# MEDPass or conventional administration of oral nutritional supplements

## The patients' perspective

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## Abstract

Oral nutritional supplementation (ONS) is administered conventionally between meals (CM) or alternatively with medication in MEDPass mode (MPM) when energy and protein intake is low.
The patients' perspective on the modes of administration has hardly been investigated and is the aim of this study.
Qualitative, semi-structured interviews were conducted with geriatric inpatients. The structuring qualitative content analysis was conducted for twelve interviews and generated three main categories and eight subcategories. The main categories include the topics of nursing and physicians, administration and intake of ONS and the perception of ONS. Individual patients' preferences were revealed. The CM was rated well overall. The MPM was partially criticized with regard to its integration into everyday clinical practice.
Patients' autonomy should be the focus and the mode of administration should be regularly evaluated and re-evaluated with the patients.


**Citation**
Uhlmann K, Lüthi J, Bachmann D, Schoenholzer A, Kurmann S: MEDPass or conventional administration of oral nutritional supplements. The patients' perspective. Ernahrungs Umschau 2024; 71(4): 28–33.

**Open access**
This arcticle available online: DOI: 10.4455/eu.2024.010

**Peer reviewed**
Manuscript (original) submitted: 31 August 2023; revision accepted: 3 January 2024

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## Introduction

Protein-energy malnutrition (PEM) or the risk of it is common in geriatric patients in European hospitals, with a prevalence of almost 30% [1]. It is associated with lower quality of life, higher morbidity and mortality, longer hospital stay and higher healthcare costs [2–5].

Early detection of PEM and individualized nutritional therapy are therefore of great importance [2]. Oral nutritional supplementation (ONS) is an established and efficient treatment option [6, 7]. There are no standardized recommendations for the administration times of ONS. It is given in varying amounts, usually as a snack, in the morning, afternoon and late evening, also known as the conventional mode (CM) [8]. An innovative mode of administration is the MEDPass mode (Medication Pass Nutritional Supplement Program, MPM) [8]. In the MPM, the ONS is served together with the medication three to four times a day in smaller quantities than in the CM (50–120 ml), in particular to achieve more optimal adherence to therapy [8, 9].
To date, there is little evidence on how patients experience the different modes of administration during hospitalization. Dillabough et al. report that 73% of the 22 patients surveyed by questionnaire were satisfied with the MPM [10]. In qualitative interviews by Lambert et al., patients expressed a high level of trust in the MPM, but would only recommend it for a short period of time [11]. In a comparative study, 24 patients who received ONS in the MPM and 24 patients who received ONS in the CM were questioned on the areas of sensory perception, physical effects and perceived benefit. No differences were found between the modes of administration [12]. The sensory properties and texture of ONS appear to represent a potential barrier to ingestion in some patients, regardless of the mode of administration [11, 13–15]. Furthermore, in a survey conducted by Brindisi et al. in the CM, ONS were perceived inconsistently as medication, supplement or food [14] and in interviews by Lambert et al. it was sometimes unclear to patients in the MPM which profession was responsible for administer-

ing the ONS [11]. The volume of administration can also be a relevant issue when taking ONS [12, 15], although a smaller volume tends to be described as an advantage [13].
Due to the scarcity of data, the aim of this study was to find out more about patients' perspectives on the two modes of ONS administration.

## Methodology

### Study design and recruitment

Qualitative, semi-structured individual interviews were conducted with inpatients at the University Hospital Insel Bern at the Tiefenau site. In parallel, participants were recruited for the randomized controlled MEDPass study in the geriatric and medical wards of the hospital [9, 16]. Some of the participants in the MEDPass study were also recruited for the present study. The remaining participants were recruited outside the MEDPass study and received the ONS in the CM. The inclusion and exclusion criteria of the MEDPass study were used for all interviews. Patients with a malnutrition risk according to the Nutritional Risk Screening 2002 and a minimum inpatient stay of three days after the screening were included. Patients in an acute metabolic situation, patients with severe malassimilation, patients with additional or planned enteral and parenteral nutrition, a Mini Mental State Examination[1] result < 16 points and patients who were in a terminal illness situation or did not speak German well were excluded [9, 16]. For the present study, the additional criterion was that the request for an interview was made at the earliest two days after the corresponding administration mode was prescribed. In the CM, the patients received the ONS as snacks. The volume was not standardized in the CM. In the MPM, the ONS were given together with the medication rounds four times a day, each 50 ml in plastic cups [16]. The patients in the MPM were instructed to take the ONS directly before meals or in the evening.

