GUIDING PRINCIPLES FOR
THE DESIGN AND IMPLEMENTATION OF A MEDICATION DISCHARGE PLAN
FOR HOSPITALIZED OLDER ADULTS

Université de Montréal et du monde.

Québec

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This practical guide has been developed to inform clinicians in the design and implementation of a medication discharge plan for hospitalized older adults. The content is for informational purposes only and is not intended to replace clinical judgment. The authors and CIUSSS du Centre-Sud-de-l'Île-de-Montréal are not responsible for any direct or indirect effects resulting from the use of the information published in this practical guide.

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To cite this document :

Payette J, Lauzon J, Zhang FH, Courtemanche F, Papillon-Ferland L, Firoozi F, Gilbert S, Turner JP, Villeneuve Y. Guiding Principles for the Design and Implementation of a Medication Discharge Plan for Hospitalized Older Adults. Montreal, Quebec, Canada: 2024. https://iugm.ca/fr/guide-transition-medication

Table of Content

Acronyms and Abbreviations

COPD   Chronic obstructive pulmonary disease

ECG   Electrocardiogram

FMG   Family Medicine Group

MDP   Medication Discharge Plan

MedRec   Medication Reconciliation

QHR   Quebec Health Record

QTc   Corrected QT

SIADH   Syndrome of inappropriate antidiuretic hormone secretion

SNP   Specialized Nurse Practitioner

Glossary

Medication Reconciliation

Medication reconciliation is a process intended to identify discrepancies between the medications a patient has been taking and the prescriptions recorded in their chart. This procedure should be conducted upon admission, transfer, and discharge from the hospital to facilitate a safer transition of care.[1] The outcome of this process may lead to a prescription, which is typically the case in Quebec for medication reconciliation carried out at the time of hospital discharge.

Discharge summary

The discharge summary consolidates the details surrounding the care provided and the key events associated with the patient's hospital stay, facilitating the transition of care in the outpatient setting. This document is completed at the conclusion of a short- or long-term hospitalization, day surgery, or medical day care.[2, 3]

Medication Discharge Plan

A medication discharge plan comprises an intervention strategy tailored to the patient's care goals, addressing medication-related issues identified during the hospital stay.[4, 5]

Transition of Care

Transition of care encompasses various measures taken to ensure the continuity and coordination of patient care when transferring the patient from one location or service to another.[6]

Introduction

Increasing life expectancy contributes to an aging population. In 2021, 20.3% of the population of Quebec was at least 65 years old.[7] By 2041, this figure is expected to rise to 26%.[8] An aging population implies an increase in the prevalence of acute and chronic illnesses, medication use, frailty, and, by the same token, an increase in the utilization of healthcare services.[9] In fact, in 2021-2022, individuals aged 65 and over are projected to account for 59.2% of all hospital days in Quebec.[10] The transition period of care can pose a significant risk of adverse drug events in older adults.[11] Moreover, these are the most frequent adverse events following the discharge of these patients.[12]

Medication reconciliation (MedRec), an organizational practice required by Accreditation Canada, is primarily intended to identify and resolve medication discrepancies, for example, at discharge from the hospital.[1] The discharge summary, drawn up by the physician at discharge, outlines the main events of the patient's stay and, most importantly, specifies medical information. However, both the MedRec and the discharge summary have limitations when it comes to ensuring the coordination and continuity of the patient's drug therapy. Additional relevant details regarding drug therapy are either omitted or only partially addressed, and it is crucial to communicate them to ensure optimal and safe medication use.

Indeed, optimal communication on medication-related issues has the potential to enhance the safety of medication use during the transition of care.[4] One of the activities undertaken by hospital pharmacists at discharge – often in collaboration with physicians – is the Medication Discharge Plan (MDP), which can influence the utilization of healthcare services by older adults.[4] The MDP provides an opportunity to foster effective communication about medications between the hospital and the primary care team by addressing medication-related issues identified during the hospital stay.[4] The emphasis on addressing medication-related issues distinguishes the MDP from the discharge summary or MedRec. Both in the literature and in practice, there are variations in the content and format of the MDP, as well as its transmission to the next care provider.[13, 14]

This practical guide aims to streamline the design and implementation of the MDP for older individuals being discharged from the hospital. It encompasses the following elements:

- Clearly naming and explaining the guiding principles of a standardized MDP for hospitalized older adults (Part A);
- Identifying the priority elements to be included in a short-version MDP (Table 1);
- Proposing a prioritization of patients to identify

older adults most likely to benefit from an MDP when human resources are limited (Part B);

- Discussing the ideal format and mode of transmission of the MDP (Part C).

This practical guide is intended for pharmacists working in institutions that provide care to older hospitalized patients across various care units, as well as for physicians and any other professionals or managers with an interest in the care trajectories of older adults. Its purpose is to facilitate the implementation of the MDP in alignment with patients' needs and the practice context of clinicians. Additionally, it can serve as a resource for managers or other stakeholders, such as professional organizations, to support optimal clinical practice.

This practical guide is the outcome of a study that involved a comprehensive literature review and consultations with healthcare professionals, including pharmacists, physicians, specialized nurse practitioners (SNP), researchers, as well as input from a patient partner and a family caregiver, utilizing the Delphi method. This study established the guiding principles for the design and implementation of the MDP in hospitalized older patients.[15] The content of each section is substantiated, where applicable, by evidence and practical insights from members of the working group who collaborated on the guide's preparation, as well as input from participants in the Delphi study.

Summary of guiding principles

Table 1 illustrates the guiding principles addressed in this practical guide, along with those that should be given priority in a short-version MDP, designed to expedite the process when human resources are limited. Out of the 25 guiding principles concerning the content of the MDP, participants in the Delphi study[15] identified 17 as priorities, which are specifically highlighted in section A of the practical guide by the *Priority icon*. It is important to note that, under favourable conditions, every guiding principle should be implemented to the greatest extent possible.

