

# NEED ANALYSIS.pdf

*by*

---

**Submission date:** 15-May-2023 06:42PM (UTC+0700)

**Submission ID:** 2093667843

**File name:** NEED ANALYSIS.pdf (285.54K)

**Word count:** 3504

**Character count:** 19720

## Needs Analysis for Digital Transformation of Nutrition Care Process

Miftahul Jannah<sup>1</sup>, Arisanty Nur Setia Restuti<sup>2</sup>, Muhammad Iqbal<sup>3</sup>

<sup>1</sup>Jurusan Kesehatan, Politeknik Negeri Jember, [miftahuljannah@polije.ac.id](mailto:miftahuljannah@polije.ac.id)

<sup>2</sup>Jurusan Kesehatan, Politeknik Negeri Jember, [arisanty@polije.ac.id](mailto:arisanty@polije.ac.id)

<sup>3</sup>Jurusan Kesehatan, Politeknik Negeri Jember, [iqbalbasagili@polije.ac.id](mailto:iqbalbasagili@polije.ac.id)

### ABSTRACT

The Nutrition Care Process (NCP) is a systematic problem-solving method that nutrition professionals use to think critically and make decisions that address practice-related problems. Nutrition Care Process consists of 4 systematic steps, namely nutrition assessment, nutrition diagnosis, nutrition monitoring, and evaluation. Implementation of NCP in fact faces some barriers, such as much time needed and incomplete documentation. Digitalization of NCP is expected to be a solution to overcome the barriers. This study aimed at investigating the requirement of hospitals and clinics toward NCP digital. This was a qualitative study where the design was an exploration case study. The number of informants was 5 interviewees who work as dietitians and nutritionist in some hospitals and clinic. The data were collected by focus group discussion. The data were analyzed using thematic analysis. Five primary themes emerged as the main design needed in NCP digital. The themes are automatic calculation and categorization of nutrition assessment data, automatically selecting of nutrition diagnosis, integration with the diet leaflet for patients, and integration with medical record and other health care workers' systems. In conclusion, the dietitians considered that NCP digital had some advantages to accelerate and improve their work. The dietitians had the intention to accept NCP digital and expected it to be a solution to making their work easily and faster.

**Keywords:** Nutrition Care Process, digitalization, dietitian

### ABSTRAK

Proses Asuhan Gizi Terstandar (PAGT) adalah metode pemecahan masalah yang sistematis yang digunakan oleh para profesional gizi untuk berpikir kritis dan membuat keputusan terkait penyelesaian masalah. PAGT terdiri dari 4 langkah yang sistematis, yaitu asesmen / pengkajian gizi, diagnosis gizi, intervensi gizi, monitoring dan evaluasi gizi. Nyatanya implementasi PAGT mengalami beberapa kendala, seperti lamanya waktu yang dibutuhkan dan dokumentasi yang tidak lengkap. Digitalisasi PAGT diharapkan menjadi solusi untuk mengatasi kendala tersebut. Penelitian ini bertujuan untuk menginvestigasi kebutuhan rumah sakit dan klinik terhadap PAGT digital. Penelitian ini merupakan penelitian kualitatif dengan desain studi kasus. Jumlah informan sebanyak 5 orang yang diwawancarai yang bekerja sebagai dietisien dan nutrisisionis di beberapa rumah sakit dan klinik. Pengumpulan data dilakukan dengan Focus Group Discussion (Diskusi Kelompok Terarah). Data dianalisis dengan analisis tematik. Lima tema utama muncul sebagai desain utama yang dibutuhkan dalam PAGT digital. Tema tersebut adalah perhitungan dan pengkategorian secara otomatis pada data asesmen gizi, pemilihan diagnosis gizi secara otomatis, integrasi dengan leaflet untuk pasien, integrasi dengan rekam medis dan sistem para tenaga profesional lainnya. Sebagai simpulan, dietisien menilai bahwa PAGT digital memiliki beberapa kelebihan untuk mempercepat dan meningkatkan pekerjaannya. Para dietisien berniat untuk menerima PAGT digital dan berharap menjadi solusi dalam membuat pekerjaan mereka lebih mudah dan cepat.

