e-Perspectives

on the Medical Transcription Profession

Winter 2007
Issue 53

Contents

Published by Health Professions Institute
The Leader in Medical Transcription
Education and Reference Products

e-Perspectives

on the Medical Transcription Profession

Published by
Health Professions Institute
Modesto, CA

Winter 2007
Issue 53

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e-PERSPECTIVES on the Medical Transcription Profession (ISSN 1066-3533) is published periodically by Health Professions Institute, P.O. Box 801, Modesto, CA 95353-0801. Phone 209-551-2112, fax 209-551-0404. Send e-mail to **hpi@hpisum.com.** Web site: **http://www.hpisum.com.**

Address changes and updates may be made on-line at **http://www.hpisum.com/register.ihtml**, or by mail or fax to Health Professions Institute, P.O. Box 801, Modesto, CA 95353-0801, fax 209-551-0404.

This electronic magazine is available to the public on-line at the Health Professions Institute Web site: **http://www.hpisum.com**. Correspondence should be sent to **hpi@hpisum.com**, and manuscripts to Editor, ***e-Perspectives***, **spitman@hpisum.com**.

Winter Scenes

I'm writing this in the middle of January in the new year. It's winter, and bad weather has impacted the lives of millions in the past month or so, with blizzards halting travel, closing airports, cancelling flights and other travel plans, stranding passengers and others for days in airports and bus stations, and disasters hitting other parts of the country with tornadoes, freezes, floods, and power outages. All this makes us long for a winter escape to a tropical or exotic location like Hawaii or Rio de Janeiro. Even those of us who haven't suffered from inclement weather know many family members, friends, and colleagues who have, and seeing and hearing about it on TV, radio, and the Internet make it seem very close to us, no matter where we live. And the millions without electrical power have suffered even more.

The closeness we feel to others because of our up-to-date communications technology is eroded in a heartbeat when we lose electrical power. We are so connected through technology that, when our power goes off, we seem even more isolated than we did before we got used to having connectivity. Even a few experiences recently without e-mail, instant messaging, and Internet connections made me feel *alone* in a way that has changed my thinking about myself and my place in the world. Of course, we can *choose* to disconnect ourselves when the world is too much with us, but having the choice taken away from us through loss of power or connectivity is especially frustrating. My conclusion—we are so spoiled!

This is the 53rd issue of *Perspectives* magazine, which has evolved over 17 years of publication to its present electronic format. As an e-zine, ***e-Perspectives*** is now available to a wider audience of healthcare professionals who value the substantive original articles we publish. ***e-Perspectives*** is now available worldwide to anyone with an Internet connection. The PDF articles may be downloaded and printed by those who want a print copy for reference or sharing.

In this issue of *e-Perspectives,* Ellen Drake provides the second article in her series on "Learning Punctuation Through Pattern Recognition." This one focuses on complex sentences and subordinate clauses and is followed by a quiz for continuing education credit. (Answers to the exercise accompanying the first article in this series on compound sentences in April 2004 are also included. Readers can find the first article as a Free Download on the HPI Web site.)

Rich Lederer provides two columns on grammar and punctuation in this issue. In one of his Looking at Language columns, he makes us think of dangling participles in a new way, and his column on punctuation marks will provide a workout for the most astute practicing grammarians.

John H. Dirckx, M.D., deals directly with the new challenge of avoiding the use of error-prone abbreviations in medical transcription. He relates the historical context in which JCAHO and ISMP (Institute for Safe Medication Practices) developed a list of problematic abbreviations, acronyms, and symbols. Applying the rules often falls to the experienced medical transcriptionist, although JCAHO insists that the burden of compliance rests with the dictator. In the real world, MTs would respond, "Yeah, sure. Tell it to the docs!"

Four pages of terms in the What's New in Medicine column round out this issue. Many of the new terms will appear in the 11th edition of *Vera Pyle's Current Medical Terminology* (2007). Watch for additional information on the release date of the new edition.

Sally C. Pitman

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Learning Punctuation Through Pattern Recognition:

Complex Sentences and Subordinate Clauses

by Ellen Drake, CMT, FAAMT

The first installment of "Learning Punctuation through Pattern Recognition—Compound Sentences" appeared in the Spring 2004 issue of Perspectives. *(See* ***www.hpisum.com****, Free Downloads, for a copy of the previous article. Answers to the exercise accompanying that article appear at the end of this article.) This series of articles will show students how to recognize punctuation patterns to improve punctuation skills. With practice, students will also increase transcription speed. In order to receive benefit from these articles, students must know and easily recognize the parts of speech, especially nouns, verbs, conjunctions, and adverbs and be able to identify subject and predicate (verb). If the student is unable to do that, a remedial English course is recommended. Students may want to post the pattern boxes and dependent marker boxes near their work areas to reinforce their skills as they transcribe.*

Studying patterns in sentence structure enables medical transcriptionists to predict what's coming next and in doing so to punctuate "on the fly." There is generally little or no time on the job to go back over one's work for the purpose of finessing one's punctuation of a document. In the article on compound sentences, the pattern boxes helped the reader identify coordinating conjunctions, conjunctive adverbs, and transitional phrases in order to punctuate a compound sentence correctly. Another key element in recognizing patterns in compound sentences was the identification of a subject and a complete verb following the conjunction. In this article, we will look at subordinate clauses and complex sentences. In doing so, we will distinguish between essential or defining clauses and nonessential or nondefining clauses.

Definition of a Subordinate Clause

A subordinate (dependent) clause is a group of words containing a subject (which may be understood rather than explicitly stated) and a verb. A subordinate clause cannot stand alone; such a clause is dependent on the remainder of the sentence (an independent clause) for completeness of thought. A subordinate clause followed by a period is a sentence fragment, which is not the same as a clipped sentence (a subject for a later article). A subordinate clause functions as a single part of speech—a noun, an adjective, or an adverb—and is introduced by a subordinating conjunction, also called a dependent marker. See the box for a list of subordinating conjunctions which may introduce subordinate clauses.

A subordinate clause may precede or follow a main clause. Identifying several patterns of sentence structure, in addition to memorizing the list of dependent markers, will aid in recognizing dependent clauses.

Subordinating Conjunctions

after	so that
although	than
as	that
because	though
before	till
even if	unless
even though	until
how	when
however (rare)	whenever
if	where
in order that	whereas
once	wherever
provided that	whether
rather than	while
since	why

Complex Sentences

A complex sentence contains a main (independent) clause and at least one subordinate (dependent) clause.

Pattern 1

Example:
Because the patient had lost a considerable amount of blood at the scene of the accident, a transfusion was begun by the EMTs en route.

Pattern 2

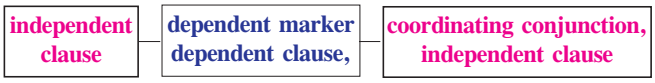
Example:
A transfusion was begun by the EMTs en route because the patient had lost a considerable amount of blood at the scene of the accident.

Note that when the subordinate clause precedes the main clause, it is followed by a comma; when it follows the main clause, no comma is used. An exception to this punctuation pattern is with relative clauses, where punctuation is dependent on whether the clause is essential or nonessential. Relative clauses will be discussed later.

Compound-Complex Sentences

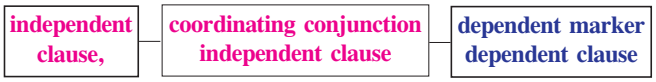
A compound-complex sentence contains at least two main clauses and at least one subordinate clause. The subordinate clause may precede or follow either (or both) of the main clauses.

Pattern 3



Example:
She was hesitant to go home because there was no help, and she is discharged to Florida Living Nursing Care.

Pattern 4



Example:
A biopsy forceps was placed through the second puncture site suprapubically, and biopsy was taken of the anterior uterine serosa where suspected endometriosis was felt to be present.

Note that patterns 4 and 5 may be combined with a dependent clause preceding and/or following either or both independent clauses.

Example:
Because there was no help at home, she was hesitant to be discharged home, so she is discharged to Florida Living Nursing Care where she will remain until she is able to care for herself.

The above example contains three dependent clauses (those starting with *because, where,* and *until*) and two independent clauses and is much more reflective of the way doctors actually dictate.

Relative Clauses

A relative clause is a specific type of dependent clause introduced by a relative pronoun. See relative pronoun box. Relative clauses may be considered essential (defining) or nonessential (nondefining). When we say that a clause is essential or defining, we mean that if it is removed from the sentence, some necessary information will be lost or the sentence will be g*rammatically incorrect*. Generally, an essential clause modifies a general noun, and a nonessential clause modifies a *specific* noun. Look at the two examples below.

Relative Pronouns

that	whom
which	whose
whichever	whosever
who	whomever
whoever	

The patient whom you sent over to my office on Wednesday never showed up.

Mr. Goodweather, whom you asked me to see in consultation, is cleared medically for orthopedic surgery.

In the first example, *patient* is a general noun. Without more specific information, it could refer to any number of people. Therefore, the dependent clause *whom you sent over to my office on Wednesday* is essential in order for the reader to know *which* patient. In the second example, Mr. Goodweather is a specific noun. We really don't need that additional information about him to know who he is, so the clause set off with commas is nonessential. Looked at another way, an essential clause makes a general noun *more specific*. It identifies, specifies, or particularizes a noun which, by itself, does not carry much information.

Like other dependent clauses, relative clauses may precede a main clause, follow a main clause, or interrupt a main clause. If a relative clause precedes a main clause, it is followed by a comma. If it follows a main clause, it will require a comma if it is nonessential. If it interrupts a clause, it should be set off by commas if nonessential. No punctuation is needed before an essential relative clause that follows a main clause nor should an essential relative clause that interrupts a sentence be set off by commas.

Pattern 5

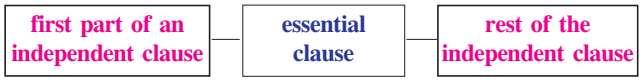
This pattern includes an independent clause with an embedded nonessential clause.

Example:
This 2-month-old male infant, **who is a known patient to our Lutz office,** was admitted on July 11, 2001.

The *who* clause is providing additional information but it is not essential to identification of the patient (the Lutz office handles lots of patients).

Pattern 6

This pattern includes an independent clause with an embedded essential clause.



Example:

Patients whose exacerbations of acute asthma require repeated admissions require frequent and careful followup to ensure compliance with treatment.

Without the clause beginning with *whose*, we do not know which patients require followup. The above discussion of essential and nonessential clauses could be applied to essential and nonessential phrases as well.

