The Journal of Legal Nurse Consulting

Purpose
The purpose of the journal is to promote legal nurse consulting within the medical-legal community; to provide both novice and experienced legal nurse consultants (LNCs) with a quality professional publication; and to teach and inform LNCs about clinical practice, current legal issues, and professional development.

Manuscript Submission
The journal accepts original articles, case studies, letters, and research. Query letters are welcomed but not required. Material must be original and never published before. A manuscript should be submitted with the understanding that it is not being sent to any other journal simultaneously. Manuscripts should be addressed to JLNC@aalnc.org.

Manuscript Review Process
Submissions are peer-reviewed by eminent professional LNCs with diverse professional backgrounds. Manuscript assistance can be provided upon request to the editor. Acceptance is based on the quality of the material and its importance to the audience.

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Another Busy Year

Fall signals the beginning of the school year, as well as a new year for most AALNC Chapters. The calendar on the national Web site is already full with meetings, workshops, and regional conferences. Before long, we will be at the National Educational Conference in Austin, Texas.

We try to balance multiple roles and responsibilities in our busy daily schedules and lives. With regret, Arlene Klepatsky is taking a leave as one of the authors sharing the Point of Law column. Thanks, Arlene, for your expertise, dedication, and informative articles. We wish you well and hope that you return to the column in the future.

In the essence of time, let’s begin reading this issue. Deborah Swenson provides a review of the scope of practice for Advanced Registered Nurse Practitioners and their Standards of Care. Nurse practitioners have graduate degrees and licensure with the respective state Board of Nursing. While nurse practitioners generally provide holistic quality care, they still could be at risk for malpractice.

Nancy Layton’s article on mold litigation should be an essential reference, especially in the continuing aftermath of Hurricane Katrina. Just as respiratory disorders in World Trade Center rescuers and cleaning crews are being reported more frequently, so may there be future increases in mold-related illnesses in hurricane-ravaged states.

In the third featured article, Craig Durie explains the process of organ procurement and donation. The case study demonstrates the crucial time factor and emotional stress when the donor and family have not made prior arrangements.

Business principles and practices are presented in the three department columns. The computer is an essential requirement in any LNC’s practice, and Sharon Martino reviews many software and hardware products that will save time in producing effective work.

A common question many new LNCs ask is about setting fees. Mary Ann Shea cautions about discussing this topic with peers to prevent allegations of price fixing. The salary survey on the AALNC Web site could be an alternate resource.

Kara DiCecco reviews an orthopaedic textbook as a reference for inclusion in LNCs’ libraries. The final element of this issue, the index of articles in the 2006 volume, is an additional reference tool.

Please continue to submit articles. We also invite new authors to join the ranks for the Point of Law column. Two nurse attorneys have shared the duties. Does anyone else accept the challenge?

Holly Hillman, MSN RN
Editor, The Journal of Legal Nurse Consulting
Advanced Registered Nurse Practitioners: Standards of Care and the Law

Deborah E. Swenson, MSN ARNP

KEY WORDS
Advanced Registered Nurse Practitioner, ARNP, Scope of Practice, Standards of Care

In recent years of health care reform, Advanced Registered Nurse Practitioners (ARNPs) have played a pivotal role in providing access to high quality health care and patient education in both rural and urban settings. The ARNP case load varies from patients with health care insurance to the working or unemployed poor. In various community settings, many ARNPs are the sole providers of medical care, in addition to being more efficient and cost-effective. The goals of the ARNP's practice are individualized care, a focus on the whole person, health promotion, patient education, and—perhaps most importantly—encouraging patients to actively participate in their health care. This article addresses the complexities of the ARNP role, to help prepare the legal nurse consultant in reviewing cases involving ARNPs.

History
In 1965, the profession of “nurse practitioner” was instituted requiring a Master's degree. Then, in the late 1960s and early 1970s, the prediction of a physician shortage increased enrollment and funding in nurse practitioner programs. Also in the 1970s, certificate programs became the main educational route for Nurse Practitioners (NPs) due to the increased demand for health care services provided by Advanced Registered Nurse Practitioners (ARNPs) (Womenshealth Channel, 2005).

The American Medical Association (AMA) has organized a Scope of Practice Partnership with six state medical societies and six national medical specialty groups over their concern for the ARNPs' impingement on physicians’ practices. According to Advance Magazine for Nurse Practitioners (2006), the partnership’s goal is to “ensure that patient quality of care is not sacrificed through legislated scope of expansion for so-called nonphysicians” (p.13). In this article, Jan Towers, Nurse Practitioner (NP), Director of Health Policy for the American Academy of Nurse Practitioners, stated that these specialty groups are making judgments about NPs without any input from NPs (Advance Magazine for Nurse Practitioners, 2006).

Unfortunately, this issue is not new and lends to insecurities of some providers leaving the patient to ultimately suffer the backlash of this ongoing discussion. Lest we forget the patient, it would bode well if these “partnerships” would work together with NPs to benefit quality health care for all patients.

What Is an Advanced Registered Nurse Practitioner?
ARNPs are registered nurses who have advanced education and clinical skills, and have obtained and maintain national certification and licensure in order to provide primary and specialty care to a diverse population in ambulatory, acute, and long-term care settings (see Table 1). The NP classification includes the Certified Nurse Midwife (CNM), Certified Registered Nurse Anesthetist (CRNA) Advanced Registered Nurse Practitioner (ARNP), and Certified Registered Nurse Practitioner (CRNP) (American Academy of Nurse Practitioners, 2002).

ARNPs may practice autonomously or in collaboration with other health care professionals. It is important to note that, even though ARNPs may practice independently and provide some of the same care provided by physicians, it is beneficial to all that ARNPs maintain a close working relationship with physicians.

<table>
<thead>
<tr>
<th>Table 1: Nurse Practitioner Specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Care Nurse Practitioner</td>
</tr>
<tr>
<td>Adult Health</td>
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<tr>
<td>Certified Nurse Midwife</td>
</tr>
<tr>
<td>Certified Registered Nurse Anesthetists</td>
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<tr>
<td>Family Health</td>
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<tr>
<td>Geriatric Health</td>
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<tr>
<td>Neonatal Care</td>
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<tr>
<td>Occupational Health Nurse Practitioner</td>
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<tr>
<td>Pediatric Health</td>
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<tr>
<td>Perinatal Nurse Practitioner</td>
</tr>
<tr>
<td>Psychiatric / Mental Health</td>
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<tr>
<td>School/College Health</td>
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<tr>
<td>Women’s Health Nurse Practitioner</td>
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</tbody>
</table>

ARNPs are trained in the diagnosis and management of chronic and – in some cases – acute, high-risk medical conditions (see Table 2 on the following page) where patient and family education is critical. In most states, a Master of Science in Nursing is required for entry-level practice. As of January 1, 2000, the Health Care Financing Administration (HCFA) requires that all nurse practitioners hold a Master's degree in nursing (Cady, 2003). Nurse practitioners trained in certificate programs are grandfathered in, with the ability to continue practicing.

Recently, there has been much discussion about ARNP programs that will award the degree of Doctorate of Nursing
Practice (DNP), with the understanding that ARNP Master’s programs currently are equivalent to other clinical doctoral programs. This degree is the culmination of a task force created by the American Association of Colleges of Nursing (AACN) Board of Directors, which studied the need for change in the educational requirements for professional nurses practicing at an advanced level and the expanding scientific knowledge required to function at an advanced level in providing quality care. According to the AACN draft, “Professional nurse graduates are not receiving the appropriate degree for a very complex and demanding curricular experience” (American Association of Colleges of Nursing, 2006).

### Table 2: Process of Care for Advanced Registered Nurse Practitioners.

<table>
<thead>
<tr>
<th>Process of Care</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>A. Assessment of Health Status</td>
<td>The nurse practitioner assesses health status by:</td>
</tr>
<tr>
<td></td>
<td>• Obtaining a relevant health and medical history</td>
</tr>
<tr>
<td></td>
<td>• Performing a physical examination based on age and history</td>
</tr>
<tr>
<td></td>
<td>• Performing or ordering preventive and diagnostic procedures based on the patient’s age and history</td>
</tr>
<tr>
<td></td>
<td>• Identifying health and medical risk factors</td>
</tr>
<tr>
<td>B. Diagnosis</td>
<td>The nurse practitioner makes a diagnosis by:</td>
</tr>
<tr>
<td></td>
<td>• Utilizing critical thinking in the diagnostic process</td>
</tr>
<tr>
<td></td>
<td>• Synthesizing and analyzing the collected data</td>
</tr>
<tr>
<td></td>
<td>• Formulating a differential diagnosis based on the history, physical examination and diagnostic test results</td>
</tr>
<tr>
<td></td>
<td>• Establishing priorities to meet the health and medical needs of the individual, family or community</td>
</tr>
<tr>
<td>C. Development of a Treatment Plan</td>
<td>The nurse practitioner, together with the patient and family, establishes evidence based, mutually acceptable, cost-awareness plan of care that maximizes health potential. Formulation of the treatment plan includes:</td>
</tr>
<tr>
<td></td>
<td>• Ordering, interpreting and modifying diagnostic tests</td>
</tr>
<tr>
<td></td>
<td>• Prescribing/ordering appropriate pharmacologic and non-pharmacologic interventions</td>
</tr>
<tr>
<td></td>
<td>• Developing a patient education plan</td>
</tr>
<tr>
<td></td>
<td>• Establishing priorities to meet the health and medical needs of the individual, family or community</td>
</tr>
<tr>
<td>D. Implementation of the Plan</td>
<td>Interventions are based upon established priorities. Actions by the nurse practitioners are:</td>
</tr>
<tr>
<td></td>
<td>• Individualized</td>
</tr>
<tr>
<td></td>
<td>• Consistent with the appropriate plan of care</td>
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<tr>
<td></td>
<td>• Based on scientific principles, theoretical knowledge and clinic expertise</td>
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<tr>
<td></td>
<td>• Consistent with teaching and learning opportunities</td>
</tr>
<tr>
<td></td>
<td>Actions include:</td>
</tr>
<tr>
<td></td>
<td>• Accurately conducting, supervising and interpreting diagnostic tests</td>
</tr>
<tr>
<td></td>
<td>• Prescribing/ordering pharmacologic and non-pharmacologic therapies</td>
</tr>
<tr>
<td></td>
<td>• Providing relevant patient education</td>
</tr>
<tr>
<td></td>
<td>• Making appropriate referrals to other health professionals and community agencies</td>
</tr>
</tbody>
</table>

### Scope of Practice

The Texas Board of Nurse Examiners aptly defines the nurse practitioner’s scope of practice “as the activities that an individual health care provider performs in the delivery of patient care” (Texas Board of Nurse Examiners, 2001). Other State Boards of Nursing have enacted similar regulations that may be found on the various state Departments of Health Web sites. This scope of practice, which individual states have the ability to establish, reflects the types of patients, depending on specialty, for whom the ARNP can provide care and what type of procedures or activities the ARNP can perform. There are professional and individual scopes of practice.

**Professional** scope of practice comes from ARNP’s practice specialties and national governing organizations. These organizations provide a broad definition for each scope of practice role, including a definition of the ARNP’s specialty roles, the population served, and the practice setting. The professional scope of practice plays a pivotal role in defining the individual scope of practice.

**Individual** scope of practice is where the ARNP advances his/her education and knowledge base within a specialty area through continuing education programs and clinical experience, using that advanced, up-to-date knowledge to benefit patients. There are limits to which this education can be used. It cannot be used to change or add to their legal titles, such as Women’s Health Care Nurse Practitioner (WHCNP), Psychiatric Nurse Practitioner (PNP), or Family Nurse Practitioner (FNP) without completing additional formal education approved by the Board of Nurse Examiners (Texas Board of Nurse Examiners, 2001).