Table 1 : Guiding Principles of a Medication Discharge Plan for Older Adults

Guiding Principles

Section 1 : Information on Care Provided During Hospitalization

⊕	**1 : Medical Information**	The MDP should include a section dedicated to the patient's care during hospitalization. Essentially, it should provide details on the reason for admission, the primary and secondary diagnoses, the patient's medical history, the length of stay, and finally, any scheduled post-discharge medical follow-ups.
⊕	**2 : Medication Received and/or Completed During Hospitalization**	The MDP should incorporate details about medication received and/or completed during hospitalization, which do not appear on the discharge prescription. Emphasis should be placed on information that could impact the management of outpatient drug therapy.
⊕	**3 : Duplication of Information with the Discharge Summary**	The MDP should be accompanied by a copy of the discharge summary, when available, to prevent duplication of information. In instances where the details regarding care provided during hospitalization, as outlined in guiding principles 1 and 2, are incomplete or unavailable, or if the discharge summary is not accessible within a reasonable timeframe, the MDP should provide clarification or supplementation for this information.

Section 2 : General Medication Information

⊕	**4 : Basic Medication Information**	The MDP should contain details influencing medication selection, such as drug allergies and intolerances, whether experienced before or during hospitalization, as well as the patient's drug reactions (if known), the patient's current weight and height (with the date of measurements), the type of medication packaging (vials or pillbox), and the contact details of the patient's community pharmacy.
⊕	**5 : Medication Changes During Hospitalization**	The MDP should, in a concise format, include a list of changes made to the patient's drug therapy during hospitalization (medications added or discontinued, and changes in dose or dosage).
⊕	**6 : Reason for Medication Changes**	The MDP should provide the rationale behind any medication changes implemented during hospitalization (indication for new medication or the reason for discontinuation), as well as the treatment duration (if available).
	7 : Medication Management and Adherence to Drug Therapy	The MDP should incorporate details regarding medication management at home, such as the responsible individual's name, and the patient's adherence to drug therapy.
⊕	**8 : Medication Administration Specifics**	The MDP should encompass supplementary details regarding medication administration, such as the presence of a stoma or dysphagia, and the use of crushed tablets or open capsules.

Legend :   ⊕   Inclusion in the short-version MDP

Guiding Principles

⚠	**9 : Duplication of Information with the MedRec**	The MDP should be accompanied by a copy of the MedRec to prevent duplication of information. In instances where general medication information, as outlined in guiding principles 4 to 8, is incomplete or absent in the MedRec, the MDP should offer clarification or supplementation for this information.

Section 3 : Health Issues, Analysis and Recommendations

Section 3.1 : Types of Health Issues to be Addressed

⚠	**10 : Health Issues Related to Modified Medications**	The MDP should encompass health issues related to medications modified, initiated or discontinued during hospitalization.
	11 : Potential Issues Related to Unchanged Medications	The MDP should address health issues related to medications that were not modified during hospitalization, but for which a potential issue could be the subject of future intervention.
⚠	**12 : Stable, Controlled Health Issues**	The MDP **should generally omit** discussion on stable, well-controlled health issues for which drug therapy remained unchanged during the hospital stay.
	13 : Medications Associated with Geriatric Syndromes	The MDP should address medications associated with geriatric syndromes that have been identified or have deteriorated during hospitalization.

Section 3.2 : Analysis

⚠	**14 : Therapeutic Goals and Targets**	The MDP should incorporate patient-specific therapeutic goals and targets, if applicable, exclusively for the health issues being addressed.
⚠	**15 : Rationale for Medication Choices**	The MDP should include a concise rationale for prescribed or recommended pharmacological treatment choices that deviate from standard practice, solely for the health issues being addressed.
⚠	**16 : Renal and Hepatic Function**	The MDP should include an estimate of renal function and, if applicable, the severity of cirrhosis according to the Child-Pugh classification to inform medication dosage adjustments.
⚠	**17 : QTc Interval**	The MDP should include the QTc interval if it is deemed relevant to the health issues being addressed.
	18 : Paraclinical Information	The MDP should include relevant examinations (e.g., laboratory tests, medical imaging) conducted during hospitalization and related to medication, exclusively for the health issues being addressed. This information is deemed relevant to mention if it is not accessible in a clinical data-sharing system, or if close follow-up is suggested in the "recommendations" section of the MDP.

Guiding Principles

Section 3.3 : Recommendations

❗ 19 : Recommendations Related to Modified Medications	The MDP should include pharmacological recommendations, including associated efficacy and safety monitoring, for health issues related to medications that were modified, initiated or discontinued during hospitalization. In cases where multiple suggestions are provided, recommendations should be prioritized.
20 : Recommendations Related to Unchanged Medications	The MDP should include pharmacological recommendations, including associated efficacy and safety monitoring, for health issues related to medications that were not modified during hospitalization, but for which a potential issue has been identified during that period. In the case of multiple suggestions, recommendations should be prioritized.

Section 4 : Plain-Language Patient Summary

21 : Plain-Language Patient Summary	The MDP should include a section for the patient summarizing in layman's terms relevant information about medication changes that have occurred during hospitalization as well as pharmacological recommendations.

Section 5 : Communication with Patients and Professionals

22 : Patient Education	The MDP should include relevant information on patient education provided during hospitalization, as well as the format of the information conveyed (written and/or verbal).
❗ 23 : Patient's Contact Details and Spoken Language	The MDP should include the name and contact information of the patient or caregiver who can be contacted regarding healthcare matters in the event the patient transitions to a new pharmacy or care team. Additionally, the spoken language should be specified if the patient or caregiver is not fluent in either French or English.
24 : Family Physician's Contact Details	The MDP should include the name and contact details of the family physician or primary health care nurse practitioner responsible for the medical follow-up related to the patient's drug therapy.
❗ 25 : MDP Writer's Contact Details	The MDP should include the name and contact details of the writer(s).

Prioritizing the MDP

26 : Patient Prioritization	When prioritizing patients for the writing of an MDP, it is recommended to consider both medication-related and non-medication-related criteria. Priority should be given to patients who meet both types of criteria.