### Interview guide

The interview guide was structured according to Kruse's principle [17]. Helfferich's principle of "collect, check, sort, subsume" was used to develop specific questions that generate narratives [18]. Particular attention was paid to ensuring that the questions were easy to understand, as geriatric people can have cognitive limitations. The final interview guide contained three main aspects of content. These focused on coping with ONS, the experience of ONS delivery and taking ONS. The question "What would you tell someone close to you about liquid nutrition?" was also explored. In addition, questions were asked about the organization of the administration mode, the experienced advantages and disadvantages of ONS, the information received and the perceived connection with appetite and eating behavior. A pretest was not carried out, as the interviews were conducted by students on the Nutrition & Dietetics Bachelor's degree program (B.Sc. EuD) as part of student internships, which were limited in time. The students were trained and supervised by the first and last author. The questions were simplified selectively after six interviews as part of an interim analysis, without making any changes to the content. The interviews were conducted in the patients' rooms and a maximum duration of 30 minutes was anticipated.

#### *Evaluation of the interviews*

The audio recordings were transcribed with the program f4transkript version 7.0.6 according to the 15 content-semantic rules according to Dressing and Pehl [19]. The interviews were analyzed according to the content-structuring qualitative content analysis according to Kuckartz et al. [20]. A deductive-inductive approach was used to generate the main categories and subcategories [20]. First, main categories were deductively created using the interview guide and the transcripts were read independently by three students of the B.Sc. EuD program who were not involved in the interviews. Once all text passages had been assigned to the main categories, the subcategories were developed inductively using the material. The students were supervised by the first and last author and the categories were discussed together, adapted and recorded in a codebook in Microsoft® 365 Excel® version 2208 with anchor examples. The interviews were then coded again independently by the same three students and analyzed on a category basis according to Kuckartz et al. [20].

### Ethics

On 24.09.2020, an application for a clarification of responsibility was submitted to the Cantonal Ethics Committee of the Canton of Bern. Under the number Req-2020-01135, it was confirmed that the present project does not fall under the Human Research Act. The participants were informed verbally and in writing about the research project and signed a declaration of consent.

[1] questionnaire to measure cognitive impairment

## Results

### Participants

A total of thirteen patients were recruited for the interviews from February 22 to April 9 and from July 19 to November 25, 2021. The break in recruitment was due to a change of students. Twelve interviews were included in the analysis. One interview was canceled due to a disruption and was therefore excluded. The interviews lasted 9–17 minutes. The participants were all geriatric (median 79 years; Q1 = 73.25, Q3 = 80.75) and half of the participants were female (n = 6). Six people received ONS in the CM and six in the MPM.

### Category system

Three main categories and eight subcategories were formed in the evaluation, which are shown in ◆ Figure 1.

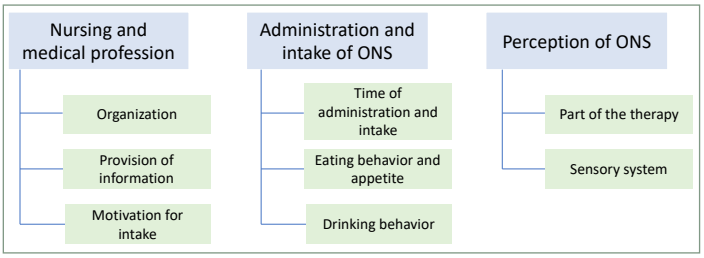


Fig. 1: **Main and subcategories of the qualitative content analysis** (own presentation)

### Nursing and medical profession

The organization was described by the patients as reliable and they received their ONS at the agreed times.

According to the patients information was often provided by the doctors in the CM. They were informed that ONS are used to increase weight and that ONS contain energy, proteins and vitamins. According to their own statements, patients in the MPM received the information from the nursing staff or were not informed about the ONS. The patients did not question the information they received.

*"Yes, the doctor simply told me that it was an anabolic preparation with vitamins and so on, and that it was also good for the intestines, for the intestinal wall, to build it up."* (patient 7 [CM], 09:04)

From the patients' perspective, it was not necessary to motivate them to take the ONS. Participants from both modes said that they were sometimes advised to drink the ONS.

### Administration and intake of ONS

Patients in the CM reported that they were satisfied with the timing of administration and intake because they could drink the ONS when they wanted. Most patients therefore stated that the CM fitted in well with their daily routine. Opinions on the MPM varied. Some participants said that they were very satisfied with the time of administration of the medication, as the ONS were always brought at the same time and were therefore never forgotten. Other patients, on the other hand, said that the fixed administration times did not fit in with their daily routine or that taking the ONS during the medication rounds was too hectic. They would have liked to receive the nutritional supplements in a bottle so that they could schedule their intake themselves.