The individual scope of practice varies according to each specialty, and from one ARNP to another within a specialty. This can be very confusing for the legal nurse consultant (LNC) reviewing cases involving ARNPs. The LNC should obtain the individual ARNP’s proof of continuing education and training, then compare it to the ARNP professional scope of practice to determine if the ARNP practiced “outside” his/her scope. To promote professionalism, each ARNP should read and, more importantly, understand the state Nurse Practice Act. The LNC should obtain a copy of the individual state and specialty regulations governing ARNP practice (Texas Board of Nurse Examiners, 2001). State Boards of Nursing can be located through the National Council of State Boards of Nursing Web site, [www.ncsbn.org](http://www.ncsbn.org).

It is the responsibility of the ARNP to maintain proof of education/training and documentation of competence regarding any new procedure provided to patients. With any new activity or procedure comes the responsibility of the ARNP to be knowledgeable about appropriate patient selection, physiology/pathophysiology, indications, contraindications, risks and benefits to the patient, the procedure itself, and how to manage potential complications (American Association of Colleges of Nursing, 1998). The old adage of “see one, do one, teach one” is unacceptable and can be costly in many ways to both the patient and ARNP.
Standards of Care for Nurse Practitioners

“According to the Standards of Practice from the American Academy of Nurse Practitioners, the ARNP utilizes the scientific process and national standards of care as a framework for managing patient care. This process includes assessing the patient’s health status, making a medical diagnosis, developing a treatment plan, implementing that plan and following up, or evaluating the effectiveness of the treatment plan” (Swenson, 2005, ¶3). Standards of Care (SOC) have been developed and are monitored by the various advanced nursing professional organizations, such as the Association of Women’s Health, Obstetric and Neonatal Nursing (AWHONN), the National Association of Nurse Practitioners in Women’s Health (NPWH), the American College of Nurse Practitioners (ACNP), and the American Academy of Nurse Practitioners (AANP).

Defining the SOC for ARNPs can have some gray areas and may be left to the courts to decide, which is not in the best interest of practicing ARNPs. ARNPs must be aware of their limits in practice, skills, experience, and education in order to make sound, professional, and safe judgments. Courts maintain that ARNPs, as specialists, must be held to the standard of care appropriate to persons of such superior knowledge and skill. The skills or procedures, and the level of care and service performed, may be the same as in another profession. In other words, one standard may be used for certain procedures by more than one profession. For example, ARNPs and physicians may possess knowledge and skill of placing an intrauterine device (IUD); however, according to Brent (2001), the minimum requirements to meet the standard of care within the respective professions may be the same, but the significant differences are the experience, training, and licensure of the different professions.

ARNPs should not be held to the SOC of RNs or physicians (see Table 3). Statutory law has established that the ARNP has the legal authority to practice under the individual nurse’s license and that this authority does not flow from a physician’s or any other health care provider’s license (Brent, 2001). Thus, it becomes part of the expert witness’ responsibility in educating attorneys and jurors that only ARNPs should give expert witness to ARNPs.

<table>
<thead>
<tr>
<th>Table 3: Sources for the Standard of Care for the APRN.</th>
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<tbody>
<tr>
<td>Individual state Nurse Practice Acts</td>
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<tr>
<td>Individual specialty organizations (i.e., Association of Women’s Health, Obstetric &amp; Neonatal Nurses (AWHONN), National Association of Pediatric Nurse Practitioners (NAPNAP), American College of Nurse Practitioners (ANP), National Geriatric Nursing Association (NGNA), etc.)</td>
</tr>
<tr>
<td>American Nurses Association (ANA)</td>
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<tr>
<td>American Academy of Nurse Practitioners</td>
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<tr>
<td>Joint Commission on Accreditation of Health care Organizations (JCAHO)</td>
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<tr>
<td>Case law and published opinions by Judges</td>
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<td>State Statutes and Administrative Codes</td>
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<td>Hospital policies</td>
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<td>Authoritative nursing texts and journals</td>
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(Kamitomo, 2006)

The NP is able to provide a broad range of health services, the scope of which is based upon educational preparation, continued advanced practice experience, and the accepted scope of professional practice of the particular specialty area (Texas Board of Nurse Examiners, 2001). The ARNP may perform, but is not limited to, the following tasks:
- Interview patients;
- Take medical histories;
- Perform physical examinations;
- Order and interpret laboratory tests;
- Make a medical diagnosis; and
- Prescribe appropriate medications and treatments

It is important to note that prescriptive authority varies from state to state and from areas of specialization (Adult, Family, Geriatric, Obstetrics/Gynecology, Psychiatric, etc). When reviewing a case, therefore, it is critical for the LNC to know the scope of prescriptive authority. In many states, the ARNP’s prescriptive authority includes Schedule II-IV drugs. Because these are narcotic-based medications, the ARNP must have a Drug Enforcement Administration (DEA) number in addition to an ARNP state license.

ARNPs must possess the following:
- Judgment, assessment, and decision-making skills, along with the ability to weigh the relative costs and benefits of an action;
- Critical thinking skills and the ability to analytically identify strengths/weakness of their potential or actual actions;
- Knowledge of the information and techniques needed to diagnose and treat diseases and other health related conditions; and
- A thorough knowledge base of symptoms; treatments and alternative treatments; drug actions, interactions, and side effects; and preventative health care measures (California Employment Development Department, 2002).

Despite their ever-expanding role, ARNPs are, at present, infrequently sued as compared to physicians. Knowing this, however, cannot lead to lack of compliance with their standards of care and scope of practice. ARNPs must continue to be vigilant in practicing within their scope. Understanding this, the following are the most common case themes against ARNPs:
- Failure to diagnosis – More than half of these cases were female cancers of the reproductive system.
- Negligent treatment – One-third were related to medications.
- Failure to consult or refer to a physician when there is a change in the patient’s condition.
- Delay in proper treatment (Swenson, 2005).

LNC’s Role of Cases Involving ARNPs

It is important for the LNC to base case review on the ARNP’s SOC, not those of an RN. The LNC should identify if the education of the ARNP was a certificate or Master’s program. Some certificate programs may have more clinical training than Master’s programs. This does not mean...
that one program is better than the other, but this issue may be brought up during depositions or at trial. It is wise for the LNC to be able to present to the attorney client the content of the educational program that the ARNP attended.

It is critical for the LNC to note whether the ARNP had any gaps in employment. If so, was a refresher course required by the state for re-entry into practice? Equally important is determining the continuing education conferences attended by the ARNP in order to maintain certification. Most states require that ARNPs obtain a minimum of 45 continuing education credits for which a portion must be within their area of practice and a minimum of 15 in pharmacology.

In addition, the LNC reviewing a case involving an ARNP should have a copy of the state Nurse Practice Act in which the case occurred and the individual specialty standards of Care and Scope of Practice. The LNC should note whether the ARNP practiced outside of their certified specialty and/or SOC, and prescribed medication outside of the certified specialty and state regulations. The attorney client should obtain a copy of the ARNP’s Drug Enforcement Agency (DEA) certificate. This will list the type of medications that the individual ARNP is legally registered to prescribe.

The LNC should be alert for two common themes involving ARNPs: (1.) failure to diagnose in a timely manner, leading to a delay in proper treatment; (2.) and failure to refer the patient in a timely manner to a physician when the patient’s condition worsened. Also, the LNC should look for after-hours documentation of phone calls between the patient and ARNP. These notes may be hidden in the records, or not found in the patient records at all, but kept in a file within the facility.

Conclusion

The role of the ARNP is dynamic and exciting. The autonomous role serves them well, not only as direct health care providers but as educators, researchers, mentors, administrators, consultants, and entrepreneurs.

The future for ARNPs is ever-changing and holds much in store regarding advanced degrees and advanced responsibilities. With this increasing responsibility comes the added need for each ARNP to keep abreast of the changes within specific governing organizations in regards to Standards of Care and the state Scope of Practice for Advanced Registered Nurse Practitioners. As with any case for medical negligence, it all comes down to the all-too-familiar phrase, “The ARNP’s conduct is measured against that of a reasonably prudent professional nurse of similar knowledge and skill in similar or like circumstances” (Brent, 2001, p.55).

References


Deborah E. Swenson, MSN ARNP, is a certified Women’s Health Care Nurse Practitioner, specializing in Perinatal Medicine and High Risk Obstetrics. She works with eight Perinatologists and three other ARNPs. She has over 30 years of OB/GYN experience in various roles. She can be reached at deborah.swenson@verizon.net.
Mold Litigation: Implications for the Legal Nurse Consultant

Nancy J. Layton, BSN RN LNCC

In recent years, mold litigation has soared and has been a frequent subject of newspaper, journal, and television articles. The Internet provides numerous sources of information concerning mold and health effects. Not all of those sources are scientifically or medically correct. The legal nurse consultant who is cognizant of the scientifically and medically possible effects of mold exposure will be a valuable asset to attorney clients. Active involvement and proactive counseling of the client throughout the mold litigation process can be key elements for successful case outcome.

Mold exposure and alleged adverse health effects related to it have come to the public light in recent years. Spiraling numbers of cases claiming health problems related to mold exposure or “toxic mold” exposure have been filed in the court system. This has occurred largely as a result of a few major triggering events. Two examples are briefly discussed. In both of these incidents, one a study and the other a lawsuit, initial opinions concerning health effects of mold exposure were withdrawn from the study and excluded from the lawsuit after a more detailed review of scientific and medical facts.

One event that drew a large amount of public attention occurred in Cleveland, Ohio, where several infants with exposure to molds died of acute pulmonary hemorrhage and hemosiderosis. An investigation was conducted by the Centers for Disease Control (CDC), and initially the hemosiderosis was stated to be caused by exposure to mold, specifically Stachybotrys, in the affected children’s homes. Widespread media attention concerning Stachybotrys soon emerged. Newspapers, television, and Internet sites provided extensive coverage, which included discussions of Stachybotrys, also called “black” or “toxic” mold. Subsequent examination of the facts refuted the original study, citing methodological problems (CDC, 2000).

A second event which focused media attention on the issue of mold exposure occurred in Dripping Springs, Texas. The plaintiff was initially awarded $32 million; however, the award was later reduced to $4 million. It is important to note that the health effects that were initially claimed in that matter were dismissed by the time the case went to trial. The monetary award related to allegations of property damage and “bad faith” handling of the insurance claim (Allison/Fire Insurance Exchange v Fire Insurance Exchange, 98 SW3d 227 (Tex App, Dist 3, 2002).

Initial opinions concerning health effects of mold exposure were withdrawn from the study and excluded from the lawsuit after a more detailed review of scientific and medical facts. Objective scientific evidence is the basis for determining causation of medical events. Accurate analysis of the specific medical and scientific elements of mold exposure and their relevance to claimed health effects requires careful examination of often complicated information. To begin, a look at the basic science of mold is necessary.

Background Levels of Mold

There are more than 100,000 known species of mold (Bailey, 2005). A subset of the fungi kingdom, mold is found everywhere, from soil to decaying organic matter such as leaves, grass, and compost; mold spores are also present in the air. Mold naturally occurs outdoors and indoors. It is brought inside through open windows and doors, or transmitted by humans on their clothing and footsteps, as well as by pets. Vegetation, seasonal warming changes, and increases in rainfall raise the amount of naturally-occurring mold (Flannigan, 1995). The quantity of mold in any given place is quite variable. The number of airborne mold spores outdoors is affected by time of day, wind and temperature. Indoor variability is influenced by nearby human or animal activity, every-day tasks such as vacuuming and dusting, and the use of central air conditioning. Mold is found in many of our foodstuffs, including peanut butter, cheeses, and wine as a naturally-occurring substance or ingredient.

Quantification of molds is accomplished through a variety of methods, including tape samples (sticky tape placed on a surface picking up whatever is on the surface), bulk samples (e.g., pieces of wallboard, carpet, etc.), surface vacuuming, and air sampling (air filtered by a mechanical device to obtain a sample for analysis). Protocols for the various sampling methods must be followed to obtain usable data.

