

The University of New Mexico

College of Pharmacy

PHARMACY 770

DRUG INFORMATION ADVANCED PHARMACY PRACTICE
EXPERIENCE

"IF THE WHOLE MATERICA MEDICA, AS NOW USED, COULD BE SUNK TO
THE BOTTOM OF THE SEA, IT WOULD BE ALL THE BETTER FOR
MANKIND, AND ALL THE WORSE FOR THE FISHES."

— OLIVER WENDELL HOLMES

I. Goal and Objectives.

- A. Goal. The goal of drug information instruction is to prepare a student to serve as an effective provider of drug information. An effective provider perceives, assesses and evaluates drug information needs and retrieves, evaluates, communicates and applies data from the published literature and other sources as an integral component of pharmaceutical care.

This goal is achieved through the completion of didactic and experiential courses as well as direct patient care experiences. This APPE is one element in the preparation of a student to be an effective drug information provider.

B. Objectives. Upon completion of this APPE a student will be able to:

1. demonstrate effective written and verbal communication skills.
2. describe the types and functions of commonly available drug information resources.
3. demonstrate proficiency in the use of commonly available drug information resources.
4. use a systematic approach to resolve drug information problems.
5. demonstrate efficient literature search strategies.
6. critically analyze and evaluate biomedical literature.
7. interpret and combine information from multiple sources into a concise written or verbal presentation.
8. apply appropriate drug information to patient care situations, recognizing that more than one resolution might be applicable.
9. assess the drug information resources and needs of his/her practice setting(s), as well as of the health professionals and consumers he/she supports.

II. Faculty.

- A. William G. Troutman, Pharm.D., FASHP (HSCL 130F, 272-1164, wtroutman@salud.unm.edu).
- B. Blaine E. Benson, Pharm.D., DABAT (HSCL 130B, 272-4261, jebenson@salud.unm.edu).

III. Description of Activities.

- A. Readings and group discussions. The required text for this APPE is: Gehlbach SH. Interpreting the medical literature. 5th ed. New York: McGraw Hill; 2006. Additional readings are posted on the course's e-reserve site. Reading assignments will be made several days in advance of the group discussion covering the material (see appendix A for complete reading list). During a group discussion, students will be expected to have read all of the assigned materials and to be prepared to serve as a discussion leader for the topic (see below). Each student will be evaluated for each discussion session with 2 points = meaningful contribution to the discussion, 1 point = present but less than full participation, and 0 points = absent or no contribution.
 - 1. As discussion leader, it is the student's job to:
 - a) identify the important concepts presented in the required reading.
 - b) determine if all members of the group understand and can apply these important concepts.
 - c) ask questions of the group.
 - d) ask open-ended questions of individual members of the group.
 - e) ask for examples other than those described in the reading.
 - f) identify areas of group weakness and form questions for the faculty.
 - 2. As discussion leader, it is not the student's job to:
 - a) lecture to the group.
 - b) summarize the reading.
 - c) answer all of the questions.
- B. Drug information questions. Students will receive and respond to drug information requests from health professionals and the public in the NMPDIC call center. Each student will sign up for five 2-hour blocks per week. No more than two students can sign up for the same 2-hour time block. The student-developed schedule will be posted on at least a weekly basis. While in the call center, students will be under the direct supervision of the pharmacist Specialists in Poison Information (SPIs) on duty at NMPDIC and will not provide any responses until they are approved by a supervising SPI. All questions, responses, and recommendations will be documented using the Toxicall[®] system. All responses will be the result of the student's most complete effort at resolving the inquiry. All calls will be recorded and monitored by APPE faculty. One call will be randomly selected and evaluated each week. The evaluation of this part of the APPE is presented in appendix B.