Test for Subordinate Clause

- It has at least one subject and one predicate.
- It is introduced by a subordinating conjunction or by a relative pronoun.
- When it stands alone, it does not express a complete thought or form a complete sentence.

Zero That-Clauses

When the relative pronoun *that* is the object of the verb within its relative clause, it is often omitted, even in formal speech and writing.

> We then mobilized the structures that we had previously marked with dye.

> We then mobilized the structures we had previously marked with dye.

> On his next visit the patient is to bring in all the medicines that he is currently taking.

> On his next visit the patient is to bring in all the medicines he is currently taking.

Note that these examples are clear and correct with or without the relative pronoun.

Misplaced Clauses

It is all too common in medical dictation for a dependent clause to get separated from the word it's modifying. Usually, misplaced clauses appear at the end of a sentence. When it's not possible or feasible to recast the sentence and put the clause in its proper place, it should be preceded by a comma to indicate that it is *not* modifying the immediately preceding word.

> There were some minor areas in the lower cervix and lower fundus, which were consistent but not diagnostic of filmy synechiae.

The dependent clause modifies *areas*, not *fundus*, and so is misplaced; thus, the comma before *which*. The sentence could be recast as follows:

> There were some minor areas which were consistent with but not diagnostic of filmy synechiae in the lower cervix and lower fundus.

Placed after the noun being modified, the relative clause becomes essential. Although many of us were taught that an essential relative clause should begin with *that*, the trend is to accept *which* clauses as essential or nonessential. I would transcribe as dictated.

Difficult to Classify

Sometimes, it's difficult to know to which sentence a dependent clause belongs. With which sentence would you include the italicized clauses in the following excerpts which were dictated with little or no auditory clues to where one sentence ended and the other begins?

> He returned to work at the factory with the approval of his physician and with restrictions on exposure to TDI, asbestos, carbon black, and other noxious inhalants *although he experienced no symptoms* while at work, he had chest pain and dyspnea that night, severe enough to require medical consultation.

> There is extremely dense, sheetlike retroareolar dysplasia present bilaterally *although there is no mammographic finding specific for malignancy* the presence of this severe dysplasia significantly increases patient's risk for developing malignancy.

I have had students who repeatedly punctuate a dependent clause as though it were a complete sentence. However, when I had the student read her transcript aloud to me, she would read right past the period to complete the sentence. With medical dictation, it's easy to "lose track" of a sentence and where the doctor is taking it. Until their skills improve, students should be encouraged to make a separate proofing run through their work just to check punctuation. With the above guidelines and those in the previous article on compound sentences, students should be able to scan for the "markers" that help to identify sentence structure and avoid comma splices, run-ons, and fragments.

Ellen Drake, CMT, FAAMT, is Development Editor for Health Professions Institute. She is also coauthor of the annual *Saunders Pharmaceutical Word Book*. She is a former medical transcription service owner, instructor, and practitioner with many years in the industry and has contributed to many medical transcription education and reference books. E-mail: **jehu54110@mypacks.net**.

Quiz on Subordinate Clauses

Underline the subordinate clauses in the following examples. If the clause is a relative clause, underline it twice. Some sentences may not contain a subordinate or relative clause.

1. She was draped appropriately and a retractor placed within the vagina where the cervix was grasped with a tenaculum and the uterus sounded to 7 cm.

2. The infant's major problem was hypoglycemia which was readily corrected using D10W IV fluids.

3. She is now asked to withdraw from the Disney program, Project Freedom, in lieu of being expelled for battery while being enrolled in the program.

4. It took several days before the glucose became normoglycemic.

5. The Cohen-Eder cannula was placed, and after we regowned and regloved and after draining the bladder with a Foley catheter, the abdomen was draped appropriately.

6. The uterus was irregular with two large grape-sized fibroids on the anterior uterine fundus, a 4-cm intraligamentary fibroid on the right side near the uterine cervix and lower uterine segment, and a couple of smaller fibroids which were present in a subserosal fashion.

7. Both tubes were normal but were extended up above the pelvic brim where the superior portions of the ovaries were positioned by short utero-ovarian ligaments.

8. Intravenous gentamicin and Ancef were used for antibiotic prophylaxis pre- and perioperatively because of the patient's suspected history of mitral valve prolapse.

9. The endometrial cavity was not particularly irregular although the lower uterine segment was definitely narrowed.

10. He feels, although the final nuclear reports are not back, that she is very stable and she probably does not have severe coronary artery disease and that there is no reason she cannot be discharged at this time.

11. If there are any problems, she can always call us, and we will be glad to see her until Dr. Allison Hanley is available again.

12. For his hyponatremia, the first day, he was given normal saline at 125 cc per hour because he appeared dehydrated; however, his sodium the next day had not corrected, and the patient was worked up, getting a serum osmolality which was 277 and below normal, normal being 80 to 285.

13. The patient is going to be discharged in the a.m. provided that his family can make appropriate arrangements for extended care for him.

14. A CEA was ordered, before the histologic diagnosis was known, and was 1.2.

15. Mr. Doe reported that his pain was intermittently severe.

16. Mr. Doe received a transfusion of leukocyte-depleted single-donor platelets because of presumed aspirin-induced platelet dysfunction.

17. A CT scan of the thoracic spine revealed the interval development, since the previous study from June 1 of a reported isodense fluid collection corresponding to the epidural abnormality noted on the MRI scan, interpreted as most consistent with a chronic epidural hematoma.

18. The left lower extremity was ordered to be elevated; however, heat was not applied because of the sensory loss associated with Mr. Doe's spinal cord compression.

19. She is known to be a 33-year-old female, gravida 9, para 2-0-0-7-2 with estimated date of confinement of July 7, 2001, who was admitted prematurely due to macrosomia and gestational diabetes which was controlled by diet.

20. On examination, she is in stable condition as we mentioned already.

21. The patient, while in the emergency room, remained quite combative and, hence, polypharmacy ingestion was suspected.

22. The patient is a 16-year-old adolescent who, on the evening of admission, went to a fence place which is a few blocks from her house.

23. CT brain was done, which was normal.

24. The patient also underwent a pregnancy test that was negative.

Prior approved for 1 CEC in the MT Tools category. Grade your quiz using the answer key provided and attach a copy of the completed, graded quiz to your CE Summary Form when you submit it at the end of your cycle.

25. Since the patient was awake enough, oral feeds were started and IV fluids were weaned.

26. The patient was seen by Dr. Allen, of Psychiatry, who felt that the patient just needed counseling, and there was no further intervention felt to be needed.

27. By June 12, Mr. Barker had moved his bowels, so the surgical drain was removed.

28. Daily monitoring of the PT and INR proved Mr. Doe to be extremely sensitive to Coumadin, requiring frequent dose reductions and even interruptions.

29. Because the infant has not been gaining very well, although he is gaining now, we are sending him home on 22-calorie formula which is what we were feeding him in the NICU.

30. While in the hospital, the patient underwent an echocardiogram, and this was interpreted by Dr. James C Smith.

For answers to the Subordinate Clauses quiz, see the next page.

Answers to Previous Exercise on Compound Sentences

"Learning Punctuation Through Pattern Recognition: *Compound Sentences," Perspectives*, Spring 2004. Available under Free Downloads at **http://www.hpisum.com/**

Which of the following sentences are compound sentences? Identify the subject, verb, and conjunction, *if* present, in each sentence. Is the conjunction a coordinating conjunction, a conjunctive adverb, or a transitional phrase? Which sentences belong in pattern 2, with no conjunction? Which sentences are *not* compound sentences? Internal punctuation has been omitted; you will need to supply a comma or semicolon as needed. (The simple subject is underscored, and the verb is in bold face type. Note punctuation in brackets.)

1. The patient **stated** that her headaches have been present off and on for many years**[,]** and they **are** unrelieved with the usual remedies.

   (Compound sentence with coordinating conjunction.)

2. The patient **says** he voids 15 times daily**[;]** he **voids** every 2 hours at night.

   (Compound sentence without a conjunction; the *he voids* in the first independent clause is the subject and verb of a clause acting as the object of the verb *says*; an omitted but understood *that* introduces the clause.)

3. The patient **has** a past history of cholecystitis with subsequent cholecystectomy**[;]** otherwise**[,]** her past medical history **is** negative.

   (Compound sentence with conjunctive adverb.)

4. The patient's insurance **requires** a second opinion**[,]** so she **was seen** by Dr. Jacobson**[,]** who concurred.

   (Compound sentence with a coordinating conjunction; the *who concurred* is a clause modifying Dr. Jacobson. Be careful of the conjunction *so*; sometimes when it's just a substitute for *as well* or *in addition to*, a careful writer would use a semicolon. For example: The patient's parents are both well; so are his brothers and sisters.)

5. There **was** no clinical evidence of fracture**[;]** however**[,]** because of continued pain**[,]** an x-ray **was ordered**.

   (Compound sentence with conjunctive adverb; *there* at the beginning of the sentence is an expletive and not the subject.)

6. Total cholesterol **was elevated[;]** HDL**[,]** however**[,] was** high**[,]** and LDL within normal limits.

   (Compound sentence without a conjunction. The comma and conjunction after *high* are not introducing another clause, although a verb is certainly understood. The comma, therefore, is added to emphasize the contrast of the HDL being high and the LDL within normal limits. Omission of this comma is not a serious error, if error at all. Note that *however* is just interrupting the thought, not introducing a clause.]

7. The dog **was removed** from the house with no change in the patient's symptoms**[;]** indeed**[,]** there **was** some progression of his symptoms.

   (Compound sentence with the second clause being introduced by a transitional word *indeed*.)

Prior approved for 1 CEC in the MT Tools category. Grade your quiz using the answer key provided and attach a copy of the completed, graded quiz to your CE Summary Form when you submit it at the end of your cycle.

Answers to Quiz on Subordinate Clauses

Subordinate clauses are in **red** and the relative clauses in **blue**.

1. She was draped appropriately and a retractor placed within the vagina **where the cervix was grasped with a tenaculum** and the uterus sounded to 7 cm.

2. The infant's major problem was hypoglycemia **which was readily corrected using D10W IV fluids.**

3. She is now asked to withdraw from the Disney program, Project Freedom, in lieu of being expelled for battery while being enrolled in the program.
   [There is no subordinate clause in this sentence.]

4. It took several days **before the glucose became normoglycemic.**

5. The Cohen-Eder cannula was placed, and **after we regowned and regloved** and after draining the bladder with a Foley catheter, the abdomen was draped appropriately.
   [Note the difference between the subordinate clause *after we regowned and regloved* and the phrase beginning *after draining*. There is no subject in the latter and *draining* is a gerund functioning as a noun.]