Legend : ❗ Inclusion in the short-version MDP

Guiding Principles of a Medication Discharge Plan for Older Adults

INFORMATION ON CARE PROVIDED DURING HOSPITALIZATION

1 (!) Medical Information	2 (!) Medication Received and/or Completed During Hospitalization	3 (!) Duplication of Information with the Discharge Summary

Légende :

(!) Inclusion in the short-version MDP
H Health Issues
A Analysis
R Recommendations

GENERAL MEDICATION INFORMATION

4 (!) Basic Medication Information	5 (!) Medication Changes During Hospitalization	6 (!) Reason for Medication Changes	7 Medication Management and Adherence to Drug Therapy	8 (!) Medication Administration Specifics	9 (!) Duplication of Information with the MedRec

HEALTH ISSUES, ANALYSIS AND RECOMMENDATIONS

10 (!) Health Issues Related to Modified Medications [H]	11 Potential Issues Related to Unchanged Medications [H]	12 (!) Stable, Controlled Health Issues [H]	13 Medications Associated with Geriatric Syndromes [H]	14 (!) Therapeutic Goals and Targets [A]	15 (!) Rationale for Medication Choices [A]
16 (!) Renal and Hepatic Function [A]	17 (!) QTc Interval [A]	18 Paraclinical Information [A]	19 (!) Recommendations Related to Modified Medications [R]	20 Recommendations Related to Unchanged Medications [R]	

PATIENT SUMMARY	COMMUNICATION WITH PATIENTS AND PROFESSIONALS				PRIORITIZATION
21 Plain-Language Patient Summary	22 Patient Education	23 (!) Patient's Contact Details and Spoken Language	24 Family Physician's Contact Details	25 (!) MDP Writer's Contact Details	26 Patient Prioritization

General principles for writing the MDP

The guiding principles and other practical elements outlined in this guide constitute the foundation of an MDP. As this practical guide is not exhaustive, it does not encompass all the specificities of medication therapy management in older adults. This practical guide does not substitute the professional judgment of the hospital pharmacist, physician, or any other professional engaged in the MDP.

It is essential to limit the information included in the MDP to that which is relevant to the pharmacological follow-ups being addressed. This ensures that the MDP remains useful and easy to consult. A document that is too long may not be read and would therefore be less effective in the patients' transition of care.

Given the array of tools at clinicians' disposal in their practice, it is crucial to avoid duplicating information from the MDP with that found in these tools. The guiding principles concerning the discharge summary and the MedRec take this aspect into account. The hospital pharmacist can initiate the preparation of the MDP upon the patient's admission and continue its development when updating the care plan during the hospital stay.

Part A : Content of the MDP

Part A comprehensively addresses the content of the MDP, which is subdivided into five sections: Information on Care Provided During Hospitalization, General Medication Information, Health Issues, Analysis and Recommendations, Plain-Language Patient Summary, and, finally, Communication with Patients and Professionals.

▶ Section 1 : Information on Care Provided During Hospitalization

This section addresses the medical and medication-related aspects of inpatient care to be incorporated into the MDP.

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MEDICAL INFORMATION

The MDP should include a section dedicated to the patient's care during hospitalization. Essentially, it should provide details on the reason for admission, the primary and secondary diagnoses, the patient's medical history, the length of stay, and finally, any scheduled post-discharge medical follow-ups.

Explanation

The accessibility of this type of information varies significantly among primary care practitioners. For instance, a survey conducted among community pharmacists in Switzerland revealed that the reason for admission and the primary and secondary diagnoses were typically not disclosed to them during hospital discharge, with rates of 75% and 85%, respectively.[16] Access to this information contextualizes hospitalization, facilitating a more comprehensive analysis of the patient's condition.

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02 MEDICATION RECEIVED AND/OR COMPLETED DURING HOSPITALIZATION

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The MDP should incorporate details about medication received and/or completed during hospitalization, which do not appear on the discharge prescription. Emphasis should be placed on information that could impact the management of outpatient drug therapy.

Explanation

The number of days on intravenous antibiotics before transitioning to the oral route at discharge, the completion of treatment for an acute COPD exacerbation during hospitalization, or doses of intravenous iron are examples of treatments given to the patient that warrant mention in an MDP. Primary care practitioners frequently face challenges in accessing this pertinent information, which is necessary for effective patient management. This data is particularly valuable in preventing treatment duplication and enhancing the monitoring of diverse chronic diseases.

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DUPLICATION OF INFORMATION WITH THE DISCHARGE SUMMARY

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The MDP should be accompanied by a copy of the discharge summary, when available, to prevent duplication of information. In instances where the details regarding care provided during hospitalization, as outlined in guiding principles 1 and 2, are incomplete or unavailable, or if the discharge summary is not accessible within a reasonable timeframe, the MDP should provide clarification or supplementation for this information.

Explanation

Information about the care provided during hospitalization is typically found on the discharge summary,[2] but the content, quality, and availability of this document can vary.[17, 18] The concern of duplicating information with the preceding two guiding principles is indeed valid. In light of our constrained human resources, the purpose of this guiding principle is to eliminate redundancy in order to enhance work efficiency. This guiding principle also allows room for the professional to add relevant information, considering the variability of information found on the discharge summary. Additionally, when a substantial delay is anticipated before the discharge summary becomes available, the professional may find it appropriate to duplicate the medical information in the MDP. Importantly, this is not meant to replace the medical team responsible for producing the discharge summary but rather to ensure that the recipient of the MDP has access to the pertinent information necessary for pharmacological follow-up, where applicable.

Application

The discharge summary is typically sent to the family doctor and is often not accessible to other healthcare professionals. While its availability in a computerized clinical data-sharing system would be ideal, not all care settings have such a system. In Quebec, for example, the development of the Hospitalization domain in the Quebec Health Record (QHR) is currently underway. Consequently, the discharge summary compiled by the attending physician after a hospitalization will eventually be accessible to QHR users.[19] Meanwhile, efforts should be made to ensure that primary care professionals engaged in pharmacological follow-up have access to this information.

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▶ Section 2 : General Medication Information

This section addresses the fundamental elements related to the medications intended for inclusion in the MDP.

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BASIC MEDICATION INFORMATION

The MDP should contain details influencing medication selection, such as drug allergies and intolerances, whether experienced before or during hospitalization, as well as the patient's drug reactions (if known), the patient's current weight and height (with the date of measurements), the type of medication packaging (vials or pillbox), and the contact details of the patient's community pharmacy.