**Kata kunci:** Proses Asuhan Gizi Terstandar, digitalisasi, dietisien

\*Korespondensi Author: Miftahul Jannah, Politeknik Negeri Jember, [miftahuljannah@polije.ac.id](mailto:miftahuljannah@polije.ac.id), +6285292654454

## I. INTRODUCTION

Dietitians and nutritionists are required to implement comprehensive nutritional care for their patients or clients. Quality of nutrition care requires a standardized process to reduce process variation. There is a standard used by nutritionists and dietitian in many countries, commonly known as the Nutrition Care Process (NCP).<sup>1</sup>

Nutrition Care Process (NCP) is a systematic method that dietetics and nutrition professionals use to provide nutrition care.<sup>2</sup> It was

developed by the Academic of Nutrition and Dietetics as systematic approach to providing high quality nutrition care. The NCP is comprised of four steps, namely nutrition assessment, nutrition diagnosis, nutrition intervention, and nutrition monitoring and evaluation.<sup>1,2</sup>

The use of NCP does not mean that all patients/clients receive the same care, however it provides a framework for nutritionists or dietitians to individualize care.<sup>3,4</sup> NCP bridges between the conditions of patients/clients in the

field with a scientific basis (evidence based).<sup>2</sup> Using NCP, all decisions made by nutritionists are consistent, effective, and scientifically accountable.<sup>1,5</sup>

NCP is currently implemented in all health care facilities, such as in hospitals, clinics, public health centers, and in the community.<sup>4</sup> However, NCP which is carried out in most of the health care facilities is still using manual NCP, without using an automated electronic system. In fact, as we know, work that is done manually is very prone to errors (human error) and takes a long time so that the work becomes less efficient and effective.<sup>3,6</sup> and sloppy reporting.<sup>5,7</sup> Based on the problems, it is necessary to develop a digital and automated computer-based NCP information system to simplify and improve the work of nutritionists and dietitians.<sup>8</sup>

Development of web-based NCP will accelerate and improve the accuracy of the work of nutritionists so as to reduce errors. The web base was chosen compared to desktop-based applications because it can be accessed anywhere, cheap, simple and does not require high computer specifications.<sup>9</sup> Similar studies state that apart from being important, the development of electronic NCP has a very vital role.<sup>10,11</sup> On the other hand, it is very important that nutritionists keep abreast of the development of this technology and become the main actors in the era of disruption (not only users) so as not to be left behind by the digital era transformation that is so massive everywhere.<sup>7</sup>

Because of the need for web-based NCP development, it is necessary to analyze the needs for this by users. This study aims to analyze the needs of users (nutritionist and dietitians) for the development of an NCP digital (website-based NCP).

## II. METHODOLOGY

This was a qualitative study in which the design was an exploration case study. This study was conducted in June 2021. A qualitative study design was used to collect information on the need of hospitals and clinic toward NCP digital. Needs analysis of hospitals and clinic toward NCP digital is the first step in developing a website. Focus Group Discussion (FGD) via Zoom Meetings was conducted in order to explore the need for Nutrition Care Process (NCP) website.

Eligible participants were nutritionist and dietitians from 5 hospitals and clinic in Indonesia. A total of five nutritionists and dietitians participated in the study, which

recruited using purposive sampling. The number of informants was defined by the purpose of this study, the variation of information, and the saturation of answers given by informants.

Data were collected using Focus Group Discussion (FGD). Focus Group Discussion was performed according to a guideline question format, it was conducted in the Bahasa Indonesia. It began with an introduction and information of the purpose of this study. FGD was recorded with the permission of the participant, and the field notes were taken by a researcher to capture unspoken information such as actions. FGD lasted approximately 1 hour 15 minutes.

The verbatim transcript from the FGD as raw data. They were analyzed using a thematic analysis that allowed the identification of categories or themes within qualitative data.<sup>12</sup> Observation notes, videos and pictures were used to complement the transcription. The entire process was summarised into five steps. The first step transcribed the recorded interview to produce a ready-to-import-file for input into the software. In the second step, the authors read repeatedly the transcripts in order to be familiar with the data. The third step attached labels to the data to identify codes and categories. Similar codes and categories were grouped to identify themes for the fourth step. A summary of the informant's opinions was provided. The major opinions were described as quotes from the transcripts.<sup>13</sup>

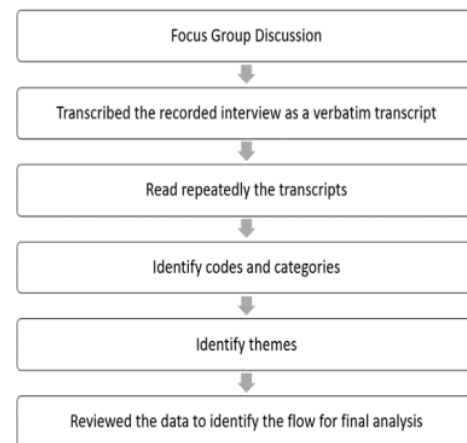


Figure 1. Research flow and analysis

## III. RESULTS AND DISCUSSION

A total of 5 informants participated in this study. They are a dietitians and nutritionist of

the hospitals and clinic in Indonesia, who match the criteria of the research as key informants.

