SMART Medication Safety Agenda

Important Considerations for Compounding Non-Sterile Preparations

SMART Medication Safety Agenda

The Community Pharmacy Incident Reporting (CPhIR) program is designed for you to report and analyze medication incidents that occurred in your pharmacy. You can learn about medication incidents that have occurred in other pharmacies through the use of the SMART Medication Safety Agenda.

The **SMART** (**S**pecific, **M**easurable, **A**ttainable, **R**elevant and **T**ime-based) Medication Safety Agenda consists of actual medication incidents that were anonymously reported to the CPhIR program. Potential contributing factors and recommendations are provided to you and your staff to initiate discussion and encourage collaboration in continuous quality improvement. By putting together an assessment or action plan, and monitoring its progress, the SMART Medication Safety Agenda may help reduce the risk of similar medication incidents from occurring at your pharmacy.

How to Use the SMART Medication Safety Agenda

1. Convene a meeting for your pharmacy team to discuss each medication incident presented (p. 2).
2. Review each medication incident to see if similar incidents have occurred or have the potential to occur at your pharmacy.
3. Discuss the potential contributing factors and recommendations provided.
4. Document your team's assessment or action plan to address similar medication incidents that may occur or may have occurred at your pharmacy (Table 2).
5. Evaluate the effectiveness and feasibility (Table 1) of your team's suggested solutions or action plan.
6. Monitor the progress of your team's assessment or action plan.
7. Enter the date of completion of your team's assessment or action plan (Table 2).

Table 1.

Effectiveness and Feasibility

Effectiveness:

Suggested solution(s) or action plan should be system-based, i.e. shifting a focus from "*what we need to do …*" to "*what we can do to our environment to work around us.*"

1. **High Leverage – most effective**
   - Forcing function and constraints
   - Automation and computerization
2. **Medium Leverage – intermediate effectiveness**
   - Simplification and standardization
   - Reminders, checklists, and double checks
3. **Low leverage – least effective**
   - Rules and policies
   - Education and information

Feasibility:

Suggested solution(s) or action plan should be feasible or achievable within your pharmacy, both from the perspectives of human resources and physical environment.

1. Feasible immediately
2. Feasible in 6 to 12 months
3. Feasible only if other resources and support are available

Institute for Safe Medication Practices Canada
Institut pour la sécurité des médicaments aux patients du Canada

CMIRPS Canadian Medication Incident Reporting and Prevention System
SCDPIM Système canadien de déclaration et de prévention des incidents médicamenteux

COMPASS Community Pharmacy Professionals Advancing Safety in Saskatchewan

Si Safety. Improvement. Quality.

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Important Considerations for Compounding Non-Sterile Preparations

Table 2.

Miscalculated Concentration

INCIDENT EXAMPLE:
A prescription for clonidine oral suspension was incorrectly compounded using 1000 times more clonidine powder due to an error in unit conversion (between mcg and mg). The patient was hospitalized multiple times before the error was recognized.

POTENTIAL CONTRIBUTING FACTORS:
- Use of dangerous abbreviations (i.e., µg)
- Complex calculations needed when compounding small amounts of active pharmaceutical ingredients

RECOMMENDATIONS:
- Write out infrequently used medication strengths, without abbreviations (e.g., microgram).[1]
- Update pharmacy software to include alerts for certain compounded prescriptions (e.g., For clonidine formulas: 1000-fold dose errors have occurred; triple check calculations and weights).[1]

Incorrect Ingredient

INCIDENT EXAMPLE:
A refill prescription of tryptophan oral suspension was compounded for a child. The child was given the usual dose and was found deceased the next morning. Toxicology tests suggest that the tryptophan was inadvertently substituted, leading to the child receiving a dose of topical baclofen more than 20 times the maximum recommended pediatric dose.

POTENTIAL CONTRIBUTING FACTORS:
- Similarly designed labelling and packaging of active pharmaceutical ingredients[2]
- Lack of independent verification step for ingredient and weight[2]

RECOMMENDATIONS:
- Incorporate automated identification (e.g., bar code scanning) of ingredients into the compounding process.[2]
- Incorporate independent double checks to verify calculations, selection and measurement of individual ingredients, and the final compounded product.[2]
- Store products in a position where labels are easily readable (i.e., well-lit, organized, eye-level shelves).[2]

Assessment / Action Plan

Effectiveness:

- ☐ Forcing function and constraints
- ☐ Automation and computerization
- ☐ Simplification and standardization
- ☐ Reminders, checklists and double checks
- ☐ Rules and policies
- ☐ Education and information

Feasibility:

- ☐ Feasible immediately
- ☐ Feasible in 6 to 12 months
- ☐ Feasible only if other resources and support are available

Progress Notes

Date of Completion:

References:
1. Lack of Pediatric Formulations – A Call to Action. ISMP Canada Safety Bulletin. 2021;21(10):1-6.
2. Death Due to Pharmacy Compounding Error Reinforces Need for Safety Focus. ISMP Canada Safety Bulletin. 2017;17(5):1-6.