Explanation

This basic information is important for ensuring care continuity and optimizing the medication selection in various situations, such as those described in the following examples. Allergies and intolerances are, understandably, essential considerations when introducing new medications. Weight and height serve as valuable metrics for adjusting the dosage of certain medications, whether to estimate renal function or to tailor the dose based on weight or body surface area. The use of a pillbox may enhance adherence to medication therapy but may be less suitable for complex medication regimens (such as those involving more than four doses per day or with specific instructions).

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MEDICATION CHANGES DURING HOSPITALIZATION

The MDP should, in a concise format, include a list of changes made to the patient's drug therapy during hospitalization (medications added or discontinued, and changes in dose or dosage).

Explanation

Recording recent changes to the patient's drug therapy aligns with the MedRec conducted at key transition points in the patient's hospitalization. This practice helps reduce the risk of medication errors, including omissions, interactions, or dosage errors.[20] Additionally, it allows various parties to anticipate the necessary follow-ups in response to the patient's updated drug therapy.

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! PRIORITY

REASON FOR MEDICATION CHANGES

The MDP should provide the rationale behind any medication changes implemented during hospitalization (indication for new medication or the reason for discontinuation), as well as the treatment duration (if available).

Explanation

These data are essential to the follow-up of patients discharged from hospital. As the primary care team typically does not participate in the decision-making process related to patient management in the hospital, some may encounter challenges in understanding the reasons for changes. Instances like initiating an antipsychotic to address severe agitation caused by delirium or discontinuing citalopram during hospitalization due to a syndrome of inappropriate antidiuretic hormone secretion (SIADH) are examples of reasons for medication changes. Additionally, the explicit duration of treatment, such as a 7-day course of antibiotics, is sometimes specified, but this is not always the case when the intended duration extends beyond the period covered by the original prescription, such as the intended duration of a dual antiplatelet therapy or a course of colchicine when starting allopurinol.

Application

It may be appropriate not to mention the reason for a change in the MDP if the writer feels it is implicit (e.g., the introduction of a laxative for constipation).

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07 MEDICATION MANAGEMENT AND ADHERENCE TO DRUG THERAPY

The MDP should incorporate details regarding medication management at home, such as the responsible individual's name, and the patient's adherence to drug therapy.

Explanation

Adherence to drug therapy among older adults is influenced by various factors, such as the number of prescribed medications, cognition, dexterity, and vision.[21, 22] Suboptimal adherence to drug therapy can result in adverse health outcomes, increased healthcare costs, and higher mortality rates.[23] Additionally, evaluating therapeutic response may be compromised without accounting for adherence. While primary care practitioners generally have a good understanding of their patients' adherence, a hospital stay can impact autonomy. Hence, updating this information is relevant to help practitioners identify patients requiring adherence follow-up. For instance, a patient considered autonomous but whose delirium has recently resolved may need temporary close monitoring to ensure adherence post-discharge.

In addition to adherence, information on medication management is essential, especially when someone other than the patient is responsible (e.g., family, caregiver, private or public home care, and/or residence staff). A patient capable of handling medications in their own pillbox may lack the dexterity needed for insulin administration and may require assistance solely for this task.

Application

The patient's understanding of their medication regimen, their diligence in renewing medications at the community pharmacy, or observations by the family can help determine adherence. In cases of persistent doubts, some hospitals allow the evaluation of a patient's medication intake under the supervision of medical staff. The assessment results (whether the patient can self-medicate or not) should be documented in the MDP. When a factor is identified as a cause of non-adherence, it should be noted (e.g., cognitive impairment, cost/accessibility issues, visual impairment, insufficient or incorrect knowledge) to facilitate follow-up and the adaptation of interventions.

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MEDICATION ADMINISTRATION SPECIFICS

The MDP should encompass supplementary details regarding medication administration, such as the presence of a stoma or dysphagia, and the use of crushed tablets or open capsules.

Explanation

This guiding principle aims to delineate specific precautions for medication administration, considering that certain practices (e.g., tablet crushing) may necessitate adjustments, such as avoiding sustained-release or enteric-coated products. Oropharyngeal dysphagia, considered a geriatric syndrome, impacts up to 34% of older adults living at home and up to 47% of patients admitted to a geriatric care unit.[24]

Application

Highlighting a particular method of medication administration becomes crucial, especially for patients undergoing a change in their condition during hospitalization, like the introduction of a stoma or a new diagnosis of post-stroke dysphagia necessitating crushed tablets. When a situation is temporary or potentially reversible, including details about the planned follow-up for this purpose is pertinent. Conversely, this information may be of lesser priority for a patient without a change in the mode of administration and who is already known to their primary care team.

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DUPLICATION OF INFORMATION WITH THE MEDREC

The MDP should be accompanied by a copy of the MedRec to prevent duplication of information. In instances where general medication information, as outlined in guiding principles 4 to 8, is incomplete or absent in the MedRec, the MDP should offer clarification or supplementation for this information.

Explanation

The aim of this guiding principle is to avoid wasting time by duplicating information and promote the utilization of existing documents. This guiding principle acknowledges the clinician's discretion in completing relevant information, considering the variability of information that may be present in the MedRec.

Application

While MedRec is a distinct process, there is a growing trend to integrate it into the discharge prescription. Many healthcare professionals, including those in Family Medicine Groups (FMGs) and family physicians, may not have access to the MedRec conducted at patient discharge. Indeed, the MedRec is primarily sent to the patient's community pharmacy as a discharge prescription when they leave the hospital. Ideally, access to the MedRec should be available to all healthcare professionals. Until such universal access is established, it is crucial to ensure that the MedRec is accessible to the primary healthcare team responsible for monitoring their patient's drug therapy.

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▶ Section 3 : Health Issues, Analysis and Recommendations

An important part of the MDP involves addressing pharmacotherapy problems identified during hospitalization, proposing interventions, and outlining follow-up strategies for their management. This section is structured into three parts: the types of health issues to be addressed in the MDP, the analysis of these issues, and the corresponding recommendations. While in practice, these three sections may likely be interwoven into the MDP, they are presented separately in this practical guide for clarity and ease of description.