- C. Drug information projects. Each student will complete two drug information projects. All presentations and papers will be due at the times announced by Dr. Troutman or Dr. Benson. Late written or verbal presentations will be penalized by a 10% reduction in base score per late day (e.g., a verbal presentation that would receive a score of 26 if presented on time will receive a score of 23 if presented 1 day late [4 points lost subtracted from 27 points instead of 30]).
1. The first project will focus on an adverse drug event. Each student will prepare fully referenced written and verbal presentations regarding a selected ADE.
 - a) The student will conduct a thorough search of the biomedical information available at the University of New Mexico libraries and other campus resources to gather information on the selected ADE.
 - b) Whenever practicable, the student will utilize original information sources rather than abstracts, summaries, narrative reviews, or secondary citations.
 - c) The student will carefully evaluate the literature and will base the written and verbal presentations on the best available data. Emphasis should be placed on practical information such as the epidemiology, detection, assessment, management, and avoidance of the ADE.
 - d) Verbal presentations will not exceed 15 minutes in length. The presenting student will provide referenced, 1- or 2-page, outline-style handouts of the presentation for all in attendance.
 - e) The evaluation criteria for the verbal and written presentations are presented in appendices C and D.
 2. Within the first week of the APPE, each student will identify a drug information topic he/she wishes to research and evaluate. The topic cannot be one that the student has researched or presented before, cannot be one that has been previously presented by another student during their drug information APPE, and must be approved by Dr. Troutman or Dr. Benson. The topic will be presented as a fully referenced written paper and as a verbal presentation following the guidelines presented in this syllabus.
 3. Question regarding style can be answered by consulting: American Medical Association manual of style: a guide for authors and editors. 10th ed. New York: Oxford University Press; 2007. All reference citations will be numbered consecutively in the order of their appearance in the manuscript and, once numbered, a reference will continue to be cited by that number throughout the manuscript. Reference style will conform to the style recommended by the International Committee of Medical Journal Editors (appendix E).
- D. All written projects will conform to the following standards.
1. The paper will not exceed 8 pages in length (excluding references and search strategy).
 2. It will be printed on white, 8½×11 inch paper.
 3. Margins will be 1-inch all around. The body text will be double-spacing, except for the references, which will be single spaced.
 4. A conventional, serifed font will be used—no smaller than 10 point, no larger than 12. Reference citations will be superscripted.

5. A description of the search strategy, including search terms and results, will accompany each written project report as a separate document.
- E. UNM is compliant with the Americans with Disabilities Act. Qualified students with disabilities needing appropriate adjustments should contact Dr. Troutman or Dr. Benson as soon as possible to ensure that their needs are met in a timely manner.
- F. Confidentiality and academic integrity. The activities of this APPE will expose students to patient-specific information through cases handled by students and through the regular work of the NMPDIC being conducted while students are present. This information is confidential. All written work submitted by students will be their own work. Any plagiarism, breach of confidentiality, or other unprofessional behavior will be grounds for immediate disciplinary action consistent with the UNM and College of Pharmacy Student Codes of Conduct.
- IV. Grading. Student performance scores are available at any time and will be calculated according to the following plan (284 points total):

Discussion sessions	36 points (2 points/session)
Call responses	68 points (17 points/call)
ADR project	90 points (30 verbal and 60 written)
Drug information project	90 points (30 verbal and 60 written)

Assignment of final grades will follow to the following plan:

A = $\geq 90\%$ of available points (≥ 255 points)
B = $\geq 80\% < 90\%$ (227-254 points)
C = $\geq 70\% < 80\%$ (198-226 points)
D = $\geq 60\% < 70\%$ (170-197 points)
F = $< 60\%$ (< 170 points)

