



CHAPTER 8

WORKING WITH PRESCRIPTIONS

A doctor is to give a speech at the local AMA dinner. He jots down notes for his speech. Unfortunately, when he stands in front of his colleagues later that night, he finds that he can't read his notes. So he asks, "Is there a pharmacist in the house?"

--Author Unknown

Have you ever seen a prescription and wondered, "What the heck does that mean?", and even thought, "That doesn't even look like English!". Now it is time to owe up to the truth...much of it is not English. Prescriptions have been obfuscated by a combination of Latin and English abbreviations (sometimes they even throw in Greek words). They are commonly used on prescriptions to communicate essential information on formulations, preparation, dosage regimens and administration of the medication. Our goal is to demystify this drug nomenclature. Our goals this chapter include:

- learning common medical abbreviations,
- learning the parts of a prescription and how to incorporate medical abbreviations,
- and the additional prescriptions requirements and limitations when dealing with controlled substances.

Common Medical Abbreviations

In total there are nearly 20,000 medical abbreviations; instead of providing an exhaustive and meaningless list, we will present you with the most common medical abbreviations that are necessary for interpreting prescriptions and performing calculations.

There are several key things to point out about the tables on the next several pages.

categories – for ease of memorization, the abbreviations have been broken up into five categories: route, form, time, measurement, and other.

abbreviations – the abbreviations can often be written with or without the 'periods' and in upper or lower case letters (e.g., p.o. and PO both mean 'by mouth').

meaning – sometimes you will need to place an abbreviation in context to know its meaning (e.g., IV could mean a dosage form as in an 'IV bag', it could mean a route of administration as in 'to give a medication IV', or it could even be the roman numeral meaning 'four').

Latin root – not all the words on this list are derived from Latin words, nor is it necessary to know the Latin root words to be able to understand the abbreviations, but it is simply provided to help you understand how some of these abbreviations were derived.

Route

Abbreviation	Meaning	Latin Root
a.d. ¹	right ear	auris dexter
a.s.	left ear	auris sinister
a.u.	each ear	auris utro
IM	intramuscular	
IV	intravenous	
IVP	intravenous push	
IVPB	intravenous piggyback	
KVO	keep vein open	
n.g.t.	naso-gastric tube	
n.p.o.	nothing by mouth	nasquam per os
nare	nostril	
o.d.	right eye	oculus dexter
o.s.	left eye	oculus sinister
o.u.	each eye	oculus utro
per neb	by nebulizer	
p.o.	by mouth	per os
p.r.	rectally	per rectum
p.v.	vaginally	
SC, SQ	subcutaneously	
S.L.	sublingually (under the tongue)	
top.	topically	



¹ Always keep context in mind. In some prescription that require compounding 'ad' without the periods could mean *to* or *up to*.

Form

Abbreviation	Meaning	Latin Root
amp.	Ampule	
aq, aqua	water	aqua
caps	capsule	capsula
cm. ²	cream	
elix.	elixir	
liq.	liquid	liquor
sol.	solution	
supp.	suppository	suppositorum
SR, XR, XL	slow/extended release	
syr.	syrup	syrupus
tab.	tablet	tabella
ung., oint	ointment	ungentum



² Always keep context in mind as 'cm' can also mean centimeter.

Time

Abbreviation	Meaning	Latin Root
a.c.	before food, before meals	ante cibum
a.m.	morning	ante meridian
atc	around the clock	
b.i.d., bid	twice a day	bis in die
b.i.w., biw	twice a week	
h, °	hour	hora
h.s.	at bedtime	hora somni
p.c.	after meals	post cibum
p.m.	evening	post meridian
p.r.n., prn	as needed	pro re nata
q.i.d., qid	four times a day	quarter in die
q	each, every	quaque
q.d.	every day	quaque die
q_h, q_°	every__hour(s)	
qod	every other day	
stat	immediately	statim
t.i.d., tid	three times a day	ter in die
t.i.w., tiw	three times a week	



Measurement

Abbreviation	Meaning	Latin Root
i, ii, ...	one, two, etc.	
a.a., aa ³	of each	ana
ad ⁴	to, up to	ad
aq. ad	add water up to	
BSA	body surface area	
cc	cubic centimeter	
dil	dilute	dilutus
f, fl.	fluid	
fl. oz.	fluid ounce	
g, G, gm	gram	
gr.	grain	
gtt	drop(s)	guttae
l, L	liter	
mcg, µg	microgram	
mEq	milliequivalent	
mg	milligram	
ml, mL	milliliter	
q.s.	a sufficient quantity	quantum sufficiat
q.s. ad	add sufficient quantity to make	quantum sufficiat ad
ss ⁵	one-half	
Tbs, T	tablespoon	
tsp, t	teaspoon	
U	unit	
>	greater than	
<	less than	



3 Always keep context in mind as 'aa' can also mean affected area when applying topical medications.

4 Always keep context in mind as 'ad' can also refer to the right ear.

5 Sometimes, it is easier to think of 'ss' as meaning 0.5 instead of one-half.

Other

Abbreviation	Meaning	Latin Root
c	with	cum
disp.	dispense	
f, ft ⁶	make, let it be made	fac, fiat, fiant
n/v	nausea and vomiting	
neb	nebulizer	
NR	no refill	
NS	normal saline	
s	without	sine
Sig	write, label	signatura
SOB	shortness of breath	
T.O.	telephone order	
ut dict, u.d.	as directed	ut dictum
V.O.	verbal order	

Practice Problems:

Translate the following abbreviation statements to provide proper household directions.