Section 3.1 : Types of Health Issues to be Addressed

This section specifically focuses on the health issues to be prioritized in the MDP.

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HEALTH ISSUES RELATED TO MODIFIED MEDICATIONS

The MDP should encompass health issues related to medications modified, initiated or discontinued during hospitalization.

Explanation

The primary focus is on addressing health concerns related to various medications that were modified, started or stopped during hospitalization. The identification of active pharmacotherapy problems is a recurring theme in the literature and various proposed transfer plans.[25,26,27] An iron-deficiency anemia for which an iron supplement has been started or diabetes that necessitated a change in hypoglycemic agents due to hypoglycemia are examples of health issues that may be important to mention in the MDP.

Application

Priority should be given to unstable health issues related to medications modified, started or stopped during the hospital stay. Conversely, it may be less relevant to address health issues that are once again under control and stable.

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POTENTIAL ISSUES RELATED TO UNCHANGED MEDICATIONS

The MDP should address health issues related to medications that were not modified during hospitalization, but for which a potential issue could be the subject of future intervention.

Explanation

A clinician might identify a potential pharmacotherapy problem linked to a medication that remained unchanged during the patient's hospital stay, and for which immediate intervention is not feasible. Indeed, good clinical practice in geriatrics advises against making multiple changes simultaneously. Sequential interventions, such as deprescribing multiple medications requiring gradual tapering, are generally recommended to be carried out one after the other. Depending on the length of the hospital stay, these interventions may require more time than the hospitalization period allows and will need to be continued by the primary care professionals.

Application

Lists of potentially inappropriate medications, as identified by criteria such as Beers[28] or STOPP-START[29], can serve as tools to target relevant potential issues. For instance, a patient at risk of falling may have their benzodiazepine reassessed, but the initiation of tapering during hospitalization may not be appropriate.

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STABLE, CONTROLLED HEALTH ISSUES

The MDP <u>should generally omit</u> discussion on stable, well-controlled health issues for which drug therapy remained unchanged during the hospital stay.

Explanation

Addressing stable, well-controlled conditions where medications have remained unchanged is likely to yield minimal impact, given that primary care clinicians closely monitor the evolution of these conditions. For example, well-controlled diabetes, for which the treatment has not been modified during hospitalization, should not be addressed in the MDP.

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MEDICATIONS ASSOCIATED WITH GERIATRIC SYNDROMES

The MDP should address medications associated with geriatric syndromes that have been identified or have deteriorated during hospitalization.

Explanation

Geriatric syndromes are issues with multifactorial causes in older adults. These syndromes are linked to a reduced quality of life, loss of autonomy, and mortality.[30] Some, such as neurocognitive disorders, delirium, falls, urinary incontinence, and functional decline, may lead to institutionalization.[30] In this context, the evaluation of drug therapy is crucial, as certain adverse drug reactions may manifest atypically and non-specifically in older adults, sometimes in the form of a geriatric syndrome. For example, the use of a tricyclic antidepressant may have contributed to the falls that led to a patient's admission, or the use of an anticholinergic medication for overactive bladder may exacerbate a neurocognitive disorder diagnosed during hospitalization. Addressing geriatric syndromes in the MDP may enhance patient management, especially considering that an interdisciplinary approach is usually required for frail older patients with geriatric syndromes.

Application

While the MDP does not necessarily require a dedicated section on geriatric syndromes, addressing them is important, particularly when pharmacotherapy problems are associated with these syndromes.

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Section 3.2 : Analysis

This section focuses on the pertinent elements to be incorporated into the MDP to justify the selected management approach. It should be noted that the guiding principles outlined in this section are applicable solely to drug therapy related to the health issues discussed in the MDP (*refer to Section 3.1*). It is unnecessary to specify all the elements of Section 3.2 for medication associated with health issues that have been stabilized and, consequently, not addressed in the MDP.

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14. THERAPEUTIC GOALS AND TARGETS

The MDP should incorporate patient-specific therapeutic goals and targets, if applicable, exclusively for the health issues being addressed.

Explanation

The standard treatment goals and targets recommended by guidelines may not always be suitable for older patients or for specific individuals.[31] Hence, it is relevant to specify personalized therapeutic goals and targets in the MDP, considering factors such as the patient's overall condition, level of frailty, and preferences. A therapeutic goal could involve achieving the ability to reach the residence dining room independently and safely. A therapeutic target might entail maintaining a blood pressure below 140/90 mmHg without experiencing orthostatic hypotension.

Application

It is unnecessary to reference well-known general therapeutic targets; instead, focus should be on those tailored to the individual patient. Moreover, certain therapeutic goals may have a less direct impact on pharmacotherapy, and in such cases, there is no requirement to mention them. Occasionally, primary care professionals are better equipped to determine the therapeutic target, particularly when there are concerns that the hospital team may lack essential information about the patient's medical history.

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RATIONALE FOR MEDICATION CHOICES

The MDP should include a concise rationale for prescribed or recommended pharmacological treatment choices that deviate from standard practice, solely for the health issues being addressed.

Explanation

This guiding principle acts as a complement to guiding principle 6 (*Reason for Medication Changes*). While the latter asks to specify the indication for a new medication or the reason for discontinuing a medication, this guiding principle requires elaboration on the rationale for the selection of a particular medication or a specific dosage.

Application

The MDP should include justification for the treatment prescribed or suggested in complex or atypical situations. For instance, this may involve justifying the prescription of a high-dose antidepressant for refractory depression or introducing an off-label treatment after several treatment failures. In the case of introducing a first-line treatment, such as metformin for type 2 diabetes, there is no need to provide justification for the choice of treatment.

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RENAL AND HEPATIC FUNCTION

The MDP should include an estimate of renal function and, if applicable, the severity of cirrhosis according to the Child-Pugh classification to inform medication dosage adjustments.

Explanation

Renal and hepatic insufficiency are two health issues that require assessing the need for dosage adjustments. Unfortunately, patient-specific data for such assessments are often scarce. According to Brüwhiler et al., less than 5% of respondents received this information during the transition of care.[16] While renal function estimation may be available in a clinical data-sharing system, the formulas used are not always optimal in geriatrics, partly due to inadequate validation in older adults and a lack of consideration for the patient's weight.[32] Given the variability in renal function estimation based on the formula used and patient characteristics (e.g., cachexia), it is beneficial for the clinician to be aware of the renal function estimation formula employed by the hospital team for medication dosage adjustments. As clinicians may not routinely determine the Child-Pugh score, recording it in the MDP when relevant would be useful.