APPENDIX A – SCHEDULE AND ASSIGNED READING

date	topic	Gehlbach	other reading
	Introduction and orientation Info. source: Micromedex Healthcare Series		
	Tertiary information resources and exercises		“Useful Resources for Commonly Requested Drug Information”
	MEDLINE via PubMed	ch. 1, 2	
	Authorship Info. source: International Pharmaceutical Abstracts	none	International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals: writing and editing for biomedical publication. Oct 2004. (pg 1-10) Shapiro DW, Wenger NS, Shapiro MF. The contributions of authors to multiauthored biomedical papers. JAMA. 1994;271:438-42. Julliard K. Perceptions of plagiarism in the use of other authors’ language. Fam Med. 1994;26:356-60.
	Adverse drug events	none	Gharaibeh MN, Greenberg HE, Waldman SA. Adverse drug reactions: a review. Drug Inf J. 1998;32:323-38. Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients. A meta-analysis of prospective studies. JAMA. 1998;279:1200-5.
	Causality, case reports, case series Info. source: SciSearch	ch. 12, 245-58	“Causality Algorithms” Kelly WN, Arellano FM, Barnes J, Bergman U, Edwards IR, Fernandez AM, et al. Guidelines for submitting adverse event reports for publication. Drug Saf. 2007;30:367-73. Dodd MA, Dole EJ, Troutman WG, Bennahum DA. Minocycline-associated tooth staining. Ann Pharmacother. 1998;32:887-9. Benson BE, Mathiason M, Dahl B, Smith K, Foley MM, Easom LAJ, et al. Toxicities and outcomes associated with nefazodone poisoning: an analysis of 1,338 exposures. Am J Emerg Med. 2000;18:587-92.
	Case-control studies	ch. 3	Schultz KF, Grimes DA. Case-control studies: research in reverse. Lancet. 2002;359:431-4. Meier CR, Derby LE, Jick SS, Vasilakis C, Jick H. Antibiotics and risk of subsequent first-time acute myocardial infarction. JAMA. 1999;281:427-31.
	Cross-sectional studies	55-69	Levin KA. Study design III: Cross-sectional studies. Evid Based Dent. 2006;7:24-5. Sexton M, Althius MD, Santanello N, Hyndman S, Williams R, Schmeidler D. Sex differences in the use of asthma drugs: cross sectional study. BMJ. 1998;317:1434-7.
	Cohort and before-after studies	69-78	Grimes DA, Schultz KF. Cohort studies: marching towards outcomes. Lancet. 2002;359:341-5. Thapa PB, Gideon P, Cost TW, Milam AB, Ray WA. Antidepressants and the risk of falls among nursing home residents. N Engl J Med. 1998;339:875-82. A primer on before-after studies: evaluating a report of a “successful” intervention. Eff Clin Pract. 2002;5:100-1.

