IN THIS ISSUE

Atlanta and the Legacy of Leadership

Basic Anatomy and Physiology for Medical Writers

Introducing the Curriculum in Science Fundamentals: A New AMWA Certificate Program
The AMWA Journal expresses the interests, concerns, and expertise of members. Its purpose is to inspire, motivate, inform, and educate them. The Journal furthers dialog among all members and communicates the purposes, goals, advantages, and benefits of AMWA as a professional organization. Specifically, it functions to:

- Publish articles on issues, practices, research theories, solutions to problems, ethics, and opportunities related to effective medical communication
- Enhance theoretical knowledge as well as applied skills of medical communicators in the health sciences, government, and industry
- Address the membership’s professional development needs by publishing the research results of educators and trainers of communications skills and by disseminating information about relevant technologies and their applications
- Inform members of important biomedical topics, ethical issues, emerging professional trends, and career opportunities
- Report news about AMWA activities and the professional accomplishments of its departments, sections, chapters, and members

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Planning is in high gear for AMWA’s 67th Annual Conference, which will be held October 11-13 in Atlanta. Atlanta honors its traditions of Southern hospitality and graciousness but eagerly anticipates the future. One of Atlanta’s traditions is leadership in multiple areas—technology, scientific and medical research, broadcasting, sports, and much more. That legacy of leadership is nowhere more apparent than in the city’s role as birthplace of the Civil Rights Movement.

AMWA also has a rich legacy of leadership in educating medical communicators. At each year’s annual conference, the emphasis is traditionally on high-quality workshops and open sessions, supplemented by breakfast roundtables, poster presentations, and a multitude of networking opportunities. Check the Web site at www.amwa.org for up-to-date conference information, and keep an eye on your e-mail for registration reminders. On June 29, the registration brochure will be posted for you to preview online. Online registration will be available beginning July 16. To provide equitable access for members on the West Coast, registration will open at 11:00 AM Eastern Time, 8:00 AM Pacific Time.

We hope to see you in Atlanta. We’re going to have a wonderful time! Read on for conference highlights.
Open Sessions
Open sessions provide conference attendees with valuable information on a variety of issues of interest and are included in the cost of conference registration.

The following open sessions are planned for this year's conference.

- **Ninety-Minute Sessions**
  
  **Civil War Medicine**
  Moderator: Paul Dougherty
  
  **Communication Strategies at the American Cancer Society**
  Moderator: Darryl Gossett
  
  **Emergency Health Care: An Emerging National Crisis**
  Moderator: Susan Siefert
  
  **Freedom Writers: Making the Most of the Freelance-Agency Relationship**
  Moderator: Larry Liberti
  
  **Health Care on the Margins: Reaching Out to the Disenfranchised**
  Moderator: Robert Bonk
  
  **Health Marketing and Communication at CDC**
  Moderator: Polyxeni Potter
  
  **Heart Disease in Women and the American Heart Association's Guidelines for Cardiovascular Disease Prevention in Women**
  Moderator: Steve Palmer
  
  **Medical Writing in Developing Countries: Challenges, Successes, and Initiatives**
  Moderator: Barbara Gastel
  
  **New Drug Development: From Bench to Breakthrough**
  Moderator: Gayle Nicholas Scott
  
  **Predictive Health—A Novel Paradigm for Disease Prevention**
  Moderator: Emma Hitt
  
  **Public Health Challenges in an Era of Global Connectivity and Communication Revolution**
  Moderator: Thomas Gegney
  
  **Results of the 2007 AMWA Salary Survey**
  Moderators: Cindy Hamilton & Tinker Gray
  
  **The Role of Medical Writers in Promoting Ethical Publication Practices**
  Moderator: Nancy Taylor
  
  **Scope of Medical Communications**
  Moderator: Lois Baker

- **Sixty-Minute Short Sessions and How-to Sessions**
  
  **Stem Cells: At the Intersection of Science, Politics, and Religion**
  Moderator: Melanie Fridl Ross
  
  **Technologies for Medical Communicators**
  Moderator: Camille Krug
  
  **Trading the Tricks of the Trade: The Ins and Outs of CME Materials**
  Moderator: Flo Witte
  
  **Training in Scientific Communications in the Absence of Technology**
  Moderator: Elliott Churchill
  
  **The Twin Epidemics: Obesity and Diabetes**
  Moderator: Jenny Walker
  
  **Vaccine Safety: Dealing with Uncertainty**
  Moderator: Diego Pineda
  
  **Writing About Medical Devices: FDA and Industry Perspectives**
  Moderator: Jim Hudson

- **Special Interest Sessions**
  
  **An Introduction to Pharmaceutical Marketing Materials**
  Carolyn Berg
  
  **The Journal Selection Process: Getting Beyond the Impact Factor**
  Dan Donovan
  
  **Listservs and E-mail: Security and Sanity**
  Adi Ferrara and John Hand
  
  **Mind Your Freelance Business: The Year-End Review**
  Laura Ninger
  
  **Navigating the Promotional Review Process**
  Steven Casto
  
  **New AMWA Certificate Program: The Curriculum in Science Fundamentals**
  Moderator: Sue Hudson
  
  **NIH Funding: What the Roadmap Means to Medical Writers**
  Sarah Toombs Smith
  
  **Top 10 Techniques for Producing Great Slides**
  Sara Lou O'Connor and Lili Fox Velez
  
  **Writing About Science When English Is Your Second Language**
  Larendra Mielke
Breakfast Roundtables

Breakfast roundtables offer a great way to discuss a topic informally. This year, conference attendees can choose from more than 70 roundtables that include several perennial favorites, along with a mix of new topics and new leaders. Among the familiar topics are freelance fee negotiation, the business of freelancing, clinical trial registries, medical device writing, mentoring new medical writers, electronic editing for beginners, interviewing techniques, medical journalism, marketing for freelancers, and press releases.

