

Medication use process

Start
presentation


EBreast II

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Medication use process:

- Provides the conceptual framework for investigating activities associated with the use of medications
- Enhances the roles of pharmacists and technicians as advocates for the proper use of medications
- Leads to quality improvement activities designed to decrease the number and severity of medication errors

Steps of the process

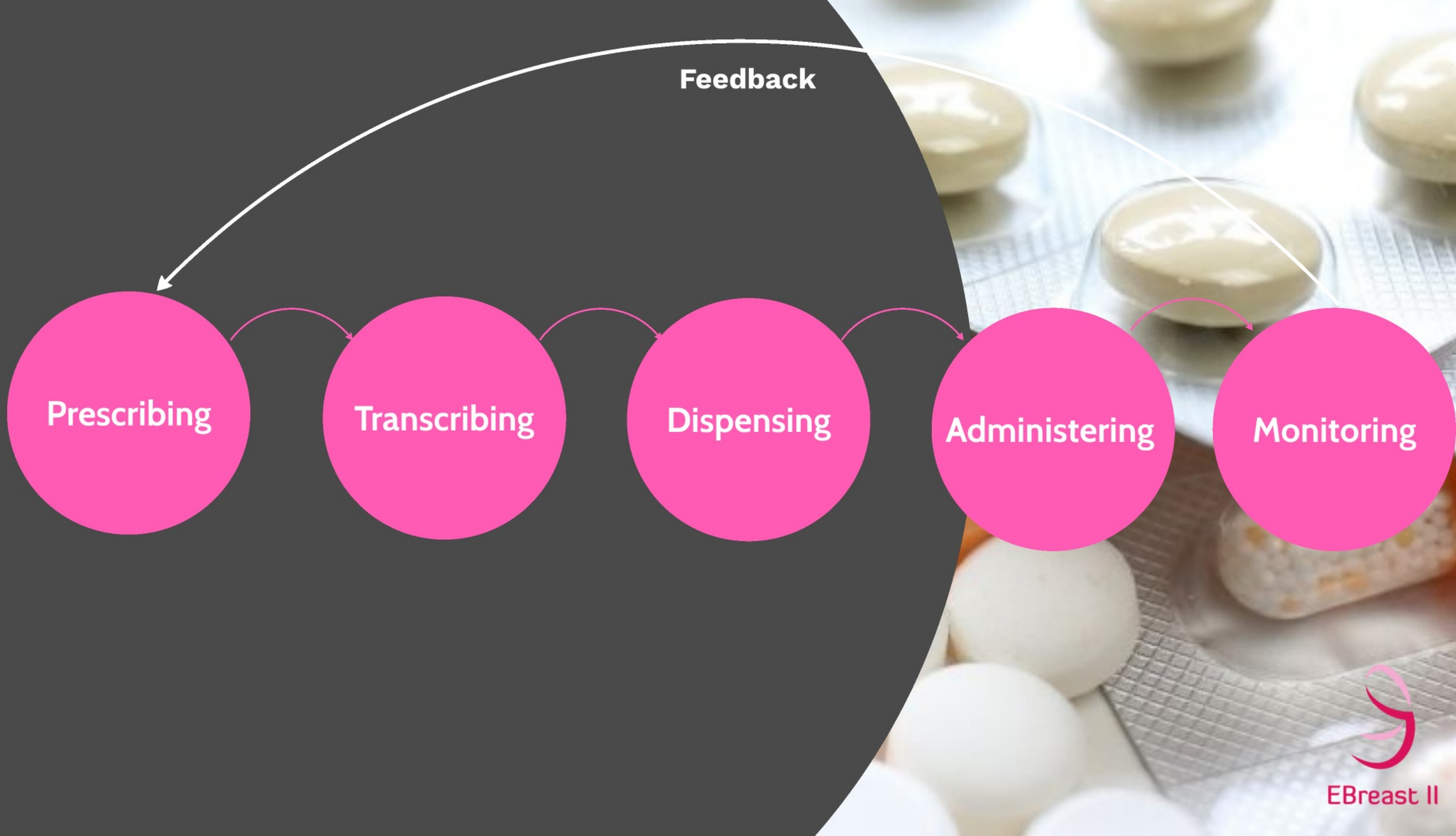