Patient selection in clinical trials Info. source: clinicaltrials.gov	79-88	<p>Cunney KA, Miller HW. Participation in clinical drug studies: motivations and barriers. <i>Clin Therap.</i> 1994;16:273-82.</p> <p>Patient refusers, nonqualifiers, dropouts, dropins, and discontinuers. In: Spilker B. <i>Guide to clinical trials.</i> New York: Raven Press; 1991. p. 235-41.</p> <p>Pablos-Méndez A, Barr RG, Shea S. Run-in periods in randomized trials. Implications for the application of results in clinical practice. <i>JAMA.</i> 1998;279:222-5.</p>
Clinical trials	88-110	<p>Randomized clinical trials. In: Riegelman RK. <i>Studying a study and testing a test.</i> 4th ed. Philadelphia; Lippincott Williams & Wilkins: 2000. p. 57-75.</p> <p>Moher D, Schulz KF, Altman D. The CONSORT statement: revised recommendations for improving the quality of reports of parallel-group randomized trials. <i>JAMA.</i> 2001;285:1987-91.</p>
Cross-over studies	none	<p>Selection from: Spilker B. <i>Guide to clinical trials.</i> New York: Raven Press; 1991.</p> <p>Cleare AJ, Heap E, Malhi GS, Wessely S, O'Keane V, Miell J. Low-dose hydrocortisone in chronic fatigue syndrome: a randomised crossover trial. <i>Lancet.</i> 1999;353:455-8.</p>
Interpretation of results	ch. 6-8	Rao G. Interpretation of confidence intervals. <i>J Fam Pract.</i> 2003;52:970.
Risk and harm		<p>Ross JF. Risk: where do real dangers lie? <i>Smithsonian.</i> 1997 Nov;26:42-53.</p> <p>Barratt A, Wyer PC, Hatala R, McGinn T, Dans AL, Keitz S, et al. Tips for learners of evidence-based medicine: 1. Relative risk reduction, absolute risk reduction and number needed to treat. <i>CMAJ.</i> 2004;171:353-8.</p>
Narrative and systematic reviews Info. sources: Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects	258-66	<p>Sauerland S, Seiler CM. Role of systematic reviews and meta-analysis in evidence-based medicine. <i>World J Surg.</i> 2005;29</p> <p>Zhang WY, Li Wan Po A. Efficacy of minor analgesics in primary dysmenorrhoea: a systematic review. <i>Br J Obstet Gynaecol.</i> 1998;105:780-9.</p>
Clinical practice guidelines Info. source: National Guideline Clearinghouse	none	<p>Shiffman RN, Shekelle P, Overhage JM, Slutsky J, Grimshaw J, Deshpande AM. Standardized reporting of clinical practice guidelines: a proposal from the Conference on Guideline Standardization. <i>Ann Intern Med.</i> 2003;139:493-8.</p> <p>Manoguerra AS, Erdman AR, Booze LL, Christianson C, Wax PM, Scharman EJ, et al. Iron ingestion: an evidence-based consensus guideline for out-of-hospital management. <i>Clin Toxicol (Phila).</i> 2005;43:553-70.</p>
Sponsorship and advocacy	none	<p>Stelfox HT, Chua G, O'Rourke K, Detsky AS. Conflict of interest in the debate over calcium-channel antagonists. <i>N Engl J Med.</i> 1998;338:101-6.</p> <p>Bodenheimer T. Uneasy alliance--clinical investigators and the pharmaceutical industry. <i>N Engl J Med.</i> 2000;342:1539-44.</p> <p>Deyo RA, Psaty BM, Simon G, Wagner EH, Omenn GS. The messenger under attack--intimidation of researchers by special-interest groups. <i>N Engl J Med.</i> 1997;336:1176-80.</p>

APPENDIX B
DRUG INFORMATION RESPONSE
SCORING SHEET

History

- _____ Active listening – Did not need to ask for information twice. (1-0)
- _____ Completeness – Obtained all essential information. (1-0)

Researching Answer

- _____ Focus on primary literature – When appropriate, the primary literature was used to develop response instead of relying only on secondary or tertiary literature. (2-0)

Written Documentation

- _____ Data coding – Case was properly coded according to NMPDIC guidelines. (1-0)
- _____ Completeness – All essential information was included in inquiry write-up. (2-0)
- _____ Referencing – Reference(s) were retrievable and appropriate. Citations were complete. (1-0)
- _____ Accuracy – Response was correct. (2-0)

Verbal Response

- _____ Completeness – All essential response information was communicated to client. (2-0)
- _____ Organization – Response was structured with a logical flow of information. (1-0)
- _____ Terminology – Information was communicated at an appropriate education level. (1-0)
- _____ Timeliness – Complete response occurred within a reasonable time period. (1-0)
- _____ Correlation to documentation – Verbal response correlated to written documentation. (1-0)

Courtesy

- _____ Courtesy – Courteous to client throughout interaction. (1-0)

_____ TOTAL POINTS (17 points possible)

Case Number _____

student's name _____

evaluator _____

APPENDIX C**EVALUATION OF WRITTEN DRUG INFORMATION PROJECT**

1. ____ Understanding of problem. (7, 4, 0)
 2. ____ Appropriate background information. (7, 4, 0)
 3. ____ References. (7, 4, 0)
 4. ____ Evaluation of available literature—technique. (9, 4, 0)
 5. ____ Evaluation of literature—interpretation of findings. (7, 4, 0)
 6. ____ Ability to reach a valid conclusion and resolve the problem. (9, 4, 0)
 7. ____ Organization of the written report. (7, 4, 0)
 8. ____ Writing technique. (7, 4, 0)
 9. ____ Search strategy (0, -1, -2)
- ____ TOTAL POINTS (60 points possible)

comments:

student's name _____

evaluator _____

WRITTEN DRUG INFORMATION PROJECT CRITERIA

1. Understanding of problem

Nature, scope, and importance of problem clearly presented and appreciated. (7 pts)