New roundtable topics include assessing the quality of published reports of trials, transitioning from scientist (or practicing physician) to writer, citing references, volunteerism, RSS feeds, electronic newsletters, multiplexing for medical writers, critical errors in manuscripts, patient safety issues, poster presentations, serious adverse event narratives, writing with international partners, using publication metrics to measure success, and more! The titles and leaders of all roundtable breakfasts will be available in the conference brochure.

Poster Presentations

Several posters highlighting original research and how-to ideas were submitted this year. A committee of AMWA members reviewed abstract submissions for overall relevance, practicality, originality, organization, and other factors. The posters will be displayed in the hospitality area throughout the conference, and authors will be on hand to visit with you about their topics on Saturday morning. The abstracts of posters to be presented will be included in the September issue of the AMWA Journal.

Featured Speakers

Four dynamic leaders in the health care field will speak at this year’s conference, and new lecture formats will expand the opportunities to hear these addresses. Julie L. Gerberding, MD, MPH (top left), Director of the Centers for Disease Control and Prevention (CDC) is the McGovern Award recipient, and Jeffrey P. Koplan, MD, MPH (top right), Vice President for Academic Health Affairs at Emory University Woodruff Health Sciences Center, is the Alvarez Award recipient. As in years past, these speakers will address attendees at special luncheons on the Thursday and Friday of the conference. However, this year, conference attendees will have a choice of purchasing a ticket for the luncheon or attending only the speaker portion of the event. Free admission to auditorium-style seating will be available for those who wish to listen to the award speakers. There will be separate admission times (noted in the conference brochure) for the luncheon and the auditorium seating. (Food will not be allowed in the auditorium.)

The 2007 Keynote Address will offer an exciting new format. The deans from both of the medical schools in Atlanta—Eve J. Higginbotham, MD (bottom left), Dean and Senior Vice President for Academic Affairs at Morehouse School of Medicine, and Thomas J. Lawley, MD (bottom right), Dean of the Emory University School of Medicine—will discuss issues in medical education. Moderating the discussion will be Nancy Albritton, Editor of Medicine, Environment, Science, and Health at The Atlanta Journal-Constitution.

Brief biographies of all of the featured speakers are available on the AMWA Web site (www.amwa.org).
Several interesting and informative tours will be offered during the conference, including the following:
- Yerkes National Primate Research Center
- Atlanta: Past and Present
- Science and Safety High-containment Laboratory Training Facility
- Atlanta History Center and Swan House/Tullie Smith Farm
- CNN Studios and the World of Coca-Cola
- Great Heroes of Atlanta: Martin Luther King Jr. Center for Nonviolent Change and Carter Presidential Center, Library, and Museum
- Atlanta Botanical Garden (left photo)
- Stone Mountain Park (top photo)

More information about these tours is available on the AMWA Web site (www.amwa.org).

Creative Readings
AMWA is looking for poets, playwrights, novelists, short story writers, essayists, and humorists to share samples of their work in a warm, welcoming forum. Donna Miceli, who is again chairing the Creative Readings Session on Wednesday night, will be inviting people to read their work and also will seek out those more content to be enthusiastic listeners.

Hotel Reservations

Chapter Greet & Go
Thursday, 6:30 – 7:45 PM
Make plans to meet members of your chapter at this year’s Greet and Go, designed as a launching point for your unique chapter event at the conference. Why not plan to mingle with your chapter colleagues over dinner at one of the many great restaurants within walking distance of the conference hotel? Talk to your chapter members and make plans early, as restaurant reservations are sure to fill up quickly! The conference program has been modified to allow more time for dinner with your colleagues and still attend your favorite Coffee and Dessert Klatch. Take advantage of this opportunity to socialize with your chapter. Or combine your event with another chapter for enhanced networking. The time is yours—make the most of it!

Help first-time attendees have a positive experience in Atlanta by becoming a conference coach!
Abstract
Anatomy and physiology describe how the body and its components look (form) and how they work (function), respectively. Knowledge of anatomy and physiology is key to understanding disease states, health, growth and development, aging, and drug actions. This article is the first of 2 articles that provide a review of the basics of anatomy and physiology and introduce information needed to study more complex areas of human biology. A glossary of terms is provided.

This article provides basic scientific knowledge that all medical writers should have. The information here can be used as a starting point to develop a writer's knowledge of the field of medical science. Underlined words are defined in the glossary. This first article covers anatomical direction and basic design, levels of organization, and the integumentary, skeletal, muscular, and nervous systems. The second part will cover the special senses and circulatory, hematopoietic, lymphatic, respiratory, urinary, endocrine, and reproductive systems.

Anatomical Direction and Basic Design
Anatomy refers to how things look; physiology refers to how something works. An adage is “form follows function.” With continued study, students come to learn that structures look a certain way because they have a specific function and vice versa.

The ability to identify and correctly describe body areas is particularly important in health sciences. Anatomical directions are used to describe the location of structures and organs. The anatomical directions for humans (Figure 1) differ slightly from those for 4-legged animals, insects, and other animals. The body as a whole can be divided into axial and appendicular portions. Axial refers to the head, neck, and trunk, while appendicular refers the appendages, or arms and legs.

For all our sophistication, humans have the same overall body plan as an earthworm: a tube within a tube. As vertebrates, we are characterized by our dorsal hollow nerve tube, and the digestive tract is a tube that runs from mouth to anus. The organs are tightly packed within the body’s cavities. The body has 2 principal cavities, the dorsal body cavity and the ventral body cavity (Figure 2).

