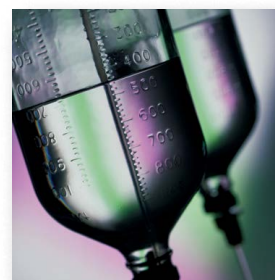


“Use as Directed” Can Cause Confusion for Both Patients and Practitioners

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Problem

If you are a pharmacist working in an outpatient setting, you have probably received a prescription with the all-too-familiar *sigs* “use as directed” (UAD), “take as directed” (TUD), “as directed” (UD), or even the Latin “ut dictum” or “ut dict.” These *sigs* are ambiguous and do not provide adequate dosing instructions for patients to follow or for pharmacists to counsel patients. They also make it difficult for hospital practitioners to know how the prescriber intended the medication to be used by the patient and to effectively conduct medication reconciliation or educate the patient about drug therapy at discharge. “As directed” instructions invite misunderstandings about dosing instructions, which have resulted in serious medication errors.

Although these *sigs* are archaic, some practitioners may believe the “as directed” phrases are only a problem if the medication directions can be variable or if the prescribed dose or frequency of use is outside the recommended dosing parameters. However, pharmacists cannot assume that the prescriber has educated the patient about how to properly take the medication or that the patient will remember the instructions if provided. Explicit directions including strength, dose, frequency and route of administration, and duration of therapy (if appropriate) are needed for pharmacists to effectively educate patients and for patients to take their medications correctly. Furthermore, certain prescription elements (e.g., route, frequency, dosage form) may help pharmacists differentiate between two drug names that look or sound similar.

Several events reported to the ISMP National Medication Errors Report-

ing Program (ISMP MERP) illustrate errors that have occurred, at least in part, because a prescription has had some form of “use as directed” as the only dosing instructions. Some of these events involved high-alert medications, resulting in serious or potentially serious adverse outcomes for patients.

Case Examples

Case #1. An elderly man experienced a severe hypoglycemic event requiring hospitalization after his son administered 100 units of NOVLOG (insulin aspart) to him. The vial was labeled with the following directions: “Insulin aspart 100 units/mL. Give three times a day before meals as directed.” The son, his primary caretaker, hadn’t been educated about insulin dosing when his father was discharged from a nursing facility the day before the event. He believed the 100 units/mL strength on the pharmacy label was the dose, given the lack of clarity with the “as directed” instructions.

Case #2. A mix-up occurred between CLINDESSE (clindamycin vaginal cream), used to treat bacterial vaginosis, and CLINDETS (clindamycin pledgets), for acne. A prescriber left a message on a pharmacy’s voicemail system for a Clindesse prescription, with instructions to “use as directed.” Upon playback, the order sounded like Clindets and was processed and dispensed as such. The error was discovered when the patient called the pharmacy to ask how to use the pledgets vaginally.

Case #3. Three errors involved mix-ups between the intended colonoscopy preparation drug VISICOL (sodium phosphate dibasic and sodium phosphate monobasic) and the opioid VICODIN (hydrocodone and acetaminophen). In all three instances, the prescription for Visicol was provided with “take as directed” instructions. Two of the errors resulted in severe harm after the patients took more than one dozen Vicodin tablets over the course of a single day. (Note: The brand-name product Visicol is no longer available.)

Case #4. An electronic prescription for EPIPEN (epinephrine) instead of the intended insulin pen needles was accidentally transmitted to the pharmacy. The EpiPen was dispensed to the patient’s wife with the instructions to “use as directed.” The pharmacist assumed that an EpiPen had been previously dispensed to the patient and did not provide counseling regarding its proper use. After experiencing difficulty while trying to connect the EpiPen to the insulin pen, the patient’s wife called the pharmacy and the error was discovered.

Impact of “As Directed” on Inpatient Care

Medication Reconciliation

While the prescription *sig* “as directed” is most often seen with outpatient prescriptions, its use for dosing instructions can lead to medication errors related to medication reconciliation during hospitalization. The medication reconciliation process upon admission can be challenging under the best of circumstances. But if prescription labels on home medications include only “as directed” for the instructions, inpatient practitioners are faced with ambiguous, error-prone dosing information and must undertake the burdensome task of obtaining accurate information from the original prescriber. Home medication lists that include “as directed” for instructions do not provide the information necessary for accurate admission prescribing. The patient’s or caregiver’s account of how the medication was being used at home also may be inaccurate.

Discharge Education

Prescriptions provided to patients at discharge with instructions to take “as directed” provide no guidance for discharge education. As with the outpatient pharmacist, the hospital nurse or pharmacist may not know if or how the prescriber instructed the patient to take the medication. While patients may be asked to repeat the prescriber’s directions for use, leaving it up to the patient

to remember what the prescriber said is not acceptable. In fact, “use as directed” could discourage redundant education if practitioners are concerned about confusion they may cause by providing directions that differ from what the patient has been told.