Nature, scope and importance of problem might be clear to writer but not clearly presented to reader. (4 pts)

Failed to define nature, scope or importance of problem or writer did not understand them. (0 pts)

2. Appropriate background information

Background information was appropriate to the level of the student's peers; essential concepts were included with no unnecessary material added. (7 pts)

Background information was appropriate to the level of the student's peers but not completely presented or extraneous material was included. (4 pts)

Background information was not presented or was inappropriate for the level and needs of the student's peers. (0 pts)

3. References

Paper was well referenced. Sources of all key information were clear. References were retrievable and in the required format. (7 pts)

Paper was referenced, but student failed to cite references consistently or references were not in required format. (4 pts)

There were many essential points for which references were not provided or the references were not retrievable. (0 pts)

4. Evaluation of available literature: technique

Student evaluated studies in terms of experimental design, protocol, instruments of measurement, and handling of results. Student contrasted data from different studies and made comparisons in a logical manner. (9 pts)

Student evaluated literature but did a less than complete job or either ignored or did not attempt to account for conflicting reports. Student mostly described more than evaluated studies. (4 pts)

Student failed to evaluate literature and simply presented results. Where conflicting data were reported, he/she did not attempt to analyze. (0 pts)

5. Evaluation of literature: interpretation of findings

Student presented data and interpreted clinical significance of results as they related to the assignment. Student reported assessments of literature concisely and did not include nonessential information. (7 pts)

Student did not present relevant data or reported on assessments that were not essential to the problem or student's apparent understanding of clinical significance was incomplete. (4 pts)

Student was unable to pick out essential issues and formulate an assessment; included extraneous information or student failed to evaluate to literature. (0 pts)

6. Ability to reach a valid conclusion and resolve the problem

Student was able to reach a valid conclusion based on and supported by a thorough evaluation of the available literature. Student reported this conclusion in a concise manner and made practical recommendations for resolution of problem. (9 pts)

Student was able to reach some conclusion based on evaluation of literature but did not make practical recommendations for resolving the problem. (4 pts)

Student did not reach a conclusion and the problem was not resolved; the student's conclusion was not based on the data presented and the resolution was impractical. (0 pts)

7. Organization of the paper

The paper was organized in a logical fashion proceeding from clear definition of the problem through presentation and interpretation of the available literature to conclusions and recommendations. (7 pts)

The paper was somewhat organized but had sections misplaced. (4 pts)

The paper was highly disorganized and hard to follow; bounced around from one area to another. (0 pts)

8. Writing technique

The paper was well written; it showed correct spelling, punctuation and grammar. It was concise but included all essential information. (7 pts)

Paper contained errors in spelling, punctuation, or grammar or lacked expected conciseness to the point of being annoying. (4 pts)

Quality of written work was poor enough to interfere with reading. Included multiple errors in spelling, punctuation and grammar. (0 pts)

8. Search strategy

The search was described in sufficient detail that one could reproduce the search. The steps were logical and complete. (0 pts)

The search was incompletely described or haphazard or incomplete. (-1 pt)

Search strategy was not submitted. (-2 pts)

APPENDIX D

EVALUATION OF VERBAL DRUG INFORMATION PROJECT

1. ____ Understanding of problem (4, 2, 0)
2. ____ Background information (4, 2, 0)
3. ____ Evaluation of available literature (6, 3, 0)
4. ____ Organization (4, 2, 0)
5. ____ Ability to reach a valid conclusion and resolve the problem (6, 3, 0)
6. ____ Presentation technique (4, 2, 0)
7. ____ Timing (2, 1, 0)