Medication reconciliation

Types of errors in the medication use process

Strategies to prevent medication errors

References





Feedback

Prescribing

Transcribing

Dispensing

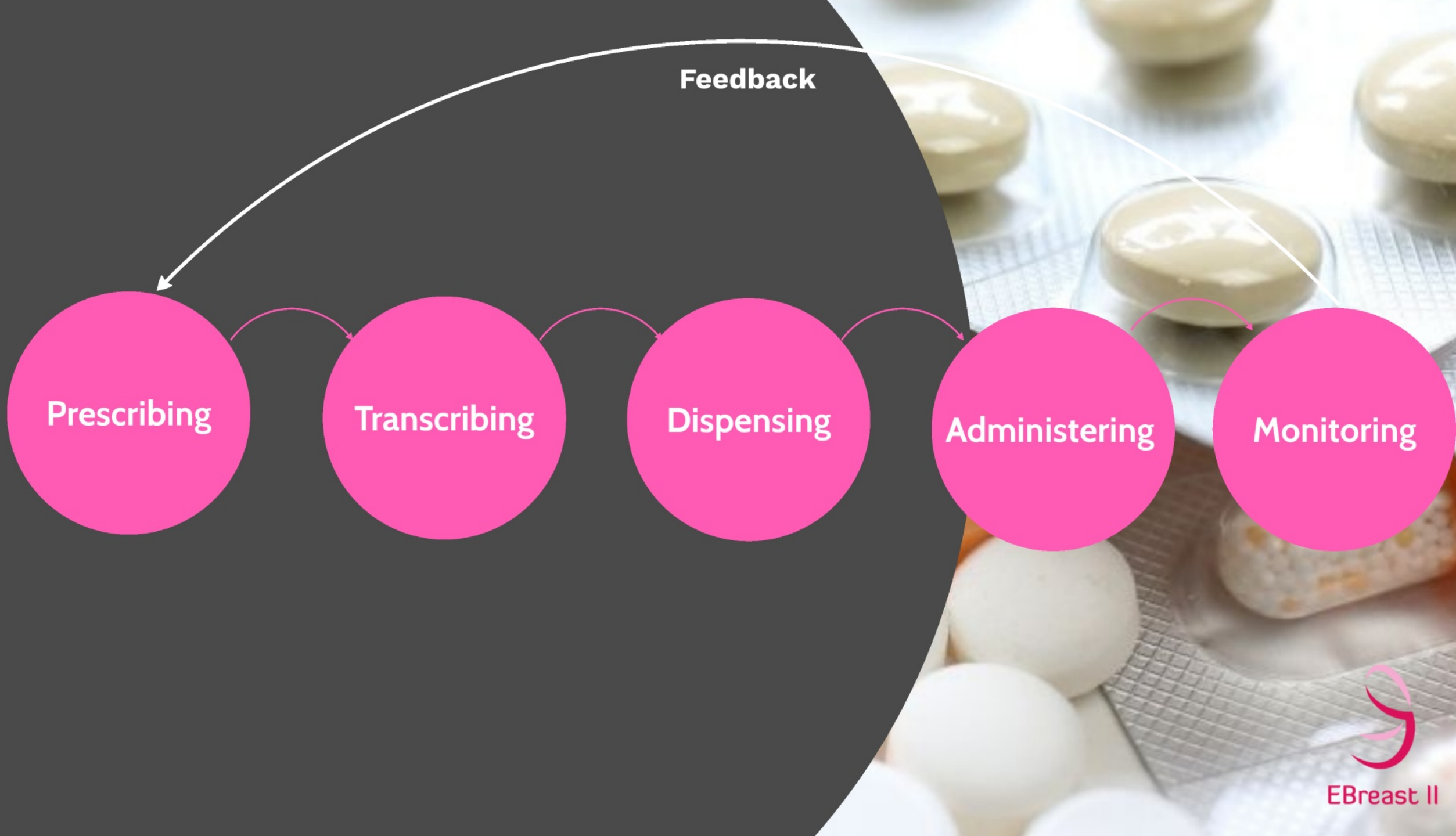
Administering

Monitoring

Prescribing (Physician, nurse, pharmacist)

- Patient evaluation
- Establishing the need for medicine
- Select appropriate medicine
- Drug regimen determination
- Medical record documentation
- Determine interactions and allergies
- Prescribe medicine
- Order