Figure 1. Anatomic directions. Anterior = In front of, or in the forward part; ventral; opposite of posterior. Coronal = Pertaining to the crown of the head. Distal = Farther from a point of reference; toward the end of a structure; opposite of proximal. Inferior (caudal) = Situated below or directed downward; opposite of superior. Lateral = Of or toward the side; opposite of medial. Medial = Of or toward the middle; opposite of lateral. Posterior = Situated behind or toward the rear; opposite of anterior. Proximal = Nearest to a point of reference; opposite of distal. Sagittal = Pertaining to a plane or section parallel to the long axis of the body. Superior (cephalad) = Above, higher, directed upwards; opposite of inferior. Transverse = Crosswise; situated or lying across. Modified, with permission from LifeArt. Copyright © by TechPool Studios Corp, USA.

Figure 2. Location and subdivisions of the dorsal and ventral body cavities, as viewed from the front (anterior) and the side (lateral). Modified, with permission from LifeArt. Copyright © by TechPool Studios Corp, USA.
The dorsal body cavity consists of the cranial cavity, which houses the brain, and the vertebral cavity, which houses the spinal cord. The ventral body cavity consists of the thoracic, abdominal, and pelvic cavities. The thoracic cavity is subdivided into a pericardial cavity, which surrounds the heart, and a pleural cavity, which houses the lungs. The thoracic cavity is separated from the abdominopelvic cavity by the diaphragm.

The abdominal and pelvic cavities have no definite dividing structure comparable to the diaphragm. Organs such as the stomach, liver, and intestines are found in the abdominal cavity, while parts of the urinary system and reproductive system are usually found in the pelvic cavity. To increase descriptive accuracy, especially when preparing a patient for surgery or for “charting,” or to allow patients to pinpoint pain more accurately, the abdominopelvic cavity can be divided into 4 anatomical quadrants or 9 anatomical regions. The 4 quadrants are right upper quadrant, left upper quadrant, right lower quadrant, and left lower quadrant. It is important to remember that right and left refer to the patient’s right and left, not the observer’s (which is generally a mirror image).

Survival is the body’s most important function and depends on the body’s ability to maintain or restore homeostasis. Homeostasis is the relative consistency of the internal environment. The chemical composition, values, and basic characteristics of the blood and interstitial fluid remain constant within very narrow limits because of homeostasis. A good example of homeostasis is regulation of body temperature: when we are very cold and the body’s core temperature is in danger of increasing, we begin to shiver. Muscle contraction produces heat, and shivering allows the body’s core temperature to increase to normal. Conversely, when we are very warm and the body’s core temperature is in danger of increasing above normal, we begin to sweat. As sweat evaporates from the skin, it removes heat, and the body’s core temperature decreases to normal. All systems in the body, save the reproductive system, interact to maintain homeostasis.

The Body’s Levels of Organization
The human body is very organized, and cooperation and harmony is required among all levels of organization within the body. The body’s levels of organization, from the lowest level to the highest level, are atoms, molecules, cells, tissues, organs, organ systems, and organism (ie, the human being).

Atoms are the building blocks of all matter, and atoms join to form molecules. Organic molecules produced by living cells are called biomolecules. The 4 important groups of biomolecules are carbohydrates, proteins, lipids, and nucleic acids.

Carbohydrates contain carbon, hydrogen, and oxygen atoms in a 1:2:1 proportion. The carbohydrate group includes molecules ranging from simple to complex, such as glucose, a sugar used exclusively by the body to produce energy, and glycogen, a storage form of glucose that is easily converted to glucose. Glucose is used to fuel the citric acid cycle (Krebs cycle) that produces adenosine triphosphate (ATP), the energy currency of the cell. Most processes (eg, muscle contraction) in the body require ATP to occur.

Most of the body’s weight is due to protein. Muscles (skeletal, cardiac, and smooth), hair, skin, enzymes, growth factors, and some hormones are examples of proteins. Proteins form structures (eg, hair), protect against disease (eg, antibodies), and help maintain homeostasis (eg, hormones, enzymes).

Lipids can be fats, oils, or waxes, and they are important energy sources for the body. Lipids have a bad reputation, but cholesterol, a lipid, is the major structural component of cell membranes (plasmalemma or plasma membrane). A thin layer of fat under the skin protects blood vessels and nerves from mechanical damage, and the fat layer provides insulation from the cold. Some hormones, such as the sex hormones estrogen and androgen, are cholesterol based.

Nucleic acids are important in directing the activities of the cell. Deoxyribonucleic acid (DNA) contains multiple units of a deoxyribose (5-carbon sugar); a phosphate group; and a nitrogenous base of either adenine (A), cytosine (C), thymine (T), or guanine (G). These units are collectively referred to as nucleotides. Ribonucleic acid (RNA) also comprises nucleotides, but ribose replaces deoxyribose and uracil (U) replaces thymine (T). For more information about DNA and RNA, see earlier articles.

All processes necessary for life occur in cells, the basic building blocks of all living organisms. The anatomy and physiology of cells and organelles has been covered in an earlier article. Cells are organized into tissues, a group of cells and their nonliving intracellular matrix or glue. A tissue performs a specialized function. The 4 groups of tissues are epithelial (covering and lining tissue; also glands); connective (blood, adipose, bones, ligaments, and tendons); muscle (skeletal, cardiac, and smooth); and nervous (brain and spinal cord). Tissues are organized into organs, discrete structures with discrete functions. Organs are joined to form systems. For example, the respiratory system comprises the nose, pharynx, larynx, trachea, bronchia, and lungs. All the organ systems of the body join to form an organism.

