR [22]. Following implementation of the EHR, the NCP Committee plans to roll-out a second education phase focusing on monitoring patient outcomes related to the use of the NCP as opposed to RD practice outcomes.

In summary, the NCP implementation at SickKids has been successful. RDs reported that the training was appropriate, they feel confident in their skills, and they have been able to adopt the NCP into their practice.

## RELEVANCE TO PRACTICE

The NCP implementation was positively received by the RDs at SickKids. Successful NCP adoption may be attributed to the transparency of the education plan, alignment with department values, scheduling of education sessions by grouping RDs from similar programs together, and peer-to-peer instruction style. Furthermore, the NCP adoption may be driven by support from management and encouragement amongst peers [1]. It is hoped that future refresher sessions will continue the momentum and solidify the NCP use routinely in practice.

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