Feedback

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Transcribing

Dispensing

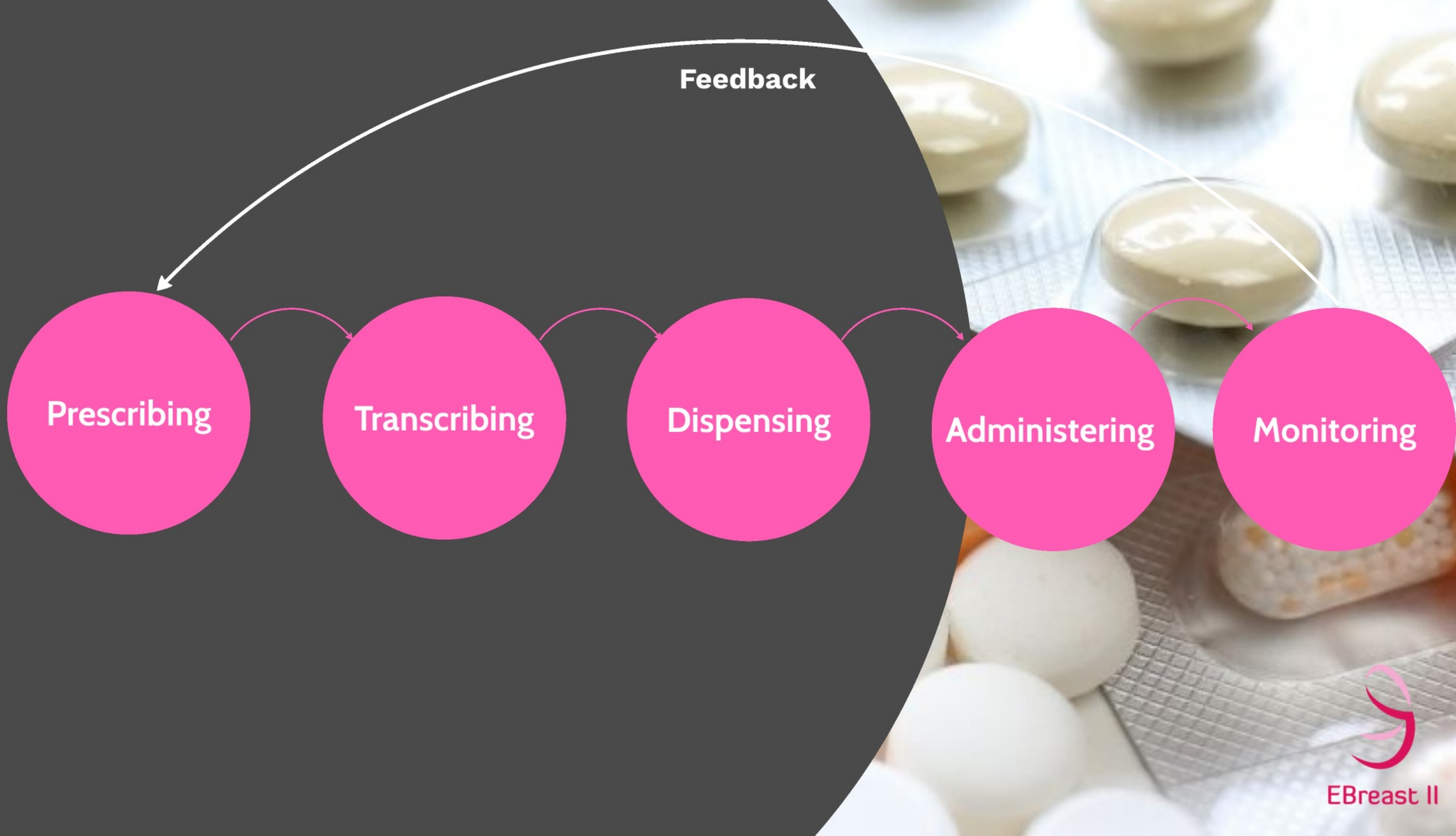
Administering

Monitoring

Transcribing (Pharmacist, nurse, unit clerk)

- Receive order
- Check if correct
- Transcribe prescription/order
- Transmit to pharmacy