Integumentary System
The integumentary system includes skin (the so-called integument) and accessory structures of hair, nails, and skin glands (Figure 3). Skin is the principal organ of the integumentary system. Because skin is one of a group of simple but functionally important sheet-like organs called membranes, the skin is called a cutaneous membrane. The skin functions as the first line of defense against infection by microbes, protects underlying tissue from ultraviolet rays of the sun and harmful chemicals, is involved in temperature regulation, and functions as an enormous sense organ.

The skin is composed of 2 primary layers, the epidermis and dermis. The outer layer (epidermis) comprises
The integumentary system consists of 2 primary layers, the epidermis and dermis, as well as a small subcutaneous layer. The outer layer (epidermis) comprises epithelial cells filled with keratin, a tough, waterproof protein. Keratin provides a heavy, abrasion-resistant, and protective quality. Millions of epithelial cells are reproduced daily to replace the millions shed onto our clothes, bed sheets, and the things we touch, and into our bathwater. Mitoses in the stratum germinativum (basal layer) replace the superficial cells lost at the surface of the epidermis (corneal layer in Figure 3; also called the stratum corneum). The outermost layer of the epithelium consists of dead cells. The thickness and contour of the surface vary according to the location in the body (eg, eyelids compared with palms and soles). The dermis contains blood vessels, lymphatic vessels, hair follicles, sweat glands, sebaceous glands, and sensory nerves.

The dermis is the second layer and it is deeper and thicker than the epidermis; it is composed of connective tissue. The dermis contains blood vessels, lymphatic vessels, hair follicles, sweat glands, sebaceous glands, and sensory nerves. The dermis supports and nourishes the overlying epidermis. Ridges and grooves in the dermis form patterns unique to each individual, the fingerprints.

In general, normal skin color is based on the amount of melanin in the skin: "white" skin has little melanin, allowing the pink of the blood vessels to show, whereas "black" skin has melanin in all layers, masking the blood vessels. "Yellow" skin contains a large amount of carotene, the yellow coloring of carrots and pumpkins, in the fatty dermis. Skin color can be a useful diagnostic tool. Abnormal skin color may be indicative of a specific condition or disease; for example, bluish color (cyanosis) can mean that the body's cells are not receiving enough oxygen because of heart or lung problems.

Hair, nails, and glands are accessory organs of the integumentary system. Hair is formed from cells filled with keratin. Humans are born with all the hair follicles they will ever have. They are formed during the embryonic period and, if destroyed, cannot be replaced. Hair protects—hair on the head cushions against blows, hair in the nose keeps out dust and insects. Another function of hair is to act as a sensory organ (eg, insect crawling on your arm). A tiny smooth (involuntary) muscle, the arrector pili, attaches to a dermal papilla above and to the side of a hair follicle. These muscles contract when humans are cold or frightened and produce "goose bumps."

Nails are also accessory organs of the skin and are produced by cells in the epidermis. They, too, are filled with keratin. The nails also function as protection.

Several types of glands are found in the integumentary system. Sebaceous glands produce a lipid mixture called sebum, which is discharged into hair follicles or directly onto the surface of the skin at sebaceous follicles. Sebum lubricates the epidermis to keep it intact as a protection from microbes. Apocrine sweat glands produce an odorous secretion in response to neural and hormonal stimuli, whereas eccrine sweat glands produce a watery secretion that is important in the regulation of body temperature. Sweat may be an important route for the excretion not only of water, but also of electrolytes, wastes, and foreign compounds. Ceruminous glands of the ear produce cerumen, also called earwax, which functions to prevent dehydration of the ear canal and keep out insects and foreign materials.

Skeletal System

The skeletal system comprises bones, cartilage, joints (articulations), and connective tissue, including ligaments (connecting bone to bone) and tendons (see Muscular System section). The skeletal system forms a supporting framework, protects delicate structures (eg, the brain), stores compounds (eg, calcium salts), and acts as a lever system for movement.

The body contains 206 bones and associated cartilages. As discussed earlier, the skeleton is divided into axial and appendicular portions. The axial portion includes the skull, spine, and thorax (ribs). The appendicular skeleton includes the bones in the arm and forearm, leg and thigh, wrist and hand, and ankle and foot, and their girdles, or attachments, to the skeleton. Bones may be categorized according to shape: long, short, flat, irregular, sesamoid, or sutural (Table 1). Individual markings can be used to identify specific bones within each category and include elevations or projections (eg, ramus, process, head, trochanter, tuberosity, troclea, tubercle, facet, spine, crest, and line) or depressions or holes (eg, fossa, sulcus, foramen, alveolus, fissure, meatus, antrum, and sinus).

Male and female skeletons differ in several ways. Male bones are generally heavier and thicker than female bones of the corresponding size. The male pelvis is deep and narrow, whereas the female pelvis is broad and shallow to facilitate child-bearing. Because of the shape of the pelvis, the hip joint in women must compensate, and female skeletons are slightly "knock-kneed."

Articulations exist where bones contact one another,
and there are several types of articulations (Table 2). Some articulations (eg, those between bones in the adult skull) do not allow movement. Others allow slight movement (eg, the symphysis pubis, which can move slightly during childbirth). Still other joints allow full movement (eg, hips, ankle, and wrist). Most joints in the body are of this latter type.

In a typical long bone, the **diaphysis** is the shaft, a hollow tube of hard compact bone (Figure 4). The medullary cavity is the hollow area inside the diaphysis of a bone; it contains yellow fatty marrow. The epiphyses are the ends of the long bones. They are broad to provide stability to the joint. Red marrow fills the small spaces in the spongy bone (cancellous bone) of the epiphysis. (Because red marrow has a role in hematopoiesis, the bones of infants and children have more red marrow than the bones of adults. As humans age, much of the red marrow transforms into yellow marrow, an inactive fatty tissue.) The bone is covered by a strong fibrous membrane, the periosteum, except at the joint surface, where it is covered by articular cartilage (“gristle”).