____ TOTAL POINTS (30 points possible)

comments:

student's name _____

evaluator _____

VERBAL DRUG INFORMATION PROJECT CRITERIA

1. Understanding of problem

Nature, scope, and importance of problem were clearly defined and presented. (4 pts)

Nature, scope and importance of problem might be clear to presenter but not clearly presented to audience. (2 pts)

Failed to define nature, scope or importance of problem or presenter did not understand them. (0 pts)

2. Background information

Background information was appropriate for the audience; essential concepts were included with no unnecessary material added. (4 pts)

Background information was appropriate for the audience, but not completely presented or extraneous material was included. (2 pts)

Background information was not presented or was inappropriate for the level and needs of the audience. (0 pts)

3. Evaluation of available literature

Available literature on problem was described, results reported, and assessments of the quality of the literature were presented. (6 pts)

Available literature on problem was described, but student just reported results of studies with only minimal evaluation. (3 pts)

Student did describe available literature or did not comment on findings. (0 pts)

4. Organization

Presentation was organized in logical fashion, was easy to follow, and flowed smoothly from definition of problem through background information and assessment of available literature to conclusion. (4 pts)

Presentation was somewhat organized, but student tended to skip from one subject area to another. However, most essential features were presented. (2 pts)

Presentation was highly disorganized and almost impossible to follow. It left doubt in the audience's mind as to the nature of the problem and conclusions. (0 pts)

5. Ability to reach a valid conclusion and resolve the problem

Student was able to reach a valid conclusion based on and supported by a thorough evaluation of the available literature. Student reported this conclusion in a concise manner and made practical recommendations for resolution of problem. (6 pts)

Student was able to reach some conclusion based on evaluation of literature but did make practical recommendations for resolving the problem. (3 pts)

Student did not reach a conclusion and the problem was not resolved; the student's conclusion was not based on the data presented and the resolution was impractical. (0 pts)

6. Presentation technique

Student appeared confident, could be heard and understood, used changes in voice tone to emphasize importance, was a convincing presenter. (4 pts)

Student failed to meet one of the expectations for full credit. (2 pts)

Student failed to meet two or more of the expectations for full credit. (0 pts)

7. Timing

Student completed presentation within the specified time. (2 pts)

Student exceeded time limit by ≤ 2 minutes (1 pt)

Student exceeded time limit by > 2 min. (0 pts)

APPENDIX E

REFERENCE CITATION FORMATS

Journal Articles

Standard journal article – List the first six authors followed by et al.

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med.* 2002 Jul 25;347(4):284-7.

As an option, if a journal carries continuous pagination throughout a volume (as many medical journals do) the month and issue number may be omitted.

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med.* 2002;347:284-7.

More than six authors

Rose ME, Huerbin MB, Melick J, Marion DW, Palmer AM, Schiding JK, et al. Regulation of interstitial excitatory amino acid concentrations after cortical contusion injury. *Brain Res.* 2002;935(1-2):40-6.

Organization as author

Diabetes Prevention Program Research Group. Hypertension, insulin, and proinsulin in participants with impaired glucose tolerance. *Hypertension.* 2002;40(5):679-86.

No author given

21st century heart solution may have a sting in the tail. *BMJ.* 2002;325(7357):184.

Volume with supplement

Geraud G, Spierings EL, Keywood C. Tolerability and safety of frovatriptan with short- and long-term use for treatment of migraine and in comparison with sumatriptan. *Headache.* 2002;42 Suppl 2:S93-9.

Issue with supplement

Glauser TA. Integrating clinical trial data into clinical practice. *Neurology.* 2002;58(12 Suppl 7):S6-12.

Volume with part

Abend SM, Kulish N. The psychoanalytic method from an epistemological viewpoint. *Int J Psychoanal.* 2002;83(Pt 2):491-5.

Issue with part

Ahrar K, Madoff DC, Gupta S, Wallace MJ, Price RE, Wright KC. Development of a large animal model for lung tumors. *J Vasc Interv Radiol.* 2002;13(9 Pt 1):923-8.