The legal nurse consultant (LNC) offering consultation concerning mold litigation should be aware that each protocol has specific restrictions that affect its adequacy. For example, Hicks, Lu, De, Guzman, and Weingart (2005) examined settled dust in 26 residences with no mold or moisture problems and found wide variability in results. They concluded that this test method was not an appropriate means of screening the fungal status of a building. Settle plates (particles allowed to settle from the air onto plates with agar or growth medium left uncovered in a room) are also sometimes used as a method for identifying mold spores, but
these are not considered reliable. Their use is not considered a valid substitute for professionally performed air sampling because of variability of air and particle movement (Shelton, Kirkland, Flanders, and Morris, 2002).

Quantities of mold are usually expressed in spore counts per cubic meter (spores/m³), colony forming units (CFU) per cubic meter (CFUs/m³), or CFU per gram (CFU/g). CFU refers to viable molds, while spore counts refer to all mold spores (viable and non-viable). Sampling is often performed in the course of mold litigation to provide data concerning the types and quantities of molds and other biological organisms present in the environment at issue. Because of the ubiquitous occurrence of molds, as well as natural variations of mold quantities by time of day, season, and other factors, the finding of molds on sampling does not, by itself, indicate a problematic condition. A review of published literature concerning background mold levels in residential and commercial buildings without complaints of mold or water problems revealed indoor ambient fungal concentrations often as high, or higher than, those found in buildings that are the subject of mold litigation (Gots, Layton, and Pirages, 2003).

There are no established limits for the amount of mold in indoor environments. Although several entities have suggested limits, wide variations have been suggested and no consensus has been reached (Rao, Burge, and Chang, 1996; Ren, Jankun, and Leaderer, 1999). The American Academy of Allergy Asthma and Immunology (AAAAI) Web site (www.aaaai.org) gives mold spore counts in outdoor air in several cities across the United States. The site is a useful reference for placing sampling results of indoor environments in perspective with naturally-occurring levels.

**Review of Sampling / Environmental Reports**

When reviewing environmental inspection reports and/or sampling results, the LNC should refer to the scientific literature to gain information concerning the types of mold found in the building at issue in litigation and locations where the molds are normally found. Spores of *Cladosporium* species probably occur more abundantly worldwide than any other spore type and are the dominant airborne spores in many areas, especially temperate climates (Cooley, Wong, Jumper, and Straus, 1998).

*Cladosporium, Alternaria, Epicoccum, and Aurobasidium,* frequently found in interior investigations, are saprophytic molds that commonly live or grow in dead or decaying matter such as leaves and mulch. *Aspergillus* and *Penicillium,* which are common and are usually found in soil, are frequently found in home or other building investigations. In an air sampling study of 1,717 buildings in the United States over a 3-year period, Shelton, Kirkland, Flanders, and Morris (2002) found that the predominant types of fungi detected indoors and outdoors for each season and region included *Cladosporium, Penicillium,* non-sporulating fungi, and *Aspergillus.* *Stachybocytris chartarum* was found in 6% of the randomly selected sampled buildings, a higher proportion than had been expected.

Personal habits or other factors under the control of the inhabitants of the sampled space should be considered when evaluating the implications of sampling results, such as routine cleaning (dust control), presence of indoor potted plants, and outdoor shade (Kozak, Gallup, Cummins, and Gillman, 1979). Such factors are known to elevate mold levels within building structures.

Environmental sampling often includes vacuum or tape sampling. Dust sampling and concomitant air sampling studies have shown that fungal varieties found in dust were not always present in the air near the sampled dust (Miller, Laflamme, Sobol, Lafontaine, and Greenhalgh, 1988). Hicks et al. (2005) concluded that settled dust sampling alone is not an appropriate means to determine fungal types or concentrations. Their sampling in homes without water or mold problems revealed that “often-cited elevated mold levels are exceeded in non-problem homes” (p. 481).

According to Reynolds, Streifel, and McJilton, (1990), the presumption of an indoor source of mold cannot be made without reference to ambient conditions because fungal concentrations outdoors may range from 1,000-100,000 CFU/m³ and influence indoor conditions through infiltration and mechanical ventilation. These authors stated that indoor sources are indicated when a significant difference is demonstrated between indoor and outdoor airborne concentrations.

Macher, Ammann, Burge, Milton, and Morey (1999) discussed outdoor air as the comparison point for indoor mold concentration levels and noted that meaningful comparisons cannot be made between outdoor and indoor mold levels if speciation is not done (e.g., *Aspergillus fumigatus* is not the same as *Aspergillus flavus*). They further noted that no single pair of indoor/outdoor samples can be interpreted and that multiple repeated samples are required.

**Health Effects of Mold in Humans**

Although a wide variety of health complaints and conditions have been attributed to mold exposures, there is little support for many of the claims. Molds may cause adverse health effects via three mechanisms: allergic, direct infection, and toxic. Irritation is a possible, but unproven, effect. Three recent publications provide extensive review of medical and scientific literature concerning mold exposures and adverse health effects.

The Institute of Medicine (2004) published a report discussing the health effects of damp indoor environments and found only nasal and throat symptoms, cough, wheeze, asthma symptoms in sensitized asthmatic persons, and hypersensitivity pneumonitis in susceptible persons had sufficient evidence for a causal association but not a causal relationship. There was suggestive evidence of an association with dyspnea, asthma development, and lower respiratory illness in otherwise-healthy children.

In 2006, Bush, Portnoy, Saxon, Terr, and Wood published a position paper reviewing the state of the science concerning mold-related diseases. They concluded that
the only allergic diseases in which mold has been proven to play a role include asthma, allergic rhinitis, allergic bronchopulmonary aspergillosis, sinusitis, and hypersensitivity pneumonitis. Infection commonly occurs in superficial tissues (e.g., athlete’s foot, nail fungus, and thrush) in healthy people. Infection can also occur in immunocompromised individuals or after exposure to aggressive molds resident in certain outdoor environments (e.g., coccidiomycosis, histoplasmosis). Ingestion of high doses of mycotoxins (biological substances produced by some molds) can result in toxic effects, but exposure to the maximum calculations for potential mycotoxins present in the home or office environment make it “highly improbable” (p. 329) that exposures in those environment would result in toxicity. These authors concluded that any irritant effects from mold would be transient and would involve the mucus membranes of the eyes and respiratory tract. They further concluded, “Exposure to molds and their products does not induce a state of immune dysregulation (e.g., immunodeficiency or autoimmunity)” (p. 330).

An evidence-based statement by the American College of Occupational and Environmental Medicine (ACOEM, 2002) indicated that about 10% of the population has developed allergic antibodies to mold antigens, and half of those would have clinical effects from the allergies. These authors also discuss effects that molds can have on human health, to include allergic reactions, infection, and toxicity. They concluded that “generalized mold hypersensitivity state” and “mold colonization” (p. 3) are not supported by reliable data. To produce a toxic effect, sufficient quantity, exposure route, and duration must exist. This is the dose-response requirement of basic toxicological science. The ACOEM calculations indicate that concentrations necessary for toxic effects are “improbable” (p. 5) and inconsistent with spore concentrations that have been reported.

Considerations of Medical Issues in Mold Claims

The LNC who is familiar with the science of mold and the symptoms and diseases that molds can and cannot cause can be a valuable asset. Early involvement is preferable to develop background for discovery, but there are important opportunities for assessment and intervention within each of the progressive steps in the litigation process.

Reviewing cases for merit. A critical step in any litigation matter is reviewing the facts of the case for merit. The LNC’s involvement at the earliest stages of discovery, for either the plaintiff or defense, can identify claims of symptoms and diseases associated with the alleged exposures that are potentially relevant to the issue and those that are not. Review of available information should include the stated symptoms, complaints, medical treatment sought and provided, alleged exposures, timing of symptoms in relation to the exposures (temporality), past medical history, medication use, and social history. If working for the plaintiff, the LNC may interview the claimant. Active listening and interviewing are valuable skills to gain historical information and the claimant’s views. This step helps determine the basis for the alleged issues and litigation, as well as the goals the claimant has related to the allegations.

Designing data collection instruments. Designing instruments to proactively identify and then integrate essential information from various sources is an important function of the LNC. Thoughtfully designed instruments that ensure successful capture of important data may include interview worksheets, instruments to capture medical records information, integration of legal document data such as the complaint, answers to interrogatories, and depositions, and worksheets to simplify environmental/sampling data.

Identifying medical and other records. Commonly requested medical records include those from physicians, nurse practitioners, physicians’ assistants, hospitals, clinics, laboratories, therapists, rehabilitation professionals, optometrists, and pharmacies. Because all potential sources of similar exposures must be considered in mold exposure claims, holders of non-medical records of interest may include schools, employers, legal, and financial sources.

Literature review. Review of medical and scientific literature is often necessary to gain information concerning medical conditions, diagnostic tests, or procedures. Specific pathophysiology of disease and expected clinical course, both from the diagnosed disease(s) and effects of claimed exposures, need to be thoroughly understood. Scientific publications present information concerning molds, fungi, sampling, and potential mechanisms of exposure, such as natural dispersion of mold spores. The LNC is able to provide a medically-based bridge for complicated information in mold litigation.

Another focus of literature review may be reviewing articles or other publications cited by opposing experts or treating physicians. Careful review of the literature should focus on the cited article’s relevance to the facts of the specific case that is the subject of the litigation, and whether the article is consistent or inconsistent with the statements made in the rendered opinion (Gots, 2005). Strength of studies upon which the experts have relied can be assessed by considering confounding factors, use of control groups, and the type of study that was performed (e.g., animal or human subjects, case report, retrospective epidemiological study, or blinded controlled prospective study).

Analysis of medical records. Transforming voluminous medical records and other documents into a readable, orderly, readily understood format optimizes access to critical information. Chronologies provide guidance to more detailed investigation of key facts or events.

The indispensable analysis of the medical information is multi-faceted. Stated symptoms must be analyzed in relationship to known pathophysiology and the expected clinical course following exposure. Temporal relationships of symptoms and exposure necessitate careful examination. Examining subjective symptoms, symptom timing, and objective findings from all medical encounters will identify
consistencies and inconsistencies over time. The claimant’s ability to work or function in social situations should be considered when reviewing medical records and records from other sources, such as those obtained from the employer. Potential alternate sources for mold exposures must be thoroughly explored, for example gardening, working with compost, camping, or jogging in the woods.

Analysis of diagnostic testing may identify inconsistencies of reported results with test criteria or established test interpretations. Pulmonary function testing (PFT) is frequently performed as a means for identifying restrictive or obstructive lung disease. Asthma may have been diagnosed as a result of a PFT, but upon scrutiny, criteria for test conduct established by the American Thoracic Society (1995) may not have been met, or patient effort may have been less than maximal. Reversibility of impaired expiratory flow after bronchodilator is a necessary component of an asthma diagnosis (National Institutes of Health [NIH], 1997). The diagnosis of asthma may not be based solely on PFT results without considering the individual’s history, pattern of symptoms, and other entities which can produce the same symptoms (NIH, 1997).

New diagnostic testing emerges every year. The LNC should be attentive to laboratory tests used to determine diagnoses, treatments, or prognoses but have not been proven as reliable or valid. Cautionary statements may frequently be found on the laboratory test reports themselves. When the reliability or validity of diagnostic testing is in question, research into the literature is a necessary step of analysis.