Compact bone is composed of individual units, like tree rings, called **Haversian canals**. A blood vessel runs through the middle of the canal and small branches, canaliculi, ensure that the living cells of bone receive nutrients and oxygen. Bone cells (osteocytes) are alive and are embedded within a hard, calcified, nonliving material (matrix) in spaces called lacunae. The tiny canaliculi connect the lacunae with one another.

Bones must grow longer and wider during the growth period of life, and both child and adult bone is constantly being reformed and remodeled. Two cell types make this possible; osteoclasts, which are bone-absorbing cells found in bone tissue, and osteoblasts, which develop from osteoclasts and are involved in the production of new bone tissue.

Although cartilage often covers the ends of long bones and the human fetal skeleton is first composed of cartilage, cartilage is not a precursor to bone. Cartilage resembles bone, but it is different: it has more matrix than cells. In bone, collagenous fibers are embedded in a calcified cement substance. In cartilage, the collagenous fibers are embedded in a firm gel. **Chondrocytes** are cartilage cells and are located in lacunae.

### Table 1. Classification of Bones

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>long</td>
<td>tubular with a shaft and 2 enlarged, articular extremities; shaft has a hollow center called the medullary cavity and usually has 3 external surfaces, so that on cross-section it appears triangular</td>
<td>femur, humerus, ulna, tibia</td>
</tr>
<tr>
<td>short</td>
<td>shaped like modified cubes; mainly composed of cancellous bone with a thin outer crust of compact bone</td>
<td>metatarsals</td>
</tr>
<tr>
<td>flat</td>
<td>sandwich of cancellous bone between 2 layers of compact bone; function of many flat bones is to form a protective wall around body cavity</td>
<td>rib, scapula</td>
</tr>
<tr>
<td>irregular</td>
<td>do not belong to other categories because of their irregular shape; mainly composed of cancellous bone with a covering of compact bone</td>
<td>vertebrae</td>
</tr>
<tr>
<td>sesamoid</td>
<td>small seed-shaped bones that serve to prevent friction where a tendon passes over a bone</td>
<td>patella</td>
</tr>
<tr>
<td>sutural</td>
<td>small, irregularly shaped bones, found in the sutures of the cranium, especially in the parietal bones; as many as 172 may be found in a skull (but are not considered in the count of 206 bones in the adult human skeleton)</td>
<td>not named, as number, shape, and placement vary</td>
</tr>
</tbody>
</table>

### Table 2. Types of Articulations

<table>
<thead>
<tr>
<th>Type</th>
<th>Movement</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>synarthroses</td>
<td>little or no movement</td>
<td>sutures (skull) gomphoses (jaw and teeth interface) synchondroses (epiphyseal plate)</td>
</tr>
<tr>
<td>amphiarthroses</td>
<td>slight movement</td>
<td>syndesmoses (radius-ulna interface) symphyses (pubic bones)</td>
</tr>
<tr>
<td>diarthroses</td>
<td>highly mobile</td>
<td>almost all joints in body belong to 1 of 6 types: • gliding (rib-vertebra interface) • hinge (elbow, ankle) • pivot (axis and atlas) • condyloid (metacarpals and phalanges) • saddle (base of thumb) • ball and socket (hip, shoulder)</td>
</tr>
</tbody>
</table>
filaments. Within the zone of overlap, thick and thin filaments can interact to produce a contraction. During contraction, ATP allows the 2 types of myofilaments to slide toward each other and shorten the sarcomere and, eventually, the entire muscle. (See sidebar “The Interaction of Motor Neurons and Muscle Cells Allows Skeletal Muscle Movement.”)

Muscles of the muscular system function only by shortening (contracting) and pulling on bone. Movement occurs at a joint between the stationary bone (the origin) and the moving bone (the insertion). The rest of the muscle is called

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Skeletal Muscle</th>
<th>Cardiac Muscle</th>
<th>Smooth Muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>location</td>
<td>usually attached to bones</td>
<td>heart wall</td>
<td>walls of hollow internal organs</td>
</tr>
<tr>
<td>cell type</td>
<td>long cylindrical fibers (1-40 mm) arranged in bundles</td>
<td>short fibers (0.05-0.1 mm) forming branched network</td>
<td>elongated tapering fibers (0.015-0.5 mm) arranged in bundles or sheets</td>
</tr>
<tr>
<td>cell membrane</td>
<td>distinct double-layered sarcolemma</td>
<td>sarcolemma forms intercalated discs</td>
<td>delicate sarcolemma fused with adjacent fibers</td>
</tr>
<tr>
<td>cytoplasm</td>
<td>sarcoplasm limited, organelles numerous</td>
<td>large amount of sarcoplasm, organelles numerous</td>
<td>small amount of sarcoplasm, fewer organelles</td>
</tr>
<tr>
<td>myofibrils</td>
<td>striated, fill cell</td>
<td>striated, fewer than in skeletal muscle</td>
<td>nonstriated, fill cell</td>
</tr>
<tr>
<td>nuclei</td>
<td>multiple flattened nuclei scattered over cell periphery just under sarcolemma</td>
<td>one (usually) or 2 oval nuclei at center of cell</td>
<td>one oval or rod-shaped nucleus at center of cell</td>
</tr>
<tr>
<td>vascular supply</td>
<td>good blood supply</td>
<td>dense blood capillary beds</td>
<td>fair supply of blood</td>
</tr>
<tr>
<td>nerve supply</td>
<td>motor and sensory nerve endings</td>
<td>motor and sensory nerve endings</td>
<td>motor and sensory nerve endings</td>
</tr>
<tr>
<td>type of contraction</td>
<td>voluntary, often rigorous, short duration; fibers contract independently</td>
<td>involuntary, rhythmic (inherent); contractions of fibers coordinated</td>
<td>involuntary, sluggish, often rhythmic; contractions of fibers coordinated</td>
</tr>
</tbody>
</table>

Heat production is another function of muscle tissue. Survival depends on the ability to maintain a constant body temperature. The contraction of muscle fibers produces most of the heat required to maintain body temperature; shivering is an involuntary muscle contraction that produces heat.
The Nervous System

The primary functions of the nervous system include the sensation of internal and external environments, integration of sensory inputs, coordination of motor outputs, and regulation or control of peripheral systems. Integration and coordination occur within the brain and spinal cord, components of the central nervous system (CNS). The peripheral nervous system (PNS) includes all of the neural tissue outside the CNS.