- 1) i gtt ou bid x7d
- 2) i tab po q6h prn pain
- 3) i tab po qid pc
- 4) iss tsp po tid prn cough
- 5) iii gtt ad q4h x5d
- 6) i supp pr q4h prn n/v
- 7) i cap po tid ac + hs
- 8) i tab sl q5 minutes prn chest pain, may repeat up to 3 times.
- 9) ii tabs stat, then i tab po qid x10d

⁶ Be careful with this abbreviation as 'f' could also mean fluid and 'ft' could also mean feet.

Worksheet 8-1

Name:

Date:

Your assignment for tonight is two fold. One, you must make a set of flash cards using the abbreviations presented to you on the preceding pages. Two, in the space provided below, you must make up ten abbreviation statements similar to the ones you just did, but this time **do not translate them.**

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Learning the Parts of a Prescription and how to incorporate Medical Abbreviations

The word "prescription" stems from two Latin word parts, *prae-*, a prefix meaning before, and *scribere*, a word root meaning to write. Putting it all together, prescription means "to write before," which reflects the historical fact that a prescription traditionally had to be written before a drug could be mixed and administered to a patient.

Many ancient prescriptions were noted for their multiple ingredients and complexity of preparation. The importance of the prescription and the need for complete understanding and accuracy made it imperative that a universal and standard language be used. Thus, Latin was adopted, and its use was continued until approximately a generation ago.

Present day prescriptions are written in English, with doses usually being given in the metric system, but often you still find contracted Latin words and Roman numerals intertwined. The ancient "Rx" and the Latin "Signatura," abbreviated as *Sig.*, the occasional Roman numeral, and a hand full of apothecary symbols are all that remain of the ancient art of the prescription.

Traditionally a prescription is a written order for compounding, dispensing, and administering drugs to a specific client or patient and once it is signed by the physician it becomes a legal document! Prescriptions are required for all medications that require the supervision of a physician, that must be controlled because they are addictive and carry the potential of being abused, and that could cause health threats from side effects if taken incorrectly, for example cardiac medications, controlled substances, and antibiotics.

The following is a list of the parts of a prescription, and in bold are the most significant portions:

- Patient Information
- **Superscription**
- **Inscription**
- **Subscription**
- **Signatura**
- Date
- Signature lines, signature, degree, generic substitution
- Prescriber information
- DEA# if required
- Refills
- Warnings

Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790		
Name	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
R <i>Lipitor 20 mg</i>		
<i>Disp: #30</i>		
<i>Sig: i tab po qd</i>		
Refills <i>2</i>		
<i>John Schoulties</i>	M.D.	M.D.
Product Selection Permitted		Dispense As Written
DEA No. _____		
Prescription No.: 00000112		

The **superscription** which consists of the heading where the symbol Rx (an abbreviation for recipe, the Latin for take thou) is found. The Rx symbol comes before the inscription.

The **inscription** is also called the body of the prescription, and provides the names and quantities of the chief ingredients of the prescription. Also in the inscription you find the dose and dosage form, such as tablet, suspension, capsule, syrup.

The **subscription**, which gives specific directions for the pharmacist on how to compound the medication. These directions to the pharmacist are usually expressed in contracted Latin or may consist of a short sentence such as: "make a solution," "mix and place into 10 capsules," or "dispense 10 tablets." However, that was in the old days. Today... doctors just name the pill!

The **signatura** (also called sig, or transcription), gives instructions to the patient on how, how much, when, and how long the drug is to be taken. These instructions are preceded by the symbol "S" or "Sig." from the Latin, meaning "write" or "label." Whenever translating the signatura into instructions for a patient, begin it with an action verb such as take, inhale, spray, inject, place, swish, or whatever other verb seems appropriate for the medication.

Below the Sig line is room for special instructions, such as the number of times the prescription may be refilled, if any. You will also find the purpose of the prescription, special instructions, warnings followed by the signature of the prescriber.