When treating or expert physicians use diagnostic tests to indicate problems, the appropriateness of the test’s relationship to claimed conditions needs to be evaluated. In addition, the physician’s interpretation must be medically correct. One example in mold litigation is the sometimes-used statement that “elevated” immunoglobulin G (IgG) levels to molds indicates that the tested individual has “mold in their blood” or that they are allergic to the particular mold. IgG antibodies develop in response to many antigens, however, and are indicators of past exposure but not of allergy. As many as half of persons who have been exposed to mold proteins may have antibodies but not clinical disease (Bush et al., 2006). Immunoglobulin E (IgE) is responsible for immediate hypersensitivity reactions; however, an individual may have increased IgE levels in laboratory testing to certain antigens but may not have any clinical manifestations of allergy (Bierman, Peralman, Shapiro, and Busse, 1996). The finding of increased responsiveness on testing may therefore be irrelevant.

Skin testing to identify substances to which an individual is allergic may be performed percutaneously or intradermally. Percutaneous (prick) testing is the less sensitive of the two types. If an individual shows negative reactions on prick testing and the suspicion of allergy is high, intradermal testing may produce more information. Because intradermal testing is more sensitive, it also produces more false positive results. It is imperative to note the response to both positive and negative controls in all skin tests performed. The responses to the control solutions are the bases for interpretation of the positive or negative reactions to the tested antigens (Bierman et al., 1996).

Positive skin testing to one or more mold species or a mold group on allergy skin testing does not mean that the individual tested is allergic to all (or any) of the molds found on sampling of the building at issue in mold litigation. The species of the mold tested and present in environmental sampling must be compared. Positive skin test results for a mold group, such as Mold Mix #1, would indicate IgE responsiveness to at least one of the molds in the group, but the specific mold(s) causing the reaction are not identified in the mixed antigens. A negative reaction to a mold group test indicates a negative response to all molds within the group.

When evaluating skin test responses, the LNC must consider all substances to which positive reactions were elicited, as they may indicate potential alternate sources of allergic symptoms (pollens, animal dander, dust mites, etc.). If an individual shows hyperresponsivity to more than one antigen on testing, the specific substance causing claimed allergy symptoms cannot be easily determined. For example, if the individual is allergic to tree pollen and cats, and if trees are budding or leafing and there is a cat in the home, determining which of these is producing allergy symptoms can be elusive.

Temporality of symptom onset is important. Medical records may document pre-existing conditions with symptoms the same as or similar to those claimed in the petition concerning the mold exposure. Careful consideration and exploration are needed to determine whether the temporal relationship of the claimed condition is appropriate for the alleged exposure or whether a preexisting condition was exacerbated.

Prescribed medications, over-the-counter medications, and herbal and dietary supplements may produce side effects or adverse reactions that are similar to the claimed symptoms. These substances can also mask other symptoms. Alcohol and illicit drugs may also have these effects.

Whether working for the defense or the plaintiff, the LNC must identify potential alternate sources for symptoms. If working for the plaintiff, the LNC must be aware of these and explore them thoroughly to prepare strategies for case resolution. If working for the defense, the LNC may use possible alternate explanations as the basis for arguments for mediation, settlement, and/or trial.

Bringing consistencies and inconsistencies uncovered during the discovery process to the attention of the client and highlighting the rationale for the determination positions the client with foundation for arguing their case. Identifying potential “holes” in the case in a proactive manner will assist the client to develop information in discovery or to make decisions concerning strategies in moving forward. Thorough review of the medical records and other documents suggests lines of questioning appropriate for medical providers who have treated the claimant, and for expert witnesses and fact witnesses. Questions should be designed to clarify facts,
determine rationale for treatment and/or opinions, and highlight any inconsistencies that seem apparent.

**Locating appropriate medical and experts.** When screening potential medical experts, it is important to examine credentials, past case involvement, deposition and trial testimony, exclusions from testifying, and publications. Experts must be qualified through education and/or specialty training to opine and testify about health conditions and causation issues. Their opinions must be based on scientific and medical fact, and the bases for the opinions must be specifically relevant to each individual involved in the claim rather than based on generalizations.

**Summary**

Adverse health effects caused by exposure to mold are frequent claims in litigation. The scientific literature provides important data concerning the natural properties of mold, its functions, its methods of dissemination, and its ability to produce limited health effects. Scientific and medical literature also reports claimed health effects that have not been proven to be causally-linked to mold exposures.

Medical and other records must be evaluated to elucidate the scientific foundation, medical basis, and plausibility of the claimed relationships. The LNC’s active involvement and proactive counseling of the client throughout the life of the matter in the mold litigation process can help to pave the way to a successful outcome.

**References**


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Organ Donation: Process and Standards Leading to Transplant

Craig Durie, MSN RN

KEY WORDS
Next of Kin, Organ Donation, Organ Transplant

Organ transplant has made great strides from its origination as an experimental treatment. Today, organ transplant is viewed as the treatment of choice for many people in end organ failure. In both the clinical and legal settings, there is limited understanding of the roles of the organ procurement transplant coordinator. The focus of this article is to provide a generalized understanding of the organ procurement process, and to explore the roles and responsibilities of the organ procurement coordinator. The circumstances of each organ donation are unique and can vary widely. The collaborative role of the clinical care team and the transplant coordinator prior to and following consent for donation will be outlined. A case study is provided to highlight the hierarchy followed in obtaining consent from the legal next of kin.

Close to 100,000 people currently need an organ transplant in the United States, and 3,000 people are added to the transplant waiting list each month. The number of individuals in need of transplant is growing at a rate faster than the availability of donors. Only one in five candidates for organ transplant will receive it, while 6,000 people die without receiving a transplant each year (United Network for Organ Sharing, U.S. Transplant Data, n.d.).

Appropriate interaction with and utilization of the organ transplant coordinator improves the likelihood of successful organ procurement (Siminoff, Gordon, Hewlett, and Arnold, 2001). The expertise of an organ transplant coordinator also increases the likelihood that family members who are facing the loss of a loved one may find some sense of meaning and support in the midst of their grief. A transplant coordinator is a dual advocate for both the families of organ donors and those awaiting transplant.

A Brief History

In 1984, the United States Congress passed the National Organ Transplant Act (NOTA). This act resulted in the establishment of the non-profit Organ Procurement and Transplantation Network (OPTN), with the mission to increase the supply of organs available for transplantation while protecting the equity of organ sharing in a national system of organ allocation (Organ Procurement and Transplant Network, Who are we: the OPTN, n.d.).

As part of its mission, the OPTN tasked the United Network of Organ Sharing (UNOS) with the development of a national system for organ sharing (Organ Procurement and Transplant Network, Who are we: the OPTN, n.d.). For patients to have the possibility of receiving an organ transplant, they must first be listed through a transplant center. The transplant center will, in turn, have their patients listed nationally on the UNOS transplant waiting list (Organ Procurement and Transplant Network, Donation and transplantation: about transplantation> matching process, n.d.).

Step One: Referral

For patients on a transplant waiting list, the possibility of transplant begins with the referral of a potential donor to the regional organ procurement organization (OPO). This first crucial step is one that became mandatory for hospitals with the passage of Pennsylvania Act 102 in December of 2004 (Pennsylvania Department of Health, 2005). This legislation became the national model for laws mandating the referral of all patient deaths or imminent deaths. Patients who have been pronounced dead on cardio-respiratory criteria at the time of referral have the potential to be tissue donors.

A referral of a patient who is facing imminent death or already pronounced brain dead will initiate a closer evaluation from an organ transplant coordinator employed by an OPO. Potential organ donors are typically those patients who are ventilated and have received a non-recoverable neurological injury. This type of injury could be in the form of a hemorrhagic stroke, trauma, or anoxic injury.

Potential organ donor referrals can be initiated by anyone. Referrals typically come from the bedside registered nurse (RN) but also come from attending physicians, consultants, residents, and chaplains. It is not uncommon for families who have recognized the severity of neurological injury to request information about organ and tissue donation. Referrals are a mandatory responsibility of the hospital, regardless of who initiates contact with the OPO. A patient with a non-recoverable neurologic injury must be referred even in

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<td>First Kidney pancreas transplant</td>
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<td>First Liver transplant</td>
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<td>First Heart transplant: South Africa</td>
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<td>Cyclosporin introduced and the risk of transplant rejection lowered</td>
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(Organ Procurement Transplant Network: Donation, n.d.; United Network Organ Sharing: Who we are, n.d.)
instances where premature conversation about donation has elicited a negative response from families.

In light of the life-or-death nature of organ transplant, there are few factors that will halt further evaluation of a potential donor. A known positive human immunodeficiency (HIV) status or the existence of metastatic cancer are the only two factors that typically stop further evaluation of someone as a potential organ donor. All patients with a non-recoverable neurological injury, even those patients with HIV or cancer, must be referred to the OPO. It is the responsibility of the OPO, not the hospital, to evaluate the patient for appropriateness as a potential organ donor. It is understood that many of the patients referred may not progress to brain death or be medically suitable.

OPOs regularly review hospital records to confirm compliance with mandatory referral legislation. Hospitals that fail to comply with mandatory referral legislation risk losing Centers for Medicare and Medicaid funding. The required request policy is the result of the Omnibus Reconciliation Act of 1986 (National Attorneys’ Committee for Transplant Awareness, 1995).

Mandatory referral legislation alleviates hospitals of the responsibility of approaching families for consent regarding organ or tissue donation. The responsibility for opening this discussion with donor families is that of a designated requester. In most regions of the country, the designated requestor is the transplant coordinator sent to the hospital from the OPO. This is an individual who has received extensive education in organ donor management and in working with families facing the death of a loved one.

**Step Two: Pre-Pronouncement Potential Donor Evaluation**

An initial referral might progress in the following manner: A hospital intensive care unit calls in the report of a 42-year-old male with blunt-force trauma to the head. This patient has a flat electroencephalogram (EEG), negative pupillary response to light, no cough or gag, and is intubated for lack of respiratory drive. The patient has not been sedated or received paralytics.

The first function of the organ transplant organization is to gather pertinent information about potential organ donors. Typically, OPOs will try to determine the following upon referral: age, gender, neurological status, hemodynamic status, legal next of kin, and pertinent medical-social history. In the fast-paced world of health care, it is often not possible to gather all of this information over the telephone.

**Step Three: Direct Evaluation and Collaboration**

The organ transplant coordinator arrives at the hospital to gather further information and act as a resource to the critical care team responsible for this potential donor. It is worth mentioning that this coordinator specializes in the multifaceted role of organ procurement and differs from a hospital-based recipient transplant coordinator. The organ procurement coordinator acts as a dual advocate for both the patient in need of transplant and the immediate family in crisis.

In an open and collaborative manner, the transplant coordinator discusses the clinical care of the patient with the care team. It is the goal and responsibility of the coordination to protect the possibility for organ donation without negatively impacting clinical management. The family has the right to be presented with the option of organ donation in a respectful and compassionate manner by an expert in this field of practice. Typically, the timing of this conversation will occur after pronouncement of brain death and upon family understanding of brain death.

Clinical care of the patient should remain aggressive for two compelling reasons. If care is not futile, then appropriate steps should be made to support the hemodynamics of the patient. Secondly, good hemodynamic management of a patient who does progress to brain death will allow the family the opportunity to make an informed decision regarding a viable donation option.

A coordinator will often provide suggestions pertaining to the management of diabetes insipidus, electrolytes, hemodynamics, and preservation of organ function. At the most basic level, adult management includes maintaining an oxygen saturation greater than 95%, systolic blood pressure above 100, and urine output between 100-300 milliliters/hour. Prior to consent, or family recognition of futility of care, no suggestions should be given that would further compromise a neurologically injured patient. As each clinical case is different, the coordinator and medical team must work together to decide what is most appropriate for the individual patient.

The coordinator will gather lab data pertaining to organ function, electrolytes, blood type, serologies, and medical/social history. A large portion of this information will already exist as part of critical care patient management. Pertinent lab work or repeat samples are drawn, as needed, when agreed upon by the care team and coordinator. Invasive or high-risk diagnostic evaluation of the patient, done for the sole purpose of organ donation, should be withheld until after an informed consent conversation takes place.