Frequency of “As Directed” Prescriptions

To learn more about the frequency and use of “as directed” instructions on prescriptions, ISMP conducted a survey of outpatient pharmacists. It included six questions: two related to respondent demographics, and the remaining four to the prevalence of the *sig* “use as directed” on prescriptions, medications commonly prescribed with “use as directed” instructions, how such prescriptions are sent to the pharmacy, and how pharmacists address these prescriptions.

RESULTS

Despite the wide uptake of electronic prescribing and insurance repayment penalties for discrepancies over the correct day’s supply (which cannot be verified with the instructions “use as directed”), the results indicate that many drugs are still prescribed and dispensed with “use as directed.” A total of 434 participants responded to the survey, 92.4% of whom indicated their country of practice as the U.S. More than half of participants (55.7%) said that 1% to 5% of all prescriptions they receive are written with “use as directed.” Fewer than 10% of participants indicated that they never receive prescriptions with “use as directed.” Respondents receive prescriptions that include “use as directed” electronically (84.4%), in handwritten format (74.6%), and as facsimiles (55.6%).

Respondents also indicated that they most often verify directions with prescribers (74.7%) when they receive prescriptions with “use as directed.” However, many also noted that they provide the usual and customary directions for the medication if they exist (59.3%), or simply place “use as directed” on the bottle (43%). Many respondents noted that they confirm the day’s supply or maximum daily dose with the prescriber for billing purposes. They also identified medications for which they have received prescriptions with “use as directed” (Table 1). “Other medications”

Table 1 Medications Prescribed With Directions of “Use as Directed”

Medication/Medication Class Name	%
Prepackaged items with specific directions for use on the package (e.g., ZITHROMAX Z-PAK [azithromycin])	75.6
Warfarin	58.4
Topical medications (standard quantities)	56.1
Predni SONE	55.5
As-needed emergency medications (e.g., EpiPen [EPINEPH rine], DIASTAT [diaz PAM], nitroglycerin)	55.0
Contraceptives (oral)	54.7
One-time treatments (e.g., for lice or scabies)	54.7
Insulin	43.1
Migraine medications	39.9
Erectile dysfunction medications	33.7
Injectables to be administered at a clinic (e.g., MYOBLOC [rimabotulinumtoxinB], GARDASIL [human papillomavirus vaccine], ZOSTAVAX [zoster vaccine])	26.4
Fertility injections	11.3
Hemophilia injections	2.8
Other medications	19.6

in the table include: colonoscopy/bowel preparations, diabetic testing supplies, ophthalmic products, and inhalers.

SAFE PRACTICE RECOMMENDATIONS

To better safeguard the correct and appropriate use of medications, ISMP and the National Coordinating Council for Medication Error Reporting and Prevention ([NCC MERP](#))¹ recommend that prescribers always include explicit directions for use on prescriptions. While prescribers should also instruct patients on the use of any medications they prescribe, specifying the instructions on the prescription reinforces the intended care plan and allows the pharmacist and other health care providers, including those providing discharge education, to review the same instructions with the patient. Clear, complete instructions on prescriptions and drug labels are also important to support accurate medication reconciliation during hospitalization.

If a prescription includes the *sig* “use as directed,” the outpatient pharmacist should clarify the directions with the prescriber and include them on the pharmacy label. For prepackaged items with directions on the package (e.g., Zithromax Z-Pak), some pharmacies use a *sig* code to print the standard directions on the label.

If directions exceed space limitations, a supplemental or overflow label may be required. When the prescriber communicates to the patient a change in directions for use with medications such as insulin or warfarin, there is an opportunity for the pharmacist’s involvement. When the initial prescription is filled for a drug that often involves frequent dose changes, pharmacists should encourage patients to notify the pharmacy of any changes they receive from the prescriber’s office and to discuss with the pharmacist how the leftover dosage form and strength can be used to fulfill the new instructions until a new prescription is necessary. For doses based on home point-of-care testing, such as prandial insulin doses that may change with each meal, dose-adjusting directions must be clear and explicit.

REFERENCE

1. NCC MERP. Recommendations to enhance accuracy of prescription/medication order writing. Accessed online at <https://www.nccmerp.org/recommendations-enhance-accuracy-prescription-writing>.

In 2019, ISMP is celebrating its 25th anniversary of helping health care practitioners keep patients safe and leading efforts to improve the medication-use process. For more information, visit www.ismp.org. ■