Feedback

Prescribing

Transcribing

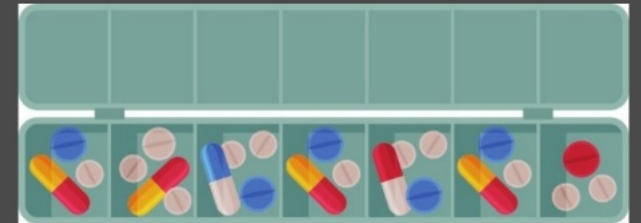
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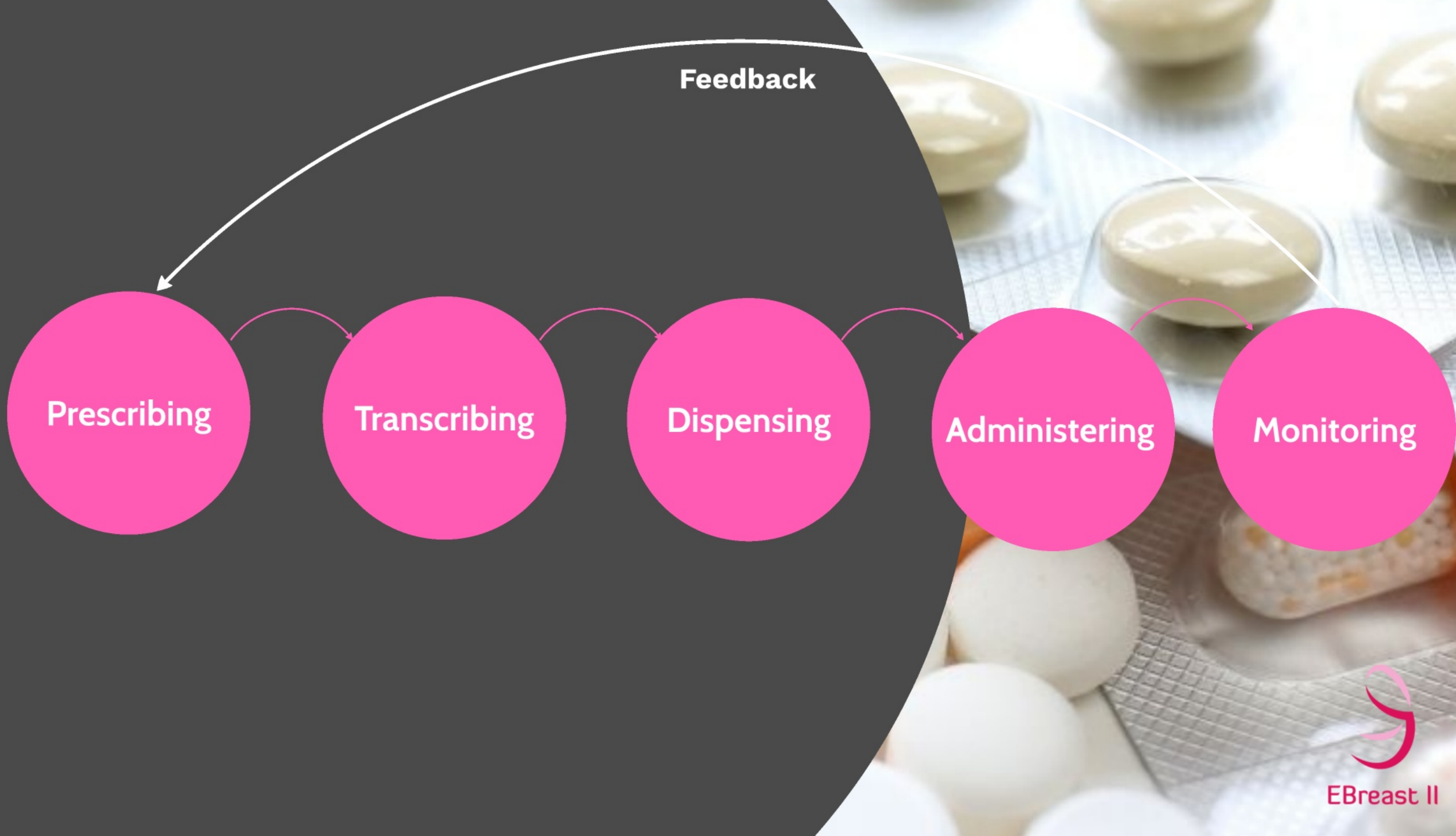
Administering

Monitoring

Dispensing (Pharmacist)

- Review prescription order
- Confirm prescription, if necessary
- Contact prescriber for discrepancies
- Prepare, mix, compound medicine
- Pharmacist double-check
- Dispense to the Unit