You should also know and understand:

- The **date** and **patient information**, which consists of the name of the party for whom it is designed and the address, usually occupies the upper part of the prescription. Sometimes age or weight is also added, though rarely.
- The instruction, "**take as directed**" is not satisfactory and should be avoided. The directions to the patient should include a reminder of the intended purpose of the medication by including

- such phrases as "for pain," "for relief of headache," or "to relieve itching"
- And if the patient is to receive a **brand name medication**, rather than generic, the physician enters NO SUBSTITUTIONS at the end of the prescription.
- If there are **no refills** to be dispensed, it is advisable not to enter the number 0, because it can be altered by adding numbers before the zero, thus making it a 10 to receive ten refills (or more!). Always write out the word *None*, or *No Refills!!!*
- The Drug Enforcement Administration (DEA) registration number system was implemented as a way to successfully **track controlled substances** from the time they are manufactured until the time they are dispensed to the patient.
- The **DEA opposes use of the DEA number** for other than its intended purpose, which is tracking controlled substances, and strongly opposes insurance company practice of requiring that a DEA number be placed on prescriptions for non-controlled substances.
- Not all medications require prescriptions.** There are certain medications on the market that can be purchased over the counter, thus their name over-the-counter drugs (OTC.)

Now to put it all together, let's look at the previous example and translate the information on it:

Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790		
Name	Patricia Pearson	Date
Address		Age Wt/Ht
R	Lipitor 20 mg Disp: #30 Sig: 1 tab po qd	
Refills	2	
<i>John Schoulties</i> M.D.		M.D.
Product Selection Permitted	Dispense As Written	
DEA No.		
Prescription No.: 00000112		

So, if we look at this script for Patricia Pearson we can see that it is for Lipitor (atorvastatin Ca) 20 mg tablets and that the patient is to receive 30 of them with 2 refills. The instructions to the patient would be, "*Take 1 tablet by mouth daily.*"

Other things of note include the date that the prescription is written for is July 21, 2010. Prescriptions for non-controlled substances are only good for one year, so Ms. Beaty will need a new script if she still needs this medication past July 21, 2011, regardless of how many refills were written for. Another noteworthy item is that the physician signed permitting product selection (*i.e.*, generic substitution). The last significant item on this label is that the physician did not include their DEA number. A DEA number should only be used for controlled substances.

This brings us to one last major concept in this chapter:

The Additional Prescription Requirements and Limitations when dealing with Controlled Substances

Besides over the counter medications (OTC) such as aspirin and ibuprofen, behind the counter medications (BTC) such as Allegra-D (fexofenadine with pseudoephedrine), and prescription medications (Rx legend) such as amoxicillin and digoxin, there is another group of medications to be concerned with called controlled substances. Controlled substances are medications with further

restrictions due to abuse potential. There are 5 schedules of controlled substances with various prescribing guidelines based on abuse potential as determined by the Drug Enforcement Administration and individual state legislative branches. Let's look at the table below.

Schedule	Characteristics	Examples
CI	Unaccepted medical use Highest potential for abuse Not available by a prescription	Heroin and LSD
CII	High potential for abuse or misuse	oxycodone, morphine, and amphetamines
CIII	Potential risk for abuse, misuse, and dependence	Tylenol with Codeine tablets and Vicodin
CIV	Low potential for abuse and limited risk of dependence	phenobarbital, benzodiazepines, and other sedatives and hypnotics
CV	Low potential for abuse or misuse	Cough medicines that contain a limited amount of codeine, and antidiarrheal medications that contain a limited amount of an opiate such as Lomotil
	<ul style="list-style-type: none"> • CI medications are not available via a prescription. • CII medications may only be written for a 90 day supply excluding hospice patients. • CIII-IV medications may only be written for a 6 month supply. • CV medications may be written for up to 1 year. Many states limit this to 6 months. 	

Many problems associated with drug abuse are the result of legitimately-manufactured controlled substances being diverted from their lawful purpose into the illicit drug traffic. Many of the narcotics, depressants and stimulants manufactured for legitimate medical use are subject to abuse, and have therefore been brought under legal control. The goal of controls is to ensure that these "controlled substances" are readily available for medical use, while preventing their distribution for illicit sale and abuse.

Under federal law, all businesses which manufacture or distribute controlled drugs, all health professionals entitled to dispense, administer or prescribe them, and all pharmacies entitled to fill prescriptions must register with the DEA. Authorized registrants receive a "DEA number". Registrants must comply with a series of regulatory requirements relating to drug security, records accountability, and adherence to standards. Any properly licensed medical professional that wishes to prescribe a controlled substance must include their DEA number on the prescription.

A physician's DEA number is a two letter seven digit number designed in such a way that a pharmacy can verify it via a mathematical algorithm. An example of a DEA number would be:

BP4567890

Let's go to the next several pages and practice thoroughly translating some prescriptions.

Worksheet 8-2

Name:

Date:

Translate the following prescriptions, and make note of anything that you find interesting. I will be breaking you into teams that are responsible for thorough translations on specific scripts. I've provided two examples of what I'm looking for.