Issue with no volume

Banit DM, Kaufer H, Hartford JM. Intraoperative frozen section analysis in revision total joint arthroplasty. *Clin Orthop.* 2002;(401):230-8.

No volume or issue

Outreach: bringing HIV-positive individuals into care. *HRSA Careaction.* 2002 Jun:1-6.

Type of article indicated as needed

Tor M, Turker H. International approaches to the prescription of long-term oxygen therapy [letter]. *Eur Respir J.* 2002;20(1):242.

Lofwall MR, Strain EC, Brooner RK, Kindbom KA, Bigelow GE. Characteristics of older methadone maintenance (MM) patients [abstract]. *Drug Alcohol Depend.* 2002;66 Suppl 1:S105.

Article published electronically ahead of the print version

Yu WM, Hawley TS, Hawley RG, Qu CK. Immortalization of yolk sac-derived precursor cells. *Blood*. 2002 Nov 15;100(10):3828-31. Epub 2002 Jul 5.

Books and Other Monographs

Personal author(s)

Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. *Medical microbiology*. 4th ed. St. Louis: Mosby; 2002.

Editor(s), compiler(s) as author

Gilstrap LC 3rd, Cunningham FG, VanDorsten JP, editors. *Operative obstetrics*. 2nd ed. New York: McGraw-Hill; 2002.

Organization(s) as author

Royal Adelaide Hospital; University of Adelaide, Department of Clinical Nursing. *Compendium of nursing research and practice development, 1999-2000*. Adelaide (Australia): Adelaide University; 2001.

Chapter in a book

Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. *The genetic basis of human cancer*. New York: McGraw-Hill; 2002. p. 93-113.

Dictionary and similar references

Stedman's medical dictionary. 26th ed. Baltimore: Williams & Wilkins; 1995. Apraxia; p. 119-20.

Electronic Material

CD-ROM

Anderson SC, Poulsen KB. *Anderson's electronic atlas of hematology [CD-ROM]*. Philadelphia: Lippincott Williams & Wilkins; 2002.

Journal article on the Internet

Abood S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. *Am J Nurs [serial on the Internet]*. 2002 Jun [cited 2002 Aug 12];102(6):[about 3 p.]. Available from: <http://www.nursingworld.org/AJN/2002/june/Wawatch.htm>

Monograph on the Internet

Foley KM, Gelband H, editors. *Improving palliative care for cancer [monograph on the Internet]*. Washington: National Academy Press; 2001 [cited 2002 Jul 9]. Available from: <http://www.nap.edu/books/0309074029/html/>

Homepage/Web site

Cancer-Pain.org [homepage on the Internet]. New York: Association of Cancer Online Resources, Inc.; c2000-01 [updated 2002 May 16; cited 2002 Jul 9]. Available from: <http://www.cancer-pain.org/>

Part of a homepage/Web site

American Medical Association [homepage on the Internet]. Chicago: The Association; c1995-2002 [updated 2001 Aug 23; cited 2002 Aug 12]. AMA Office of Group Practice Liaison; [about 2 screens]. Available from: <http://www.ama-assn.org/ama/pub/category/1736.html>

Database on the Internet

Open database:

Who's Certified [database on the Internet]. Evanston (IL): The American Board of Medical Specialists. c2000 - [cited 2001 Mar 8]. Available from: <http://www.abms.org/newsearch.asp>

Closed database:

Jablonski S. Online Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes [database on the Internet]. Bethesda (MD): National Library of Medicine (US). c1999 [updated 2001 Nov 20; cited 2002 Aug 12]. Available from: http://www.nlm.nih.gov/mesh/jablonski/syndrome_title.html

Part of a database on the Internet

MeSH Browser [database on the Internet]. Bethesda (MD): National Library of Medicine (US); 2002 - [cited 2003 Jun 10]. Meta-analysis; unique ID: D015201; [about 3 p.]. Available from: <http://www.nlm.nih.gov/mesh/MBrowser.html> Files updated weekly.

(more examples available at http://www.nlm.nih.gov/bsd/uniform_requirements.html)