KLINIKAI GYÓGYSZERÉSZI SZOLGÁLAT ALAPJAI

SZALAI GÁBOR

KISKUNHALASI SEMMELWEIS KÓRHÁZ

INTENZÍV OSZTÁLY

2022.06.01.

Hospital Pharmacist

„Az emberek gyakran nem tudják, hogy mit akarnak, amíg meg nem mutatod nekik”

Steve Jobs

PUBLICATIONS + RESOURCES

- Standards of Practice
  - Standards of Practice (Practitioners)
  - Standards of Practice (Consumers)
  - Standards of Practice for Clinical Pharmacy Services
- Australian Injectable Drugs Handbook
- Don't Rush to Crush
- Journal of Pharmacy Practice and Research (JPPR)

Standards of Practice for Clinical Pharmacy Services

Standards of Practice for Clinical Pharmacy Services

Related Documents

- Overview.pdf
- Chapter 1 - Medication Reconciliation.pdf
- Chapter 2 - Assessment of current medication management.pdf
- Chapter 3 - Clinical review therapeutic drug monitoring and adverse drug reaction management.pdf
- Chapter 4 - Medication management plan.pdf

https://www.shpa.org.au/publications-resources/standards-of-practice/standards-of-practice-for-clinical-pharmacy-services

Overview of hospital pharmacy services

Clinical pharmacy activities:
Patient-specific clinical pharmacy services

→ *Transfer to healthcare provider* → *Care from healthcare provider* → *Transfer from healthcare provider* →

Compilation of accurate and complete medication history

Medication reconciliation between medication history and currently prescribed medicines

Assessment of current medicines given medical history, current health and ability to self medicate

Assessment of current medicines and clinical review of patient and including:
- drug-drug interactions
- drug-patient interactions
- drug-disease interactions
- appropriate choice of medicine, formulation, concentration, rate of administration
- resolution of any medicine-related problems

Management of issues that arise from assessment e.g. ADR, counselling about new medicines or administration aids, assessment of ability to self medicate

Assessment of current medicines given medical history, current health and ability to self medicate

Medication reconciliation between medicines currently prescribed and medication action plan with medicines prescribed on transfer

Pharmacist counselling

Provision of verified information for ongoing care

Authorised prescribing for individual patients
Non patient-specific clinical pharmacy services: medicines information services

Distribution activities:
Patient-specific services dispensed items to individual patients, sterile and non-sterile manufacturing
Non patient-specific services purchasing and stock management, sterile and non-sterile manufacturing, issues to patient care areas, management of PBS / Section 100 claims

Quality use of medicines:
medication safety and QUM activities, DUE, institutional drug policy and formulary management

Teaching and training:
pharmacy undergraduate, intern and post registration, staff development, other health professionals

Administration and pharmacy management activities: quality activities, planning , policy development, resource and contract management, revenue management, information and technology management, investigational medicines and clinical trials management, activity based management, training and professional development, work health and safety

PRIORITISING CLINICAL PHARMACY SERVICES

- ideally, every health service organisation would have resources to provide all clinical pharmacy activities to every patient based on their needs

- **pharmacy managers may need to determine which groups of patients benefit the most from a clinical pharmacy service** and the clinical pharmacy activities prioritised in their organization

- on a day-to-day basis, **pharmacists need to prioritise** the patients who will receive which clinical pharmacy activities in order to maximise the value of their input

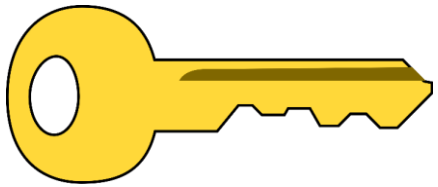
PATIENT GROUPS MOST AT RISK OF MEDICINES-RELATED PROBLEMS

- have medication misadventure as the known or suspected reason for their presentation or admission to the health service organisation
- aged 65 years or older
- take 5 or more medicines
- take more than 12 doses of medicines per day
- take a medicine that requires therapeutic monitoring or is a high-risk medicine
- have clinically significant changes to their medicines or treatment plan within the last 3 months
- have suboptimal response to treatment with medicines

PATIENT GROUPS MOST AT RISK OF MEDICINES-RELATED PROBLEMS

- impaired sight, confusion/dementia or other cognitive difficulties
- have impaired renal or hepatic function
- have problems using medication delivery devices or require an adherence aid
- are suspected or known to be non-adherent with their medicines
- have multiple prescribers for their medicines
- have been discharged within the last 4 weeks from or have had multiple admissions to a health service organisation