Example 1:

Calvin J. Robins, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name	Margaret Adams	Date
Address		Age Wt/Ht
R Nitrol 2% ung Disp: in tube Sig: apply 2" q8 ^o		
Refills	5	
Calvin Robins M.D.		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00004001		

This script for Margaret Adams is for one tube of Nitrol 2% ointment (nitroglycerin 2% ointment) and the patient is allowed 5 refills. The instructions to the patient would be, "Apply 2 inches every 8 hours."

Things to note: This is interesting because NTG ung is usually measured in inches. A patient should know to rotate sites and apply to well cleaned areas that have minimal hair. Also, you should probably check with the physician to see if they want the patient to receive a nitrate free interval or not.

Example 2:

Donna Johns, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name	James Wilson	Date
Address		Age Wt/Ht
R Compazine Supp 25 mg #12 Sig: 1 per q6h for severe nausea		
Refills	NR	
Donna Johns M.D.		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00005007		

Mr. James Wilson's script is for twelve 25 mg Compazine (prochlorperazine) suppositories with no refills. The instructions to the patient would be "Insert 1 suppository rectally every 6 hours as needed for severe nausea."

Things to note: Female patients may need to be informed to only use this suppository rectally as it will not have the correct systemic effects if given vaginally.

Prescription 1

David M. Ferguson, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name <i>Oklahoma Bealy</i>	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
R <i>Flonase Nasal Spray</i>		
<i>Disp: 1</i>		
<i>Sig: i spray each nose 2am</i>		
Refills <i>prn</i>		
M.D.	<i>David Ferguson</i>	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000107		

Prescription 2

David M. Ferguson, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name <i>Oklahoma Bealy</i>	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
R <i>Nitrostat 1/150 gr</i>		
<i>Disp: 25</i>		
<i>Sig: i SL q5 min prn chest pain</i>		
<i>may repeat X3</i>		
Refills <i>3</i>		
<i>David Ferguson</i>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000108		

Prescription 3

David M. Ferguson, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name <i>Ola Bealy</i>	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
<p>R <i>NitroDUR 0.4 mg</i> <i>Disp: #30</i> <i>Sig: i patch on 8 a.m.,</i> <i>off 10 p.m. gd</i></p>		
Refills <i>3</i>		
<i>David Ferguson</i>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000109		

Prescription 4

David M. Ferguson, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name <i>Ola Bealy</i>	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
<p>R <i>Carmadin 5 mg</i> <i>Disp: 1 month supply</i> <i>Sig: 1 tab on S-T-T-S,</i> <i>i tab on M-W-F</i></p>		
Refills <i>NR</i>		
<i>David Ferguson</i>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000110		

Prescription 5

David M. Ferguson, M.D. Contemporary Physician Group Practice 3459 5th Avenue, Pittsburgh, PA 15206 Tel: (412) 555-1234 Fax: (412) 555-2345		
Name <u>Ola Bealy</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <u>Spiriva</u>		
<u>Disp: #30</u>		
<u>Sig: inhale i cap po qd</u>		
Refills <u>3</u>		
<u>David Ferguson</u>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000111		

Prescription 6

Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790		
Name <u>Patricia Pearson</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <u>Lipitor 10 mg #90</u>		
<u>i po qd</u>		
Refills <u>NR</u>		
<u>John Schoulties</u>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000212		

Prescription 7

Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790		
Name <u>Patricia Pearson</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <u>Humulin R 10 ml</u> <u>Disp: 1 vial</u> <u>8 u SC at breakfast, 8 u at lunch,</u> <u>& 11 u at supper</u>		
Refills <u>2</u>		
<u>John Schoulties</u> M.D.		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000213		

Prescription 8

Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790		
Name <u>Patricia Pearson</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <u>Novolin N 10 ml</u> <u>Disp: 1 vial</u> <u>24 u SC qam</u> <u>& 22 u SC qpm</u>		
Refills <u>5</u>		
<u>John Schoulties</u> M.D.		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000214		

Prescription 9

<p style="text-align: center;">Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790</p>		
Name <u>Patricia Pearson</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <i>Cardizem CD 240 mg #90</i> <i>1 po qd</i>		
Refills <u>NR</u>		
<u>John Schoulties</u>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000215		

Prescription 10

<p style="text-align: center;">Dr. John Schoulties, M.D. 123 Maple Avenue, Newton, MA 02456 Tel: (617) 678-2100 Fax: (617) 431-2790</p>		
Name <u>Patricia Pearson</u>	Date <u>7-21-2010</u>	
Address	Age	Wt/Ht
R <i>Hybrin 1 mg</i> <i>Disp: 1 month supply</i> <i>Sig: 1 po qhs X3d</i> <i>then, 2 qhs X5d</i> <i>then, 4 qhs thereafter</i>		
Refills <u>2</u>		
<u>John Schoulties</u>	M.D.	M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000216		

