

## Drug Interaction Protocol Presentation

**A. Enhancement Objectives**

Electronic medical record (EMR) systems purchased by practice sites often contain add-on Drug Interaction (DI) modules that can be useful, but can also lead to a variety of problems. A DI protocol presented to site staff eases the technology adoption, guides the physicians to ensure they achieve the full potential of the tools, and helps them use the DI database more effectively.

**B. Tool or Enhancement Description**

The DI protocol is presented to the practice site physicians (using PowerPoint or similar software) featuring screen shots of their site's EMR. The presentation can contain several case studies that can be used to engage the physicians by having them determine what the issues could be for that patient. A pharmacist can then demonstrate how the information can be accessed through the DI software using the EMR screen shots.

**C. Medication Management Improvements**

By attending a presentation that describes the DI software, the physicians should be able to use the DI module to its full **potential** (instead of overriding all interactions as they appear with the software, the physicians should be able to adequately assess the drug interactions that do appear when prescribing medications). Using the software properly has a large, positive impact on medication management. Efficient use of the software enables the physicians to readily observe potential DIs and to access drug information more easily.

Patients can benefit from improved medication management because using the software efficiently decreases the probability of patients being prescribed medications that have possible interactions with their **existing medications**. Although there is always the possibility of a DI when any medication is prescribed, implementing and using the software successfully decreases the likelihood of this occurring.

Also, physicians may be more likely to prescribe appropriately by knowing the **software's limitations**.

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For example, a physician may prescribe more medications that the DI module lists as having a potential interaction because they can recognize that, in actuality, the medications do not interact.

When physicians first start using DI software, they may find that they have to sort through information without having the necessary tools. Instead of increasing efficiency, this situation can consume a large amount of a **physician's time**. A pharmacist can present necessary information on the large number of potential interactions the software can produce, some of which are not substantiated in the literature. The pharmacist can also give information on common and potential DIs, enabling the physicians to focus on significant points by learning to effectively analyze and recognize the information the software provides.

For example, a DI module may produce a potential DI that is not based on sound, evidence-based information, but instead, is based on a single case study within the literature. Another **software limitation** practice site physicians may not be aware of is that when one specific drug in one class interacts with a specific drug in another class, the software may extrapolate this across every drug in both classes, which leads to extraneous, unsubstantiated DIs.

By increasing familiarity of the DI software, the presentation enables physicians to prescribe more **confidently**, which potentially leads to better choices of medications for the patient because the physicians can access and analyze potential DIs more readily. Physicians still prescribe in the same manner, but with more information.

A DI module being used efficiently at a practice site allows the physicians to share responsibility for catching potential DIs with the community pharmacist. A DI

## PRACTICE ENHANCEMENT EXAMPLES

### Drug Interaction Protocol Presentation

module serves as an added measure of **vigilance** by serving as the primary mechanism, making the community pharmacist the secondary watchdog.

Catching potential DIs at the point of prescribing (rather than filling of the prescription) also results in more efficient use of time for all involved. Otherwise, the community pharmacist has to notify the physician of potential problems and wait for a revised prescription. Eliminating **unnecessary steps** decreases the amount of time and effort spent by the pharmacist, the physician and the patient.

Although a pharmacist's presentation may be directed toward the practice site physicians, **nurses** can also benefit successful DI software implementation because they can also access drug information more easily, indirectly leading to improved medication management at their practice site.

#### D. Development Process

Some EMR software may already contain DI modules. The practice site physicians may ask their pharmacist to review the documentation provided by the EMR software company to learn how the module works, so the pharmacist can later show the physicians how to use the software. Alternatively, the pharmacist can suggest this enhancement to physicians if it is applicable to their practice site.

The EMR company can be approached directly to obtain additional training. The pharmacist and other practice site members can learn to use the software effectively and can learn the other functions not directly related to DIs.

Work with the DI module to gain more experience using the software. Approach the practice site physicians to learn what difficulties they have with the software. For example, often when DI software is first used, patient information must be updated before the physicians can move onto the next levels to actually prescribe a medication. This may cause the physicians to feel the

software takes more time, instead of being a tool to increase efficiency.

Discuss the option of giving a presentation on the software's strengths and weaknesses, and most effective use with the lead physician. Create a presentation that includes general drug interactions, the significance of the interactions and the limitations of different drug databases. Use specific cases to discuss common drug combinations and potential drug interactions that are useful for the physicians at the site.

If it is possible to save screen shots, incorporate the images into the presentation to demonstrate how to access and use the database, step by step, for various functions such as accessing patient information.

After creating an initial draft of the presentation, send it to colleagues or physicians at the practice site for feedback and suggestions. Suggestions can vary from removing some information, including other information, reorganizing and rewording the presentation.

After incorporating feedback, send the revised presentation to the same individuals for more feedback and repeat the process until the presentation is finalized.