Table 1 shows characteristics of dietitians and nutritionists as key informants. Most worked at the hospital. A total of 5 informants consists of 4 informants work in hospitals, namely Saiful Anwar hospital, Sardjito hospital, Cipto Mangunkusumo hospital, UGM Academic Hospital, and 1 informant works in clinic, namely Balikpapan clinic. All 5 informants were nutrition degree graduates.

**Table 1.** Characteristics of the Informants

Characteristics	n	%
Gender		
Male	4	80
Female	1	20
Workplace		
Hospital	4	80
Clinic	1	20
Final education		
Nutrition bachelor	5	100

The informants were asked for their opinion regarding the needs of nutritionists and dietitians related to the digitalization of NCP. Inputs from dietitians and nutritionists were very useful in developing "Hospimeal" as an NCP digital. The inputs are reflected as the emerging themes in this study.

In aspect of data processing and nutrition care documentation in this study referred to the perceived advantages of dietitians in the process of working on and record the nutrition care. The process starts from classifying and sorting the data that would be used, analyzing the data by comparing the data with certain indicators, and interpreting the results of data processing, determining the priority issues to be appointed as nutrition diagnosis until the process of determining nutrition intervention and the planning of nutrition monitoring evaluation.

The advantages in aspect of nutrition care documents in this study referred to the benefits of NCP digital to save the NCP data. The advantages in aspect of job performances in this study referred to the benefits of NCP digital to help nutritionists and dietitians on their work and referred to the impressions of a nutritionists and dietitians about himself after using NCP digital.

The result of the study obtained four emerged themes of expectation about NCP website design. The emerging theme will be the basis of developing NCP digital. Four themes based on the need of NCP digital toward working process of dietitians and nutritionist. The themes

of this study were (1) automatically calculation and categorization of data assessment; (2) automatically selecting nutrition diagnosis, (3) integration with the diet leaflet for patients, (4) integration with medical record and other health care workers system.

#### **Automatically Calculation and Categorization of Nutrition Assessment Data**

Nutrition assessment is a systematic method for obtaining, verifying, and interpreting data. The data is required to identify nutrition problems and their causes, in order to determine nutrition diagnosis.<sup>1,2,4</sup> During patient assessment, nutritionist and dietitian will obtain, verify, and interpret anthropometric, biochemical, medical, social, and client history.<sup>11</sup> This is conducted by manually calculating the data obtained. It is very prone to errors (human error) and takes a long time so that the work becomes less efficient and effective.<sup>6</sup>

According to the informants, NCP electronics was already developed in some hospitals. However, their application is still limited in some features. Some data assessments must be analyzed manually, for example calculation of nutritional status, energy and nutrition requirement, food intake etc. The informants (dietitians and nutritionists) expected NCP digital that will be developed automatically accommodate calculation and categorization of data assessment may help to shorten the time of nutrition calculations and analysis.

*"We can input anthropometric data, especially related to anthropometric standard for children, the result automatically come out"* (Informant 1)

*"If possible, we can also enter the nutritional requirement of the formula according to the patient's condition, for example burns, amputation, perkeni, mifflin (there are options as needed) so we directly enter the anthropomorphic data into the formula and the results come out."* (Informant 5)

The results of the present study were consistent with previous research, which dietitians were interested in ability to automatically calculate the assessment data, such as energy requirements, body mass index.<sup>14</sup>



### Automatically Selecting Nutrition Diagnosis

The next step after nutrition assessment is nutrition diagnosis. Data gathered in nutrition assessment will be used to determine nutrition diagnosis. Nutrition diagnosis aims to describe nutrition problem that can be solved by nutritionist and dietitian through nutrition intervention.<sup>15</sup> Nutrition diagnosis is different with medical diagnosis.