Prescribing

Transcribing

Dispensing

Administering

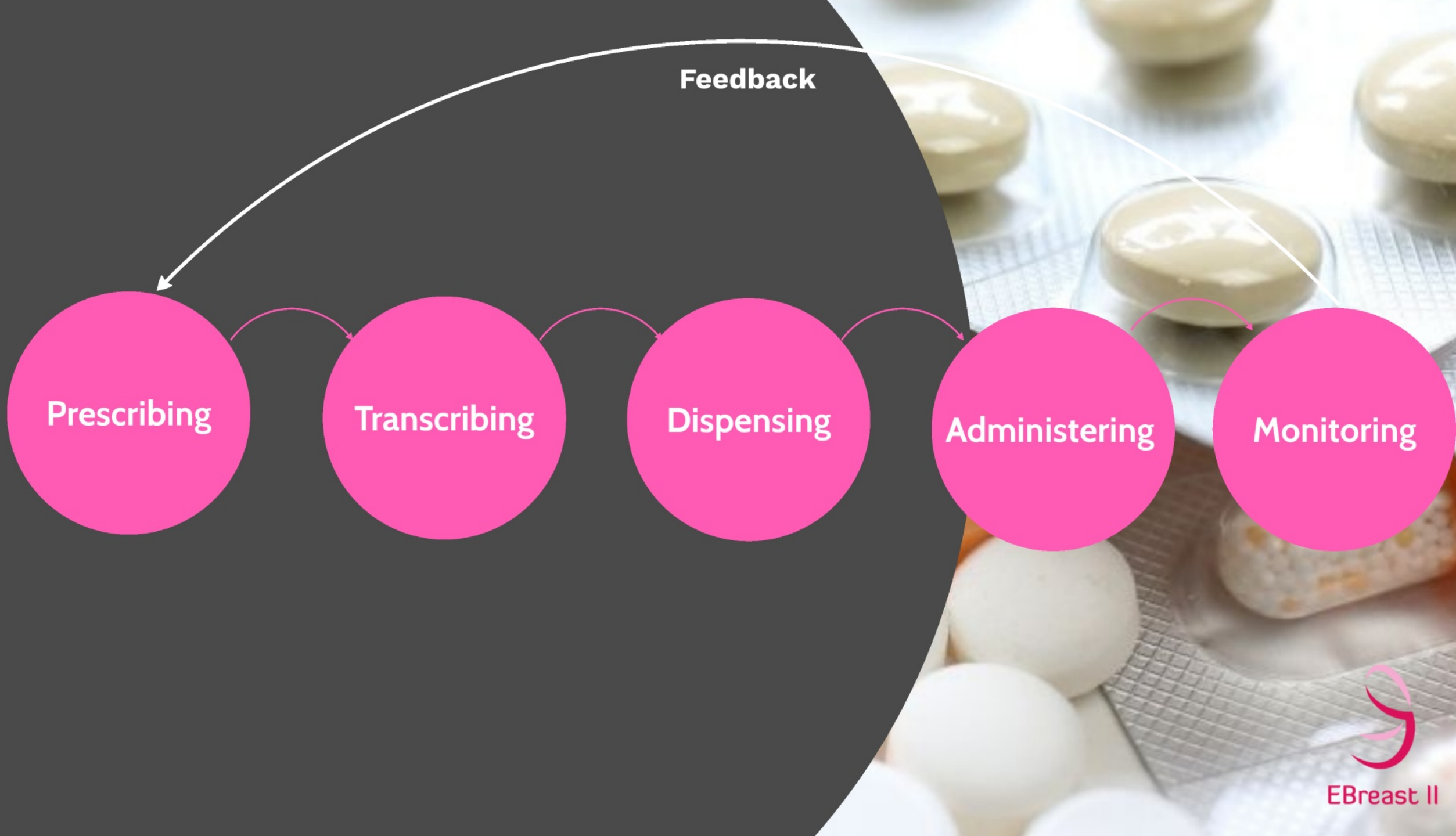
Monitoring

Feedback

Administering (Nurse)

- Review prescription order
- Confirm transcription, if necessary
- Review warnings, interactions, allergies
- Evaluate patient
- Administer medicine
- Document!