Neural tissue is composed of neurons and neuroglia. Neurons are cells responsible for information transfer in the nervous system. Neuroglia isolate the neurons, provide a supporting framework for the tissue, and nourish and protect neurons, primarily by acting as phagocytes.

A typical neuron has dendrites, an axon that ends in synaptic terminals, and a cell body, or soma (Figure 5). The nerve cell body (soma or perikaryon) contains the typical cellular organelles. The soma does not, however, contain a centrosome, and neurons cannot undergo mitosis. The axon begins at a specialized portion of the soma and the cytoplasm of the axon, the axoplasm, contains an abundance of neurofilaments and neurotubules, as well as other organelles. The axon may or may not have collateral branches. At its distal tip, the axon gives rise to a number of finer terminal branches, the telodendria. Each telodendrial branch ends with a swelling called the synaptic knob at a synapse, a region of intercellular communication.

**Figure 5.** A typical motor neuron from the central nervous system. Axons are nerve fibers that conduct impulses away from the cell body. Dendrites branch away from the cell body and receive impulses from other neurons. Modified, with permission from LifeArt. Copyright © by TechPool Studios Corp, USA.

At a synapse, the activity of a neuron affects the membrane characteristics of another cell. Communication normally occurs from the presynaptic neuron to the postsynaptic neuron or effector cell. The presynaptic membrane and the postsynaptic membrane are separated by a narrow synaptic cleft. Diffusion of the neurotransmitter (usually acetylcholine) across this cleft allows a nerve impulse to stimulate muscle cells and cause contraction.

Muscles contract as long as a neurotransmitter is present. To avoid the situation where a muscle contracts indefinitely, the acetylcholine entering the synaptic cleft is attacked by the enzyme acetylcholinesterase, which

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**THE INTERACTION OF MOTOR NEURONS AND MUSCLE CELLS ALLOWS SKELETAL MUSCLE MOVEMENT**

- Actin filaments have sites that are covered by troponin and tropomyosin when not involved in contraction.
- Myosin molecules have cross-bridges that extend outward from the surface of the thick filament. During a contraction, the cross-bridges attach, pivot, and detach, sliding the thin filaments toward the center of the sarcomere.
- The extracellular fluid contains sodium (Na⁺) and chloride ions (Cl⁻), whereas the sarcoplasm contains potassium ions (K⁺) and negatively charged proteins.
- Sodium channels do not allow Na⁺ into the cell as fast as the potassium channels permit the departure of K⁺. Proteins cannot cross the membrane at all, but Cl⁻ can diffuse into the cell.
- Living cells normally have an excess of negative ions inside their cell membranes and an excess of positive ions outside, establishing the transmembrane potential.
- The resting potential remains stable because, when the transmembrane potential is at that level, the Na⁺/K⁺ exchange pumps can keep pace with the rates of Na⁺ entry and K⁺ loss.
- A motor neuron provides the stimulus for action potential generation in a skeletal muscle cell. Acetylcholine released by the synaptic knob diffuses across the synaptic cleft to reach the opposing surface of the sarcolemma.
- The stimulus alters the resting potential by changing the membrane permeability to Na⁺ or K⁺.
- The sodium channels open, and Na⁺ enters the cell in a rush. In a skeletal muscle cell, the transmembrane potential in that portion of the membrane changes from –65 mV to +30 mV.
- The sodium channels then close, and the potassium channels open. K⁺ leaves the cell, and repolarization begins. The ion exchange pumps restore the normal distribution of Na⁺ and K⁺, and the resting potential reappears.
- When an action potential sweeps over the sarcolemma, it travels along the sarcoplasmic reticulum. The membrane of the sarcoplasmic reticulum normally removes Ca²⁺ from the sarcoplasm and stores them in the cisternae (hollow swellings of the tubules of the sarcoplasmic reticulum).
- After the passage of a single action potential, the sarcoplasmic reticulum becomes very permeable to Ca²⁺, which interacts with the troponin and tropomyosin along the thin filaments, uncovering the active sites.
- Ca²⁺ gives the cross-bridges the ability to split ATP and release the energy needed for contraction.
- Once started, the contraction proceeds until the concentration of Ca²⁺ is reduced by the activities of the sarcoplasmic reticulum.
degrades acetylcholine, stops the nerve transmission, and stops contraction of the muscle cells. Norepinephrine, dopamine, γ-aminobutyric acid, glycine, and serotonin are other neurotransmitters found in the brain and spinal cord.

Sensory neurons bring information concerning the external or internal environments to the brain and spinal cord, and motor neurons carry commands that control or modify the activity of peripheral effectors from the brain and spinal cord. Interneurons, or association neurons, are interposed between sensory and motor neurons inside the brain and spinal cord.

**The Central Nervous System**

**The Brain**
The adult brain contains almost 98% of the neural tissue in the body. The brain consists of tracts of white matter and gray matter in superficial areas of the cerebral cortex. The brain communicates with the rest of the body via tracts from the spinal cord and the cranial nerves. There are 5 major divisions in the adult brain: the telencephalon (cerebrum), the diencephalon (pineal gland and hypothalamus), the mesencephalon (midbrain), the metencephalon (cerebellum and pons), and the myelencephalon (medulla) (Table 4).