Dietitians and nutritionists write a PES (Problem, Etiology, Signs and Symptoms) to describe the nutrition problem, its cause, and the assessment data for the nutrition diagnosis. The statement of nutrition diagnosis is "[Nutrition diagnosis term (problem)] related to [Etiology] as evidenced by [Signs/Symptoms]". Nutrition diagnosis term (problem).<sup>14,15</sup> Problem is written based on the Nutrition Care Process Terminology (NCPT) Reference Manual.<sup>1</sup>

The informants (dietitians and nutritionist) expected NCP digital accommodate automatically selecting Nutrition Diagnosis Term (Problem). Then for Etiology and Sign Symptoms can be made in the form of empty columns, so that dietitians and nutritionist can fill them freely according to conditions in the field.

*"Then for nutrition diagnosis it would be better if there was a choice of nutritional problems according to IDNT" (Informant 3)*

*"For the etiology and signs and symptoms, may be an open column, because it is necessary to adjust the patient's condition. Beside that, if it is used by students, this NCP digital still train the critical thinking of the students" (Informant 1)*

### Integration with the Nutrition Counseling Leaflets for Patients

Nutrition counseling provides a logical structure using strategies within nutrition care process. Nutrition counseling has a place in each of the 4 steps of NCP.<sup>16</sup> Therefore, the ability of dietitians and nutritionists in conducting nutrition counseling is very important.<sup>17</sup> One of the media that is often used for nutrition counseling is a leaflet. Leaflet is a small sheet of paper containing printed messages to be disseminated to the public or the patients as information about something.<sup>18,19</sup>

One of the things that takes a lot of time is when nutrition counseling is carried out. Dietitians need time to look for leaflets. The

dietitians and nutritionist expected digital NCPs can be integrated with nutrition counseling leaflets. It makes the work of nutritionists easier and shortens their working time.

*"if there is a leaflet that can be integrated with hospimeal it would be great. So what is the patient's illness then leaflets related to the disease will automatically appear. it will make the work of a nutritionist easier" (Informant 4)*

### Integration with Medical Records and Other Health Care Workers System

Dietitians contended that manual NCP takes a lot of time. At the hospital where they work, they have started to introduce electronic NCPs, however their application is still limited. In fact, dietitians have to work two times, namely filling out NCP electronics and filling out NCP manually. It is due to there is no printout of assessment, diagnosis, intervention, monitoring and evaluation of NCP. This resulted in taking a lot of time. Therefore, dietitians providing input to the hospimeal design that the website should be able to print the output of NCP result.

*"If at the hospital, we have to fill, both of electronic NCP and manual NCP, we work 2 times" (Informant 2)*

Nutrition Care Process (NCP) digital is an application that can be used for nutrition care process documentation. Dietitians and nutritionists expected NCP digital also had the advantages in nutrition care document storage. According to dietitians, nutrition care could be documented automatically. The electronic storage systems would minimize the data loss because it could also be stored on storage device.

Previous studies state that apart from being important, the development of electronic NCP has a very vital role.<sup>10,11</sup> On the other hand, it is very important that dietitians and nutritionists keep abreast of the development of this technology and become the main actors in the era of disruption (not only users) so as not to be left behind by the digital era transformation that is so massive everywhere.<sup>7</sup> Previous study conducted in Malang, Indonesia, showed that there is a significant difference about the documentation time between NCP manual and NCP electronic.<sup>6</sup> Time efficiency is one of many benefits targeted by electronic health record implementers. However, time inefficiency is also recognized as

a major barrier to successful electronic health record implementation.<sup>20</sup> The result of this study are useful for designing the NCP digital as needed by nutritionists and dietitians. According to the results of this study, it is hoped that NCP digital will be made more effective than the currently existing one.

#### IV. CONCLUSION

Nutritionists and hospital dietitians are of the opinion that the digitization of NCPs is necessary. This will make their work easier and faster. Dietitian and nutritionist from 4 hospitals and 1 clinic were strongly agree with the digitization of PAGT to facilitate their work. The details of the NCP digital needed by nutritionists/dietitians in hospitals and clinics include: (1) automatically calculation and categorization of data assessment; (2) automatically selecting nutrition diagnosis, (3) integration with the diet leaflet for patients, (4) integration with medical record and other health care workers system, (5) there is a printout of the results of Assessment, Diagnosis, Monitoring, and Evaluation.

#### V. ACKNOWLEDGMENTS

The authors express our sincere thanks to the Politeknik Negeri Jember for the funding support for the research and publication.