Feedback

Prescribing

Transcribing

Dispensing

Administering

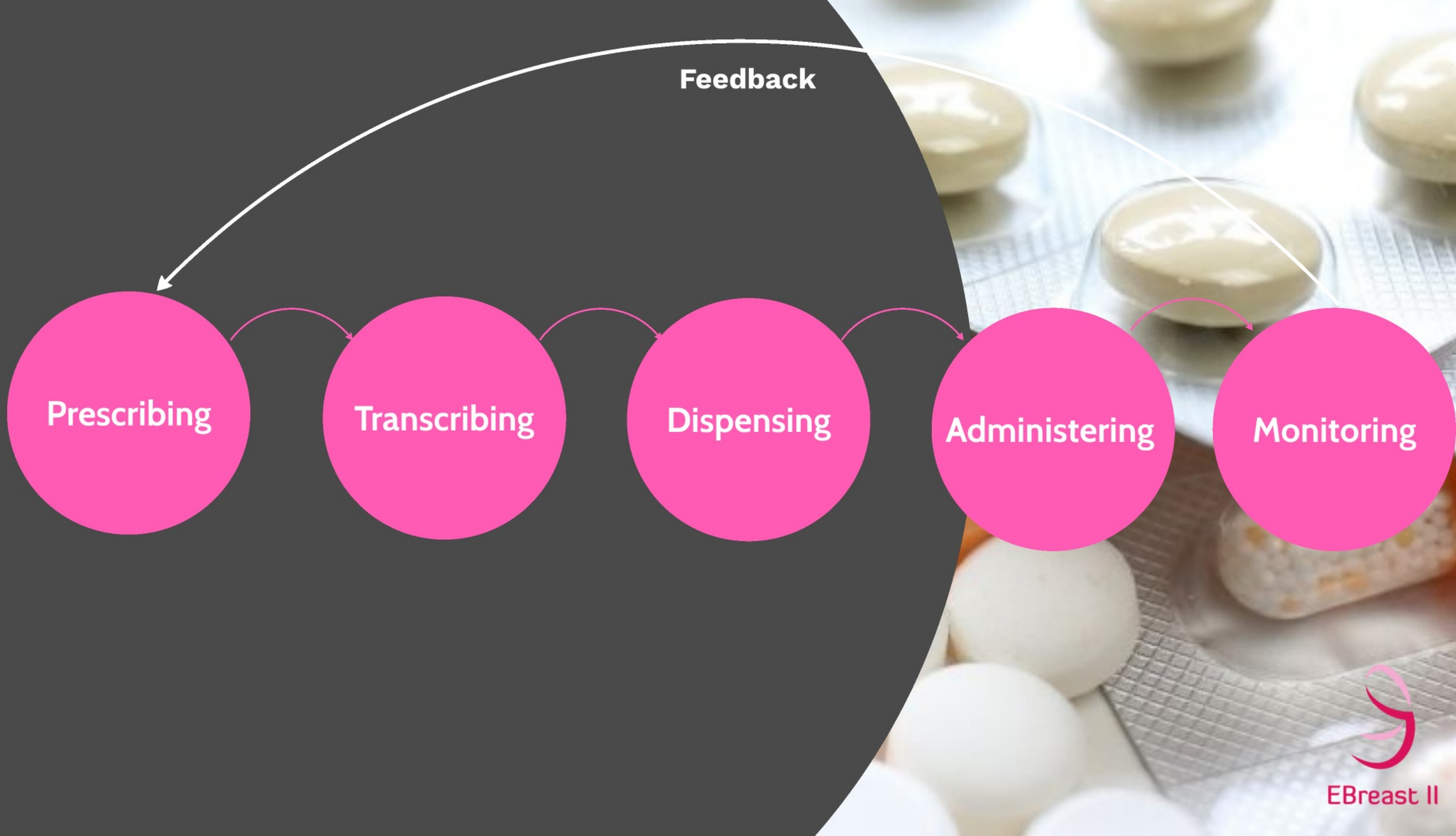
Monitoring

Monitoring (Nurse, physician, pharmacist)

- Assess therapeutic effect and adverse events
- Review laboratory tests
- Treat adverse events if occurring
- Report and document results

Provide feedback!





Feedback

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Transcribing

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Monitoring

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Steps of the process

Medication reconciliation

Types of errors in the medication use process

Strategies to prevent medication errors

References



Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Incorrect drug selection (based on indications, contradictions, known allergies, existing drug therapy and other factors), dose, dosage form, quantity, route, concentration, rate of administration, or instructions for use of a drug product ordered or authorized by physician (or other legitimate prescriber)

Illegible prescriptions or medication orders that lead to errors that reach the patient.

Types of errors (1)

Prescribing error

Omission error

Wrong time error

Unauthorized drug error

Improper dose error

Wrong dosage-form error

Wrong drug-preparation error

Wrong administration technique error

Deteriorated drug error

Monitoring error

Compliance error

Other error

The failure to administer an ordered dose to a patient before the next scheduled dose, if any.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Administration of medication outside a predefined time interval from its scheduled administration time (this interval should be established by each individual healthcare facility)

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Administration to the patient of medication not authorized by a legitimate prescriber.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Administration of a dose that is greater than or less than the amount ordered by the prescriber or administration of duplicate doses to the patient, for example one or more dosage units in addition to those that were ordered.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Administration of a drug product to the patient in a different dosage from that was ordered by the prescriber.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Drug product incorrectly formulated or manipulated before administration.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Inappropriate procedure or improper technique in the administration of a drug.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Administration of a drug that has expired or for which the physical or chemical dosage-form integrity has been compromised.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Failure to review a prescribed regimen for appropriateness and detection of problems or failure to use appropriate clinical or laboratory data for adequate assessment of patient response to prescribed therapy.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Inappropriate patient behaviour regarding adherence to a prescribed medication regimen.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
form error

Wrong
drug-
preparation
error

Wrong
administration
technique error

Deteriorated
drug error

Monitoring
error

Compliance
error

Other error

Any medication error that does not fall into one of above predefined categories.

Types of errors (1)

Prescribing
error

Omission
error

Wrong
time error

Unauthorized
drug error

Improper
dose error

Wrong
dosage-
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Compliance
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Other error

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Steps of the process

Medication reconciliation

Types of errors in the medication use process

Strategies to prevent medication errors

References



Strategies to prevent errors in medication use process, by each step (1)

Prescribing

Transcribing

Dispensing

Administration



- Avoid unnecessary medications by adhering to "conservative prescribing" principles (3)
- Computerized provider order entry, especially when paired with clinical decision support systems
- Medication reconciliation at times of transitions in care

**Conservative
prescribing**

**Think
beyond
drugs**

**Practice
more
strategic
prescribing**

**Maintain
heightened
vigilance
regarding
adverse
events**

**Work with
patients for a
more
deliberative
shared agenda**

**Consider
long-term,
broader
effects**

**Approach
new drugs
and new
indications
cautiously**

- Seek nondrug alternatives first
- Consider potentially treatable underlying causes of problems rather than just treating symptoms with drugs
- Look for opportunities for prevention rather than focusing on treating symptoms or advanced disease
- Use the test of time as diagnostic and therapeutic trial whenever possible

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**Consider
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broader
effects**

**Approach
new drugs
and new
indications
cautiously**

- Use only a few drugs and learn to use them well
- Avoid frequent switching to new drugs without clear, compelling evidence-based reasons
- Be skeptical about individualizing therapy
- Whenever possible, start treatment with only 1 drug at a time

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beyond
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**Approach
new drugs
and new
indications
cautiously**

- Learn about new drugs and new indications from trustworthy, unbiased sources
- Do not rush to use newly marketed drugs
- Be certain that the drug improves actual patient-centered clinical outcomes rather than just treating or masking a surrogate marker
- Be vigilant about indications
- Beware of selective reporting of studies

