MOOC 15 Medication Management for Older Adults
Chapter 3 - Medication Safety

Below videos are the basic knowledge about medication use. Do you have such queries before?

Proper Storage of Medications

In general,

- store medications in a **COOL, DRY** place away from direct sunlight.
- always keep medications in their **ORIGINAL** containers to maintain proper labelling and dosage information.
- do not mix different medications in the same containers.
- keep medications out of reach of children and pets to prevent accidental ingestion.
- **DO NOT** store medications in the **bathroom or kitchen** where heat and humidity levels fluctuate.
- **DO NOT** keep medications in the **car**.

Temperature Considerations

- Some medications are sensitive to temperature changes; check the label or consult your pharmacist for specific requirements.
- Refrigerate medications as directed, but do not freeze unless specified.
- Extreme temperatures (both hot and cold) can affect medication stability.
- ➔ **Improper storage** may cause: Loss of therapeutic effects/ Adverse effects

Light Sensitive Medications

- Light can cause oxidation, hydrolysis and loss of potency to some medications. This loss can be greatly minimized by protecting from light.

- Examples:

    o **Tetracycline Antibiotics**: Tetracycline antibiotics, including doxycycline and tetracycline, are highly susceptible to light degradation. When exposed to light, they can become less effective, making them less capable of treating infections.

    o **Isotretinoin**: Isotretinoin is a medication used to treat severe acne. It's highly light-sensitive and should be stored in a dark container or packaging to prevent degradation.

    o **Nitroglycerin**: Nitroglycerin is used to treat angina (chest pain) and heart conditions. It's stored in dark containers because exposure to light can cause the medication to lose its potency.

- Storage tips for light sensitive medications

    o Always **follow the storage instructions** provided on the medication label.

    o Keep light-sensitive medications in their **original packaging**, as it's designed to protect them from light exposure.

    o Store these medications in a **cool, dry, and dark place**. A medicine cabinet or a drawer is often a suitable location.

    o Check the medication's appearance and ask your pharmacist if you suspect light-induced degradation.

Medication Specific Storage

- Insulin:

    o Unopened insulin to be stored in the fridge until expiration date;

    o Opened insulin to be stored in the fridge or under room temperature and use within 28 days.

- Eye drops:

    o Store in a cool place, and some may require refrigeration after opening.

- Oral liquids/Suspension:

    o Some may require refrigeration; others can be stored at room temperature.

- Inhalers:

    o Keep away from direct heat or sunlight.

Childproofing Medications

- **Use Childproof Caps:** These caps are designed to be difficult for young children to open, reducing the risk of accidental ingestion.

- **Lockable Medication Cabinets:** Consider installing lockable medicine cabinets at home, especially in the bathroom.

- **High Shelves or Storage:** Store medications on high shelves or in places that are difficult for children to access.

- **Educate Children:** Educate older children about the potential dangers of medications and the importance of not taking medication without supervision.

The Facts about Medicine Safety and Children

Sales of prescription and over-the-counter medicine in the U.S. increased by 22% between 2010 – 2016.

2016 $272B
2010 $222B

At the same time, ER visits for medicine poisoning for children under age 6 decreased by 32%.

2010 75,842
2016 51,951

And calls to poison control centers for medicine poisonings decreased by 20%.

2010 541,765
2016 432,137
POISON HELP LINE

Still, nearly **52,000** children under age 6 were treated in ERs for medicine poisonings in 2017.

= 1,000 kids

That's 1 child every 10 minutes.

84% of those kids were between 1 and 3 years old.

And nearly 9,000 were hospitalized.

= 1,000 kids

How to Keep Kids Safe Around Medicine

- Keep medicine and vitamins out of children's reach and sight, even medicine you take every day.
- Kids can surprise you at any age, so make sure to keep medicine safety on your child-proofing checklist.
- Save the Poison Help number in your phone and post it visibly at home: 1-800-222-1222.
- Share medicine safety information with family and friends.

SAFE KIDS WORLDWIDE

Support provided by Johnson & Johnson Consumer Inc. © 2019 Safe Kids Worldwide

Reference: "Medicine Safety: A Key Part of Child-proofing Your Home", Safe Kids Worldwide 2019

Expiration of Medications

Factors Affecting Medication Expiry

- **Chemical Stability**: Medications degrade over time, which can result in a decrease in potency. This degradation is influenced by the chemical stability of the active ingredients.

- **Packaging**: The type of packaging and how well it seals out moisture, light, and air plays a significant role in how long a medication remains potent.

- **Storage Conditions**: Medications stored in proper conditions are more likely to last longer. Exposure to heat, humidity, and light can accelerate degradation.

Identifying Expired Medications

- **Check the Expiration Date**: The expiration date is printed on the medication packaging. It indicates the date until which the manufacturer guarantees the medication's full potency and safety.