PARTICIPATION IN MULTIDISCIPLINARY WARD ROUNDS AND MEETINGS



ACTIVITIES WHICH HAVE BEEN SHOWN TO HAVE MAJOR BENEFITS

- medication reconciliation on admission and during changes in level of care
- interventions to address medicines-related problems
- assessment of current medication orders
- clinical review, therapeutic drug monitoring (TDM) and adverse drug reaction management
- provision of medicines information to patients

PHARMACY PRACTICE

A Standardized, Structured Approach to Identifying Drug-Related Problems in the Intensive Care Unit: FASTHUG-MAIDENS

Vincent H Mabasa, Douglas L Malyuk, Elisa-Marie Weatherby, and Alice Chan

DOI: 10.4212/cjhp.v64i5.1073

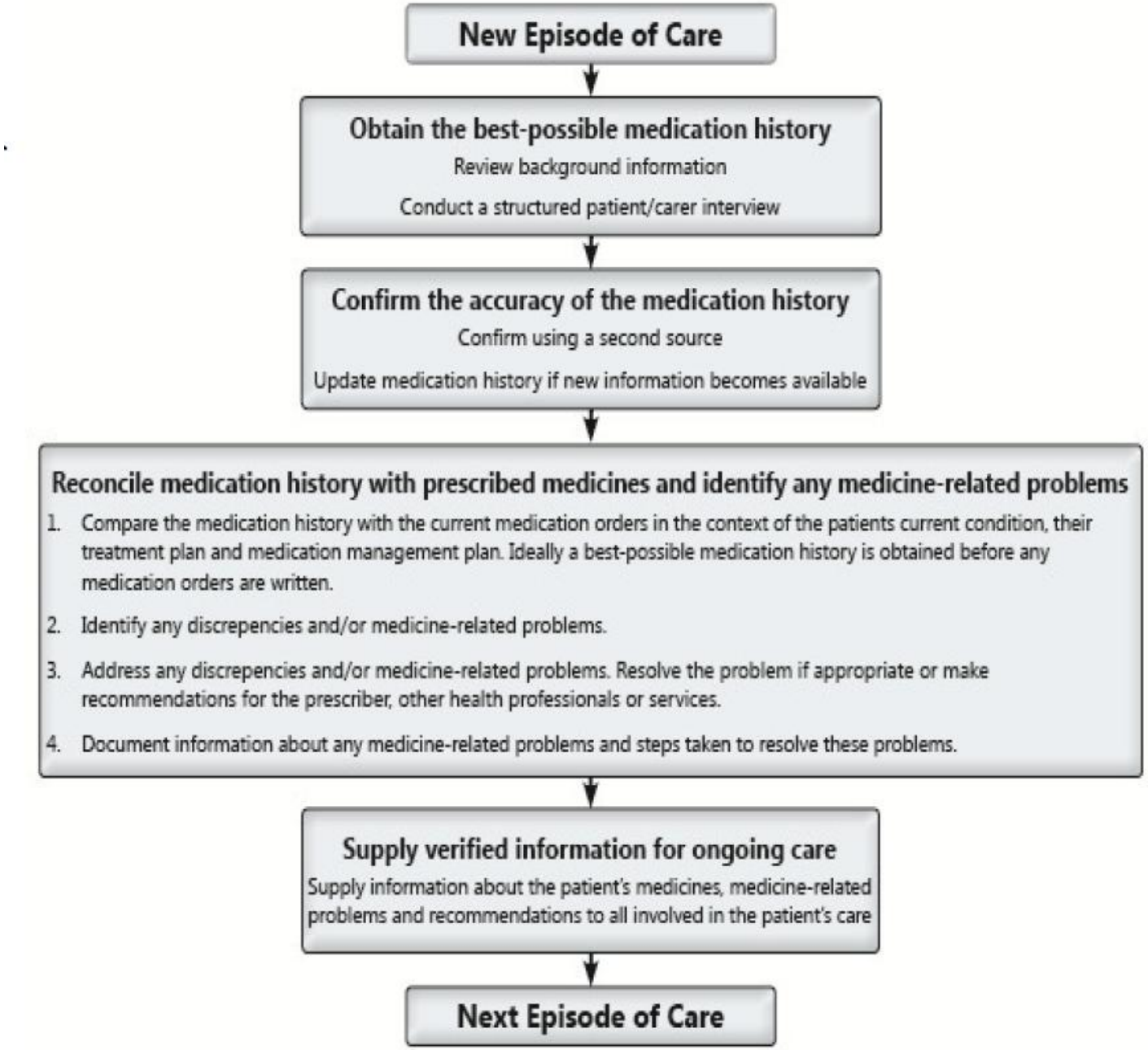
Table 1. The FASTHUG-MAIDENS Mnemonic

Letter	Definition
F	Feeding
A	Analgesia
S	Sedation
T	Thromboprophylaxis
H	Hyperactive or hypoactive delirium*
U	Stress ulcer prophylaxis
G	Glucose control

*In the original version of the FASTHUG mnemonic, H was for "head of the bed elevated".[1]

MEDICATION RECONCILIATION

Letter	Definition
M	Medication reconciliation
A	Antibiotics or anti-infectives
I	Indications for medications
D	Drug dosing
E	Electrolytes, hematology, and other laboratory results
N	No drug interactions, allergies, duplications, side effects
S	Stop dates


New Episode of Care
Obtain the best-possible medication history
Review background information
Conduct a structured patient/carer interview
Confirm the accuracy of the medication history
Confirm using a second source
Update medication history if new information becomes available
Reconcile medication history with prescribed medicines and identify any medicine-related problems
1. Compare the medication history with the current medication orders in the context of the patients current condition, their treatment plan and medication management plan. Ideally a best-possible medication history is obtained before any medication orders are written.