6. The uterus was irregular with two large grape-sized fibroids on the anterior uterine fundus, a 4-cm intraligamentary fibroid on the right side near the uterine cervix and lower uterine segment, and a couple of smaller fibroids **which were present in a subserosal fashion**.

7. Both tubes were normal but were extended up above the pelvic brim **where the superior portions of the ovaries were positioned by short utero-ovarian ligaments.**

8. Intravenous gentamicin and Ancef were used for antibiotic prophylaxis pre- and perioperatively because of the patient's suspected history of mitral valve prolapse.
   [This sentence does not have a subordinate or relative clause; there is no subject or verb following *because*.]

9. The endometrial cavity was not particularly irregular **although the lower uterine segment was definitely narrowed.**

10. He feels, **although the final nuclear reports are not back, that she is very stable** and **[that] she probably does not have severe coronary artery disease** and **that there is no reason she cannot be discharged at this time.**
    [This sentence has numerous subordinate clauses. A subordinate clause interrupts the verb in the independent clause and its objects—the three subordinate clauses that follow. An omitted *that* before *she probably* makes it appear that there are only two direct object clauses, but there are actually three. The *and* could be replaced with a comma after *stable*.]

11. **If there are any problems**, she can always call us, and we will be glad to see her **until Dr. Allison Hanley is available again.**

12. For his hyponatremia, the first day, he was given normal saline at 125 cc per hour **because he appeared dehydrated**; however, his sodium the next day had not corrected, and the patient was worked up, getting a serum osmolality **which was 277 and below normal**, normal being 80 to 285.

13. The patient is going to be discharged in the a.m. **provided that his family can make appropriate arrangements for extended care for him.**

14. A CEA was ordered **before the histologic diagnosis was known** and was 1.2.

15. Mr. Doe reported **that his pain was intermittently severe**.

16. Mr. Doe received a transfusion of leukocyte-depleted single-donor platelets because of presumed aspirin-induced platelet dysfunction.
    [There is no subordinate clause in this sentence.]

17. A CT scan of the thoracic spine revealed the interval development, since the previous study from June 1, of a reported isodense fluid collection corresponding to the epidural abnormality noted on the MRI scan, interpreted as most consistent with a chronic epidural hematoma.
    [This sentence does not contain a subordinate clause.]

18. The left lower extremity was ordered to be elevated; however, heat was not applied because of the sensory loss associated with Mr. Doe's spinal cord compression.
    [There is no subordinate clause in this sentence.]

19. She is known to be a 33-year-old female, gravida 9, para 2-0-0-7-2 with estimated date of confinement of July 7, 2001, **who was admitted prematurely** due to macrosomia and gestational diabetes **which was controlled by diet.**

20. On examination, she is in stable condition **as we mentioned already.**

21. The patient, while in the emergency room, remained quite combative and, hence, polypharmacy ingestion was suspected.
    [There is no subordinate clause in this sentence.]

22. The patient is a 16-year-old adolescent **who**, on the evening of admission, **went to a fence place which is a few blocks from her house**.
[There are two relative clauses here—*who went to a fence place* is modifying *adolescent* and *which is a few blocks from her house* is modifying *place*.

23. CT brain was done, **which was normal**.

24. The patient also underwent a pregnancy test **that was negative.**
[Here *that* is functioning as a pronoun with the entire clause modifying *test*. In sentences above where the *that clause* is in red, the clause is functioning as a direct object.]

25. **Since the patient was awake enough**, oral feeds were started and IV fluids were weaned.

26. The patient was seen by Dr. Allen, of Psychiatry, **who felt that the patient just needed counseling,** and there was no further intervention felt to be needed.
[The relative clause *who felt* is modifying Dr. Allen, and the subordinate clause *that the patient just needed counseling* is the object of the verb *felt*. It is difficult to say whether the clause beginning "there was no further . . ." is an independent clause or a second dependent zero that-clause and the second object of the verb *felt*. If a zero that-clause, no comma would be placed after counseling.]

27. By June 12, Mr. Barker had moved his bowels, so the surgical drain was removed.
[This is a compound sentence; there is no subordinate clause.]

28. Daily monitoring of the PT and INR proved Mr. Doe to be extremely sensitive to Coumadin, requiring frequent dose reductions and even interruptions.
[There is no subordinate clause in this sentence.]

29. Because the infant has not been gaining very well, **although he is gaining now**, we are sending him home on 22-calorie formula **which is what we were feeding him in the NICU.**
[The *what* clause is functioning as the object of the verb *is*, so it is a subordinate clause while the *which is* clause is relative.]

30. While in the hospital, the patient underwent an echocardiogram, and this was interpreted by Dr. James C Smith.
[There is no subordinate clause in this sentence.]

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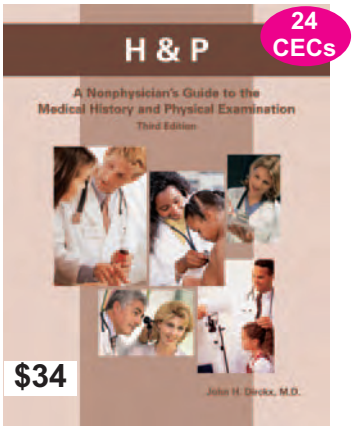

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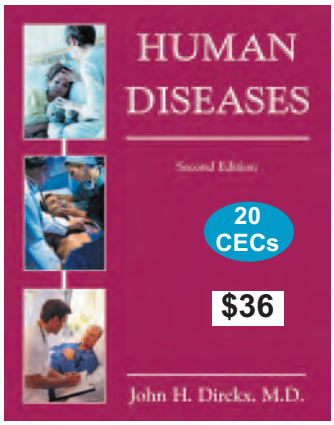

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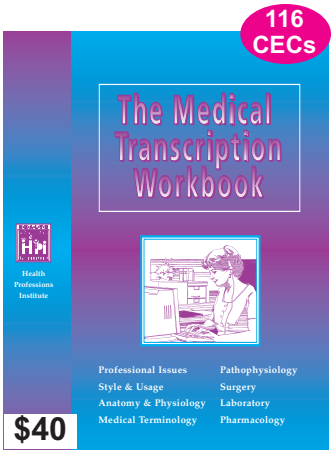

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Looking at Language

Don't Dangle Your Participles in Public

by Richard Lederer, Ph.D.

The very last blooper I was able to insert in my Anguished English was this one, which appeared in a major TV magazine in 1987: "Yoko Ono will talk about her husband John Lennon, who was killed in an interview with Barbara Walters."

Wait a minute. Was John Lennon actually killed during his encounter with Barbara Walters?

A few years later I found the following gem gleaming out from the *Boston Globe* TV section: "Former hostage Terry Anderson talks about five years of confinement in Beirut with Barbara Walters in a specially expanded segment of 20/20 at 10 on Channel 5."

Was Terry Anderson forced to spend five years with Barbara Walters?

Incredibly, an AP story that came my way a few years after that included this sentence: "The diving and amateur sports community was in shock Thursday following disclosure by diver Greg Louganis, who speaks freely of his contracting AIDS in a '20/20' interview with Barbara Walters to be broadcast by ABC tonight."

Oh, oh. Was Greg Louganis yet another victim of Barbara Walters? What is it about Barbara Walters, I ask myself, that causes people to dangle their participles in public?

I also ask myself: What is it about the American understanding of grammar that causes people to misplace their modifiers so habitually?

A misplaced modifier occurs when a modifying word, phrase, or clause is located too far away from that which it purports to describe. For example, in the sentence "He only died yesterday," we might ask, "Only died? What could be worse than that?" The statement is unambiguous if the *only* is relocated right next to yesterday: "He died only yesterday."

Misplaced modifiers cause the scaffolding of the sentences they afflict to be firmly planted on mid air. Or to switch the metaphor: Tuck in your shirt and tuck your modifiers securely into each sentence. In general, place modifiers as close as possible to the words they are supposed to modify.

Each of the following sentences has appeared in newspaper articles or student compositions, and each contains a misplaced or dangling modifier. Relocate or undangle each modifier.

1. Abraham Lincoln wrote the Gettysburg Address while traveling from Washington to Gettysburg on the back of an envelope.
2. Although irregular, we will consider your request.
3. Three cars were reported stolen by the Groveton police yesterday.
4. Using a Doppler ultrasound device, fetal heartbeats can be detected by the twelfth week of pregnancy.
5. Locked in a vault for fifty years, the owner of the jewels has decided to sell them.

Answers

1. While traveling from Washington to Gettysburg, Abraham Lincoln wrote the Gettysburg Address on the back of an envelope.
2. Although your request is irregular, we will consider it.
3. Yesterday the Groveton police reported the theft of three cars.
4. Using a Doppler ultrasound device, doctors can detect fetal heartbeats by the twelfth week of pregnancy.
5. The owner of the jewels that were locked in a vault for fifty years has decided to sell them.

Richard Lederer, Ph.D., is the author of more than 3,000 books and articles about language and humor. His syndicated column, "Looking at Language," appears in newspapers and magazines throughout the United States. His new title, *Comma Sense: A Fun-damental Guide to Punctuation*, with John Shore, is now available from St. Martin's Press. E-mail: **richard.lederer@pobox.com/**

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Short for Trouble: Perspectives on Error-Prone Abbreviations

by John H. Dirckx, M.D.

The illegibility of doctors' handwriting is one of the most pervasive and enduring elements of American folklore. But, unlike the spontaneous combustion of oily rags, the flatness of policemen's feet, and the intellectual deficiencies of blondes, this urban legend is firmly grounded in fact. Doctors really do write sloppily, and that has had, and continues to have, major implications for the profession of medical transcription.

A century ago, virtually all medical records were handwritten. Physicians entered histories, physicals, consultations, and operative reports as well as progress notes and orders in office or hospital records in longhand. Then as now, however, the specimens of doctors' handwriting most often seen by the laity were prescriptions, and it is chiefly through them that the medical profession has earned its public reputation for slovenly penpersonship.

It is significant, in this connection, that until about 1950 prescriptions were routinely composed in pharmaceutical Latin, a bastard dialect loosely based on the classical language and boiled down by tradition to a vast lexicon of abbreviations (a few of which survive to this day). In those days much of the difficulty experienced by a lay person in trying to interpret a prescription arose from the fact that it contained scarcely a word of English, rather than from messy handwriting. It was quite generally believed (not without some foundation) that physicians communicated with pharmacists in this murky cipher for the express purpose of keeping patients in ignorance of what medicines they were taking.