- **Observe Changes in Appearance**: Some medications change in color, texture, or odor when they expire. Any noticeable changes may indicate that the medication is no longer safe or effective.

- **Consult a Pharmacist**: If you are uncertain about a medication's status, consult your pharmacist. They can offer guidance and assess whether a medication is still safe to use.

Safe Medication Disposal

- **Do Not Flush:** Avoid flushing medications down the toilet or drain. This can contaminate the water supply.

- **Medication Recycle Programs:** *Junior Chamber International Tai Ping Shan* and *Mannings* joint program of "Safe Disposal of Unused Medicines - 藥「勿」胡亂棄", providing a safe and environmentally friendly way to dispose of unused or expired medications.

- **Mixing with Unwanted Substances:** Mix the medication with an undesirable substance (e.g., used coffee grounds or kitty litter) in a sealed container before disposing of it in the trash. This helps deter misuse.

- **Remove Personal Information:** Before disposing of medication containers, remove or obscure any personal information to protect privacy.

Improving Medication Safety

1. Technology

Electronic Health Records 醫健通 (eHealth)

- Electronic Health Records (EHR) are digital versions of patient health records that offer comprehensive and real-time information about a patient's medical history, diagnoses, medications, and treatment plans.

- It improves medication safety by providing healthcare providers with **accurate and up-to-date patient information**, allowing for better-informed decisions.

- It enhances communication between healthcare providers, including pharmacists, through EHR systems which helps in continuity of care and medication management.

Electronic Prescribing System

- Electronic prescribing system allows healthcare professionals to enter medication orders electronically, minimizing errors related to handwriting and transcription.

- Built in database allows a prompt system to identify and flag potential drug interactions and allergies when prescribing, improving medication safety.

- Potential errors such as therapeutic duplication can be prevented.

Unit dose packaging machine

- A unit dose packaging machine is an automated system that individually packages patient's medications in single doses.

- Each dose is sealed in a blister pack or pouch, clearly labelled with essential information.

- Advantages:

  o Accurate dosing

  o Medication Identification

  o Enhanced Medication adherence

  o Streamlined Medication Distribution

(Swisslog Inspire, n.d.)

Barcode Medication Administration (BCMA)

- BCMA is a technology that involves scanning barcodes on medications and patient wristbands to ensure the **"Five Rights"** of medication administration: right patient, right medication, right dose, right route, and right time.

- This technology reduces medication administration errors by verifying the medication's accuracy at the bedside.

- BCMA systems are commonly used in hospitals and long-term care facilities, and they improve documentation accuracy by recording each administration electronically.

Medication Management Apps (e.g. HAGo)

- Medication management apps includes mobile applications designed to help patients manage their medications effectively.

- They maintain personal health records, including medication lists and dosages, which can be shared with healthcare providers.

- These apps may send medication reminders and notifications to users' smartphones to ensure they take their medications as prescribed.

- Medication management apps can also provide educational resources and drug interaction information.

2. Medication Delivery Services

- Medication delivery refers to the process of delivering prescribed medications to patients, typically to their homes, long-term care facilities, or other remote locations.

- It has gained significant importance, especially during the COVID-19 pandemic, as it reduces the need for in-person visits to hospitals and pharmacies, ensuring patient safety.

  o **Enhanced Adherence**: Medication delivery services ensure that patients have a continuous supply of their medications, reducing the risk of missed doses and medication-related errors.

  o **Reduced In-Person Contact**: During public health crises like pandemics, medication delivery minimizes the need for patients to visit hospital/ pharmacies, decreasing their exposure to potential sources of infection.

  o **Improved Medication Access**: Medication delivery helps patients, especially those with limited mobility, gain easier access to their prescribed medications, promoting medication safety by reducing the risk of medication mismanagement.

  o **Medication Accuracy**: Automated prescription dispensing machines used in healthcare facilities for medication delivery reduce human error, ensuring accurate medication doses are delivered to patients.

  o **Patient Convenience**: The convenience of having medications delivered to one's doorstep can lead to better medication adherence, thereby improving safety.

3. Telepharmacy Services

- Telepharmacy Services involve the remote provision of Pharmacy Services by Pharmacists using telecommunications technology.

  o **Medication Review**: Through telepharmacy, pharmacists can remotely review patients' medication regimens, ensuring the appropriateness of prescribed medications and minimizing the risk of medication-related problems.

  o **Medication Counseling**: Pharmacists can counsel patients via telepharmacy, educating them about medication use, potential side effects, and proper administration, which enhances medication safety by promoting proper drug utilization.

  o **Access to Expertise**: Telepharmacy ensures that even patients in remote or underserved areas have access to expert pharmacy care, reducing the risk of medication errors due to a lack of pharmacy services.

- o **Timely Intervention**: Telepharmacy facilitates timely intervention by pharmacists in case of potential medication issues, such as adverse drug reactions or interactions, contributing to medication safety.