In most cases, it is inappropriate for the coordinator or any member of the health care team to initiate the conversation of organ donation prior to pronouncement. As most families begin to understand the gravity of the situation, they will still harbor hope that their loved one in a critical condition will pull through. Until a family has recognized that death has or will occur, they may not be able to hold a conversation about donation events that can occur only after death.

A family who independently broaches the topic of organ donation presents a different scenario. This family should be referred to an organ transplant coordinator to have their questions answered, as needed, and be made aware of information relevant to them. Formal consent is typically obtained after the pronouncement of brain death. As an advocate for the family, the transplant coordinator will work to encourage a dialog between the care team and the family.
about brain death exams and clinical status. In the typical crisis state, a family only hears, retains, and understands a small portion of the clinical information provided to them. With a patient being evaluated for brain death, early discussion of clinical findings and a clear plan for further evaluation will better prepare a family to deal with their loss.

Step Four: Family Approach

The attending or pronouncing physician should inform the family of the brain death pronouncement. This conversation should take place away from the bedside and in a setting that provides respectful privacy. The physician should use clear and direct language in describing the injury and the clinical findings. It is easier for a family to understand the reality of death when the pronouncing physician actually provides the family with a time of death. Brain death became a legally accepted definition of death following the 1968 Harvard Medical School Ad Hoc Committee report on brain death (Beecher et al., 1968).

The transplant coordinator will often be present with the physician and family at the time the pronouncement news is communicated. Because a family understandably needs some time to absorb the news they just received, the transplant coordinator will refrain from discussing donation options until the family begins to give some indication that they are ready to talk about what comes next. Research has indicated that families cited a need for clear and factual communication, and understanding of brain death prior to making a decision to donate (Jacoby, Breitkopf, and Pease, 2005).

Some families know about organ donation and may even know of their loved ones’ wishes; others begin to ask when the ventilator will be removed. The skilled coordinator will meet with the family away from the bedside, in a private setting, and be introduced as a part of the health care team. Clinical findings are usually reviewed, in an effort to evaluate the family members’ understanding and provide the opportunity to clarify any questions that remain.

The topic of organ donation will be broached as the life-saving opportunity that it represents. The donor family will be provided with information about the profound impact their decision can make. This conversation is sometimes a time in which a family can express their grief and feelings for their loved one. Families are more likely to consent to donation if they feel their questions are being answered and that they are not being rushed into a decision (Siminoff et al., 2001). Understanding how donation will help others encourages many families to decide to donate, as a last expression of the good qualities their family member possessed in life. Informed consent will be obtained from the legal next of kin. Medical-social history will be gathered from the family or those who know the person best.
Step Five: Donor Management and Organ Allocation

Following pronouncement and consent, it is the coordinator’s goal to identify recipients for the organs and be prepared for the operating room (OR) within 12 hours. Time is of the essence for the viability of these life-saving organs and often for donor families in need of closure. Given the highly complicated task of clinically managing the brain dead patient and allocation of the organs, however, this may take closer to 20 hours.

In allocating organs for transplant, it is the responsibility of the coordinator to gather and communicate accurate information about the current status of the donor as well as past medical history. Diagnostic evaluation will need to be current and complete to allow the transplant surgeons to make fully informed decisions for their patients. The following is a list of tasks that must be accomplished as part of this process:

- **Coroner:** All deaths must be reported to the coroner. A significant portion of those who become organ donors have died as a result of violence or motor vehicle trauma. The coroner will need to determine if this death warrants further investigation. If a death does warrant further investigation, the coordinator may become responsible for facilitating a portion of this or, at the very least, not interfering with evidence collection. Meeting the coroner’s needs may involve gathering admission blood samples, preserving vitreous fluid for toxicology collection, or preserving a bullet in the OR.

- **Diagnostics:** Consent for invasive diagnostics is incorporated in the consent form. If not already drawn, blood will be collected for Human Lymphocyte Antigen (HLA) determination for recipient matching purposes. It takes approximately 8 hours to run these labs, and blood is sent at the earliest appropriate time.

- **Complete medical-social history**

  - **Lungs:**
    - Complete Blood Count (CBC).
    - Sputum gram-stain to rule out infection.
    - Chest X-ray to evaluate lungs for size, infiltrates, infection, and cancer.
    - Arterial Blood Gas (ABG) with a goal partial oxygen pressure (PO2) greater than 350 on an oxygen challenge. ABGs may be repeated every 2-4 hours as lung function can change rapidly.
    - Bronchoscopy with bronchial washings. This may be done intra-operatively if the decision is made to recover the lungs.

  - **Heart:**
    - Evaluate for and document any cardiac arrest relating to this admission or any previous cardiac history.
    - Arterial line for continuous hemodynamic evaluation and blood draws. A radial line is preferred as vasculature supporting a femoral line will be clamped off earlier than radial during the organ recovery process.
    - Cardiac enzymes.
    - Swan-Ganz catheter for monitoring cardiac output and cardiac index if indicated for this donor.
    - Echocardiogram: Performed to evaluate cardiac function, this diagnostic may need to be repeated if hemodynamics change prior to organ recovery.
    - Cardiac Catheterization: This diagnostic test is typically reserved for donors above the age of 40, or younger if history indicates risk factors for cardiac disease.

  - **Liver:**
    - 4-hour repeat monitoring of the following labs: electrolytes, coagulation panel, liver function panel.
    - Sodium is a value of typical concern, as it is often elevated in the brain-dead patient due to diabetes insipidus and pre-pronouncement management aimed at lowering intracranial pressure. A transplant surgeon will be less likely to accept a liver for transplant if the sodium is elevated beyond 160 milliequivalents per liter. An osmotic fluid shift occurs due to the differing sodium concentration between donor and recipient that will damage the transplant graft following implantation. Prevention or reversal of sodium elevation is a key component of donor management.

  - **Kidneys:**
    - Repeat 4-hour electrolytes with attention to blood urea nitrogen (BUN), creatinine, and sodium.
    - Repeat urinalysis every 6 hours with a final specimen within 4 hours of entering the OR.
    - Human Lymphocyte Antigen results for donor/recipient matching.

  - **Pancreas:**
    - Repeat 4-6 hour glucose levels.
    - Repeat 4-6 hour electrolytes.
    - Repeat 4-6 hour amylase and lipase.

  - **Intestine:**
    - Gastrointestinal history since admission as well as past history.
    - Presence or absence of bowel sounds.

  - **Coroner:** All deaths must be reported to the coroner. A significant portion of those who become organ donors have died as a result of violence or motor vehicle trauma. The coroner will need to determine if this death warrants further investigation. If a death does warrant further investigation, the coordinator may become responsible for facilitating a portion of this or, at the very least, not interfering with evidence collection. Meeting the coroner’s needs may involve gathering admission blood samples, preserving vitreous fluid for toxicology collection, or preserving a bullet in the OR.

  - **Diagnostics:** Consent for invasive diagnostics is incorporated in the consent form. If not already drawn, blood will be collected for Human Lymphocyte Antigen (HLA) determination for recipient matching purposes. It takes approximately 8 hours to run these labs, and blood is sent at the earliest appropriate time.

  - **Complete medical-social history**

    - **Lungs:**
      - Complete Blood Count (CBC).
      - Sputum gram-stain to rule out infection.
      - Chest X-ray to evaluate lungs for size, infiltrates, infection, and cancer.
      - Arterial Blood Gas (ABG) with a goal partial oxygen pressure (PO2) greater than 350 on an oxygen challenge. ABGs may be repeated every 2-4 hours as lung function can change rapidly.
      - Bronchoscopy with bronchial washings. This may be done intra-operatively if the decision is made to recover the lungs.

    - **Heart:**
      - Evaluate for and document any cardiac arrest relating to this admission or any previous cardiac history.
      - Arterial line for continuous hemodynamic evaluation and blood draws. A radial line is preferred as vasculature supporting a femoral line will be clamped off earlier than radial during the organ recovery process.
      - Cardiac enzymes.
      - Swan-Ganz catheter for monitoring cardiac output and cardiac index if indicated for this donor.
      - Echocardiogram: Performed to evaluate cardiac function, this diagnostic may need to be repeated if hemodynamics change prior to organ recovery.
      - Cardiac Catheterization: This diagnostic test is typically reserved for donors above the age of 40, or younger if history indicates risk factors for cardiac disease.

  - **Liver:**
    - 4-hour repeat monitoring of the following labs: electrolytes, coagulation panel, liver function panel.
    - Sodium is a value of typical concern, as it is often elevated in the brain-dead patient due to diabetes insipidus and pre-pronouncement management aimed at lowering intracranial pressure. A transplant surgeon will be less likely to accept a liver for transplant if the sodium is elevated beyond 160 milliequivalents per liter. An osmotic fluid shift occurs due to the differing sodium concentration between donor and recipient that will damage the transplant graft following implantation. Prevention or reversal of sodium elevation is a key component of donor management.

  - **Kidneys:**
    - Repeat 4-hour electrolytes with attention to blood urea nitrogen (BUN), creatinine, and sodium.
    - Repeat urinalysis every 6 hours with a final specimen within 4 hours of entering the OR.
    - Human Lymphocyte Antigen results for donor/recipient matching.

  - **Pancreas:**
    - Repeat 4-6 hour glucose levels.
    - Repeat 4-6 hour electrolytes.
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  - **Intestine:**
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    - Presence or absence of bowel sounds.

  - With all organ systems, a combination of factors will determine the transplant potential of that organ. The following are some of these factors: serology results, CBC, fluid balance, current vasopressors, past medical history, and/or past social history. It is the responsibility of the transplant coordinator to perform a thorough physical, and be vigilant in gathering and communicating this information to the transplant surgeons. The transplant surgeon has the final responsibility of accepting an organ for their patient.

  - Organ allocation is done via a rank order list generated by UNOS. This list will numerically order patients that meet blood type, size range, distance criteria, and serology screening criteria for Hepatitis C positive and cytomegalovirus (CMV) positive list for each organ. The coordinator will
start with the first person on the list and provide all pertinent information to the representative of that transplant program. As the coordinator progresses down the list, each program has one hour to review this information and accept or decline the organ for their patient. The coordinator continues down this list until a program accepts the organ for a specific patient. The allocation effort may end if the list is exhausted or if the clinical picture adversely changes. If all transplant opportunities are exhausted, the organ may be used for research if consent was obtained for this option.

**Step Six: Organ Recovery**

During an organ recovery, the OR is understandably a location of high activity. Teams from multiple hospitals, that may have never worked together before, arrive to recover organs for their patients. Combined with this, the OR staff at the donor’s hospital may not have any experience with an organ recovery. It is the responsibility of the coordinator to ensure that the appropriate equipment and staff is present and that members of the team communicate and work well together.

Good communication with the anesthesiologist regarding intra-operative donor management is essential. Anesthesia is not given, as the brain dead donor is by definition dead and physically not capable of experiencing any sensation. Hemodynamic management remains critical until the aorta is cross-clamped. The brain-dead donor will continue to be ventilated until the surgical teams are prepared to cross clamp the aorta.

The transplant coordinator is responsible for recording intra-operative information. Prior to cross-clamping the aorta, 30,000 units of heparin will be given. Approximately 10 minutes following heparin administration, the aorta will be cross-clamped and the organs flushed clear of blood with cold preservation fluid. The coordinator is responsible for ensuring that portions of the spleen, blood, and lymph nodes are recovered for final cross-matching with expectant recipients. Critical intra-operative data points include time of cross-clamp, organ anatomy and abnormalities, volume of cold preservation fluid and quality of flush flow through organ vasculature, and tissue pathology results.

The transplant coordinator is also responsible for non-clinical concerns that may affect the organ recovery. These complex issues include organizing transportation for transplant teams and for organs after the recovery takes place. While a coordinator cannot plan for every eventuality, confounders such as inclement weather and rush hour traffic must be taken into consideration.