Although illegible handwriting is inexcusable in so critical a field as healthcare, it isn't inexplicable. Most physicians, whether in residency, private practice, or salaried position, run a perpetual race with the clock during their working hours. Time irrevocably lost in interviewing a garrulous or taciturn patient, performing a procedure where everything goes wrong, dealing with an emergency, or just handling an inopportune telephone call tends to be made up by various shortcuts, including the frenzied scribbling of medical records and orders.

The substitution of "hen tracks" for neat script, driven by chronic haste and by the brain-numbing routine of writing the same things many times every day, quickly becomes habitual. A physician's primary focus is, or ought to be, gathering and analyzing data and making therapeutic decisions in the best interests of each patient. By comparison, the duty to write tidily tends to recede into the background.

During the twentieth century, evolving standards of hospital practice led medical records committees to decree that certain components of the hospital record must be typewritten from physicians' dictation. No doubt many factors contributed to this development, including an ever-expanding and ever more diversified medical vocabulary and the availability of increasingly sophisticated machinery for recording dictation. But if doctors had been writing all along like schoolteachers, hospital administrators and others charged with oversight of healthcare activities would have had far less incentive to establish dictation and transcription as a norm.

As it became obvious that basic secretarial training was a hopelessly inadequate background for transcribing medical dictation, the profession of medical transcription was born. Today the majority of physicians no doubt view the dictation and transcription of medical records as a way to save time—their time—rather than as a method of improving the accuracy and utility of records by avoiding handwriting altogether and involving a second trained healthcare professional, the medical transcriptionist, in the process of their generation.

Problems

Although major components of hospital records as well as many physicians' clinic or office records are now routinely transcribed in print from dictation, outpatient prescriptions and orders entered in patients' hospital charts are still virtually always handwritten. Whereas ambiguity or downright error in the text of a history and physical or an operative report probably poses greater danger of legal trouble for the physician than of medical trouble for the patient, mistakes in the interpretation of handwritten drug orders and prescriptions constitute a colossal and scandalous blot on the quality of American healthcare.

The following definition of a **medication error** has been adopted by the National Coordinating Council for Medication Error Reporting and Prevention: *Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer*. This definition includes mistakes made by patients themselves but excludes adverse effects of drugs due to allergy, sensitivity, or idiosyncrasy when no error has been committed.

Approximately 1.3 million people are harmed each year in the United States by medication errors so defined. A study by the Institute of Medicine in 1999 placed the annual number of hospital deaths in the U.S. due to all errors between 44,000 and 98,000. Another report set the number of these deaths as high as 180,000 annually. It has been estimated that in inten-

sive care units (ICUs) the medication error rate is about 15% of all doses ordered.

Although medication errors can arise from many sources (choice of a wrong medicine or dose by a physician, incorrect dispensing of drugs by pharmacists, incorrect administration by nurses, improper product labeling and packaging), mistakes made by pharmacists in reading prescriptions and by nurses in reading drug orders in hospital charts account for an enormous number of adverse drug consequences and deaths each year.

The U.S. Food and Drug Administration (FDA) receives reports of medication errors from healthcare providers through MedWatch, its adverse event reporting program, as well as from from drug manufacturers, the publisher of the U.S. Pharmacopeia, and the Institute for Safe Medication Practices (ISMP). In an FDA study of fatal medication errors from 1993 to 1998, the most common error (41% of the total) was administration of the wrong dose. Giving the wrong drug and using the wrong route of administration each accounted for 16% of fatal events.

Because such statistics are based on reports of known harmful consequences, they don't reflect cases in which administration of the wrong drug or the wrong dose either caused no harm or remained undetected. The actual incidence of errors (known and unknown, harmful and innocuous) in which misreading of a handwritten order leads to administration of a drug or dose different from what was ordered could well be several times that shown in official statistics.

Analysis of known medication errors points to recurring problems in the reading of numerals and in the interpretation of a relatively small number of short forms (abbreviations, acronyms, and symbols). Every short form, regardless of the field to which it pertains, represents a sacrifice of intelligibility and specificity for the sake of saving time, space, or both. As an arbitrary equivalent of a fuller expression, an abbreviation may be unknown to many who are familiar with the fuller expression, and it may also happen to be identical to another abbreviation or acronym of entirely different purport. Thus, *MS* can stand for eith*er magnesium sulfate* or *morphine sulfate,* and *HS* can mean either *half strength* or *hora somni* (=*bedtime*).

Besides these inherently ambiguous abbreviations, which are equally problematic whether handwritten or in print, a second group of abbreviations have been identified as error-prone when handwritten with less than exemplary neatness. For example, a sloppy *U* can look like *0, 4,* or *cc*. *QD*, *QID*, and *QOD* can each be mistaken for one of the others. Certain symbols and marks of punctuation are easily misread even when written with care. For example, the virgule (/) is often mistaken for the numeral 1, the arrowhead (>) for the numeral 7. Numerals themselves, which constitute a special class of short forms, easily become ambiguous when crudely written.

In the metric system the prefix *micro-* means 'one millionth'. One thousandth of a millimeter (0.001 mm), being one millionth of a meter (0.000,001 m), is therefore designated a *micrometer*. For many decades the shorter form *micron* was routinely substituted for *micrometer*. The symbol chosen for this unit (at a time when no standard typewriter marketed in the English-speaking world had Greek letters) was the Greek letter *mu* (μ).

Today the majority of physicians no doubt view the dictation and transcription of medical records as a way to save time—their time—rather than as a method of improving the accuracy and utility of records by avoiding handwriting altogether and involving a second trained healthcare professional, the medical transcriptionist, in the process of their generation.

When, in the 1960s, the metric system was reborn as the International System of Units (SI, Système International d'Unités), *micron* was discarded as an alternative term for *micrometer*. But the alien symbol μ became the official abbreviation for the prefix *micro-*: μm = micrometer; μg = microgram; μmol = micromole. As a consequence of this ill-advised choice, μg (microgram) in drug orders has repeatedly been misread as *mg* (milligram), occasionally with fatal results. Moreover, medical transcriptionists who didn't have (or couldn't find) a Greek or symbol font on their computers have made a practice of substituting lowercase *u* for μ, another invitation to disaster.

Solutions

In 2001, ISMP published a list of problematic abbreviations, acronyms, and symbols that are inherently ambiguous or, when written by hand, potentially so. Two years later the Joint Commission on Accreditation of Healthcare Organizations (JCAHO or Joint Commission) launched a vigorous program to reduce medication errors and published its own list (abridged from the ISMP document) of error-prone short forms and symbols (see box, p. 16). The use of any of these was prohibited as of 1 January 2004 in hospitals, clinics, and other institutions subject to JCAHO oversight. The ban extended not only to handwritten orders and records but to printed material as well, including computer-generated reports and printed forms and documents.

The purpose of the latter stipulation was to purge selected error-prone abbreviations from the medical vocabulary altogether. Although printed *cc* isn't likely to be mistaken for *U*, the continued appearance of *cc* in print legitimizes and perpetuates that abbreviation, guaranteeing that it will continue to appear in handwritten materials as well. In view of the time and expense involved in replacing printed forms and in reprogramming computer software, compliance surveyors looked only at handwritten records during 2004 and 2005.

By now, most U.S. healthcare institutions that are subject to JCAHO surveillance have achieved moderately good compliance rates, and many have established standards that embody the original ISMP list. Some hospitals prohibit the

JCAHO List of Error-Prone Abbreviations and Other Brief Forms (reformatted)

Form	Meaning	Problem	Solution
AD	auris dextra (right ear)	Misread as OD.	Write "right ear."
AS	auris sinistra (left ear)	Misread as OS.	Write "left ear."
AU	auris utraque (each ear)	Misread as OU.	Write "each ear."
cc	cubic centimeter	Misread as U, 4.	Write "mL."
D/C	discharge *or* discontinue	Ambiguous.	Write "discharge" or "discontinue."
HS (H.S., h.s.)	half strength *or* hora somni (bedtime)	Ambiguous.	Write "half strength" or "at bedtime."
IU (I.U.)	international unit	Misread as IV or 10.	Write "international unit(s)."
MS	magnesium sulfate *or* morphine sulfate	Ambiguous.	Write "magnesium sulfate" or "morphine sulfate."
μg	microgram	Misread as mg.	Write "mcg" or "microgram."
OD	oculus dexter (right eye)	Misread as AD.	Write "right eye."
OS	oculus sinister (left eye)	Misread as AS.	Write "left eye."
OU	oculus uterque (each eye)	Misread as AU.	Write "each eye."
QD, q.d.	quaque die (every day)	Misread as QID or QOD.	Write "daily" or "every day."
QOD, q.o.d.	every other day	Misread as QD or QID.	Write "every other day."
QHS, q.h.s.	quaque hora somni (every night at bedtime)	Misread as QH.	Write "at bedtime."
TIW, t.i.w.	three times a week	Misread as TID.	Write "3 times weekly."
U	unit	Misread as 0, 4, cc.	Write "unit(s)."
Zero, leading	zero to left of decimal point	Without leading zero, decimal point can be missed.	Never omit leading zero. (0.5 cm; 0.25 mg; 0.1%; 0.5 mL)
Zero, trailing	zero to right of decimal point	Multiples number by 10 if decimal point is missed.	Never insert trailing zero.

use of any abbreviations whatsoever for drug names (e.g., HCTZ for hydrochlorothiazide), and most do not permit any abbreviations in informed consent forms.

As might be expected, physicians have been the source of most problems of noncompliance. Even those who have managed to overcome their normal resistance to change and have made efforts to improve their handwriting must still struggle daily against deeply ingrained habits. The abbreviation *q.d.* has proved to be the most difficult to eradicate from handwritten medication orders.

The second edition of *The AAMT Book of Style* (*BOS*), published in 2002, contains the ISMP list as Appendix B. The entry for *abbreviations* in *BOS* provides a rational and balanced set of guidelines for the professional medical transcriptionist. The following summary is not claimed to cover all the points made on this topic in the *Book of Style*.

1. Dictated metric or SI units accompanied by numerals are always abbreviated ("two centimeters" = 2 cm). These abbreviations are never followed by periods (except at the end of a sentence) and are never pluralized with *s*.

2. Commonly used and widely recognized brief forms (CBC, lab) may be transcribed when so dictated or may be expanded. (AAMT does not countenance routine expansion of dictated abbreviations as a means of increasing keystroke counts.)