2. Identify any discrepencies and/or medicine-related problems.
3. Address any discrepencies and/or medicine-related problems. Resolve the problem if appropriate or make recommendations for the prescriber, other health professionals or services.
4. Document information about any medicine-related problems and steps taken to resolve these problems.
Supply verified information for ongoing care
Supply information about the patient's medicines, medicine-related problems and recommendations to all involved in the patient's care
Next Episode of Care

KISKUNHALASI SEMMELWEIS KÓRHÁZ

GYÓGYSZERANAMNÉZIS FELVÉTELI LAP

BETEG NEVE: ..... **Dg.:** .....

SZÜLETÉSI DÁTUM: ....

TAJ: .....

FELVÉTEL DÁTUMA: .....

GYÓGYSZERANAMNÉZIS FELVÉTEL DÁTUMA, IDŐPONTJA: .....

ISMERT, KEZELT BETEGSÉGEK: .....

.....

GYÓGYSZERÉRZÉKENYSÉG: .....

.....

ÉTELALLERGIA: LAKTÓZ/TEJFEHÉRJE/SZÓJAFEHÉRJE/TOJÁSFEHÉRJE/.....

MEGJEGYZÉS:

VÉNY NÉLKÜL IS KIADHATÓ GYÓGYSZER(EK) ÉS EGYÉB KÉSZÍTMÉNYEK:

BETEG ☐ **EESZT** ☐ **BEHOZOTT GYÓGYSZER(EK)** ☐ **GYÓGYSZERLISTA** ☐

KORÁBBI DOKUMENTÁCIÓ(K) ☐ **EGYÉB** ☐

KISKUNHALASI SEMMELWEIS KÓRHÁZ

GYÓGYSZERNÉV ÉS HATÁSERŐSSÉG	HATÓANYAG(OK)	ADAGOLÁS

.....

ALÁÍRÁS

ELECTROLYTES, LABORATORY RESULTS

Letter	Definition
M	Medication reconciliation
A	Antibiotics or anti-infectives
I	Indications for medications
D	Drug dosing
E	Electrolytes, hematology, and other laboratory results
N	No drug interactions, allergies, duplications, side effects
S	Stop dates

MEDICATION RELATED PROBLEMS

Letter	Definition
M	Medication reconciliation
A	Antibiotics or anti-infectives
I	Indications for medications
D	Drug dosing
E	Electrolytes, hematology, and other laboratory results
N	No drug interactions, allergies, duplications, side effects
S	Stop dates

MEDICATION RELATED PROBLEMS „DOCUMENT”