Most OPOs follow up with the families who have made the life-saving decision to donate. In many cases, the organ transplant coordinator who has worked closely with the family will provide feedback as to the profound impact that the donation has made on the recipient and family. The hope, and then the reality, of this outcome often provides some degree of solace for the donor family.

**Case Study: Obtaining a Valid Consent for Organ Donation**

**Legal Next of Kin:** It is not uncommon for trauma patients to be admitted, without identification, as John or Jane Doe. In most cases, these patients are eventually identified by personal belongings such as a wallet or by people present at the scene of the trauma. In rare cases, a patient will come into the hospital without any identification that links them to family or friends. Hospital staff, police, and the coroner’s office may make a reasonable attempt to identify legal next of kin in an effort to guide care decisions, inform family, or – in the worst-case scenario – determine disposal of a person’s remains.

In organ donation, the need to identify legal next of kin is paramount for two compelling reasons. In the absence of valid first-person consent, consent is required from the person or persons possessing the authority to sign consent. Without valid consent, organ donation cannot proceed. Second, the consent conversation provides an opportunity to exchange important past medical and social information needed to fully evaluate someone as a potential donor.

The hierarchy of people who can give consent starts with the patient. This could take the form of donor designation on a driver’s license, a signed donor card, a will, or expressed wishes. The second person able to sign consent is the potential donor’s spouse. If the patient is not currently married, adult children have equal authority among siblings. One sibling declining donation can effectively veto the consent of other siblings. If adult children do not exist, the patient’s parents have equal authority. In the case of a minor, the hierarchy begins with the parents. Distant relatives such as aunts, uncles, and cousins follow in the familial hierarchy.

If no family relationships are found, authority falls to the individual who would take responsibility for the body of the deceased. If no next of kin or responsible party can be identified after a well-documented exhaustive search, the court system can be petitioned for guardianship. Upon assuming guardianship, the court has the authority to give or decline consent for organ donation. The following case study, based on a real referral, highlights the steps taken to obtain a valid consent for organ donation.

**Scenario:** August 4, 10:00 a.m.: A referral comes in from an Atlantic City hospital regarding an unknown Hispanic male, reportedly found on the floor in the bathroom of a local casino. “John Doe’s” estimated age is between 25 and 35. The computerized axial tomography (CT) scan reveals an intracranial hemorrhage (ICH) with a midline shift of brain tissue as a result of the bleeding. Neurological assessment reveals that the pupils are fixed and unreactive to light, no cough, no gag, and no response to pain. When disconnected from the ventilator for routine suctioning, the patient is noted to have an intermittent respiratory drive. He has not yet progressed to brain death. The organ transplant coordinator is contacted to evaluate this patient as a potential organ donor.
Upon arrival to the hospital, the coordinator learns that this patient was admitted approximately 16 hours ago with a very elevated alcohol level and a visible area of maceration on the back of the head. Assault has not been ruled out, but it is generally believed this man was drunk and fell backwards while attempting to use a urinal. Surgical intervention has been ruled out by the neurosurgical team as futile. The patient continues to be aggressively supported despite these findings.

Steps must first be taken to identify the patient and his legal next of kin to discuss care before there is a conversation regarding donation and obtaining consent. In cases where there is no identification of patient or family, the options for consent become limited.

In addition to gathering clinical information, the transplant coordinator also begins documenting the process of identifying the patient to demonstrate to the court that the search for legal next of kin exhausted all reasonable possibilities. This effort will involve collaboration with hospital social workers, the police department, and any parties relevant to the circumstances. The police can assist in identification through the evaluation of finger-printing and interviews with people at the scene of the injury. As has been this author’s experience, it is, fortunately, more common that an exhaustive search will lead to the identification of a patient and next of kin than reach the need for petition for guardianship.

The transplant coordinator collaborates with nursing staff for access to the patient’s belongings. Clothing does not provide any clear identification but does provide some direction to search. Well-worn jeans and weathered steel-toe work boots suggest that “John Doe” may be a blue collar laborer of some type. Detectives involved in this case visit local construction sites to ask if any missing worker fit this man’s description, and question employees in local bars and liquor stores because this man was intoxicated at the time of admission. Fingerprints do not provide any information, and the patient is not wearing a wedding ring.

The patient does not present with any evidence of intravenous (IV) drug abuse. He is clean-shaven and does not appear to be homeless. If he had appeared homeless or addicted, police officers would be asked to assist by visiting local homeless shelters and areas frequented by drug users. Given the patient’s cleanly appearance, and other more likely leads, these steps are not taken at this time.

During bedside care, Karen, his nurse explores his remaining clothing and discovers that one sock contains a money clip. This clip contains his expired driver’s license, three business cards, and a small amount of money. The Pennsylvania driver’s license does not indicate a decision regarding donation. The coordinator now knows the patient’s age and identity, but not his next of kin.

In the next few hours, his internal bleeding continues to the point that he begins to herniate. The pressure associated with his internal bleeding has caused brain tissue to tear free and push down, compressing his brain stem. He loses his remaining respiratory drive and becomes hemodynamically unstable. The first formal brain death exam is done by a hospital neurologist as part of the brain death protocol. The time available for consent has just become more critical.

The driver’s license appears to be a key but, in this case, actually provides limited information. The coordinator contacts the Department of Motor Vehicles (DMV) and learns that he does not currently have a valid driver’s license in Pennsylvania or in New Jersey. The address listed is an apartment complex where he no longer lives, and conversation with the manager of the apartment complex does not reveal a forwarding address or any additional contact information.

The names on the business cards differ from the patient’s name. As part of the exhaustive search, the coordinator contacts the phone numbers on each business card. The third business card lists a small carpentry business located in Scranton, Pennsylvania. During conversation with the business owner, the transplant coordinator was thrilled to hear that he recognized the patient’s name. The business owner is not related to the patient but had simply interviewed him for some part-time carpentry work a few weeks earlier. Over the course of this conversation, the coordinator learns that the patient had provided references with his application for work. Further phone calls reveal that one of these references is a cousin, who is then contacted and made aware of the patient’s clinical status.

The patient’s cousin comes to the hospital the next morning and provides medical and social information about the patient. The coordinator discovers that the patient’s parents had both died in the past 5 years, he is not married, and he has no siblings. Prior to the mother’s death from liver cancer, the family had conversations about liver transplant, but she was not eligible for a transplant due to the nature of her disease.

Following brain death pronouncement, the patient’s legal next of kin, the cousin, is approached in an open discussion regarding the life-saving possibility of organ donation. Later that morning, after speaking with some mutual friends, the cousin signs consent supporting organ and tissue donation. The cousin believes that because the patient had supported the idea of a liver transplant for his mother, he would be supportive of organ donation in these circumstances.

By conducting an exhaustive search to identify legal next of kin, the health care team was able to reach family, discuss care, and gather information. The need to pursue legal guardianship was avoided, and the family was given the information necessary to make a donation decision. The organ recovery took place approximately 2 days after admission to the hospital, resulting in two kidney transplants and a liver transplant. Due to hemodynamic instability and high use of multiple pressors, the heart and lungs were not recovered for transplant.
Summary

Organ donation has the potential to both save lives and provide some sense of meaning to those facing the death of a loved one. The best-practice approach in obtaining valid informed consent is critical in both limiting OPO and coordinator liability, as well as ethically meeting the needs of families in a time of crisis. During the donor evaluation process, the transplant coordinator has a duty to gather and communicate accurate clinical information as it pertains to donation.

The coordinator’s responsibility to the recipient/s is balanced by the responsibility to support donor wishes, while being attentive to the emotional needs of the donor’s family. This multifaceted role is a key component in the effort to save the lives of those awaiting transplant.

For further information about organ transplantation and the national shortage, please contact your regional organ procurement organization or the following Web sites:
- United Network for Organ Sharing (UNOS): www.unos.org
- Organ Procurement and Transplant Network (OPTN): www.optn.org
- Gift of Life Donor Program: www.donors1.org

References

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Computer technology is proving to be a beneficial tool to enhance the nursing profession. Technology tools are also available for the legal nurse consulting specialty. This article describes some of the tools available for different practice settings in legal nurse consulting.

Computer technology has been applied in the practice of nursing with very positive results. Advances in computers, database technology, and software can help nurses to provide beneficial and positive outcomes for their patients and to further enhance the nursing profession. The following are a few of the many applications of computer technology reported for nursing:

1. A user-friendly database with Micro-Soft Word to minimize data entry errors (Schneider, Schneider, and Lorenz, 2005)
2. CD-ROM to identify medication errors (Schneider et al., 2006)
3. Technology to monitor incident reports for quality management of medical units (Le Duff et al., 2005)
4. Analysis software to assess wound healing (McGuiness, Dunn, and Jones, 2005)
5. Bar code technology to improve patient identification for transfusion administration (Sandler, Langeberg, and Dohnalek, 2005)
6. A CD-ROM database for poison information (Fountain, Reith, and Watts, 2005)
7. Software to monitor severe head injury and summarize the development of pathological problems to alert the medical team (Smielewski et al., 2005)
8. Computer directed IV insulin system for safe, effective glycemic control (Davidson, Steed, and Bode, 2005)
9. Computerized data to determine and provide adequate nursing staff (Ghosh and Cruz, 2005)
10. Computer aided diagnoses system for time saving monitoring during dialysis (Hamada et al., 2005)
12. Technology to improve inter-shift communications (Strople and Ottani, 2006)
13. Up-to-date computer information to assist school nurses to manage emergencies (Murphy, 2005)
14. Data from a computer program to assist in better management of cancer patients’ pain (Im and Chee, 2006)
15. Computer technology to educate nursing students about health assessments (Bosco and Ward, 2005)

Legal nurse consultants (LNCs) would expect to use technological tools in their practices, with objectives similar to those of other nursing roles but expanded to address the unique needs of this nursing specialty. These objectives include higher efficiency, error reduction, improved communications, and visualization. The purpose of this article is to identify areas for the application of computer technology tools available to the legal nurse consulting community.

The American Association of Legal Nurse Consultants (2005) states that legal nurse consulting is a specialty nursing practice defined as “the evaluation and analysis of facts and the rendering of informed opinions relating to the delivery of nursing and health care services and outcomes.” The practice is “similar to other registered nurses working in research settings, informatics, and administrative positions.”

The use of technology tools, computers, and software allows LNCs the ability to save time by efficiently compiling and organizing large amounts of data. Computers access search engines to retrieve data for review. Computers can save entered information and arrange it chronologically. Software can quickly create special reports, timelines, charts and graphics from the pertinent information, eliminating the need to re-type or copy and paste information. Just as technology tools are helping nurses provide better quality of care, LNCs can also benefit by using technology tools as an aid to produce quality work products for their clients.

Practice Management

Many LNCs are independent practitioners and can benefit from small business software. Business tools available to enhance the LNC practice include the following:

1. Accounting Software: Several products support invoicing, the tracking of expenses and income, and financial reporting. Accounting software for professional practices should also provide for time tracking by client and case.
2. Prospect and Client Management: This tool is valuable in managing communication with current and prospective clients by maintaining lists of contacts, contact history, and contact reminders, and supporting mail and e-mail campaigns.
3. Web Site: Just like most small businesses, LNCs’ practices can benefit from a well-designed web site. Web site to create can be very economical or extremely expensive, depending on the graphic design, special effects, number of pages, and how the site is developed. There are many web hosting vendors, and they will often offer templates for “instant” web sites. Software packages exist that will allow users with only word processing knowledge to create web sites. This software may also come with the
office suite installed on new computers. For those who prefer to retain professional web developers, there are several vendors specializing in creating sites specifically for LNCs.

Software for Legal Nurse Consulting

LNCs have several choices for software to assist them. The simplest of these is word processing software, the most common of which is Microsoft Word®. Word processors have the advantage of allowing great flexibility in the presentation of a report but are limited in other useful features such as sorting and searching. Some large companies and law firms are requiring that documents transmitted to them be in Microsoft Word® format (Oldham, 2005).