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**Approach
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- Have a high index of suspicion for adverse drug effects
- Educate patients about possible adverse effects to ensure that they are recognized as early as possible
- Be alert to clues that you may be treating or risking withdrawal symptoms

**Think
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drugs**

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**Approach
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indications
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- Do not hastily succumb to patient requests for drugs, especially drugs they have heard advertised
- Avoid mistakenly prescribing additional drugs for refractory problems, failing to appreciate the potential for patient nonadherence
- Discontinue treatment with drugs that are not working or are no longer needed
- Work with patients' desires to be conservative with medications

**Think
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drugs**

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**Approach
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indications
cautiously**

- Think beyond short-term beneficial drug effects to consider long-term benefits and risks
- Look for opportunities to improve prescribing systems, changes that can make prescribing and medication use safer

**Think
beyond
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**Conservative
prescribing**

Strategies to prevent errors in medication use process, by each step (1)

Prescribing

Transcribing

Dispensing

Administration



- Computerized provider order entry to eliminate handwriting errors

Strategies to prevent errors in medication use process, by each step (1)

Prescribing

Transcribing

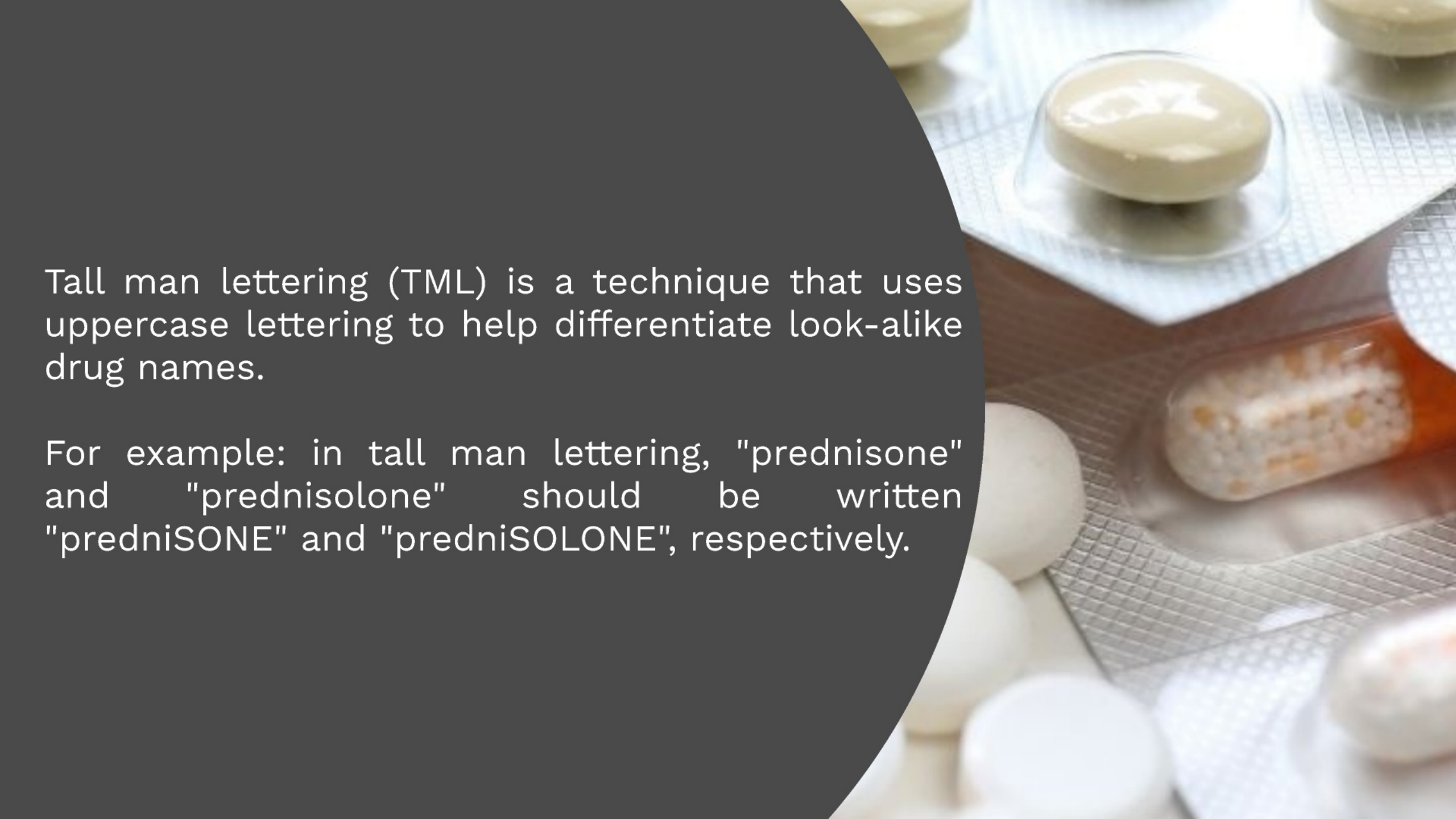
Dispensing

Administration



- Clinical pharmacists to oversee medication dispensing process
- Use of "tall man" lettering and other strategies to minimize confusion between look-alike and sound-alike medications

**Tall man
lettering**



Tall man lettering (TML) is a technique that uses uppercase lettering to help differentiate look-alike drug names.