## PRACTICE ENHANCEMENT EXAMPLES

## Drug Interaction Protocol Presentation

**References and resources**

Because DI modules can provide potential DIs that may not be based on sound, evidence-based information (e.g., a potential DI may be highlighted that is based on a single case study in the literature), use a variety of references to provide information in the presentation.

Some references can be used to provide specific examples and others can provide more general information. The following references were used by an IMPACT pharmacist who gave a DI module presentation to the physicians at a practice site:

Aronson JK. Classifying drug interactions. *Br J Clin Pharmacol* 2004;58:343-4.

Bailey DG, Dresser GK, Kreeft JH, Munoz C, Freeman DJ, Bend JR. Grapefruit-felodipine interaction: Effect of unprocessed fruit and probable active ingredients. *Clin Pharmacol Ther* 2000;68:468-77.

Fugh-Berman A, Ernste E. Herb-drug interactions: Review and assessment of report reliability. *Br J of Clin Pharmacol* 2001;52:587-95.

Glassman PA, Simon B, Belperio P, Lanto A. Improving recognition of drug interactions: Benefits and barriers to using automated drug alerts. *Med Care* 2002;40:1161-71.

Hahn J. Drug interactions: Investigating their mechanisms, clinical significance and management strategies. Pharmacy Connects, March 1997. Available at: <http://www.pharmacyconnects.com>

Hansten PD. Drug interaction management. *Pharm World Sci* 2003;25:94-7.

Herman RJ. Drug interactions and the statins. *CMAJ* 1999;161:1281-6.

Kosoglou T et al., Pharmacodynamic interaction between the new selective cholesterol absorption inhibitor ezetimibe and simvastatin *Br J Clin Pharmacol* 2002;54:309-19.



Managing Drug Interactions. PowerPoint presentation given by W. Bartle BSc Phm, PharmD.

Westphal JF. Macrolide-induced clinically relevant drug interactions with cytochrome P-450A (CYP) 3A4: An update focused on clarithromycin, azithromycin and dirithromycin. *Br J Clin Pharmacol* 2000;50:285-95.

Williams D, Kelly A, Feely J. Drug interactions avoided — A useful indicator of good prescribing practice. *Br J Clin Pharmacol* 2000;49:369-72.

**E. Implementation Process**

The pharmacist may or may not be involved in organizing the meeting for the presentation. Meeting times may have to be rescheduled several times to maximize the number of physicians who can attend. Ensure that all practice site physicians are invited to attend the meeting, however unlikely it is that all can attend.

The presentation is a one-time event that helps the practice adopt and use DI software successfully.

## PRACTICE ENHANCEMENT EXAMPLES

### Drug Interaction Protocol Presentation

#### F. Overcoming Challenges

Some challenges may be related to the DI software itself and lead to the creation of the practice enhancement. DI modules are often generic and warn of extraneous potential DIs, ones not supported by evidence-based information. This characteristic may lead to too many possible DIs being highlighted, which could result in the physicians and pharmacist becoming less vigilant. Ultimately, this could lead to potentially important interactions being missed. The presentation can overcome this by informing the physicians of the type and number of interactions that regularly appear in the software and are not substantiated in literature.

In addition, DI modules may only provide information on drug-drug interactions and not include drug-disease or drug-food interactions, which can often be important. The presentation educates physicians about this potential software limitation and makes them aware of these potential interactions, which could possibly improve their vigilance.

Various challenges may arise during presentation development. Pharmacists have to ensure that they themselves know and understand the software sufficiently to be able to effectively educate and guide others. This challenge can be overcome by working with the software on their own and obtaining additional training from the EMR company.

Due to the abundance of information in the literature, it may be difficult to determine what information to exclude to keep the presentation within a timeframe that will keep the attention of the physicians. Feedback from colleagues or the practice site physicians helps with this challenge.

In addition, the DI software may not be able to be used directly in the presentation, which can prevent the pharmacist from effectively demonstrating the most efficient manner to use it. This challenge can be overcome if screen shots of the software can be taken.

Finding the time to develop an effective presentation can also be challenging. Budgeting time and asking for direction to relevant resources helps to focus efforts.

It may be difficult to coordinate a meeting time that can accommodate all physicians' schedules. It is unlikely that all the practice site physicians will be able to attend one meeting. Offer to present the DI protocol more than once to ensure all physicians attend the presentation.

#### G. Facilitating Factors

If the practice is already EMR-based and the EMR used has a DI module, this enhancement is easier to implement. A smaller practice can make it easier to organize the meeting for the presentation.

#### H. Evaluation Results

No strategy to evaluate this enhancement was undertaken.

**Example Note:** At the time of writing, it is not possible to include a paper document in this guide that illustrates the enhancement.