- o **Continuity of Care**: Patients receiving telepharmacy services benefit from regular interactions with pharmacists, which can lead to improved medication adherence and better patient safety.

4. <u>Primary Healthcare resources</u>

<u>Community Pharmacy and Pharmacists</u>

- Community Pharmacists are essential members of the healthcare team who play a vital role in promoting medication safety within the community.

- Their services extend beyond simply dispensing medications; they are often accessible and trusted healthcare professionals who provide critical services to enhance medication safety.

- Community Chain pharmacies in Hong Kong include Mannings and Watsons. There are also NGOs pharmacies, such as:

<u>醫護行社區藥房 **Health In Action Community Pharmacy**</u>

<u>樂善堂社區藥房 **Lok Sin Tong Community Pharmacy**</u>

<u>惠澤社區藥房 **St. James' Settlement Philanthropic Community Pharmacy**</u>

<u>良躍社區藥房 **A-Lively Community Pharmacy**</u>

<u>慈惠社區藥房 **H.K.S.K.H.Lady MacLehose Community Pharmacy**</u>

<u>配安心藥房 **SafeMed Dispensary**</u>

<u>康盈坊社區藥房 **Health Union Community Pharmacy**</u>

<u>仁愛堂鄭丁港善心藥物中心</u>

- Services Offered by Community Pharmacists

  o **Medication Counseling**: Community Pharmacists offer personalized medication counseling, ensuring that patients understand their medications, including proper dosages, administration, potential side effects, and interactions.

  o **Medication Reviews**: Pharmacists conduct medication reviews to identify and resolve issues like drug interactions, duplications, and potential adverse effects.
  They also aim to optimize medication regimens, especially for patients with chronic conditions, focusing on enhancing medication safety.

  o **Adherence Support**: Pharmacists help improve patient adherence by identifying barriers and suggesting strategies to overcome them.

  o **Immunizations**: Community Pharmacists may provide vaccinations, contributing to public health by preventing medication-related diseases.

  o **Over-the-Counter (OTC) Guidance**: They offer advice on the safe use of OTC medications and dietary supplements.

  o **Health Education**: Community Pharmacists educate patients on health and medication-related topics, further promoting medication safety.

Support Groups

Support groups provide a platform for patients to share their experiences, challenges, and strategies for managing their conditions and medications.

Peer Support

Shared Experiences

Emotional Support

Adherence Promotion

- Discussions may focus on medication management tips, adherence strategies, and overcoming barriers to taking medication.

- Support groups often center around specific health conditions, such as diabetes, cancer, or mental health, tailoring discussions to relevant medication issues.

Condition-Focused

Community-Building

Collaborative Care Models and Co-Care

Co-Care Approach - In a co-care model, providers collectively participate in patient care, emphasizing shared responsibility for medication management.

Interdisciplinary Team - Collaborative care models involve interdisciplinary healthcare teams comprising physicians, pharmacists, nurses, and other professionals working together.

Shared Knowledge - Team members share their expertise and insights, creating a comprehensive understanding of a patient's health and medication regimen

Holistic Care - These models focus on holistic patient care, addressing physical and mental health, as well as medication-related needs.

Patient-Centered - Collaborative care models ensure care is patient-centered, aligning with individual preferences and promoting medication safety through shared decision-making.

The Society of Hospital Pharmacists of Hong Kong (SHPHK)

- The SHPHK provides the latest drug news and discussion on different health topics.
- The Drug Education Resources Centre, DERC also publishes articles to educate the general public on some commonly used medications and vaccines.

Medication Safety Technology Challenges

- **Integration Challenges**: Implementing medication safety technologies like eHR or BCMA systems can be technically complex and costly.

- **User Adoption**: Ensuring that healthcare providers and staff are proficient in using these technologies can be a significant challenge.

- **Data Security Concerns**: Safeguarding patient information and data is paramount but can be challenging due to the ever-evolving landscape of cybersecurity threats.

Patient Engagement Challenges and Limitations

- **Health Literacy**: Low health literacy among some patient populations can hinder their understanding of medication instructions, potentially leading to errors.

- **Cultural and Language Barriers**: Patients from diverse cultural backgrounds may face language barriers, making it challenging to comprehend medication instructions.

- **Socioeconomic Factors**: Patients facing financial hardship may struggle to afford medications, leading to non-adherence and medication-related issues.

Conclusion

- Proper storage of medications is essential to maintain their potency and ensure patient safety.

- Patients should always read and follow the storage instructions on medication labels and consult with a pharmacist or healthcare professional when in doubt.

- The use of smart technological solutions and community engagement are essential for a safer and more effective healthcare system.

- Collaboration between Primary Healthcare providers and community resources can foster a sustainable pharmaceutical care and better health outcomes.

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