For example: in tall man lettering, "prednisone" and "prednisolone" should be written "predni**S**ONE" and "predni**S**OLONE", respectively.

- Clinical pharmacists to oversee medication dispensing process
- Use of "tall man" lettering and other strategies to minimize confusion between look-alike and sound-alike medications

**Tall man
lettering**

Strategies to prevent errors in medication use process, by each step (1)

Prescribing

Transcribing

Dispensing

Administration



- Adherence to "Five rights" of medication safety
- Barcode medication administration to ensure medications are given to the correct patient
- Minimize interruptions to allow nurses to administer medications safely
- Smart infusion pumps for intravenous infusions
- Patient education and revised medication labels to improve patient comprehension of administration instructions



Five rights

1. Administering the right medication
2. ...in the right dose
3. ...at the right time
4. ...by the right route
5. ...to the right patient



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- Barcode medication administration to ensure medications are given to the correct patient
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Five rights

Strategies to prevent errors in medication use process, by each step (1)

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Steps of the process

Medication reconciliation

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Medication reconciliation (MR)

Medication reconciliation is the process of comparing a patient's medication orders to all of the medications that the patient has been taking.

This reconciliation is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. It should be done at every transition of care in which new medications are ordered or existing orders are rewritten. Transitions in care include changes in setting, service, practitioner, or level of care (2)

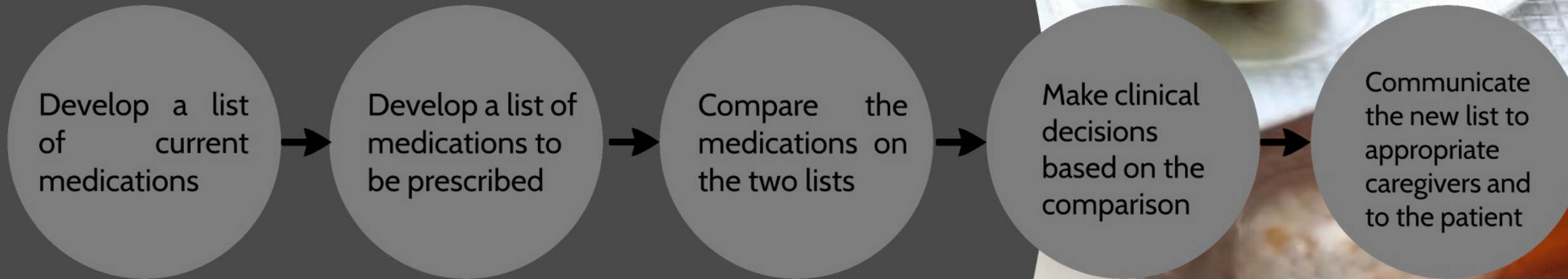
Background
and
importance of
the MR

Steps of
reconciliation
process

Safety
vulnerability
of the MR



Reconciliation process (2)



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Background of developing medication reconciliation process

According to the Institute of Medicine's Preventing Medication Errors report (3), the average hospitalized patient is subject to at least one medication error **per day**.

This confirms previous research findings that medication errors represent the **most common patient safety error**. More than 40 percent of medication errors are believed to result from inadequate reconciliation in during admission, transfer, and discharge of patients.

Of these errors, about 20 percent are believed to result in harm. **Many of these errors would be averted if medication reconciliation processes were in place.** (2)



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Safety issues with MR

Various factors—such as patients' lack of knowledge of their medications, physician and nurse workflows, and lack of integration of patient health records across the continuum of care—all contribute to a lack of a complete medication reconciliation, which in turn creates the **potential for error**.

Physician and nurse workflows have not traditionally included making a regular inventory of all medications a patient is taking (including prescription medications, over-the-counter drugs, herbals, and other complementary drugs such as vitamins) or verifying these lists with the patient.

There has been no standard regarding what constitutes a comprehensive medication history or where medication information is kept in the paper or electronic health record. A patient's medication history may be found in the nursing admission database, the medication administration record, the physician history, and/or the pharmacy profile.

When health care information is not integrated across settings, organizations, and among clinicians, it is not easy to validate or fill in the gaps from patient-reported information. Patients and family members may not be good historians of a medication record, and due to limited access to pharmacy records, only an incomplete recording of current medications may be obtained. (2)



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1. S.Walden.Managing pharmacy operations (2017)
2. J.Barnsteiner. Patient Safety and Quality An Evidence-Based Handbook for Nurses.(2008)
3. Schiff G, Galanter W, Duhig J et al. Principles of conservative prescribing.(2011) Arch Intern Med 171(16):1433-1440.



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