*"Sometimes it would be more pleasant if you could drink during a resting phase, I think you could process it a little differently, right."* (patient 6 [MPM], 04:13)

While patients in MPM mode stated that they drank the formula immediately after receiving it, patients in CM mode took more time.

Some respondents stated that their appetite was reduced or no longer present after taking the ONS. The mode of administration seemed to play a role here. Most patients in the MPM stated that the ONS had little or no effect on their appetite. In contrast, several patients in the CM reported a reduced appetite after taking the ONS. Patients from both groups reported that they had no appetite regardless of the ONS.

The patients' intake behavior differed between the modes. In the CM, the ONS were drunk in sips. One person stated that they diluted the ONS with milk or water to make it less rich. Patients in the MPM drank the ONS without stopping due to the small administration volume. Regardless of the mode of administration, almost all patients stated that they always drank the ONS.

### Perception of ONS

When asked to what extent ONS was part of their therapy, the majority of patients were unable to answer precisely, regardless of the mode. Many patients saw their loss of appetite or weight loss as the reason why they received ONS. The stated purpose of ONS was mostly related to the reason. For example, many said that ONS was used to gain weight, to provide energy, to serve as an anabolic agent or to gain strength. The ONS was perceived by the majority of respondents as a nourishing or restorative. Only two people who received ONS in the MPM described it as a medication. The reason given was the medicinal taste of the ONS.

*"Nutrition yes, because there is something in it, not just the same as soup that is watery, but one that is enriched, simply already where something is in it or what you/where the stuff is in it that it needs. The vitamins or whatever you call it, right. Not just water, yes."* (patient 11 [MPM], 06:57)

With regard to sensory perception, statements were made on the perception of temperature, taste, texture, quantity and handling of the ONS. As far as the quantity of ONS is con-

cerned, most respondents in the CM were satisfied. Only a few patients would have preferred smaller portions. Opinions varied regarding the small administration quantities in the MPM. Some judged the quantity to be suitable, while others would have liked the ONS in a larger volume.

The handling of the bottles in the CM was increasingly rated as positive. For example, it was mentioned that the bottle was easy to open and that it was practical to be able to close it again. One patient said that the cups in the MPM were cumbersome because they were placed on the full tray and you had to be careful not to knock them over.

*"And when it's standing here afterwards, there's still a lot of stuff on the tray, so you have to be careful not to suddenly knock it over and spill it when they have this thing, because it's full to bursting, it's full to bursting."* (patient 12 [MPM], 07:57)

The temperature of the ONS was rated as important by all patients, regardless of the mode. Most respondents received their ONS chilled and also stated that it was better chilled. Some respondents perceived the taste to be more intense when the ONS was uncooled. Individual patients in the MPM preferred the ONS uncooled.

Regardless of the mode of administration, the taste of the ONS was perceived by many as too sweet. One patient in the MPM found it unpleasant to drink sweet ONS before or during salty meals. In addition, the desire for more variety in taste was expressed, as the same flavors were often distributed. Many of the respondents also stated that they found the ONS too rich.

In addition to the quotations in the text, ◆ Figure 2 shows one anchor example for each subcategory.

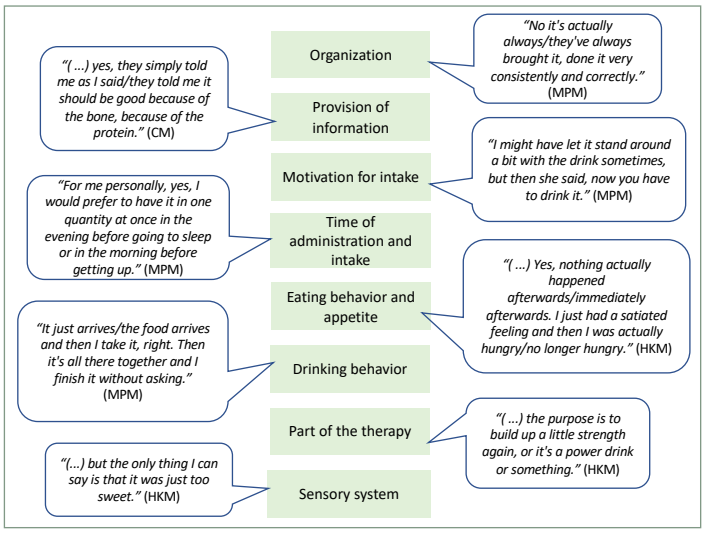


Fig. 2: **Anchor examples per subcategory** (own presentation)