3. When a less frequently used or ambiguous abbreviation is dictated, it is to be expanded when it first occurs, the abbreviation being placed in parenthesis after the full form: arteriosclerotic heart disease (ASHD). If the abbreviation is dictated again in the same document, it may be transcribed as such, except in a diagnosis or impression.

4. Acronyms and initialisms (GERD, PTCA) are never used in an entry headed DIAGNOSIS or OPERATIVE REPORT.

Problems with the Solutions

As often happens with brand-new rules and policies, some of the restrictions on abbreviations and other brief forms have turned out to be ill-conceived, while others have been widely misinterpreted.

The simplest of all punctuation marks, the period (**.**), also doing business as the decimal point, sometimes causes trouble in handwritten material by being misinterpreted as a comma or the numeral one, but more often by being overlooked altogether. Failing to observe a decimal point in a written numeral can lead to a catastrophe of logarithmic proportions.

In practice most of the problems with decimal points occur in conjunction with zeroes. In a decimal expression less than one, all meaningful numerals appear to the right of the decimal point. In order to prevent that decimal point from being overlooked, it is routine to precede it by a zero. Thus, 0.25 mg rather than .25 mg. The failure to insert the **leading zero** in handwritten drug orders has led to countless errors because the decimal point was overlooked.

[T]he Joint Commission's position . . . We would consider it inappropriate for a transcriptionist to interpret or speculate on the intended meaning of any dictation that is not clear. If a "do not use" term is used in the dictation and the dictation is clear, that term should be transcribed as spoken; not translated or edited into its presumed meaning. . . .

Conversely, the insertion of a zero to the right of the decimal point in the expression of an integer (whole number) multiplies that number by 10 if the decimal point happens to go unnoticed. Thus, for example, 5.0 units could be misread as 50 units. Moreover, placing a zero in the last place at any distance to the right of a decimal point risks misinterpretation: 2.50 mg could be mistaken for 250 mg.

The prohibition of the **trailing zero** is entirely reasonable in the context of medication errors, which are ISMP's and JCAHO's primary focus, and should be carefully observed by the medical transcriptionist in recording drug dosages. But medical transcriptionists have to deal with many kinds of numerals besides those pertaining to drug dosages, including laboratory test results, measures of length, weight, and volume, and even sums of money. With some of these, omitting one or more final zeroes to the right of the decimal point can seriously misrepresent a numerical value.

In physics and chemistry the number of decimal places (numerals to the right of the decimal point) reflects the precision of a measurement. If a laboratory test that is accurate to one thousandth of a milligram per liter (0.001 mg/L) happens to yield a result of exactly 7, the correct way to write that result is 7.000 mg/L. It is no more appropriate to round off a urine specific gravity of 1.010 to 1.01 than it is to write $12.50 as $12.5. **Clearly JCAHO's prohibition of the trailing zero refers only to drug dosages and not to test results or other kinds of measurement.**

ISMP (but not JCAHO) has created an awkward dilemma for physicians and medical transcriptionists by advising against using the **virgule** (/) in expressions of drug dosage or concentration. Recognizing that a handwritten virgule can easily be mistaken for the numeral one, ISMP recommends that physicians write the word *per* instead of using the virgule in these settings.

To the administrations of some institutions it has therefore seemed logical to require MTs to transcribe dictated "per" as the word *per* and, in fact, never to type a virgule. This blanket ruling overlooks several facts: the virgule is a standard component of mathematical notation, it has many meanings besides *per* in mathematics and especially in phar-

maceutical nomenclature, and the danger of its being mistaken in print for another mark is very much less than in manuscript.

The use of the virgule to express division (hence also fractions and concentrations) in mathematics, physics, chemistry, and other exact sciences is a centuries-old tradition. It remains an approved symbol for those applications in SI, alongside the alternative use of a negative exponent with the unit that would appear in the denominator if the quantity were expressed as a fraction (2.25 mmol/L = 2.25 mmol L^{-1}). The substitution of the latter format for the virgule in medicine will take many decades, if it ever occurs at all.

A virgule incorporated in the proprietary name of a drug can have any of several meanings:

1. *Actual individual doses of two components in a combination product*. Each tablet of Ortho-Novum 1/35 contains 1 mg of norethindrone and 35 mcg of ethinyl estradiol.

2. *The number of dosage units (tablets) of a certain strength*. A month's supply of Ortho-Novum 10/11 includes 10 white tablets with 0.5 mg of norethindrone and 11 peach tablets with 1 mg of norethindrone. A month's supply of Nortrel 7/7/7 contains 7 yellow, 7 blue, and 7 peach tablets, each color representing a different dose of norethindrone.

3. *The proportion (not absolute dose) of two components*. Humulin 70/30 contains 70% NPH insulin and 30% regular insulin (both in the standard concentration of 100 units/mL).

4. *Other*. Menomune A/C/Y/W-135 contains vaccines intended to stimulate immunity to those four types of meningococcus.

It is just as wrong to substitute *per* for the virgule in any of these expressions as it would be to transcribe the fraction *two thirds (2/3)* as *2 per 3*. Replacing the virgule with *per* is appropriate *only* when the mark indicates a proportion or concentration: 2.7 mmol/L does indeed mean "two point seven millimoles per liter" and 2.2 g/24 h means "two point two grams per twenty-four hours."

When Does 1 Not Equal 1?

The story of the liter is a skeleton in the metrologists' closet, an embarrassing chapter in an otherwise impressive record of scientific precision and social utility.

An often-overlooked consequence of the French Revolution was the establishment, in 1793, of a standardized system of weights and measures that came to be called the metric system and gradually achieved worldwide application. One of the original units in this system was the *liter* (French and British *litre*). Named for an obsolete French measure, the *litron*, and roughly equivalent to the English quart, the liter was officially defined as the volume of a cube whose sides are 10 cm or 0.1 m (thus, 1 liter = 1 cubic decimeter).

The unit of mass chosen for the metric system was the *gram* (French and British *gramme*), defined as the weight of one cubic centimeter of pure water. A simple calculation shows that a liter was thus, by definition, precisely the volume occupied by one kilogram of water. This worked out beautifully on paper, but when three-dimensional standards were constructed to provide official and permanent bases for reference and comparison, it was discovered that one liter actually occupied 1.000,028 cubic decimeters!

Physicists, chemists, and metrologists tolerated this discrepancy for more than a century. At length in 1901 the Third General Conference on Weights and Measures (Conférence Générale de Poids et Mesures, CGPM) sought to resolve the confusion by officially redefining the liter as the volume occupied by one kilogram of water, hence 1.000,028 cubic decimeters rather than exactly 1.000,000 cubic decimeter.

The progress of the physical sciences during the twentieth century created a demand for increasingly precise measurements. The adoption of SI during the 1960s brought metrology into the modern era, providing needed new units and new terminology while eliminating a number of awkward and outmoded concepts.

In SI the kilogram, not the gram, is the basic unit of mass. Officially the kilogram is the mass of a platinum-iridium bar preserved at the headquarters of the International Bureau of Weights and Measures in Paris. The gram is now simply defined as one thousandth of a kilogram.

In 1964 the Twelfth General Conference on Weights and Measures touched off a storm of controversy when it (1) redefined the liter as the volume of exactly one kilogram of water and then (2) rejected it as an official SI unit. The Conference condescendingly agreed to permit the continued use of the liter, thus defined, in trade and in scientific work of low precision (for example, clinical chemistry).

Because the discrepancy between the milliliter (mL) and the cubic centimeter (cc) is far too slight to affect the precision of drug doses or the results of clinical laboratory tests, these two units are virtually identical in medicine. As early as 1966, both the International Union for Pure and Applied Chemistry (IUPAC) and the International Federation of Clinical Chemistry (IFCC) officially chose the liter rather than the cubic meter (or its submultiple the cubic decimeter) as the preferred unit of volume in expressing concentrations. That's why SI concentrations in clinical chemistry are expressed as moles per liter (mol/L) instead of as kilomoles per cubic meter (kmol/m^3).

History Is Full of Dictators

Dictation and transcription have been going on for thousands of years.

To the general public the term *dictator* denotes an absolute or tyrannical ruler. In republican Rome the term referred to an interim public administrator appointed to lead the nation in time of war. The most celebrated example is Julius Caesar, who also achieved fame as another kind of dictator. According to one of the many anecdotes surrounding this larger-than-life figure, he could keep six or seven scribes busy at once while dictating a different letter to each one.

In ancient Egypt the scribes formed a literate elite. In cultures with a high rate of illiteracy, people who could read and write have carried on a brisk trade, from remote antiquity to the present, handling the correspondence of the peasantry and sometimes that of the nobility or royalty as well.

Countless shorthand methods have been developed throughout history to enable speech to be recorded on paper at the speed at which it is uttered. Besides rapidity of recording, shorthand takes up less space on the page and can be used as a cipher to protect confidential records or messages.

Shorthand was used by the ancient Egyptians, Hebrews, and Greeks. Tiro, the private secretary of the Roman statesman and orator Cicero, devised an early system that found use in military dispatches and in recording senate speeches and debates. Widely taught, Tironian shorthand eventually lost its value as a cipher but remained in use for more than a thousand years in administrative and ecclesiastical circles. The Latin word *notarius* 'shorthand writer' (literally 'maker of marks') is the source of English *notary* and French *notaire* 'lawyer'.

Shorthand systems developed for writing English include those of Timothy Bright (1588), John Willis (1602), Thomas Shelton (early 1600s), William Mason (1672), Thomas Gurney (1750), and John Byrom (1776). Willis called his method stenography, a term later extended to include all methods. The English naval administrator Samuel Pepys (1633-1703) wrote his celebrated diary in Shelton's shorthand. The fledgling writer Charles Dickens used the Gurney method to record parliamentary deliberations for the London *True Sun* in the 1830s. In the New World, both Benjamin Franklin and Thomas Jefferson used forms of shorthand.

Early shorthand methods were largely phonetic, providing a distinctive symbol for each distinctive speech sound. But many of them also incorporated abstract or conceptual elements. Most were so complicated that they required not only a knack for grasping and retaining such material but also prolonged and intensive study. During the nineteenth century the steady expansion of commerce and industry called for a shorthand method that could be learned quickly and used efficiently by persons of average intelligence. (In those days virtually all clerks and secretaries were men.)

In 1786 Samuel Taylor published a simpler form of shorthand based on Byrom's method. Samuel Pitman, a schoolmaster who favored a reformed phonetic spelling, further modified Taylor's shorthand and in 1837 published his own system, which he termed phonography. During the next several decades the Pitman system became the principal one for both court reporting and commercial applications.