The brain is not solid and contains a series of interconnected chambers, the ventricles, which are continuous with the central canal of the spinal cord. Cerebrospinal fluid is continuously formed and circulated through the CNS, bringing nutrients to tissues and taking waste products away from them. The brain is covered by meninges that protect and enclose the brain and provide the space for the formation and circulation of cerebrospinal fluid.

**The Spinal Cord**
The adult spinal cord measures approximately 45 cm (almost 18 inches) in length and is generally the diameter of a standard lead pencil. The adult spinal cord extends to the level of the first or second lumbar vertebrae. Like the brain, the spinal cord is surrounded by meninges, and cerebrospinal fluid circulates through the space between the meninges.

When viewed in cross-section (Figure 6), the spinal cord has several prominent landmarks, including the anterior median fissure, the posterior median sulcus, the peripheral white matter, and the central gray matter that surrounds the central canal. The posterior gray horns contain sensory neurons, the anterior horns contain motor neurons, and the lateral gray horns (that are found only in only in thoracic, upper lumbar, and sacral regions of the spinal cord) contain visceral motor neurons.

The white matter of the spinal cord is divided into columns, each of which contains a number of tracts. ascending tracts carry sensory information toward the brain; descending tracts convey commands to motor neurons in the spinal cord.

**Table 4. Areas of the Brain and Their Functions**

<table>
<thead>
<tr>
<th>Area</th>
<th>Divisions</th>
<th>Anatomy and Physiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>telencephalon</td>
<td>cerebrum</td>
<td>The cortex is marked by gyri (folds) and sulci (grooves); it contains the primary motor cortex and the primary sensory cortex. Other areas of the cerebral cortex are the integrative centers that receive information from many different associated areas. These centers control the most complex mental activities. Parts of the limbic system are contained in the cerebrum.</td>
</tr>
<tr>
<td>diencephalon</td>
<td>pineal gland and hypothalamus</td>
<td>Provides switching and relay centers for the integration of voluntary and involuntary activities. The pineal gland sits on the roof of the diencephalon. Another part of the diencephalon is the hypothalamus, which contains integrative centers important to the control of autonomic and endocrine functions and sensations of thirst and hunger.</td>
</tr>
<tr>
<td>mesencephalon</td>
<td>midbrain</td>
<td>Receives a variety of sensory inputs and is responsible for adjusting muscle tone and posture.</td>
</tr>
<tr>
<td>metencephalon</td>
<td>cerebellum and pons</td>
<td>Cerebellum controls important postural reflexes, refines voluntary and involuntary movements of the body, and monitors all sensory and motor information reaching the brain. The pons contains nuclei associated with several cranial nerves and 2 centers that control breathing.</td>
</tr>
<tr>
<td>myelencephalon</td>
<td>medulla</td>
<td>All communication between the brain and spinal cord involves the medulla as a relay stop or a thoroughfare. The medulla also contains reflex centers, including the cardiac, vasomotor, and respiratory rhythmic centers.</td>
</tr>
</tbody>
</table>

Ascending tracts carry sensory information toward the brain; descending tracts convey commands to motor neurons in the spinal cord.

**The Peripheral Nervous System**

**Spinal Nerves**

Thirty-one pairs of spinal nerves originate from the spinal cord, and they provide a 2-way communication system (motor and sensory) between the spinal cord and parts of the arms, legs, neck, and trunk of the body. Although spinal nerves do not have individual names, they are grouped according to the level of the spinal cord from which they originate.
originates, and each nerve is numbered in sequence:
- 8 pairs of cervical nerves (C1 - C8)
- 12 pairs of thoracic nerves (T1 - T12)
- 5 pairs of lumbar nerves (L1 - L5)
- 5 pairs of sacral nerves (S1 - S5)
- 1 pair of coccygeal nerves (not numbered)

Cranial Nerves
Twelve pairs of cranial nerves originate in the brain and extend into the body without passing through the spinal cord. Each cranial nerve is named for its appearance or function. Each is also numbered according to its order of appearance along the axis of the brain.