Prescription 11

<p style="text-align: center;">Dr. John Smith, M.D. 739 Stockton Street, Waltham, MA 02454 Tel: (781) 333-2121 Fax: (781) 734-6340</p>			
Name	<u>Richard Stallman</u>	Date	<u>7-21-2010</u>
Address		Age	Wt/Ht
R <u>Ambien 5 mg #30</u> <u>i po q hs prn sleep</u>			
Refills	<u>one</u>		
<u>John Smith</u>		M.D.	M.D.
Product Selection Permitted	Dispense As Written		
DEA No.	<u>A53456325</u>		
Prescription No.: 00000317			

Prescription 12

<p style="text-align: center;">Dr. John Smith, M.D. 739 Stockton Street, Waltham, MA 02454 Tel: (781) 333-2121 Fax: (781) 734-6340</p>			
Name	<u>Richard Stallman</u>	Date	<u>7-21-2010</u>
Address		Age	Wt/Ht
R <u>Adderall XR 25 mg</u> <u>Disp: #30</u> <u>Sig: i po qd</u>			
Refills	<u>NR</u>		
<u>John Smith</u>		M.D.	M.D.
Product Selection Permitted	Dispense As Written		
DEA No.	<u>A53456325</u>		
Prescription No.: 00000318			

Prescription 13

<p style="text-align: center;">Dr. John Smith, M.D. 739 Stockton Street, Waltham, MA 02454 Tel: (781) 333-2121 Fax: (781) 734-6340</p>		
Name	<i>Richard Stallman</i>	Date
Address		Age Wt/Ht
<p>R <i>Augmentin 400 mg/5 ml</i> <i>Drip: 100 cc</i> <i>Sig: 1 tsp po q12^o X10d</i></p>		
Refills	<i>NR</i>	
<i>John Smith</i>		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000319		

Prescription 14

<p style="text-align: center;">Dr. John Smith, M.D. 739 Stockton Street, Waltham, MA 02454 Tel: (781) 333-2121 Fax: (781) 734-6340</p>		
Name	<i>Richard Stallman</i>	Date
Address		Age Wt/Ht
<p>R <i>Tobrex ophthalmic drops</i> <i>Sig: 1 gtt OS q2h on day 1 and</i> <i>1 gtt q4h on days 2 and 3</i> <i>Call physician if eye infection persists</i></p>		
Refills	<i>NR</i>	
<i>John Smith</i>		M.D.
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00000320		

Prescription 15

<p>Dr. John Smith, M.D. 739 Stockton Street, Waltham, MA 02454 Tel: (781) 333-2121 Fax: (781) 734-6340</p>			
Name	<i>Richard Stallman</i>	Date	<i>7-21-2010</i>
Address		Age	Wt/Ht
<p>R <i>Sinemet 25/100</i> Disp: #180 Sig: # PO TID</p>			
Refills	<i>5</i>		
<i>John Smith</i>		M.D.	M.D.
Product Selection Permitted	Dispense As Written		
DEA No. _____			
Prescription No.: 00000322			

Prescription 16

<p>Dr. Andrew Yountz, M.D. 888 NW 27th Ave., Miami, FL 98885 Tel: (247) 555-6613 Fax: (247) 555-6340</p>			
Name	<i>Barbara Erickson</i>	Date	<i>7-21-2010</i>
Address		Age	Wt/Ht
<p>R <i>Imitrex 25 mg tab</i> Disp: #9 Sig: i q6h prn migraine</p>			
Refills	<i>6</i>		
<i>Andrew Yountz</i>		M.D.	M.D.
Product Selection Permitted	Dispense As Written		
DEA No. _____			
Prescription No.: 00006327			

Prescription 17

Dr. Andrew Yountz, M.D. 888 NW 27th Ave., Miami, FL 98885 Tel: (247) 555-6613 Fax: (247) 555-6340		
Name <i>Kurt Thomas</i>	Date <i>7-21-2010</i>	
Address	Age	Wt/Ht
<i>R Oph Sol: Trusopt 2%</i> <i>Sig: 1 gtt ou TID</i>		
Refills <i>6</i>		
<i>Andrew Yountz</i> M.D. M.D.		
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00006328		

Prescription 18

Dr. Andrew Yountz, M.D. 888 NW 27th Ave., Miami, FL 98885 Tel: (247) 555-6613 Fax: (247) 555-6340		
Name <i>Tamia Beltram</i>	Date <i>4-19-2010</i>	
Address	Age	Wt/Ht
<i>R Fosamax 70 mg</i> <i>Disp: #4</i> <i>Sig: 1 tab weekly</i>		
Refills <i>PRN</i>		
<i>Andrew Yountz</i> M.D. M.D.		
Product Selection Permitted	Dispense As Written	
DEA No. _____		
Prescription No.: 00006329		

ISMP's List of Error-Prone Abbreviations, Symbols, and Dose Designations

The abbreviations, symbols, and dose designations found on the following tables have been reported to the Institute for Safe Medication Practices (ISMP) through the ISMP Medication Error Reporting Program (MERP) as being frequently misinterpreted and involved in harmful medication errors.