John Robert Gregg, a native of Ireland, published his system in England in 1867. Although Gregg shorthand was easier to learn than Pitman's, it made little headway against the older method until Gregg brought it to the United States. By the 1920s, Gregg shorthand was by far the most widely taught and used in this country.

The invention of the stenotype machine by Ward Stone, an American, about a hundred years ago led to the eventual abandonment of shorthand for court reporting. Meanwhile, an even earlier invention had already begun to make shorthand writing obsolete for some other applications.

Thomas Edison's epoch-making invention of the mechanical phonograph took place in 1877. Although not blind to the possibility of recording musical and dramatic performances and the words of celebrated persons in their own voices for posterity, Edison recognized the poor fidelity of the early machines and envisioned his invention as primarily a boon to the commercial world. (The words *record* and *recording*, still used today, certainly have clerical rather than artistic connotations.) The earliest form of talking machine inscribed a helical groove in a layer of tin or copper foil wrapped around a wooden cylinder. Edison suggested that businessmen could now dispense with clerks and carry on their correspondence with nearly total privacy by dictating their letters to his machines and then *mailing the cylinders back and forth!*

The machine eventually marketed by the Edison Records Company was called the Ediphone. The name Dictaphone was trademarked by an American firm, the Columbia Graphophone Company, in 1907. In 1923 Dictaphone became a separate company. Early dictating machines were strictly mechanical and cut grooves in reusable cylinders covered with hard wax. Electronic microphones came into use during the 1930s, and cylinders were replaced successively by vinyl disks, vinyl bands, and magnetic tape.

Because JCAHO has included printed materials in its ban on certain short forms and symbols, many transcriptionists have been saddled by their employers with the responsibility of editing physicians' dictation to achieve compliance. However, involvement of MTs in the enforcement of rules on abbreviations has never been part of JCAHO policy, as is evident from the following statement by Richard J. Croteau, M.D., Executive Director for Patient Safety Initiatives, Joint Commission on Accreditation of Healthcare Organizations:

> [T]he Joint Commission's position concerning responsibility for compliance with National Patient Safety Goal #2B ("Do not use" abbreviations and other terms) is that the author is, in the first instance, responsible and, when an individual is unable or unwilling to comply with the requirements, it is the responsibility of the medical staff, in the case of physicians, and the healthcare organization, in the case of employed staff, to take appropriate action. "Author," in this context, includes a person who dictates documentation to be transcribed. We would consider it inappropriate for a transcriptionist to interpret or speculate on the intended meaning of any dictation that is not clear. If a "do not use" term is used in the dictation and the dictation is clear, that term should be transcribed as spoken; not translated or edited into its presumed meaning. If the dictation is not clear, then there must be a mechanism by which the originator can clarify it.

In standard MT practice, that mechanism is flagging the questionable abbreviation. Obviously an institutional rule or policy that forces medical transcriptionists to shoulder part of the burden of compliance with JCAHO standards on error-prone abbreviations is neither fair nor in keeping with the intent of JCAHO.

Those of us with gray hair and wrinkles remember that standard typewriters had no key for the numeral one, the lowercase ell serving that function. In many modern printing and computer fonts, lowercase ell, the numeral one, and capital eye are virtually identical. Hence even in print the abbreviation *l* (lowercase ell) for *liter* has frequently been mistaken for the numeral one.

For that reason, international metrologic authorities have long suggested the use of capital ell (*L*) for *liter* instead of lowercase *l*. Although that usage is now mandated by the U.S. Department of Commerce, in SI it remains only an acceptable alternative to the official lowercase *l*. (Indeed, the liter itself remains only an acceptable alternative to the cubic decimeter; see box, p. 18.) Lowercase *l* as an abbreviation for *liter* (also *ml* and *dl* instead of *mL* and *dL*) can still be seen in both handwritten and printed material, and in both media they are almost equally dangerous. It therefore seems odd that neither ISMP nor JCAHO included the lowercase ell as an abbreviation for *liter* in their lists of prohibited short forms.

At the beginning of this article I remarked that the sloppiness of doctors' handwriting has had, and continues to have, implications for MTs. Having virtually called the medical transcription profession into being during the later twentieth century, that same proclivity for messy handwriting now exerts a powerful influence on transcription practice with respect to abbreviations, numerals, and other short forms, as healthcare agencies and institutions seek ways to reduce medication and other errors resulting from misinterpretation of handwritten orders.

An association between advanced education and illegible handwriting seems to be a very old tradition. *Docti male pingunt*, says an ancient Latin scrap of wisdom: "Scholars scribble." I don't know how many physicians nowadays deserve the title of scholar, but I feel sure there is absolutely no danger that enough of them will ever write neatly enough to jeopardize the future of medical transcription as a profession.

John H. Dirckx, M.D., is the author of *Laboratory Tests and Diagnostic Procedures in Medicine* (2004), *Human Diseases*, 2nd ed. (2003), *H&P: A Nonphysician's Guide to the Medical History and Physical Examination*, 3rd ed. (2001), published by Health Professions Institute. He is an editorial consultant to the publisher of Stedman's medical reference books and medical editor of HPI publications.

Looking at Language

On Your Marks!

by Richard Lederer, Ph.D.

Punctuation developed after writing, not along with it as we might suppose. Early writing had no breaks between words and no punctuation. Some early texts were boustrophedon, which means "as the ox draws the plow." The words in these texts went from left to right and from right to left in alternating lines, much as oxen pull plows and modern high-speed printers print a page.

Fortunately, we who are writing and reading today have an army of punctuation marks arrayed against confusion and ready to clarify the messages we send and receive.

To take an inventory of your control of the marks from commas to semicolons, from quotation marks to parentheses, punctuate the sentences below. When you are finished, please look at the answers that follow and carefully read the explanations.

1. The Bible which is the central book in religious thought speaks of three virtues faith hope and charity and says the greatest of these is charity

2. Did James travel all the way to Concord New Hampshire to look for the Joneses first edition copy of the story The Tell-Tale Heart he asked

3. Did Julie really declare I refuse to make my bed and I shall never again wash dishes vacuum rugs or water plants asked Jenny

4. Although the school is again warning Mary its warned her many times before the brave wonderfully coordinated young woman wants to try out for the boys football team

5. Roosevelt brilliantly exploited the political situation by bringing together five have not entities the South which had lived for years in a state of chronic depression Roosevelt was to characterize it as the countrys number one economic problem the Roman Catholics who still formed a minority group in many parts of the country the blacks particularly those settled in the urban communities the Jews and the labor unions (from Brooks Lewis and Warren American Literature The Makers and the Making)

Answers

1. The Bible, which is the central book in religious thought, speaks of three virtues—faith, hope, and charity—and says that the greatest of these is charity.

[Commas to separate the nonrestrictive adjective clause; double dashes to set off compound appositive that contains commas for noun series.]

2. "Did James travel all the way to Concord, New Hampshire, to look for the Joneses' first-edition copy of the story 'The Tell-Tale Heart'?" he asked.

[Quotation marks for quotation; comma after New Hampshire, as well as before; apostrophe after Joneses; hyphen for first-edition as a compound adjective; single quotation marks for the short-story title set within double quotation marks; question mark outside the single quotation marks; period, not question mark, at end of sentence.]

3. "Did Julie really declare, 'I refuse to make my bed; and I shall never again wash dishes, vacuum rugs, or water plants!'?" asked Jenny.

[Quotation marks for quotation; single quotation marks within double quotation marks; semicolon before and to separate two independent clauses, one of which contains commas for the verb series; exclamation mark before single quotation mark ending quotation, and question mark before the double quotation mark; period, not question mark, at end of sentence.]

4. Although the school is again warning Mary (it's warned her many times before), the brave, wonderfully coordinated girl wants to try out for the boys' [or boys] football team.

[Parentheses for parenthetical sentence in the middle of a larger sentence; it's as a contraction; comma after second parenthesis to set off introductory adverb clause; comma for adjective series.]

5. Roosevelt brilliantly exploited the political situation by bringing together five have-not entities—the South, which had lived for years in a state of chronic depression (Roosevelt was to characterize it as the country's number one economic problem); the Roman Catholics, who still formed a minority group in many parts of the country; the blacks, particularly those settled in urban communities; the Jews; and the labor unions. (from Brooks, Lewis, and Warren, *American Literature: the Makers and the Making*)

[Hyphen for compound modifier; dash to set off compound appositive; commas to set off nonrestrictive adjective clauses; parentheses to set off parenthetical statement within the larger sentence; semicolons to set off series in which one or more noun phrase contains commas; commas for series of authors; book title italicized or underlined.]

Richard Lederer, Ph.D., is the author of more than 3,000 books and articles about language and humor. His syndicated column, "Looking at Language," appears in newspapers and magazines throughout the United States. His new title, *Comma Sense: A Fun-damental Guide to Punctuation*, with John Shore, is now available from St. Martin's Press. E-mail: **richard.lederer@pobox.com**

Update

What's New in Medicine

Accu-Chek LinkAssist—an insertion device intended specifically for placement of compatible Accu-Chek infusion sets.

Aequalis total shoulder prosthesis.

Anchron Plus anchor system—a biodegradable anchor system for use in soft tissue to bone fixation (e.g. for repair of ligament/tendon rupture or detachment), particularly in the shoulder, such as for rotator cuff and instability repairs (Bankart and SLAP lesions) as well as for repair of injuries in the elbow, ankle and knee. The high grade CP-Fiber suture is said to allow for superior handling properties and increased strength.

Anika cosmetic tissue augmentation ("CTA")—an injectable soft tissue filler for facial wrinkles, scar remediation and lip augmentation based on a proprietary chemically modified hyaluronic acid (HA) technology that incorporates lidocaine, a local anesthetic. Approved in Europe as Redefyne. Anika has received approval from the FDA but has not provided the trade name for a U.S. product.

Aperfix femoral implant with inserter—a surgical device for use with soft tissue grafts to provide tendon-to-bone fixation during arthroscopic or open ACL (anterior cruciate ligament) reconstruction procedures.

Aptima assay—see *Gen-Probe Aptima assay*.

Asahi Precious guide catheter—a catheter for use in coronary artery applications through which medical instruments, such as balloon catheters, guide wires or other therapeutic devices may be introduced. These devices are not intended for use in the cerebral vasculature.

Asahi PTCA guidewire.

Ascensia Breeze 2 blood glucose monitoring system.