Application

These data are particularly pertinent in certain contexts, notably for justifying medication dosage. Generally, a significant majority of older individuals benefit from recording estimated renal function, given their frequent use of medications eliminated by the kidneys. Conversely, the Child-Pugh classification is relevant only for patients with cirrhosis, which is less frequent. It is also important to specify if the estimation of renal or liver function was conducted during a period of instability so the clinician can monitor its evolution over time.

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QTC INTERVAL

The MDP should include the QTc interval if it is deemed relevant to the health issues being addressed.

Application

When available in the patient's record, the electrocardiogram (ECG) can be utilized to retrieve the QTc interval value when relevant (for example, patients taking multiple medications with a potential to prolong the QT interval). If the ECG information is accessible in a clinical data-sharing system, duplicating it in the MDP is unnecessary, unless the value is abnormal and necessitates emphasis.

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PARACLINICAL INFORMATION

The MDP should include relevant examinations (e.g., laboratory tests, medical imaging) conducted during hospitalization and related to medication, exclusively for the health issues being addressed. This information is deemed relevant to mention if it is not accessible in a clinical data-sharing system, or if close follow-up is suggested in the "recommendations" section of the MDP.

Explanation

Including clinical data in the MDP, such as important laboratory values, can help to better target the relevant items to be followed up by the primary care team, and improve the efficiency of information transfer. Indeed, in a recent study, over 65% of respondents wanted information on important laboratory values for monitoring treatment and adverse events.[16]

Application

If laboratory values are accessible in a clinical data-sharing system, like the QHR in Quebec, it is advisable not to duplicate the information in the MDP, unless the value was fluctuating, critical, or difficult to stabilize during hospitalization, and highlighting it for follow-up is warranted. For example, mentioning the sodium value in a patient who has recently initiated a thiazide diuretic and has a history of hyponatremia could be relevant. Additionally, disclosing the results of certain tests not available in a clinical data-sharing system, such as gastroscopy findings, may be useful. In cases where a patient has declined participation in a clinical data-sharing system, a more comprehensive list of clinical data may be pertinent.

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Section 3.3 : Recommendations

This section addresses recommendations for follow-up in the MDP stemming from actual or potential pharmacotherapy problems.

In general, it is advisable to explicitly outline expectations concerning the recommendations provided in the MDP. Specifically, this involves clearly specifying in the MDP whether the responsibility for following up on a recommendation lies with a healthcare professional, the patient, or the patient's family. This clarity ensures that expectations are well-defined, facilitating the implementation of recommendations by the primary care team.

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RECOMMENDATIONS RELATED TO MODIFIED MEDICATIONS

The MDP should include pharmacological recommendations, including associated efficacy and safety monitoring, for health issues related to medications that were modified, initiated or discontinued during hospitalization. In cases where multiple suggestions are provided, recommendations should be prioritized.

Explanation

As stated in guiding principle 10 (*Health Issues Related to Modified Medications*), certain pharmacotherapy problems associated with medications that were modified, initiated, or discontinued during hospitalization should be addressed in the MDP. This allows for inclusion of information regarding the necessary follow-up for medication tied to these active issues. Such interventions can significantly impact the transition of care and the risk of readmission post-discharge.[33]

Application

Priority should be assigned to follow-ups that require reassessment within a short timeframe due to the situation's risk or instability. Defining a specific timeframe for follow-up (e.g., 7 days) can help guide the primary care team in planning priority follow-ups. Mentioning less urgent follow-ups is less essential since the primary care team can identify usual and less urgent follow-ups during patient reassessment by noting any medication changes that occurred during hospitalization.

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RECOMMENDATIONS RELATED TO UNCHANGED MEDICATIONS

The MDP should include pharmacological recommendations, including associated efficacy and safety monitoring, for health issues related to medications that were not modified during hospitalization, but for which a potential issue has been identified during that period. In the case of multiple suggestions, recommendations should be prioritized.

Explanation

In alignment with guiding principle 11 (*Potential Issues Related to Unchanged Medications*), certain pharmacological issues are identified during hospitalization, but modifications are not feasible due to the patient's condition, or the time required for implementation. Incorporating recommendations or suggestions regarding these potential issues into the MDP provides an opportunity to optimize the patient's drug therapy.

Application

An eight-week tapering plan for a sedative-hypnotic that was not initiated during hospitalization in a patient at risk of falling is an example of a relevant recommendation to include in an MDP. These recommendations will not be implemented by the hospital medical team, but rather by the primary care team. It may therefore be more accurate to speak of suggestions rather than recommendations. In certain situations, such as when information is lacking, it is reasonable to only raise the potential issue (guiding principle 11: *Potential Issues Related to Unchanged Medications*) without making specific recommendations. This approach allows the outpatient team to assess the potentially problematic situation with the additional information they possess.

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Section 4 : Plain-Language Patient Summary

This section outlines how to integrate a patient summary in straightforward language discussing drug therapy during hospitalization and post-discharge.

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PLAIN-LANGUAGE PATIENT SUMMARY

The MDP should include a section for the patient summarizing in layman's terms relevant information about medication changes that have occurred during hospitalization as well as pharmacological recommendations.

Explanation

According to literature, involving patients in their own care enhances their engagement in the treatment plan.[34] Providing written information is crucial as studies indicate that up to 80% of medical information conveyed by healthcare professionals is immediately forgotten, and nearly half of the retained information is inaccurate.[34]

For older patients with access to their medical notes, the majority reported that these notes aided in remembering their care plan and understanding the rationale behind their prescribed medications.[35] Instances of patients feeling worried or confused after reading these notes were rare (<5 %).[35]

Straightforward language is important given that, according to an American study, only 12% of the population possesses sufficient health literacy to independently manage their health.[34] As healthcare professionals, we frequently find ourselves tasked with simplifying information for patients.