According to the ISMP they should NEVER be used when communicating medical information. This includes internal communications, telephone/verbal prescriptions, computer-generated labels, labels for drug storage bins, medication administration records, as well as pharmacy and prescriber computer order entry screens. The truth is that all the items we are about to discuss ARE ACTUALLY USED and with that in mind we should look over these to help us not make errors in interpreting these abbreviations.

Abbreviations	Intended Meaning	Misinterpretation	Correction
µg	Microgram	Mistaken as “mg”	Use “mcg”
AD, AS, AU	Right ear, left ear, each ear	Mistaken as OD, OS, OU (right eye, left eye, each eye)	Use “right ear”, “left ear”, or “each ear”
OD, OS, OU	Right eye, left eye, each eye	Mistaken as AD, AS, AU (right ear, left ear, each ear)	Use “right eye”, “left eye”, or “each eye”
BT	Bedtime	Mistaken as “BID” (twice daily)	Use “bedtime”
cc	Cubic centimeter	Mistaken as “u” (units)	Use “mL”
D/C	Discharge or discontinue	Premature discontinuation of medications if D/C (intended to mean “discharge”) has been misinterpreted as “discontinued” when followed by a list of discharge medications	Use “discharge” and “discontinue”
IJ	Injection	Mistaken as “IV” or “intrajugular”	Use “injection”
IN	Intranasal	Mistaken as “IM” or “IV”	Use “intranasal” or “NAS”
HS	Half-strength	Mistaken as bedtime	Use “half-strength” or “bedtime”
hs	At bedtime, hours of sleep	Mistaken as half-strength	
IU	International unit	Mistaken as IV (intravenous) or 10 (ten)	Use “units”
o.d. Or OD	Once daily	Mistaken as “right eye” (OD – oculus dexter), leading to oral medications administered in the eye	Use “daily”

Abbreviations	Intended Meaning	Misinterpretation	Correction
OJ	Orange juice	Mistaken as OD or OS (right or left eye); drugs meant to be diluted in orange juice may be given in the eye	Use “orange juice”
Per os	By mouth, orally	The “os” can be mistaken as “left eye” (OS – oculus sinister)	Use “PO,” “by mouth,” or “orally”
q.d. Or QD	Every day	Mistaken as q.i.d., especially if the period after the “q” or the tail of the “q” is misunderstood as an “i”	Use “daily”
qhs	Nightly at bedtime	Mistaken as “qhr” or every hour	Use “nightly”
qn	Nightly or at bedtime	Mistaken as “qh” (every hour)	Use “nightly” or “at bedtime”
q.o.d. or QOD	Every other day	Mistaken as “q.d.” (daily) or “q.i.d.” (four times daily) if the “o” is poorly written	Use “every other day”
q1d	Daily	Mistaken as q.i.d. (four times daily)	Use “daily”
q6PM, etc.	Every evening at 6 PM	Mistaken as every 6 hours	Use “daily at 6 PM” or “6 PM daily”
SC, SQ, sub q	Subcutaneous	SC mistaken as SL (sublingual); SQ mistaken as “5 every;” the “q” in “sub q” has been mistaken as “every”	Use “subcut” or “subcutaneously”
ss	Sliding scale (insulin) or ½ (apothecary)	Mistaken as “55”	Spell out “sliding scale;” use “one-half” or “½”
SSRI	Sliding scale regular insulin	Mistaken as selective-serotonin reuptake inhibitor	Spell out “sliding scale (insulin)”
SSI	Sliding scale insulin	Mistaken as Strong Solution of Iodine (Lugol's)	
i/d	One daily	Mistaken as “tid”	Use “1 daily”
TIW or tiw	3 times a week	Mistaken as “3 times a day” or “twice in a week”	Use “3 times weekly”

Abbreviations	Intended Meaning	Misinterpretation	Correction
U or u	Unit	Mistaken as the number 0 or 4, causing a 10-fold overdose or greater (e.g., 4U seen as “40” or 4u seen as “44”); mistaken as “cc” so dose given in volume instead of units (e.g., 4u seen as 4cc)	Use “unit”
Dose Designations and Other Information	Intended Meaning	Misinterpretation	Correction
Trailing zero after decimal point (e.g., 1.0 mg)	1 mg	Mistaken as 10 mg if the decimal point is not seen	Do not use trailing zero for doses expressed in whole numbers
No leading zero before a decimal point (e.g., .5 mg)	0.5 mg	Mistaken as 5 mg if the decimal point is not seen	Use zero before a decimal point when the dose is less than a whole unit
Drug name and dose run together (especially problematic for drug names that end in “l” such as Inderal40 mg; Tegretol300 mg)	Inderal 40 mg Tegretol 300 mg	Mistaken as Inderal 140 mg Mistaken as Tegretol 1300 mg	Place adequate space between the drug name, dose, and unit of measure