#### REFERENCES

1. Academy of Nutrition and Dietetics. Nutrition Care Process Terminology (NCPT) Reference Manual. Academy of Nutrition and Dietetics; 2018.
2. Academy of Nutrition and Dietetics. Nutrition Care Process [Internet]. [cited 2023 Apr 5]. Available from: <https://www.eatrightpro.org/practice/nutrition-care-process>
3. Sherry CL, Sauer AC, Thrush KE. Assessment of the nutrition care process in US Hospitals using a web-based tool demonstrates the need for quality improvement in malnutrition diagnosis and discharge care. *Curr Dev Nutr*. 2017;1(11):1–6.
4. Ministry of Health. Pedoman Asuhan Gizi Terstandar. Jakarta: Ministry of Health; 2019.
5. Lacey K, Pritchett E. Nutrition Care Process and Model: ADA adopts road map to quality care and outcomes management. *J Am Diet Assoc*. 2003;103(8):1061–72.
6. Paramita F, Hartriyanti Y, Susetyowati, Lazuardi L. Electronic Nutrition Care Process Accelerate the Documentation Time at Saiful Anwar Hospital Malang. In: Proceedings of the 1st International Scientific Meeting on Public Health and Sports (ISMOPHS 2019). Atlantis Press B.V.; 2020. p. 123–7.
7. Kelly JT, Collins PF, McCamley J, Ball L, Roberts S, Campbell KL. Digital disruption of dietetics: are we ready? *J Hum Nutr Diet*. 2021;34(1):134–46.
8. Aroni H, Kusnanto H, Fuad A. Pengembangan sistem informasi berbasis komputer untuk efisiensi penyelenggaraan makanan di Instalasi Gizi RS Militer Malang. *J Gizi dan Diet Indones (Indonesian J Nutr Diet)*. 2016;1(1):22.
9. W3 Lab. Why you should choose a web application over a desktop one [Internet]. [cited 2023 Apr 10]. Available from: <https://w3-lab.com/choose-web-application-over-desktop/>
10. Rahmah HA, Susetyowati, Tsani AFA, Lazuardi L. The advantages of NCP Electronic in nutrition care documentation at Saiful Anwar Hospital Malang, Indonesia. *Ann Trop Med Public Heal*. 2019;
11. Chen J, Gemming L, Hanning R, Allman-Farinelli M. Smartphone apps and the nutrition care process: Current perspectives and future considerations. *Patient Educ Couns [Internet]*. 2018;101(4):750–7. Available from: <http://dx.doi.org/10.1016/j.pec.2017.11.011>
12. Maguire M, Delahunt B. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *AISHE-J*. 2017;8(3):3351–33514.
13. Sufyan D, Februhartanty J, Bardosono S, Khusun H, Ermayani E, Rachman PH, et al. Food purchasing behaviour among urban slum women in East Jakarta: A qualitative study. *Malays J Nutr*. 2019;25:S33–46.
14. O'Sullivan TA. Evaluation of an electronic record prototype incorporating the Nutrition Care Process and International Dietetics and Nutrition Terminology. *Nutr Diet*. 2013;70(3):188–95.
15. Academy of Nutrition and Dietetics. Snapshot NCP Step 2: Nutrition Diagnosis. *Nutr Care Process*. 2018;1.
16. Lane-Carlson M. Nutrition Counseling Skills for the Nutrition Care Process, Fourth Edition. Vol. 41, *Journal of Nutrition Education and Behavior*. 2009. 229.e5.
17. Lu AH, Dollahite J. Assessment of dietitians' nutrition counselling self-efficacy and its positive relationship to reported skill usage. *J Hum Nutr Diet*. 2010;23(2):144–53.
18. Rahmawati P. Media Bimbingan dan Konseling. Surabaya: UIN Sunan Ampel Surabaya;
19. Jatmika SED, Maulana M, Kuntoro, Martini S. Buku Ajar Pengembangan Media Promosi Kesehatan. K-Media. Yogyakarta: K-Media; 2019. 271 p.
20. Poissant L, Pereira J, Tamblyn R, Kawasumi Y. The impact of electronic health records on time efficiency of physicians and nurses: A systematic review. *J Am Med Informatics Assoc [Internet]*. 2005 [cited 2023 Apr 11];12(5):505–16. Available from:

<https://academic.oup.com/jamia/article/12/5/505/684713>

# NEED ANALYSIS.pdf

---

## ORIGINALITY REPORT

---

13%  
SIMILARITY INDEX

9%  
INTERNET SOURCES

8%  
PUBLICATIONS

7%  
STUDENT PAPERS

---

## MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

---

3%

★ Submitted to Georgia Southern University  
Student Paper

---

---

Exclude quotes      On  
Exclude bibliography      On

Exclude matches      Off