LNCs working with large companies and legal firms need to be aware of their document policies. There are other commercial software products in the marketplace for LNCs. Each of these has its own specific objectives and features. LNCs will need to review the choices and select the product that meets the needs of their particular practice settings.

Organizing, Analyzing, Managing Medical Records

LNCs can practice in many different settings. These can require review of large volumes of medical records. The first challenge is analyzing the medical record and inputting information into the computer. There are different ways to approach data entry:

1. Scanning: Many companies and law firms are moving to “paperless” offices. This means the utilization of high-end scanners, special software, and dual-monitor computers. This is beyond the reach of most small offices at the present time. As electronic medical records become more common, better and more affordable solutions will become available to address the management of these records. Scanning can be used in a small office in limited ways. Flatbed and hand-held scanners are used to scan documents and images that can then be inserted into reports. Optical Character Recognition (OCR) is a technology that takes page images such as scanned documents or PDF files and converts them into formats that can be used by computer programs such as Microsoft Word®. OCR is currently most successful with type written text. Advances continue to be made in converting handwritten documents as technology improves. The quality of the results can vary widely, depending on the clarity of the source document and the OCR software being used. The outcome can need extensive editing, offsetting the value of scanning in the first place.

2. Speech Recognition: This technology is a program that converts the spoken word into computer text. It can take the place of a keyboard for data entry. There are several speech recognition products available, and the cost of the basic systems is affordable. The advanced versions for medical and legal vocabulary can cost significantly more. Some LNCs have experienced great success with this technology and would find it difficult to work without it. They report substantial time saving and greater efficiency. Many others try this technology and abandon it. Implementation of speech recognition into a practice requires a thorough evaluation period. The user’s comfort level will also improve with time.

3. Keyboard: Most data entry remains as manual entry on the keyboard. Some firms will use dictation, and have a medical transcriber performing data entry. This may not be a viable option in many small businesses. Most database systems will allow sorting of the medical records. Capabilities should include sorting by time and date or manually by entered sequence numbers when the time and date are missing. The ability to account for and identify a Bates number is also desirable. Searching for a particular phrase is a valuable time-saving tool. Examples of this use would be to finding a particular party mentioned in the records in preparation for deposition or zeroing in on an exact detail.

Figure 1: PTT Lab Test Results.

Figure 2: Vital Signs.
the LNC wishes to review his orders. The first level of search for “Dr. Smith” will return all references to him from the orders. If there is a question about a particular medication, for example, heparin, the second level of the compound search would be to search orders for “Dr. Smith” and the records for “heparin.” The search would return Dr. Smith’s orders, the heparin, and heparin administration. The third level of the search might be to search “Dr. Smith,” “heparin” and “the prothrombin/partial thromboplastin times (PT/PTT).” The search would return Dr. Smith’s orders, the heparin given, and the results of the patient’s PT/PTT laboratory tests. Once a search is complete, it is desirable to be able to either edit or print a report of the search result. Computer software can also create charts to demonstrate findings. (See Figure 1 and Figure 2 on the preceding page.)

Occasionally, there is a need to produce a report that is not searchable by a phrase. For example, it may be desirable to examine the sequence of treatment over a period of time by looking at different medications or diagnostic studies. It is desirable to be able to select medical records for inclusion into a group sometimes called a special study or a case issue. This group can then be printed as a special report.

In the process of reviewing the medical record, the LNC will encounter information and facts that demand attention. These may include medical terminology requiring explanation, parties whose actions need to be documented, significant items that must be mentioned in the summary or included in a timeline, and identifying missing records. A tool that can allow these discoveries at the time that they are encountered can be a significant time saver and reduce the chance of an important detail being overlooked.

Practice Settings

There are many different practice settings in which a LNC can work, each with its own particular requirements for analysis and presentation of findings. Some tools that can benefit special practice settings include the following:

1. Medical Billing Analysis: This tool allows for the entry of billing information along with Current Procedural Terminology (CPT) and Diagnoses Codes. The tool summarizes billing by category and allows for a baseline for comparison of findings in the medical record or for rebuttal purposes.

2. Expense Itemization: This tool helps in the entry and presentation of itemized expenses. It allows for the grouping of expenses by category, professional group, and provider.

3. Mass Tort Case Screening: This tool allows for the computer generation of questionnaires and direct online entry of interview results into a searchable database and case stage tracking. A particular mass tort may require a screening interview, followed by a more detailed interview if the situation warrants it. It may require making and tracking a large number of appointments and many tasks and events. Features that support these requirements are desirable.

4. Life Care Planning: A tool to perform calculations, track suppliers, and format reports can greatly ease the work involved in generating a quality plan. Several products are available for purchase.

Managing Workflow in a Group Setting

Working in a team environment has its own special needs. It is necessary to control access to shared information, and an appropriate security policy must be established. Typically, the policy defines who has rights to access individual cases and other administrative information. It is desirable to be able to send messages, post and track tasks, and schedule events. Information in the system is immediately available for team members to access. All of this provides for a heightened level of security, while facilitating group communication, improving efficiency, and enabling progress tracking.

Research

The amount of information available over the Internet continues to expand at an astounding rate. New research sources for LNCs are continuously appearing, as more organizations create Web sites and expand their existing sites. The Internet is becoming the primary source for many people doing research, including LNCs.

Be careful to verify the authenticity of the site, and look for acceptance by the Health On the Net Foundation as one indicator. A resource for locating medical information resources on the Internet is The Internet Medical Guide (Lindell, 2006) that contains a very comprehensive list of validated sources.

Presenting the Findings

Once analysis of the case is complete, it is time to consider how the results will be presented. The final work product must be very professional because it represents the LNC. Some clients may prefer portrait orientation, while others prefer landscape. Some may want grid lines visible in the chronology, and others may not. It is highly desirable to have software that allows for maximum flexibility in formatting final reports to meet the client’s preferences.

Different versions of the chronology are also required. A fully annotated version is appropriate to present to an attorney so that the LNC’s education and analysis is available for the attorney to review. If it is decided to send the chronology to an expert, it is not appropriate to include the LNC’s comments and analysis, so the expert can render an unbiased opinion. The option to produce either style of report is desirable.

The medical record management tool should allow the printing of a report for any information entered into the system. For example, glossary entries, the parties involved with questions, lab values, and any other significant data should be available on a printed report.

Visualization is a powerful tool in presenting findings. Anatomical drawings can be very useful in describing the medical issues, especially to non-medical audiences. Graphs

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of lab values, vital signs, and other significant data can quickly and effectively describe the incident. Figure 2 is an example of a vital sign chart that leaves no question about the outcome of this event. There are many graphics tools, with wide variances in costs, capabilities, and ease of use. Tools exist for the legal and medical target markets for those who feel comfortable creating diagrams. Figure 1, for example, was generated in Microsoft Excel® by another program that greatly reduced the required graphing knowledge.

Timelines are also an effective way to present findings when the sequence of events is relevant. Timelines can be useful for both internal analysis and as demonstrative evidence for settlement or trial. As with other documentation, however, timelines need to be adapted to suit the audience. A timeline consisting of many pages that may work well as a vehicle to understand the sequence of events internally may not be suitable for presentation to the jury. Many tools exist for the generation and personalization of timelines.

In the Courtroom

The availability and use of technology in the courtroom is on the rise, but varies widely by jurisdiction and courtroom. The “high-tech” solution may not be the best alternative simply because it is high-tech. Attorneys tend to use techniques that are effective for them. Some are using technology solutions, ranging from animation to PowerPoint®, when the circumstances justify their use. In these cases, they may call upon the LNC to provide charts, graphs, and timelines. It is important for the LNC to clearly understand the content required for the exhibit and how it is to be transmitted. There are several evidence presentation packages available to the attorney, and it is necessary to understand what types of file formats these packages require.

Conclusion

Many technology tools exist today for the LNC. These tools range from those generally available for small businesses to tools designed for a particular practice setting. Improved quality and greater numbers of tools will become available as technology advances. The LNC will benefit by using these tools when analyzing cases and presenting results.

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Innocence Lost: Could This Be Price Fixing?

Mary Ann Shea, JD BS RN

The scenario: Two legal nurse consultants (LNCs) working as independent business owners get together to discuss an upcoming meeting of their local chapter of the American Association of Legal Nurse Consultants (AALNC). The conversation somehow turns to fees, as Kathy asks Michael what he charges and how he sets his hourly fee. Kathy is new to the field, and Michael wants to help a colleague by providing some insight into the market. As a result of this conversation, Kathy feels she has priced her services too low and raises her fees.

Kathy and Michael have just inadvertently engaged in dangerous behavior that can be construed as “price fixing.” Seemingly innocent day-to-day conversations such as theirs can place an LNC in the unpleasant position of answering to federal or state allegations of antitrust violations. Few LNCs are aware of this risk, and, in fact, many who have been warned do not believe the risk is real!

The same risk exists when discussions are held in a more public forum, such as a formal meeting or on a listserv. In addition, allowing others in your presence to engage in communications that could give the appearance of price fixing also puts you at risk, even if you do not participate in the discussion. Yet as is the case with Kathy and Michael’s discussion, many LNCs do not recognize this serious risk.

The purpose of this article is to alert LNCs to the legal risks of any behavior that can be construed as price fixing. The author of this article is not aware at this time of any LNCs who have fallen victim to this unfortunate situation. However, as professionals engaged in independent practice, we must heed the apparent warnings from other professionals who have traveled down this road. This article explores the antitrust violation of price fixing from others’ experiences, enabling LNCs to draw the correlation to their own independent practices and recognize actions that place them equally at risk of federal and state allegations of price fixing.

What Is Price Fixing?

Price fixing refers to any behavior or communication about fees between competitors, which might have an adverse effect on the consumer. Please note that, in order for an action to be considered price fixing, intent to set prices or to negatively impact the consumer is not necessary. If the behavior or communication merely gives the appearance of price fixing, that appearance is sufficient to result in a federal or state investigation.

Price fixing is one of many possible allegations falling under the broad definition of antitrust violations. Federal law governing antitrust can be found in the Sherman Antitrust Act of 1890, which promotes free trade and prevents unfair competitive practices, and the Clayton Act of 1914, which prohibits more specific business activities if they lessened competition. A detailed analysis of these acts is beyond the scope of this article, which will focus on the price fixing aspect of these laws.

Most states have promulgated their own antitrust legislation. Unlike other state laws that, according to the supremacy clause of the U.S. Constitution, are preempted by federal laws on the same issue, state antitrust laws can exist free of federal preemption if the state agrees to provide regulation and oversight of antitrust activities within its borders. Consequently, allegations of price fixing can result in either federal or state charges. Some alleged violators might be brought before federal court, and others before state court if a state action doctrine is in place.

In general, most state antitrust laws are based on federal legislation. Each individual is responsible to know and abide by the laws of his or her own state. To date, however, it is still difficult at times to determine precisely what is allowed or prohibited under federal or state antitrust laws. Herein lies a significant problem, which requires all LNCs to be cautious. When clear definitions are not written into the laws, it sometimes becomes necessary to rely on the experiences of others when engaging in certain behaviors. Fortunately for LNCs, others have paved the road on which we can travel more safely.

When defining what is and is not prohibited, or what could be construed as price fixing, it is wise to adopt the principle, “Better safe than sorry.” Some of those confronted with price fixing allegations had no idea they were in violation of any laws when they carried on their communication.

Learning from Other Professions

As physicians become more businesslike in their practices, dealing with mergers, affiliations, and staff privilege issues, they are also evaluating antitrust concerns (Guadagnino, 2001). The real estate industry has published many cautions to its members over the years, warning them of actions that could lead to an investigation by the Department of Justice, criminal charges, and/or civil penalties. LNCs can learn from the realtors who met legal challenges related to alleged price fixing involving setting real estate commissions (Arizona Association of Realtors, 2006; United States v. National Association of Real Estate Boards, 1950).