## Discussion

This work provides a good insight into the patients' perspective on both modes of administration. The CM was rated positively by the respondents in terms of volume, autonomy and compatibility with everyday clinical practice. The desire for smaller quantities was only rarely expressed. Rather skeptical opinions were expressed about the MPM. The time of administration, the volume and the administration in the cups were sometimes viewed critically. These statements are surprising, as in the survey by Dillabough et al. almost three quarters of the patients surveyed were satisfied with the MPM [10]. However, Dillabough et al. examined postoperative patients after a hip fracture, which makes comparability with the geriatric and medical patients surveyed here difficult. It should also be noted that, according to the results of the MEDPass study, the average daily prescription volume in the CM was very similar to the prescription volume in the MPM (194 versus 182 ml) [9]. As this is how the CM is usually handled in the institution, this prescription quantity can be assumed for most interviewees in the CM. The sweet taste and the thick, rich texture were perceived as unpleasant by the majority in this survey, regardless of the administration mode. These statements are consistent with the published literature [11, 13–15]. One person in the MPM stated that the mixture of sweet and salty flavors at the main meals was not pleasant. The statements on the preference for chilled ONS are also largely in line with the literature [13].

Therapy adherence was described as high by the respondents in both modes. This is consistent with the results of the MEDPass study, although a study effect cannot be ruled out for at least some of the patients surveyed [9]. As a rule, more optimal treatment adherence can be expected in MPM than in CM [8, 9]. The results of the interviews support the hypothesis that administration in the CM has a stronger influence on appetite than administration in the MPM. This is largely consistent with other surveys: Participants in the study by Hogan et al. ate less after taking ONS in the CM [15] whereas 82% of respondents in Dillabough et al. felt no effect on appetite in the MPM [10]. One obvious reason for this is the larger quantities per administration in the CM. However, the MEDPass study found no significant difference between the administration modes in terms of appetite [9]. The influence of the two modes of administration on total daily energy and protein intake has not yet been conclusively clarified [8, 9]. According to the interviewees, the organization of ONS dispensing worked well and no motivational work had to be done to encourage people to take the ONS. A study effect of the MEDPass study cannot be ruled out in this respect either, as the procedures were clearly regulated and the study participants were informed about them [16].

Caregivers seem to find the MPM easier in terms of motivational work, as the ONS are offered as medication in the MPM [21]. In the present survey, some patients also perceived the ONS in the MPM as medication, which was not the case in the CM. However, according to Brindisi et al., ONS can also be perceived as a medication in the CM [14].

In summary, the results of our survey are consistent with the literature with regard to the sensory properties of ONS and the potential benefits of MPM in terms of treatment adherence and the perception of ONS as a medication. In the present survey, the CM is perceived as positive, particularly with regard to autonomy and integration into everyday therapy. In addition, adherence to treatment appears to be high among participants in both modes, which means that the preferences of patients should not be neglected, especially when introducing a uniform mode of administration as a standard of treatment. It is important that the mode of administration of ONS is regularly evaluated as part of individualized nutritional therapy, regardless of whether the therapy takes place on an inpatient or outpatient basis. In this way, patient autonomy can ensure optimal care and satisfaction [22].

### Limitations

The present results cannot be transferred to inpatients in other specialties, nor to residents of long-term institutions or outpatients. The patients only received one mode of administration and were therefore unable to compare the two modes. Further patient data such as clinical parameters, disease severity, body mass index or the number of medications taken were not recorded and could have contributed to a more in-depth interpretation of the results. In addition, the informative value of the study is limited to twelve interviews and, together with the existing literature, does not allow any conclusive answers to the research question.

## Conclusion

Patients have very individual preferences, also with regard to the mode of administration of ONS. Although the MPM offers advantages in terms of treatment adherence according to previous findings from the literature, the autonomy of patients should also be preserved in standardized treatment procedures and the mode of administration of ONS should be regularly evaluated and re-evaluated together with the patients.

**Disclosures on conflicts of interest and the use of AI**
The authors declare that there is no conflict of interest and that no AI applications were used in the preparation of the manuscript.

**Acknowledgments**
We would like to thank Laura Marti, Amanda Mezenen, Alessia Murgotti and Fabian Krebs for their support.

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