Ascent pit and fissure sealant—a comprehensive light-cured system designed to fill and seal the pits and fissures of teeth.

ATB advanced PTA dilatation catheter.

Bard Collamend implant—a sterile, off-white sheet of lyophilized acellular porcine dermal collagen and its constituent elastin fibers, processed to remove all noncollagenous cellular components and cross-linked to increase strength and endurance. The implant is indicated to reinforce soft tissue where weakness exists, e.g., for repair of hernia and chest wall defects, and for the surgical repair of damaged or ruptured soft tissue membranes.

BioHorizons ceramic abutment—a prosthetic restorative component intended for use with BioHorizons dental implants.

Captique—a non-animal-based dermal filler reported to cause less bruising and swelling than Restylane. Its effects are reported by practitioners to last 4-6 months although the manufacturer claims it lasts for a year.

Chen bone harvestor (designed by Franklin Chen, M.D.).

CitraPure—an acid concentrate used for hemodialysis.

Clever Chek TD-4231 and TD-4223 blood glucose monitoring system.

Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) **scale**—a scoring system that assesses 10 common withdrawal signs. A score of 15+ points means the patient may be at increased risk of alcohol withdrawal effects such as confusion or seizures. For older adults, a score of more than 15 may mean a potential health crisis. The abbreviation may be pronounced as "see-wah."

Confidence fenestrated introducer needle.

Cozmo—see *Deltec Cozmo insulin infusion pump with CoZmonitor blood glucose module*.

Crystalens—a single-focus accommodating intraocular lens developed to address the loss of intermediate and near focusing ability. It is made from a proprietary and specially formulated solid silicone called Biosil. Hinges allow the lens to move, or accommodate, to focus on objects near, far and distances in-between.

CP-Fiber suture—see *Anchron Plus anchor system.*

Dale Foley catheter holder—a device that stabilizes the indwelling catheter and helps reduce meatal irritation without restricting patient movement. Designed to secure the catheter anywhere along the tube or at the "Y" port, this holder minimizes catheter movement and is easy to rotate. The locking device's two interlocking tabs attach to the leg band and facilitate catheter traction.

Deltec Cozmo insulin infusion pump with CoZmonitor blood glucose module—the first all-in-one insulin pump and blood glucose monitoring system.

Dual-Innie (DI) **screws**. See *Expedium spine system*.

Eclipse total ankle implant—an implant intended for prosthetic replacement of the tibio-talar joint in patients affected with severe rheumatoid, post-traumatic, or degenerative arthritis and for revision of prior ankle surgery.

EmboGold Microspheres—spherical, hydrophilic, microporous beads which are colored to facilitate handling and procedural efficiency. They eliminate aggregation in the

Update

catheter, unwanted proximal embolization, and unpredictable distal embolization due to particle fragmentation that can occur with other embolization products.

EnSeal vessel sealing instrument.

Excita total hip system—a total hip system designed for use with robotic surgery. The Excita total hip 36-mm diameter head is offered in three different head lengths.

Expedium spine system—a 5.5-mm rod-based system offered in both titanium and stainless steel. Both systems consist of polyaxial and monoaxial screws, hooks, expanded tab implants, and sacral extenders. The titanium system also includes Dual-Innie (DI) screws, providing independent locking technology.

FMP coated spiked acetabular cup—a hemispherical acetabular cup for use in patients who are candidates for total hip arthroplasty because the natural femoral head and neck and/or acetabulum have been affected by osteoarthritis, inflammatory arthritis, traumatic arthritis, rheumatoid arthritis, avascular necrosis or femoral neck fracture, and revision arthroplasty where bone loss is minimal.

Fore-Sight cerebral oximeter—a noninvasive device that measures absolute cerebral tissue oxygen saturation, which is important to clinicians because cerebral hypoxia is one of the leading causes of brain injuries and occurs in many surgical and clinical situations.

Gen-Probe Aptima assay for *Neisseria gonorrhoeae*—a laboratory test to aid in the diagnosis of gonococcal urogenital disease on endocervical, vaginal, and male urethral swab specimens and female and male urine specimens. There is also a Gen-Probe Aptima Combo2 assay for the detection of *Chlamydia trachomatis* and *N. gonorrhoeae* in urine specimens from men and women.

Glitzenstein implant—a soft silicone implant for calf augmentation for asymmetrical legs or aesthetic problems, placed over both heads of the gastrocnemius muscle or beneath the fascia cruris superficialis.

Halo^{90} coagulation catheter—part of a system for coagulation of bleeding and nonbleeding sites in the GI system.

Hensley/LaFosse soft tissue spreader (designed by R. Hensley and J. LaFosse).

Injekt low waste syringe.

InterDry Ag textile with silver complex—the first wound management product designed for skinfold areas. It is a knitted, 100% polyester textile impregnated with a silver complex designed to manage moisture, odor, and inflammation in skin folds and other skin-to-skin contact areas. After 5 days of use, patients are said to show reduced symptoms associated with intertrigo, maceration, denudement, itching, erythema, satellite lesions, and inflammation.

IPL (intense pulsed light).

I-Stop midurethral male/female sling—a suburethral sling implant for the treatment of male stress urinary incontinence post-prostatectomy and for females for the treatment of urinary stress incontinence due to intrinsic sphincter deficiency. It can be used with virtually any surgical approach including transvaginal, suprapubic and transobturator (outside-in and inside-out) techniques.

Jones mallet (designed by Dickie Jones, M.D.).

Juvéderm dermal filler—a non-animal-based dermal filler, currently with the highest concentration of hyaluronic acid available and made with a special formulation process resulting in a smooth gel as opposed to the gel particle suspension which can be visibly seen with other dermal fillers.

KLS-Martin Quick Disc—see *Quick Disc*.

Lawton double-ended Army-Navy retractor (designed by Jeffrey Lawton, M.D.).

Lawton double-ended Cobra retractor.

Lawton flexor tendon repair clamp.

Lewin small bone clamp.

Lombardi bone hooks (designed by Adolph V. Lombardi, Jr., M.D.).

Lombardi femoral/gluteus medius minimus retractor.

Lotke offset osteotome—an instrument designed to remove osteophytes from the posterior femoral condyles during knee arthroplasty (designed by Paul Lotke, M.D.).

Maxima anterior cervical plate system.

moulage technique ("moo-lahzh")—the custom design or fabrication of implants or prosthetics using molds or wax casts.

Netscher's score—a method for evaluating the cosmetic results of breast reconstructive surgery.

Novation splined RDD femoral stems.

OmniPICC P.I.—a percutaneous, implanted, long-term intravascular catheter.

Oncobionic system—a device for surgical ablation of soft tissue, including cardiac and smooth muscle.

on-Q PainBuster—a patient-controlled anesthesia pump to provide postoperative pain relief. Also, on-Q introducer, needle, catheter, trocar, blunt-tip tunneler, sheath.

Orthocon Hemasorb resorbable hemostatic bone putty.

Update

Orthofix titanium humeral plating system—a device for fixation of fractures, osteotomies and nonunion of the proximal humerus, particularly in osteopenic bone.

OrthoPro Hemi Toe—a single stemmed resurfacing prosthesis for the first proximal phalanx designed to supplement first metatarsophalangeal joint arthroplasty.

Ortho T. cruzi ELISA test system—the first blood-screening test for Chagas disease (trypanosomiasis) approved by the FDA for use in the U.S. Trypanosomiasis is caused by *Trypanosoma cruzi*.

Oscera7 synthetic absorbable bone wax—a kneadable, biocompatible material used for control of bleeding from cut or damaged bones by acting as a pressure tamponade or mechanical barrier.

OsteoMed pediatric intraoral mandibular distraction system.

PrimaConnex ceramic abutment—a device used in conjunction with the PrimaConnex internal connection implant system in partially or fully edentulous mandibles and maxillae, in support of single or multiple-unit cement retained restorations.

Proclear (Omafilcon A) **daily disposable/daily wear soft contact lens**.

ProDisc-L—the first motion-sparing disk implant alternative to fusion.

Propatch soft tissue repair matrix—a device used to reinforce soft tissues that can be used for vaginal prolapse. Developed from bovine pericardial tissue, ProPatch can also be used in the reconstruction of the pelvic floor and various other procedures involving soft tissue repair and reinforcement, including abdominal and chest wall repair, muscle flap reinforcement, and rectal prolapse.

PTQ implant—an implant for transdermal augmentation at multiple sites within the internal anal sphincter for the treatment of passive fecal incontinence, supplied in a treatment kit including three 2.5-mL PTQ implants and one implantation needle.

QuadraSphere Microspheres—spherical polymer beads indicated to treat hypervascularized tumors and peripheral arteriovenous malformations, delivered by radiologists who perform embolization procedures.

Quick Disc, KLS-Martin—a two-sided cranial closure device for use in the reattachment of cranial bone flaps after a craniotomy, covering burr holes, and fixation of cranial fractures. The lower disc is attached to a threaded post and the upper disc threaded down and locked on the post securely, holding the bone flap in place. Diameters range from 12 mm to 22 mm.

Rapirun *H. pylori* antibody detection kit—a rapid immunochromatographic assay used for the qualitative detection of anti-*H. pylori* IgG antibodies in the urine.

Remeex (EXternal MEchanical REgulation) **system**—a system for treatment of urinary incontinence which uses a sling placed under the urethra that can be regulated externally whenever needed during the patient's lifetime to get the most adequate bladder neck angle. The sling is connected by traction threads to the prosthesis. The prosthesis, the mechanism that permits the regulation of the sling level, is situated over the fascia of the abdominal rectus muscle. The procedure can be accomplished under local anesthesia through a single incision.

Restylane injection techniques

- **cross-hatching technique**—a technique in which a series of linear threads is injected into the dermis about 5-10 mm from each other and a new series of threads is then injected at right angles, and at slightly different levels, to the original lines for the shaping of facial contours.
- **fan technique**—a technique in which the needle is inserted in the same way as for linear threading, but at the end of the line the direction of the needle is changed and a new line is injected without withdrawing the tip of the needle from the skin, also for the shaping of facial contours. In this way a relatively large area can be covered by a fan of threads, while minimizing the number of puncture sites.
- **serial puncture technique**—a technique used for the correction of wrinkles and folds in which multiple injections are made serially along the wrinkle or fold, close together, so that there are no spaces between the injected material and the injections merge into a smooth, continuous line, which lifts the wrinkle. The treated area can be gently massaged to avoid possible spaces or visible unevenness.
- **linear threading technique**—a technique used for the correction of wrinkles, folds and lips by which the full length of the needle is inserted into the center of the wrinkle and the gel injected while pulling the needle slowly backwards, so that 'threads' of the gel are deposited lengthways in the wrinkle.
- **push-ahead technique**—a variation of the threading technique for lip enhancement. The needle is inserted gently through the lip mucosa close to the vermilion and gentle pressure exerted on the plunger. The needle tip is advanced using Restylane to dissect ahead of the tip, moving blood vessels out of the way, thus limiting bruising.
- **micropuncture technique**—a technique that involves injecting very small amounts or microdeposits of Restylane.