Dose Designations and Other Information	Intended Meaning	Misinterpretation	Correction
Numerical dose and unit of measure run together (e.g., 10mg, 100mL)	10 mg 100 mL	The “m” is sometimes mistaken as a zero or two zeros, risking a 10- to 100-fold overdose	Place adequate space between the drug name, dose, and unit of measure
Abbreviation such as mg. or mL. With a period following the abbreviation	mg mL	The period is unnecessary and could be mistaken as the number 1 if written poorly	Use mg, mL, etc. without a terminal period
Large doses without properly placed commas (e.g., 100000 units; 1000000 units)	100,000 units 1,000,000 units	100000 has been mistaken as 10,000 or 1,000,000; 1000000 has been mistaken as 100,000	Use commas for dosing units at or above 1,000, or use words such as 100 “thousand” or 1 “million” to improve readability
Drug Name Abbreviations	Intended Meaning	Misinterpretation	Correction
ARA A	vidarabine	Mistaken as cytarabine (ARA C)	Use complete drug name
AZT	zidovudine (Retrovir)	Mistaken as azathioprine or aztreonam	Use complete drug name
CPZ	Compazine (prochlorperazine)	Mistaken as chlorpromazine	Use complete drug name
DPT	Demerol-Phenergan-Thorazine	Mistaken as diphtheria-pertussis-tetanus (vaccine)	Use complete drug name
DTO	Diluted tincture of opium, or deodorized tincture of opium (Paregoric)	Mistaken as tincture of opium	Use complete drug name
HCl	Hydrochloric acid or hydrochloride	Mistaken as potassium chloride (the “H” is misinterpreted as “K”)	Use complete drug name unless expressed as salt of drug

Drug Name Abbreviations	Intended Meaning	Misinterpretation	Correction
HCT	hydrocortisone	Mistaken as hydrochlorothiazide	Use complete drug name
HCTZ	hydrochlorothiazide	Mistaken as hydrocortisone (seen as HCT250 mg)	Use complete drug name
MgSO₄	magnesium sulfate	Mistaken as morphine sulfate	Use complete drug name
MS, MSO₄	morphine sulfate	Mistaken as magnesium sulfate	Use complete drug name
MTX	methotrexate	Mistaken as mitoxantrone	Use complete drug name
PCA	procainamide	Mistaken as patient controlled analgesia	Use complete drug name
PTU	propylthiouracil	Mistaken as mercaptopurine	Use complete drug name
T3	Tylenol with codeine No. 3	Mistaken as liothyronine	Use complete drug name
TAC	triamcinolone	Mistaken as tetracaine, adrenalin, cocaine	Use complete drug name
TNK	TNKase	Mistaken as “TPA”	Use complete drug name
ZnSO₄	zinc sulfate	Mistaken as morphine sulfate	Use complete drug name
Stemmed Drug names	Intended Meaning	Misinterpretation	Correction
“Nitro” drip	Nitroglycerin infusion	Mistaken as sodium nitroprusside infusion	Use complete drug name
“Norflox”	norfloxacin	Mistaken as Norflex	Use complete drug name
“IV Vanc”	intravenous vancomycin	Mistaken as Invanz	Use complete drug name
Symbols	Intended Meaning	Misinterpretation	Correction
ʒ	Dram	Symbol for dram mistaken as “3”	Use metric system
♏	Minim	Symbol for minim mistaken as “mL”	
x3d	For three days	Mistaken as “3 doses”	Use “for three days”

Symbols	Intended Meaning	Misinterpretation	Correction
> and <	Greater than and less than	Mistaken as opposite of intended or intended; mistakenly use incorrect symbol; “<10” mistaken as “40”	Use “greater than” or “less than”
/ (slash mark)	Separates two doses or indicates “per”	Mistaken as the number 1 (e.g., “25 units/10 units” misread as “25 units and 110 units”)	Use “per” rather than a slash mark to separate doses
@	At	Mistaken as “2”	Use “at”
&	And	Mistaken as “2, 3, 4, or 8”	Use “and”
+	Plus or and	Mistaken as “4”	Use “and”
°	Hour	Mistaken as a zero (e.g., q2° seen as q 20)	Use “hr,” “h,” or “hour”

Worksheet 8-3

Name:

Date:

Match the following abbreviations with their English translations.

		Route
1)	_____ a.d.	a. by mouth
2)	_____ a.s.	b. by nebulizer
3)	_____ a.u.	c. each ear
4)	_____ IM	d. each eye
5)	_____ IV	e. intramuscular
6)	_____ IVP	f. intravenous
7)	_____ IVPB	g. intravenous push
8)	_____ KVO	h. intravenous piggyback
9)	_____ n.g.t.	i. keep vein open
10)	_____ n.p.o.	j. left ear
11)	_____ nare	k. left eye
12)	_____ o.d.	l. naso-gastric tube
13)	_____ o.s.	m. nostril
14)	_____ o.u.	n. nothing by mouth
15)	_____ per neb	o. rectally
16)	_____ p.o.	p. right ear
17)	_____ p.r.	q. right eye
18)	_____ p.v.	r. subcutaneously
19)	_____ SC, SQ	s. sublingually
20)	_____ S.L.	t. topically
21)	_____ top.	u. vaginally