Application

Writing a comprehensive lay summary is usually straightforward when hospitalization involves few health problems and is brief. However, in the case of a complex and lengthy hospital stay, creating a lay summary can be more challenging. In such instances, the focus should be on targeting the most relevant information that will best address the patient's needs. Hence, in certain situations, the summary might emphasize the main medication changes, explaining what to be mindful of and why, particularly if there are concerns about adverse effects or suboptimal adherence to treatment. In other cases, it may be more pertinent to highlight specific pharmacological recommendations, especially if the patient or caregiver is actively engaged in the care process, aiming to foster their empowerment.

Generally, the plain-language summary is intended for the patient. However, when a patient has moderate to severe cognitive impairment, considering a plain-language summary intended for the caregiver may still be relevant, depending on clinical judgment.

Example summary:

Upon your hospital admission following a fall, your blood pressure medication, amlodipine (also known as NORVASC®), was discontinued. This medication had been causing your blood pressure to drop excessively, possibly contributing to your fall. Additionally, we have initiated a gradual reduction in the dosage of your sedative, lorazepam (also known as ATIVAN®), with your consent. This process will continue over the next few weeks. It's important to note that lorazepam can impact your balance, potentially increasing the risk of falls and injuries. Your pharmacist is available to guide and support you through the upcoming steps.

▶ Section 5 : Communication with Patients and Professionals

This section addresses the information to be included in the MDP to facilitate effective communication between patients and professionals, and among professionals.

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PATIENT EDUCATION

The MDP should include relevant information on patient education provided during hospitalization, as well as the format of the information conveyed (written and/or verbal).

Explanation

The patient education about drug therapy, provided by the interdisciplinary team with the hospital pharmacist as a key member, varies based on the available time and the patient's requirements. The hospital pharmacist should be asked to conduct complex drug therapy teaching activities tailored to the patient's needs. Documenting patient education in the MDP can allow, for example, the community pharmacist to complement or reinforce the instruction received when relevant.

Application

It is important to mention the information given to the patient about his medication. It is not feasible to detail all the instruction given to the patient and, when applicable, to the caregiver. Certain information provided by other healthcare providers (occupational therapist, physiotherapist, etc.) might not be documented in the file or may not be pharmacologically relevant. Additionally, the MDP should indicate if there are any concerns about the comprehension or retention of the education provided.

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PATIENT'S CONTACT DETAILS AND SPOKEN LANGUAGE

The MDP should include the name and contact information of the patient or caregiver who can be contacted regarding healthcare matters in the event the patient transitions to a new pharmacy or care team. Additionally, the spoken language should be specified if the patient or caregiver is not fluent in either French or English.

Explanation

This guiding principle allows the receiver to know who to contact for crucial information regarding medication management and prepare for potential language barriers. While the guiding principle mentions French or English as the usual languages in Quebec, it is essential to consider regional language variations worldwide.

Application

In instances where the patient continues to receive care from the same primary care team post-hospitalization, specifying this information, which is already known, may not be necessary.

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24. FAMILY PHYSICIAN'S CONTACT DETAILS

The MDP should include the name and contact details of the family physician or primary health care nurse practitioner responsible for the medical follow-up related to the patient's drug therapy.

Explanation

When several parties are involved in the transition of care and patient management, it can be difficult to identify the primary caregiver. Documenting this information is valuable for optimizing subsequent interventions.

Application

In addition, the practice of pharmacists within an FMG is emerging. Where such a practice exists, the name and contact details of this pharmacist should be included in the MDP.

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MDP WRITER'S CONTACT DETAILS

The MDP should include the name and contact details of the writer(s).

Explanation

This information is essential to promote effective communication between different professionals, for example when the primary care provider needs to communicate with the hospital team. In a survey conducted in Switzerland in 2017, 45% of respondents mentioned that the pharmacist's contact information was almost never available at discharge, and around 75% described this information as essential or desirable.[16]

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Part B : Approach to Prioritizing Patients for the MDP

Given the limited time and human resources available in healthcare settings, it becomes imperative to prioritize older individuals who could benefit most from an MDP, especially those at an elevated risk of drug-related adverse events. The table below outlines the key criteria for prioritization, as identified by participants in the study that informed the development of this practical guide.[15] Refer to guiding principle 26, *Patient Prioritization*, for practical application of these criteria.

Figure 1: Prioritization Criteria to Identify Patients Who May Benefit Most from an MDP When Human Resources Are Limited

Non-medication-related criteria	Medication-related criteria
• Hospitalized in the last 30 days, or 2 hospitalizations in the last 6 months • Multiple concurrent medical conditions (≥ 4 comorbidities) • Major neurocognitive disorder • Frailty[a] • Fall-related admission • Delirium during hospital stay • Socially isolated (living alone and without social support) • Loss of autonomy	• Hospitalization related to adverse drug reactions • High-risk polypharmacy (≥ 10 medications[b] with ≥ 1 high-risk medication[c]) • Use of potentially inappropriate medications[d] • Complex medication regimen[e] • History of non-adherence to medication in a patient who manages their own medication • Medication with variable, increasing or decreasing dose • Polypharmacy (≥ 15 medications[b])

[a] According to the Clinical Frailty Scale.[36]

[b] Refers to all types of medication taken by the patient, including all routes of administration, chronic, short-term, and as-needed medications, as well as complementary and alternative natural products.

[c] High-risk medication refers to a medication with a narrow therapeutic index or a medication associated with a risk of medication-related hospitalization: warfarin, antiplatelet agents, insulin, oral hypoglycemics agents, opioids, digoxin.[25]

[d] In accordance with the Beers[28] or STOPP/START[29] criteria, a potentially inappropriate medication is defined as a drug for which the potential risks outweigh the potential benefits, and for which safer alternatives exist, whether pharmacological or non-pharmacological.[37]

[e] The complexity of the medication regimen depends on the number of medications, dosage form, dose regimen, and special administration instructions.[38]

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26   PATIENT PRIORITIZATION

When prioritizing patients for the writing of an MDP, it is recommended to consider both medication-related and non-medication-related criteria. Priority should be given to patients who meet both types of criteria.