# The IMPACT Program

*Pharmacists in Family Practice:  
A Resource*

## PRACTICE ENHANCEMENT GUIDE

### Optimizing Medication Use in Family Practice: Medication-focused Practice Enhancements

**Get the most out of your IMPACT Pharmacist**



**The IMPACT Program**  
*Pharmacists in Family Practice:  
A Resource*

**REFER IF YOUR PATIENT:**

- Needs help with optimal control of a **chronic condition** (such as diabetes, blood pressure, cholesterol, pain, arthritis)
- Is taking **multiple medications** (to simplify, ensure appropriate dosing times, manage or prevent drug related problems)
- Might be having an **adverse drug event**.
- Has **recently been hospitalized** (for counselling on medication changes)

**Most Common Inhaled Bronchodilators**

| Agent      | Short-Acting B <sub>2</sub> -Agonists |                     | Long-Acting B <sub>2</sub> -Agonists |             | Anticholinergics |             | Combination            |
|------------|---------------------------------------|---------------------|--------------------------------------|-------------|------------------|-------------|------------------------|
|            | Salbutamol                            | Terbutaline         | Salmeterol                           | Formoterol  | Ipratropium      | Tiotropium  | Salbutamol/Ipratropium |
| Brand Name | Ventolin® Generics                    | Bricanyl®           | Serevent®                            | Oxeze®      | Atrovent®        | Spiriva®    | Combivent®             |
| System     | MDI Diskus® Inhalation                | Turbuhaler®         | MDI Diskus®                          | Turbuhaler® | MDI Inhalation   | HandiHaler® | MDI Inhalation         |
| Colour     | Blue                                  | Blue bottom         |                                      |             |                  |             |                        |
| Onset      | 5-15 min                              | 5-15 min            |                                      |             |                  |             |                        |
| Duration   | 4-6 h                                 | 4-8 h               |                                      |             |                  |             |                        |
| Adult Dose | 1-2 pfs TID-QID PRN                   | 1-2 pfs TID-QID PRN |                                      |             |                  |             |                        |

**Table 1: How Medication-focused Practice Enhancements Improve Medication Management**

| Medication Management Process                 | Problems in Family Practice   | Example of Enhancement Developed   |
|---|---|--|
| Provide group education regarding medications | Patients need additional information on their condition; physician unable to provide all that is needed | Cholesterol Clinic Day (Chapter 5) — provides information that would benefit the patients and physicians of the practice site, and that is often not |
| Completing Section 8 forms                    | Forms are neither available nor easily completed  |  |
| Reporting adverse drug reactions (ADR)        | Rarely done; voluntary system; forms not readily available or easily                                    |  |

**DIABETES PATIENT CARE FLOWSHEET**

**Practice Site Letterhead**

Name: \_\_\_\_\_ D.O.B.: \_\_\_\_\_ Chart # \_\_\_\_\_ Diagnosis Date: \_\_\_\_\_ Type of DM: \_\_\_\_\_

Risk factors: Obesity  Fam Hx  Smoker  CVD  BP  Lipids  Gest DM

Complications/Comorbidities: Retinopathy  Nephropathy  Neuropathy  Foot Disorders  Other

Past Medical/Surgical Health: \_\_\_\_\_

| Medications   | Date |  |  |  |  |
|---|------|--|--|--|--|
| Diabetic medications:<br>Oral<br>Insulin  |      |  |  |  |  |
| BP medications:<br>ACEI/ARB<br>Diuretic<br>Beta blocker<br>CA++ channel blocker |      |  |  |  |  |

**Chart Audit for Prevalence of Drug and Disease Indicators**

Patient sex:  M  F

Patient age: \_\_\_\_\_ or DOB (yy.mm.dd): \_\_\_\_\_

Date of last visit (yy.mm.dd): \_\_\_\_\_

Physician name: \_\_\_\_\_

Chart #: \_\_\_\_\_

Site #: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
D M Y

**Excluded patients**

Less than one visit to the family physician in the last 12 months  Yes  No  Don't Know

More than 20 visits to the family physician in the last 12 months  Yes  No  Don't Know

Awaiting placement to a nursing home or long-term care  Yes  No  Don't Know

Alcoholism  Yes  No  Don't Know

Palliative care patient  Yes  No  Don't Know

Family physician only sees as a home visit (i.e., patient cannot come to the clinic)  Yes  No  Don't Know

**If you chose Yes for any of the above criteria, DO NOT collect any further information on this form.**



The goal of the IMPACT program, as the acronym suggests, is to Integrate family Medicine and Pharmacy to Advance primary Care Therapeutics. A growing body of research supports our belief that having pharmacists working in family practice settings enhances patient care.<sup>1</sup> This guide is the product of more than 10 years of planning and collaboration between investigators, government and community leaders.

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From previous page:

1. Sellors J et al., A Randomized Controlled Trial of a Pharmacist Consultation Program for Family Physicians and their Elderly Patients. *CMAJ* July 8, 2003;169(1):17-22.