Sufficient similarities exist between these two professions to create a crossover. Real estate professionals can and have been investigated for price fixing by attempting to alter
commission percentages, which would affect both their income and consumer costs (Realtor Association of Greater Fort Lauderdale, 2006; Fales, Tenenbaum, and Mallon, 2006). Similar to realtors, LNCs are also independent professionals who, if engaging in conversations about fees, can negatively impact the consumer of those services, thereby opening the door to a Department of Justice investigation.

Consequences of Price Fixing

The penalties for price fixing can be severe. The breadth with which the allegations can be made is of great concern. Consequently, prevention and avoidance are paramount in dealing with this issue.

Price fixing allegations can be instituted with the mere appearance that it might have occurred. Being charged as such causes tremendous time and financial losses, even if proven innocent of the charges in the end. Fines, imprisonment, and/or triple damage awards are allowed by antitrust law for violations.

Is This Price Fixing?

Of course, not all conversations and actions related to compensation are construed as illegal.
- Raising (or lowering) one’s own fees without knowledge of or concern for what others are charging is not price fixing.
- Relying on data in a nationally published study by a reputable institution in setting fees is not price fixing.
- Discussing with others the salary paid by your employer to you as an employee is not price fixing.

Safe Practice for LNCs

If you are an independent LNC and wish to avoid the risk of participating in risky discussions that could be construed as price fixing, remember the following guidelines:
- Do not discuss fees with business competitors, even privately or in casual situations.
- Do not discuss fees at any formal meetings.
- Do not discuss fees on any public forum such as a listserv.
- If faced with any of the above situations, inform the others that this could be construed as price fixing,
- inform them you will not participate in the discussion, and
- if necessary, remove yourself from the vicinity of the discussion.
- Always err on the side of caution whenever fee discussions arise.

References


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Orthopaedics at a Glance: A Handbook of Disorders, Tests, and Rehabilitation Strategies

Nancy Gann, MS PT OCS
Publisher: Slack Incorporated
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Cost: $39.95 (paperback)
Number of pages: 240
www.slackbooks.com

Please bear with me while I present a variation on the academic game, “If you were stranded on a desert island and could have only one quick-reference book on orthopaedic injuries, what book would you take and why?”

Regardless of what area of the legal nursing field you concentrate your focus, as a legal nurse consultant (LNC), you will eventually be called upon to educate the attorney about orthopaedic injuries. (“Orthopaedic” or “orthopedic” are both correct spellings of the word. While the word is Greek/French in origin, “orthopaedic” is commonly associated with the British preference for the spelling of the word.) Back pain, so prevalent in our society, is the mainstay in a majority of personal injury, worker’s compensation, long-term disability, and social security claims. Orthopaedic injuries find their way into medical malpractice, product liability, toxic tort, forensic analysis, as well as criminal and domestic cases.

Repetitive injuries dominate a large part of worker’s compensation claims. Pain patterns manifest themselves in altered gait and overuse syndrome, as the unaffected body-part attempts to compensate for the loss of use. The lack of solid, objective testing for many orthopaedic disorders only serves to muddy the waters.

The determination of whether symptomatology is congenital in origin, due to degenerative change, or traumatically induced is front and center of the controversy in orthopaedic injuries. Individual pain presentations with almost mirror pathology add to the mystification, given the absence of accepted, scientific standards for measurement. The distinction between spondylolisthesis, forward slipping (subluxation) of a vertebra over the one below it, and spondylosis, a defect (stress/fatigue fracture) of the pars interarticularis potentially causing pressure on nerve roots with subsequent pain or paresthesia in the extremities, holds court in the argument of whether or not a previously asymptomatic degenerative spine, now painful, can be traumatically induced as the result of a low-speed motor vehicle accident. Because of the dynamics of our profession, LNCs need the ability to quickly and reliably access the global perspective of a situation while conducting a more microscopic examination as time permits.

Enter the book Orthopaedics at a Glance: A Handbook of Disorders, Tests, and Rehabilitation Strategies by Nancy Gann, MS PT OCS. With a background as Assistant Professor of Physical Therapy at the University of Texas Health Science Center in San Antonio, Gann has designed a concise reference originally for the physical therapy student with an invitation to include primary care physicians, athletic coaches/trainers, and physician assistants. Arguably, the audience is much wider than originally anticipated and warrants an expanded appreciation.

In 13 well-designed chapters, Gann has categorized a multitude of orthopaedic disorders in table format, addressing four distinct categories: characteristics, signs/symptoms (examination findings), special tests, and interventions. By chapters, she has sectioned off shoulder, elbow, wrist/hand, temporomandibular joint (TMJ), cervical, thoracic, lumbar, sacroiliac/iliosacral, hip/thigh, knee, ankle, and foot. In further insight of the reader’s needs, she has included a chapter on orthopaedic radiographic examination for non-physicians. This alone is worth obtaining the reference. While admittedly not a replacement for the radiologist’s interpretation, the straightforward text clarifies essential landmarks and their importance on plain films. Gann includes a section that indicates and highlights diagnosis-related findings. The three appendices include capsular patterns and joint positions, end indicators and highlights diagnosis-related findings. The three appendices include capsular patterns and joint positions, end findings (a targeted reference for the physical therapy student), and Waddell’s non-organic physical signs.


Testing nomenclature permeates medical records and can be understandably a stumbling block for those new to the field of legal nurse consulting. Gann offers priceless assistance in this area. She reserves an area of each chapter to explain dedicated examination findings specific to the anatomical
unit. In citing only an excerpt from the extensive tests she covers, she succinctly explains how the test is performed and interpreted, as well as what the results indicate for McMurray’s (knee), Tinel’s (wrist), Patrick’s (hip), and Straight Leg Raise Test (lumbar). She provides a wealth of information on the subtle distinctions in mechanical low back pain, degenerative joint disease (DJD), degrees of disc herniations, spinal stenosis, osteoarthritis, and more. These are questions with which even the seasoned LNC wrestles.

While many medical textbooks may provide vague, nondescript theories elaborating on the current state of what we don’t know in medicine, Gann’s writing style is similar to the litigation comeback, “Asked and answered.” This text is easy to read and understand, with reliable and relevant pathophysiology. I have repeatedly relied on this reference to address the resolute associate’s question on examination findings, as he prepares for deposition. I have used the bibliography to research primary sources for trial. I have taken full advantage of the comprehensive listing of specialized examination tests unique to the orthopaedic specialist.

As is obvious in my comment about Waddell’s signs, I take little I read at face value and do not abdicate my responsibility of further investigation. I am a strong believer in confirming support for what I read, no matter who wrote it. I do not believe everything I hear, no matter who said it. From my perspective, Gann has offered a genuine source of merit on a myriad of levels. While the art and science of health care will always leave room for disagreement among experts, Gann has written a comprehensive and concise reference of credible information. She deftly illustrates the point that optimal knowledge is now and should forever be a collaborative effort among the professional health care disciplines.

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Submission Guidelines

The Journal of Legal Nurse Consulting (JLNO), a refereed publication, is the official journal of the American Association of Legal Nurse Consultants (AALNC). The journal’s purposes are to promote legal nurse consulting within the medical-legal community; to provide both the novice and the experienced legal nurse consultant (LNC) with a high-quality professional publication; and to teach and inform the LNC about clinical practice, current national legal issues, and professional development.

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Manuscripts should not exceed 3,000 words in length. The title page should include the title of the manuscript and the authors’ names, credentials, work affiliations and addresses, daytime phone numbers, fax numbers, and e-mail addresses. One author should be designated as the corresponding author. The title page, the tables and figures, and the reference list should each appear on a separate page. Pages, beginning with the title page, should be numbered consecutively.

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Manuscripts should be sent to the JLNC Managing Editor via e-mail at JLNC@aalnc.org, as a Microsoft Word attachment. (If not possible, an electronic copy on CD can be mailed to the JLNC Managing Editor; address above.) Use a minimum of formatting: do not use unusual fonts or a variety of type, and do not insert headers or footers except for page numbers. Create a separate file for tables and figures—do not insert them into the text file. Clearly label your e-mail (or CD) with the submission title, word processing program name and version, and name of the corresponding author.

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Manuscript review process

Manuscript submissions are peer reviewed by professional LNCs with diverse professional backgrounds. First-time authors are encouraged to submit manuscripts. Manuscript assistance can be provided upon request to the editor.

Acceptance will be based on the importance of the material for the audience and the quality of the material. Final decisions about publication will be made by the editor.

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  Integration

**Ethics**
- Mental Retardation and (Forced) Contraception
- HIV Litigation: Medical-Legal Issues, Treatment
- Frozen Embryos/Stem Cells
- Sperm and Egg Banks: Issues in Liability
- Wrongful Birth
- Drug Testing: Workplace, Athletes, Medical-Legal/Ethical
  Issues

**Law**
- Qui Tam and Whistle-Blower Litigation
- Expert Panels in Complex Medical-Legal Scientific Litigation
  Biomaterials
- Conflict of Interest

**Criminal Law**
- Correctional Nursing
- Death Investigation
- Prescription Medications in Death Investigations
- Sexual Assault Forensic Examination
- Driving Hazards/Doctor’s Liability: Diabetics,
  Seizure, Alzheimer’s
- Insanity Defense
- Shaken Baby Syndrome

**Employment Law**
- Worker’s Compensation Issues: Fraud, Representing
  Undocumented Workers, Types of Injuries,
  Malingering, Assessing Disability, AMA Guidelines,
  Occupational Asthma

**Medical Malpractice**
- Medication Co-prescriptions: Responsibility in Adverse
  Reactions, Abuse
- Medical-Legal Issues in Telemedicine/Teleradiology
- Failure to Diagnosis Breast Cancer: Liability, False-Negative
  Mammograms
- Dental Litigation: Temporomandibular Disorders
- Missed Diagnosis of MI
- Use of EKG and Cardiac Enzymes
- Delayed Diagnosis/Treatment of Stroke, CVA: Heparin/TPA
- Emergency Room Law

**Paramedic Litigation**
- Legal Considerations in Pre-hospital Care
- Anesthesia Complications/Standards
- Plastic Surgery: Complications, Liability, Plastic Surgeon vs.
  Cosmetic Dermatologist
- Avascular Necrosis: Complications, Liability, Malpractice,
  Legal Outcomes
- Pap Smears: Malpractice in Gynecology
- Imaging Liability: Radiologists
- Alternative Therapy and Malpractice: “Accepted Practice” vs.
  “Reasonable Care”
- Cruise Ship Medical Guidelines
- Red Cross Issues and Liability

**Obstetrical Malpractice**
- Nucleated Red Blood Cells: Timing of Brain Injury at Birth
- Medical-Legal Aspects of Placental Pathology/Examination
- Vaginal Birth after Caesarean Birth: Standards
- Contraception, Morning-After Pill
- Infertility Practices
- In-Utero Drug Exposure

**Personal Injury**
- Carpal tunnel Litigation
- Repetitive Stress Injuries

**Psychiatric Issues**
- Malingered: What to Look For
- Lack of Supervision and Liability: Suicide

**Toxic Tort**
- Carbon Dioxide Poisoning
- Mercury poisoning
- Lead Poisoning

**Miscellaneous**
- School Disability Litigation, IEPs
- School Nurse Standards
- Autopsy Findings/Terminology
- Pharmacy Responsibilities for Patient Education, Informed
  Consent
- Legalization of Marijuana
- Athletic Injuries: Medical-Legal and Malpractice Standards in
  Treatment
- Evaluation of Hearing Loss
- Ambulatory Care/Outpatient Care Settings
- Latex Gloves/Sensitivities
- Fraud: Medical Bill Review
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