D: Drug selection

O: Over or underdose

C: Compliance

U: Undertreated

M: Monitoring

E: Education

N: Not classifiable

T: Toxicity/ADRs

Category	Subcategory	Code
Drug selection (Problems relating to the choice of medicine prescribed or taken)	Duplication	D1
	Drug interaction	D2
	Wrong drug	D3
	Incorrect strength	D4
	Inappropriate dosage form	D5
	Contraindication apparent	D6
	No indication apparent	D7
	Other drug selection problem	D0
Over or underdose prescribed (Problems relating to the prescribed dose or schedule of a medicine)	Prescribed dose too high	O1
	Prescribed dose too low	O2
	Incorrect or unclear dosing instructions	O3
	Other dose problem	O0
Compliance (Problems relating to the way the patient takes the medicine)	Under-use by patient	C1
	Over-use by patient	C2
	Erratic use of medication	C3
	Intentional drug misuse (incl. non-prescription medicines)	C4
	Difficulty using dosage form	C5
	Other compliance problem	C0
Undertreated (Problems relating to actual or potential conditions that require management or prevention)	Condition undertreated	U1
	Condition untreated	U2
	Preventive therapy required	U3
	Other undertreated indication problem	U0

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

Monitoring (Problems relating to monitoring the efficacy or adverse effects of a medicine)	Laboratory monitoring	M1
	Non-laboratory monitoring	M2
	Other monitoring problem	M0
Education or information (Where a patient requests further information about a medicine or disease state)	Patient requests drug information	E1
	Patient requests disease management advice	E2
	Other education or information problem	E0

Not classifiable (Problems that cannot be classified under another category)	Clinical interventions that cannot be classified under another category	N0
Toxicity or adverse reaction (Problems relating to the presence of signs or symptoms that may be attributed to a medicine)	Toxicity, allergic reaction or adverse effect present	T1

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

RECOMMENDATIONS		
Category	**Subcategory**	**Code**
Change of therapy	Dose increase	R1
	Dose decrease	R2
	Drug change	R3
	Drug formulation change	R4
	Drug brand change	R5
	Dose frequency/schedule change	R6
	Prescription not dispensed	R7
	Other changes to therapy	R8

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

RECOMMENDATIONS		
Provision of information	Education or counselling session	R13
	Written summary of medicines	R14
	Recommend dose administration aid	R15
	Other written information	R16
Monitoring	Monitoring: Laboratory	R17
	Monitoring: Non-laboratory	R18
No recommendation necessary	No recommendation necessary	R19

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

PROVISION OF INFORMATION	
Education or counselling session (R13)	
Pharmacist conducts a detailed counselling or education session with the patient or carer; the session is specifically targeted at resolving the problem that has been identified	Patient has not been taking metformin correctly, and pharmacist gives details of how to take it in relation to food, how long it lasts, and complications and management of diabetes
Written summary of medicines (R14)	
Pharmacist provides the patient with a detailed list/profile of their medicines. Consider whether this recommendation is appropriate for all interventions categorised under compliance	Patient commences on three new medicines, so a medication profile for the patient is produced to minimise potential confusion
Recommend dose administration aid (R15)	
Pharmacist suggests the use of a dose administration aid or a spacer device. Consider whether this recommendation is appropriate for all interventions categorised under compliance	Pharmacist recommends a dose administration aid for a patient who has significant problems in understanding the schedule and timing of their medicines
Other written information (R16)	
Patient requires additional written information (e.g. PSA Self Care Fact Cards)	Pharmacist provides written details of a reducing prednisolone regimen

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

MONITORING	
Monitoring: Laboratory (R17)	
Pharmacist suggests to the prescriber that they undertake laboratory monitoring for efficacy or adverse effects of the medicine	Pharmacist contacts the prescriber to suggest that they check the INR of a patient taking warfarin who has commenced ciprofloxacin
Monitoring: Non-laboratory (R18)	
Pharmacist suggests that the patient undertake non-laboratory monitoring for efficacy or adverse effects of the medicine, including blood pressure monitoring, blood sugar levels, temperature and weight	Pharmacist suggests that the patient weigh themselves daily while they are taking an increased dose of furosemide (frusemide) for heart failure