Explanation

Criteria for prioritization are categorized into two types: those related to drug therapy and those unrelated. This guiding principle emphasizes that patients qualifying for both medication-related and non-medication-related criteria should be prioritized over those meeting only one type of criterion. Relying on a single criterion for prioritization may be misleading, as exemplified by a frail patient taking only a calcium and vitamin D supplement, who should not be prioritized for the MDP. Conversely, a polymedicated frail patient may take precedence over a very fit (non-frail) polymedicated patient.

Application

The prioritization criteria are presented in order of importance, as determined by the participants' votes in the Delphi study.[15] Thus, prioritizing patients based on criteria considered more crucial in the drafting of the MDP can serve as a starting point when resources are limited. However, various combinations of criteria are viable in practice, and the clinical significance of these criteria may differ from patient to patient. Therefore, this guiding principle and the prioritization criteria are established to assist clinicians in prioritizing patients, considering the patient's overall health.

Part C : Preferred Format and Elements to Consider for Transmitting the MDP

For effective communication, the literature suggests a clear preference for utilizing automated information systems that are interoperable and accessible to all healthcare professionals, as well as patients.[39,40] These integrated systems streamline information gathering, among other functions. Ideally, the MDP would be seamlessly incorporated into such systems. However, in Quebec, this type of communication system is not currently available. In light of this, the following considerations outline the format the MDP should adopt and the most effective means of disseminating it to various professionals and the patient, until the implementation of such a system. These reflections draw upon responses and comments from participants in the Delphi study, as well as comments from members of the working group who collaborated on the preparation of this practical guide.[15]

▶ C.1 Format of the MDP

Is the MDP a standalone document?

The MDP can be presented in various formats:
- As a separate document, distinct from other records.
- Integrated into the MedRec at discharge.
- Integrated – in collaboration with the medical team – into the discharge summary.
- Mixed document, i.e. integrated with the other documents mentioned, based on the specific requirements of your practice and care setting.

REMEMBER!
Ideally, the MDP should be a standalone document, avoiding redundancy across various records. However, the important thing is to choose the format that suits your practice and care setting, facilitating the completion of an MDP.

What should be the maximum length of the MDP?

- The MDP should not exceed 2 pages. The length may vary depending on whether the MDP is integrated with a pre-existing document.
- If a longer document is required, prioritize clear visual presentation to allow ease of consultation.

> **REMEMBER!**
> Advocate for a precise, concise MDP tailored to the patient's condition and needs.

Is the MDP a digital or paper document?

- The digital format offers several advantages in terms of accessibility, drafting, and traceability. Moreover, it can be transmitted in various formats.
- A hybrid format, such as a printable digital document, could also be considered, notably to facilitate access by the patient or to deposit a copy in the patient's paper file, where applicable.

> **REMEMBER!**
> A digital format is preferable. However, considering the current circumstances, a hybrid format is more realistic, depending on the technological tools available in your setting.

Is drafting the MDP an activity reserved for pharmacists?

- Writing the MDP is not restricted to the hospital pharmacist. Teamwork is possible.
  - For example, the hospital physician could be involved in the process, to collect certain information, justify conduct or discuss certain elements, including therapeutic targets.
  - A clear document, accessible to all and easy to complete, could facilitate the participation of different professionals in the drafting process.

> **REMEMBER!**
> Writing the MDP should be a team effort involving the hospital pharmacist, the hospital physician, and other professionals as required. However, as a medication expert, the hospital pharmacist should be the pivotal person responsible for the MDP.

▶ C.2 Transmission of the MDP

To whom should the MDP be sent?

- Many professionals are involved in the transition of care and should have access to the MDP.
  - The primary care physician, the community pharmacist, the FMG pharmacist, the SNP, and the specialist physician, if applicable, are among the principal targets.
  - The patient or caregiver should be given a copy (digital or paper, depending on preference) to encourage self-management and partnership with the patient.
  - In the event of an inter-institutional transfer, the team at the next healthcare facility should also receive the MDP.

- It is important, however, to ensure the confidentiality of the MDP and to confirm the patient's agreement prior to its transmission, unless it is already covered by a general agreement for care and information transmission upon hospital admission.

> **REMEMBER!**
> Target all professionals potentially involved in monitoring drug therapy, not forgetting the patient.

How do I transmit the MDP?

- Various methods are available :
  - Email (if the hospital's messaging service is secure), fax, using the patient or caregiver as an intermediary, and ultimately, whenever possible, a secure shared electronic platform.
- If the MDP is sent through an intermediary such as the patient or caregiver, an alternative method of transmission to healthcare professionals is also advisable to prevent delays or interruptions in communication.

> **REMEMBER!**
> Select the most efficient transmission method for the MDP to reach its recipient(s) while ensuring data confidentiality, considering the current capabilities of your clinical setting.

When should the MDP be sent?

- It is essential that the MDP be sent to the various stakeholders in a timely manner.
  - Ideally, the plan should be sent on the day of discharge. However, if this is not feasible, it should be transmitted within 24 to 48 hours of discharge.
  - This timeframe may vary based on the risk associated with the patient's condition or the duration of their stay. Swift transmission is essential in situations where there is a risk to the patient. Additionally, in the context of an extended hospital stay with a predictable discharge, pre-discharge transmission could be considered.
  - If the MDP is transmitted after the patient has been discharged, the discharge prescription must always be sent no later than the day of discharge, along with all necessary information to enable the community pharmacist to ensure a safe medication dispensation.

> **REMEMBER!**
> Try to send the MDP as soon as possible, ideally at the time of discharge.

Conclusion

This practical guide outlines and explains the guiding principles of the MDP for older patients within a hospital setting, along with their practical application, considering feasibility. Additionally, the guide offers recommendations on patient prioritization, a short-version MDP, and a discussion on the format and mode of transmission of the MDP. Its purpose is to mitigate medication-related risks in older adults during transitions of care and facilitate clinicians in implementing the MDP seamlessly into their practices.

This practical guide allows flexibility for tailoring the MDP to the specific needs of individual patients and the context of each clinician's practice, avoiding a rigid template. Consequently, clinicians can develop an MDP for older adults that aligns with the unique characteristics and realities of their healthcare environments.

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