Restylane Vital injectable gel—a new form of Restylane.

Update

ReZoom multifocal intraocular lens—a permanent IOL for the treatment of both cataracts and presbyopia, designed to create multiple focal points so patients can see well at varying distances, near, mid-distance, or far. It contains five different zones with each zone designed for different light and focal distances.

Salto Talaris total ankle prosthesis—a total ankle replacement device in primary or revision surgery for the relief of pain and significant disability following arthritis, especially rheumatoid arthritis, and also for degenerative or post-traumatic arthritis.

SBi lateral rHead implant (Small Bone Innovations)—an elbow joint radial (hemi-elbow) polymer prosthesis.

"see-wah"—phonetic for CIWA (Clinical Institute Withdrawal Assessment for Alcohol) scale.

Serenity PSF (pneumatic skin flattening) **system**—a device which can be used with high energy lasers and intense pulsed light (IPL) to eliminate pain in cosmetic treatments. Its thin evacuation chamber, located on the handpiece of a treatment laser or IPL, is placed on the skin and air and gel evacuated from the chamber. The skin is compressed against the cover Sapphire window, blocking pain signals to the brain and pushing blood from the treatment site. The laser or IPL beam is transmitted through the more transparent skin and is not absorbed by blood vessels, increasing its effectiveness. Analgesic creams are not necessary. Waiting time and treatment costs are reduced.

show—the appearance of something that generally is not seen. Example: "The immediate postoperative problem of seroma and subcutaneous implant *show* has been minimized by ..." Also, the appearance of blood as a precursor to menstruation or labor.

Smithwick carotid shunt—a shunt used in carotid endarterectomy procedures.

Spectral West Nile virus IgM status test.

Stability sigmoid notch total DRUJ system—the only total distal radial-ulnar joint (DRUJ) replacement commercially available in the U.S. It replaces the sigmoid notch and ulna head in a conservative, bone-sparing procedure that restores the natural biomechanics of the wrist.

Tomas pin SD 6, 8, and 10 mm—a temporary anchor for various orthodontic appliances. The titanium pins are self-drilling micro-screws.

TOT (transobturator tape) **procedure**—a sling-type repair for stress urinary incontinence.

transcatheter embolization—the injection of tiny particles, the size of grains of sand, through a catheter and into the artery that supplies blood to a tumor. The particles cause clotting that decreases the tumor's blood supply, reducing pain and decreasing the likelihood of bone fracture. The technique may also be used to control hemorrhage or bleeding of blood vessels invaded by cancer. This procedure is generally performed by an interventional radiologist.

TSRH SiLo 5.5 spinal system—a set of spinal instrumentation rods and screws for use in trauma, tumor and deformity surgery. The sagittal adjusting screws (SAS) combine the correction of a fixed angle screw with the flexibility of a multi-axial screw, reducing the stress incurred on the bone during correction maneuvers. The system also features a one-handed "rock and roll reducer," a device that allows surgeons to use one hand in securing rods to pedicle screws and provides greater reduction than current systems.

TSRH-3D spinal instrumentation system—a system for the correction of lordosis or for partial correction of spondylolisthesis.

TVT (transvaginal tape) **procedure**—a midurethral sling for repair of stress urinary incontinence.

ViewSite brain access system—a video system for use during minimally invasive surgery that allows surgeons to view the internal surgical site and their hands simultaneously. A ViewSite brain access system provides neurosurgeons with precise access to the surgical site while allowing for binocular vision during the procedure and the monitoring of the underlying brain tissue, potentially reducing the risk of retraction injury and other complications that can occur when surgeons attempt to locate tumors utilizing traditional devices and instruments.

Vistakon (etafilcon A) **soft** (hydrophilic) **contact lens**.

yttrium-90 radioembolization—a procedure very similar to chemoembolization that uses radioactive microspheres to treat both primary and metastatic liver tumors. The radioactive isotope yttrium-90 is incorporated into embolic spheres, each about five red blood cells in width, to deliver radiation directly to the tumor. The beads are injected through a catheter into the artery supplying the tumor where they become lodged and exert local radiation that causes cell death. With this technique a higher, local dose of radiation can be used, sparing healthy tissue the effects of radiation. The procedure is palliative, not curative, and has been effective in treating primary and metastatic liver cancers.

Comments from SUM Program Teachers

"For years the SUM program has been the industry standard for medical transcription education, because of its use of real medical dictation with graduated levels of difficulty. Completely cleaned of demographic information, it is extensive, complete, and will prepare your students well for employment. It's affordable for student purchase, and it's available on CD now, too, to modernize your classroom beyond the use of those rickety, expensive old transcribers!"

Susan D. Dooley, CMT
Program Manager & Professor of Medical Transcription
Seminole Community College, Sanford, Florida

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Ann C. Barton, CMT
Adjunct Faculty
Riverside Community College
Riverside, California

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Scenario #1

SUM Program Best Practices - Sample Order

Students Own Dictation, Practice At Home: On-campus academic instruction but no transcription practice lab. Includes beginning, intermediate, and advanced training. Class size can be any number of students, though larger classes will qualify for larger discounts from publishers. Students buy all necessary books, software, and foot pedal. Reading and transcription practice are both completed at home. Assumes students have home PCs with Windows. Assumes transcript answer keys are unlocked or student has access to print transcripts in classroom. Allows student to progress at own pace and repeat transcription practice assignments until proficient.

Schools should purchase:

Beginning Medical Transcription, 2nd ed.	$700
Surgery Transcription Unit	$420
Advanced Medical Transcription	$840
H&P: A Nonphysician's Guide. . ., 3rd ed. *Human Diseases,* 2nd ed. *Laboratory Tests & Diagnostic Procedures* *The Medical Transcription Workbook*	One set included with initial purchase.
Foot pedal (USB $69; Game port $49)	$69
Textbooks from other publishers	$150 *
References from other publishers	$250 *
Cost to school for initial purchase of *SUM Program* software and a full set of books	$2500

* *Less if your school qualifies for discounts; ask each publisher.*

Students Purchase Through School Bookstore:

Beginning Medical Transcription, 2nd ed.	$60
Surgery Transcription Unit	$48 **
Advanced Medical Transcription	$95 **
Workbook bundle of following four books: *H&P: A Nonphysician's Guide. . .,* 3rd ed. *Human Diseases,* 2nd ed. *Laboratory Tests & Diagnostic Procedures* *The Medical Transcription Workbook*	$100
Foot pedal (USB $69; Game port $49)	$69
Textbooks from other publishers	$150 *
References from other publishers ***	
Total cost to student (Buy surgery and advanced CDs when needed.)	$525

* *Less if your school qualifies for discounts; ask each publisher.*
** *Purchase when needed, not at beginning of year.*
*** *Can use classroom references in some cases.*

Comments from SUM Program Teachers

"Those who train MTs know that providing quality educational tools is essential. We use ALL of **The SUM Program** *units because they offer quality authentic physician dictation with varying levels of difficulty. HPI products are an integral part of our quality educational program."*

Kathy Kropko, CMT, FAAMT
Director, M-TEC, Inc.

(Distance education school training hundreds of MTs per year. First school to be approved by AAMT/AHIMA.)

"I own a private occupational school and enjoy one-on-one contact with my students. I have trained around 200 students over the years with **The SUM Program**, *and have been so pleased with their employability and success in their new careers.* **The SUM Program** *is comprehensive, rigorous, and effective, and the staff at HPI has been very helpful to me. No question, HPI provides the highest quality training materials and provides excellent customer service!"*

Pamela Wagner, Owner/Director
MediTrans Pvt. Occupational School
Connecticut

If you teach medical transcription, offer your students the best opportunity for success on the job. Use the ***full range*** *of training tools recommended by the leaders in medical transcription training materials . . . Health Professions Institute.*

www.hpisum.com

"I've been so pleased with The SUM Program in our community college. I especially like the transcript answer keys, which the students use regularly to correct their work. Word is spreading throughout our community about our medical transcription program, and our students are getting jobs fast. Each semester I have more students than the previous one."

Scenario #2

SUM Program Best Practices - Sample Order

School Owns Dictation in Transcription Practice Lab: On-campus academic instruction and a transcription practice lab with 20 workstations. Transcription practice assignments are completed at school. Students buy all necessary textbooks, but use classroom references and *SUM Program* software in transcription lab. Includes beginning, intermediate, and advanced training. Assumes transcript answer keys are unlocked or student has access to print transcripts in transcription lab.

Schools should purchase:

Beginning Medical Transcription, 2nd ed.	$700
20 additional workstations at $60 each	$1200
Surgery Transcription Unit	$420
19 additional workstations at $48 each	$960
Advanced Medical Transcription	$840
19 additional workstations at $95 each	$1900
H&P: A Nonphysician's Guide. . ., 3rd ed. *Human Diseases,* 2nd ed. *Laboratory Tests & Diagnostic Procedures* *The Medical Transcription Workbook*	One set included with initial purchase.
20 Foot pedals (USB $69; Game port $49)	$1380
Textbooks from other publishers (teacher's set)	$150 *
References from other publishers (two sets)	$500 *
Cost to school for *SUM Program* software and foot pedals for 20 workstations, plus two full sets of reference books in transcription lab	$8050 **

* *Less if your school qualifies for discounts; ask each publisher.*
** *Average cost of $400/workstation; use year after year.*

Students Purchase Through School Bookstore:

Workbook bundle of following four books: *H&P: A Nonphysician's Guide. . .*, 3rd ed. *Human Diseases,* 2nd ed. *Laboratory Tests & Diagnostic Procedures* *The Medical Transcription Workbook*	$100
Textbooks from other publishers	$150 *
Total cost to student	$250

(All items should be purchased in the beginning.)

* *Less if your school qualifies for discounts; ask each publisher.*

Some students may still wish to purchase *SUM Program* CDs and a foot pedal for extra practice at home. Discounts on CDs are extended to schools only, so these purchases should go through your bookstore. Phone HPI at 209-551-2112 x 216 with any questions.

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