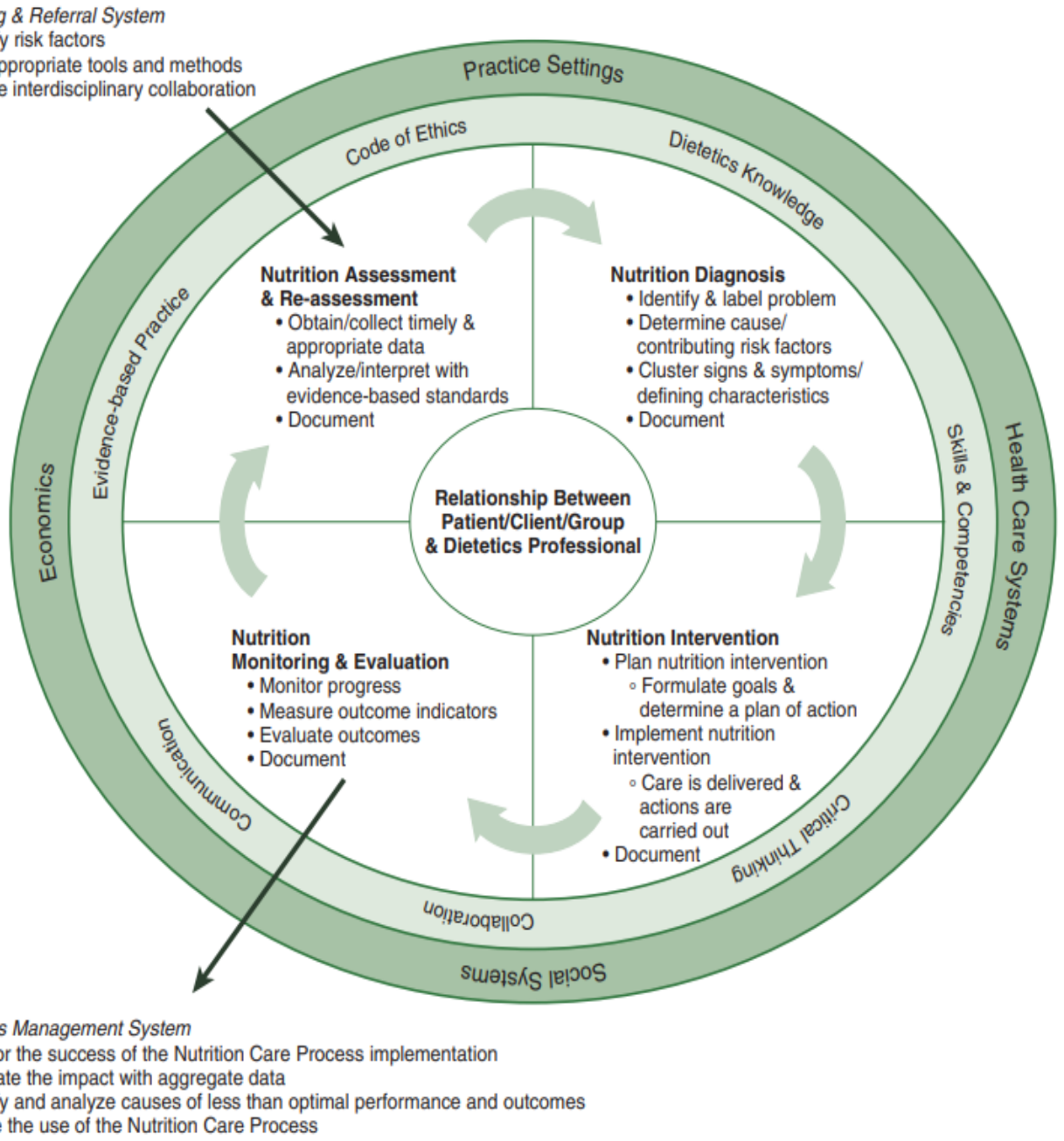
https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

Letter	Definition
F	Feeding
A	Analgesia
S	Sedation
T	Thromboprophylaxis
H	Hyperactive or hypoactive delirium*
U	Stress ulcer prophylaxis
G	Glucose control

ESPEN
European Society for Clinical Nutrition and Metabolism

aspen
LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition

NUTRITION CARE PROCESS



A Mnemonic for Pharmacists to Ensure Optimal Monitoring and Safety of Total Parenteral Nutrition: I AM FULL

Annals of Pharmacotherapy
2017, Vol. 51(7) 603–613

DOI: 10.1177/1060028017697425
journals.sagepub.com/home/aop
SAGE

I - INDICATION
A - ALLERGIES
M - MACRO/MICRONUTRIENS
F - FLUID
U - UNDERLYING COMORBIDITIES
L - LABORATORY VALUES
L - LINE