Form

- | | |
|-------------------------|--------------------------|
| 22) _____ amp | a. ampule |
| 23) _____ aq, aqua | b. capsule |
| 24) _____ caps | c. cream |
| 25) _____ cm. | d. elixir |
| 26) _____ elix. | e. liquid |
| 27) _____ liq. | f. ointment |
| 28) _____ sol. | g. slow/extended release |
| 29) _____ supp. | h. solution |
| 30) _____ SR, XR, XL | i. suppository |
| 31) _____ syr. | j. syrup |
| 32) _____ tab. | k. tablet |
| 33) _____ unguent, oint | l. water |

Measurement

- | | |
|------------------------|---------------------------------------|
| 34) _____ i, ii | a. a sufficient quantity |
| 35) _____ a.a. or aa | b. add sufficient quantity
to make |
| 36) _____ ad | c. add water up to |
| 37) _____ aq. ad | d. body surface area |
| 38) _____ BSA | e. cubic centimeter |
| 39) _____ cc | f. dilute |
| 40) _____ dil. | g. drops |
| 41) _____ f, fl. | h. fluid |
| 42) _____ fl. oz. | i. fluid ounce |
| 43) _____ g, G, gm | j. grain |
| 44) _____ gr. | k. gram |
| 45) _____ gtt | l. greater than |
| 46) _____ l, L | m. less than |
| 47) _____ mcg, μ g | n. liter |
| 48) _____ mEq. | o. microgram |
| 49) _____ mg | p. milliequivalent |
| 50) _____ ml, mL | q. milligram |
| 51) _____ q.s. | r. milliliter |
| 52) _____ q.s. ad | s. of each |
| 53) _____ ss | t. one, two, etc |
| 54) _____ tbsp., T | u. one-half |
| 55) _____ tsp., t | v. tablespoon |
| 56) _____ U | w. teaspoon |
| 57) _____ > | x. to, up to |
| 58) _____ < | y. unit |

Time

- | | |
|-----------------------|---------------------------------|
| 59) _____ a.c. | a. after meals |
| 60) _____ a.m. | b. around the clock |
| 61) _____ atc | c. as needed |
| 62) _____ b.i.d., bid | d. at bedtime |
| 63) _____ b.i.w., biw | e. before food, before
meals |
| 64) _____ h | f. each, every |
| 65) _____ h.s. | g. evening |
| 66) _____ p.c. | h. every __ hour(s) |
| 67) _____ p.m. | i. every day |
| 68) _____ p.r.n., prn | j. every other day |
| 69) _____ q.i.d., qid | k. four times a day |
| 70) _____ q | l. hour |
| 71) _____ q.d. | m. immediately |
| 72) _____ q-h | n. morning |
| 73) _____ qod | o. three time a day |
| 74) _____ stat | p. three times a week |
| 75) _____ t.i.d., tid | q. twice a day |
| 76) _____ t.i.w., tiw | r. twice a week |

Other

- | | |
|--------------------------|-------------------------|
| 77) _____ c | a. as directed |
| 78) _____ disp. | b. dispense |
| 79) _____ f, ft. | c. make, let it be made |
| 80) _____ neb | d. nausea and vomiting |
| 81) _____ n/v | e. nebulizer |
| 82) _____ NR | f. no refill |
| 83) _____ NS | g. normal saline |
| 84) _____ s | h. shortness of breath |
| 85) _____ Sig. | i. telephone order |
| 86) _____ SOB | j. verbal order |
| 87) _____ T.O. | k. with |
| 88) _____ ut dict., u.d. | l. without |
| 89) _____ V.O. | m. write, label |

Choose the best answer for the following multiple choice questions.

90) The directions for use of a medication are “gtt ii os bid.” The route of administration is:

- a) right eye
- b) left eye
- c) right ear
- d) left ear

91) The directions for use of a medication are “Tylenol 80 mg pr q6h prn.” What dosage form should be dispensed?

- a) chew tab
- b) syrup
- c) suppository
- d) enema

92) The directions for use are “Nitrostat 1/200 gr S.L. prn.” How should this medication be administered?

- a) In the left ear
- b) Very slowly
- c) Under the tongue
- d) Under the skin

93) Which of the following ways would be the best way for a physician to write a prescription for levothyroxine?

- a) levothyroxine .1 mg qam
- b) levothyroxine 0.100 mg qam
- c) levothyroxine .100 mg qam
- d) levothyroxine 0.1 mg qam

Answer the following questions.

94) Why is a physician supposed to avoid using the abbreviation “U” for units?

95) Why should physicians not use apothecary symbols when writing prescriptions?

96) Should you have a trailing zero after a decimal point? Why or why not?

97) Should you place a lead zero before a number that is less than one? Why or why not?