DOI: 10.1177/1060028017697425

16. Diabetes Care in the Hospital: *Standards of Medical Care in Diabetes—2022* FREE

American Diabetes Association Professional Practice Committee

Letter	Definition
F	Feeding
A	Analgesia
S	Sedation
T	Thromboprophylaxis
H	Hyperactive or hypoactive delirium*
U	Stress ulcer prophylaxis
G	Glucose control

GLYCEMIC TARGETS IN HOSPITALIZED PATIENTS

Recommendations

16.4 Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold ≥180 mg/dL (10.0 mmol/L) (checked on two occasions). Once insulin therapy is started, a target glucose range of 140–180 mg/dL (7.8–10.0 mmol/L) is recommended for the majority of critically ill and noncritically ill patients. **A**

16.5 More stringent goals, such as 110–140 mg/dL (6.1–7.8 mmol/L), may be appropriate for selected patients if they can be achieved without significant hypoglycemia. **C**

https://doi.org/10.2337/ dc22-SPPC

DOCUMENTATION

S - SUBJECTIVE

O - OBJECTIVE

A - ASSESSMENT

P - PLAN

Example

Cefalexin 125 mg four times a day is prescribed for a child who weighs 30 kg. The pharmacist contacts the prescriber, who approves an increase in dose to 190 mg four times a day.

MRP category: Prescribed dose too low (O2)

Recommendation(s): Dose increase (R1); refer to prescriber (R9)

Drugs involved: Cefalexin

Clinical notes:

S	Carer presents a new prescription for cefalexin
O	Patient weighs 30 kg; dose prescribed is 125 mg four times a day
A	Dose prescribed is too low (should be 6.25–12.5 mg/kg four times a day)
P	Contacted the prescriber and recommended increasing dose to 190 mg four times a day (accepted by prescriber)

https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Clinical-Interventions-Guidelines.pdf

Table 3. Consensus Clinical Pharmacy Key Performance Indicators (cpKPIs).

Candidate cpKPI	Thematic cpKPI Critical Activity Area
1. Proportion of patients who receive formal documented discharge medication reconciliation and resolution of identified discrepancies by a pharmacist	Discharge medication reconciliation
2. Number (or proportion) of patients who receive formal documented admission medication reconciliation by a pharmacist (includes a pharmacist best-possible medication history or pharmacist best-possible medication history review as part of the medication reconciliation process as well as resolution of identified discrepancies)	Admission medication reconciliation and best-possible medication history
3. Number (or proportion) of pharmacists who actively participate in interprofessional patient care rounds to improve medication management	Interprofessional patient care rounds
4. Number (proportion) of patients for whom clinical pharmacists have completed (executed/implemented) a pharmaceutical care plan	Pharmaceutical care
5. Number of total drug therapy problems resolved by pharmacists	Pharmaceutical care
6. Number (or proportion) of patients receiving proactive comprehensive direct patient care by a pharmacist in collaboration with the health care team	Bundle of cpKPI critical activity areas
7. Number (or proportion) of hospital patients who receive medication counseling by a pharmacist at discharge	Patient education/ discharge counseling
8. Number (or proportion) of patients who have received in-person education from a pharmacist about their disease(s) and medication(s) during their hospital stay	Patient education/ discharge counseling

DOI: 10.1177/1060028015577445

Received: 28 October 2021 | Accepted: 29 October 2021

DOI: 10.1002/jac5.1559

jaccp Journal of the American College of Clinical Pharmacy

ACCP WHITE PAPER

Development and application of quality measures of clinical pharmacist services provided in inpatient/acute care settings

SUMMARY

INTERPRETATION OF PATIENT-SPECIFIC DATA

IDENTIFICATION OF CLINICAL PROBLEMS

ESTABLISHMENT OF THERAPEUTIC GOALS

EVALUATION OF THERAPEUTIC OPTIONS

INDIVIDUALIZATION OF THERAPY

MONITORING OF PATIENT OUTCOMES

International Pharmaceutical Federation - https://www.fip.org/

European Association of Hospital Pharmacists - https://www.eahp.eu/

American College of Clinical Pharmacy - https://www.accp.com/

American Society of Health-System Pharmacists - https://www.ashp.org/

The Society of Hospital Pharmacists of Australia - https://www.shpa.org.au/


To be continued...
2022.06.29. 17:30