References

Glossary

abdominopelvic cavity - largest segment of ventral body cavity; contains most of the internal organs
actin - protein in muscle cells involved in muscle contraction
anatomical quadrant - any of the 4 parts into which the transverse, coronal, or sagittal planes are divided by rectangular coordinate axes lying in that plane
anatomical region - body region; any of the major subdivisions into which the body or one of its parts is divisible; there are 9 regions in the abdominopelvic cavity
anatomy - the science of the structure of the animal body and the relation of its parts; it is largely based on dissection, from which it obtains its name
appendicular - pertaining to an appendage (eg, arm or leg)
apocrine - type of sweat glands mainly present in the armpits and around the genital area that are the main cause of sweat odor; produce sweat that contains fatty materials
atom - any one of the ultimate particles of a molecule or of any matter; an atom is the smallest particle of an element that is capable of entering into a chemical reaction
axial - of or pertaining to the axis of a structure or part, such as the long axis of a tooth
body cavity - hollow place or space in the body containing organs, such as the thoracic, abdominal, or pelvic cavity
canaliculus - an extremely narrow tubular passage; connection between cells in compact bone
cancellous - of a reticular, lattice-like, or spongy structure; marrow-containing bone
carbohydrate - class of organic compounds containing carbon, hydrogen, and oxygen in specific proportions
carotene - a vitamin precursor that is naturally produced in orange vegetables and fruits and is stored in dermis fat
cartilage - firm and elastic type of dense connective tissue
cell - fundamental structural and functional unit of living organisms
cell membrane - semipermeable, lipid-protein-lipid bilayer that controls movement of material into and out of the cell
chondrocyte - mature cartilage cell embedded in a lacuna within the cartilage matrix
connective tissue - tissue that binds together and is the support of the various structures of the body
cranial cavity - portion of dorsal body cavity that contains the brain
cyanosis - bluish color of the skin and mucous membranes resulting from deficient oxygenation of the blood
cytoplasm - the cytoplasm (living substance) of a cell, excluding the nucleus
dermis - innermost layer of skin; layer under the epidermis
diaphragm - a muscle that separates the thoracic and abdominal cavities and is used in the process of breathing
dorsal body cavity - largest segment of ventral body cavity that contains most of the internal organs
endoplasmic reticulum - network of tubules and vesicles in the cytoplasm
enzyme - protein that acts as a catalyst in living systems
epidermis - outermost, nonvascular layer of the skin
epiphysis - end of a long bone; a center for ossification of the long bone
epithelial cells and tissue - covering of internal and external surfaces of the body, including the lining of vessels and other small cavities; cells joined by small amounts of cementing substance
exocrine - type of sweat glands distributed over the entire body surface but that are particularly abundant on the palms of the hands, soles of the feet, and the forehead; these glands produce sweat that is composed chiefly of water with various salts and are involved in regulation of body temperature
growth factor - protein that binds to receptors to stimulate cellular proliferation or differentiation
Haversian canals - one of the interconnecting channels in compact bone
hemoglobin - oxygen-carrying red pigment (an iron-containing protein) in red blood cells
hematopoiesis - formation and development of blood cells
homeostasis - tendency toward stability of the internal environment of the organism; maintenance of equilibrium between the organism and the environment
hormone - secretion of an endocrine gland that regulates the functions of other organs; may be proteins or lipids
interneuron - neurons in the brain and spinal cord that pass information from sensory neurons to motor neurons

Acknowledgment
Images in Figures 1, 2, 5, and 6 were modified by Larry Transue. We thank Tod Forman, MD, and Jim Yuen for their critical review and comments.
keratin – protein that is the principal constituent of hair and nails
lacuna – small pit or hollow cavity, area in compact bone that contains bone cell
ligament – tough, fibrous band connecting bones or visceral organs
lipid – fat and fatlike organic molecule
matrix – fluid substance in which cells are embedded
melanin – substance produced by melanocytes that gives dark pigment to the skin
membrane – thin layer of tissue that covers a surface, lines a cavity, or divides a space or organ
mRNA – 3 connective tissue membranes (dura mater, arachnoid, and pia mater) that enclose and protect the brain and spinal cord
molecule – very small mass of matter; the smallest amount of a substance that can exist alone; an aggregation of atoms; specifically, a chemical combination of 2 or more atoms that form a specific chemical substance
motor neuron – nerve cell that transmits nerve impulses away from the brain or spinal cord; efferent neuron
muscle tissue – substance of which the muscles are composed
myofibril – myosin component of muscle cell
myofilament – actin component of muscle cell
myoneural junction – site of meeting of motor nerve fiber and the skeletal muscle fiber that it innervates; no direct contact is made
myosin – protein in muscle cells involved in muscle contraction
nervous tissue – substance of which the nerves and nerve centers are composed
neuroglia – accessory cell of nervous system used to support and nourish neurons
neuron – basic structural and functional unit of the nervous system; neurons are specialized to carry information in the form of electrochemical impulses from one area of the body to another
neurotransmitter – a substance that is released from the axon of a neuron and that travels across a synaptic cleft to excite or inhibit the target cell
nucleic acid – high-molecular-weight biomolecules composed of nucleotides
nucleotide – compound composed of a base, a sugar, and a phosphate group; building block of DNA and RNA
organ – part of the body that performs a special function or functions
organelle – small functional structure within a cell (e.g., the mitochondria, Golgi body, lysosomes, ribosomes)
organism – any individual living thing, whether plant or animal
organ system – regularly interacting or interdependent group of body parts, each performing a special function or functions, forming a unified whole
osteocyte – bone cell; osteoblasts form bone cells, osteoclasts break down bone organs
pericardial cavity – portion of ventral body cavity that contains the heart
periosteum – tough fibrous membrane surrounding a bone
physiology – science that deals with the functions of the living organism and its parts and the physical and chemical factors and processes involved
plasmalemma – cell membrane or plasma membrane
plasma membrane – cell membrane or plasmalemma
pleural cavity – portion of the ventral body cavity that contains the lungs
protein – any of a particular group of complex organic molecules composed of amino acids
sarcolemma – cell membrane of a muscle cell
sarcomere – repeating units, delimited by the Z bands along the length of the myofibril; structural unit of a skeletal muscle cell
sarcoplasm – cytoplasm of a muscle cell
sarcoplasmic reticulum – endoplasmic reticulum of a muscle cell
sebum – secretion of the sebaceous gland; composed of fat and epithelial debris
synapse – tiny gaps between 2 neurons or between a neuron and a muscle cell across which nerve impulses are transmitted through the use of chemicals called neurotransmitters
teleodendria – branched ends of axon; terminate in synaptic knob	tendon – fibrous cord of connective tissue that attaches a muscle to a bone or other structure
thoracic cavity – portion of the ventral body cavity; subdivided into pleural and pericardial cavities	tissue – aggregation of similarly specialized cells united in the performance of a particular function
tract – a group of nerve fibers passing from one part of the central nervous system to another part
ventral body cavity – anterior cavity containing the thorax, abdomen, and pelvis
vertebral cavity – portion of dorsal body cavity that contains the spinal cord

GRANTS Specialist
Jeremy Fields, Ph.D.
29 years experience as a funded biomedical researcher
18 as a freelance medical writer
jzfields@suscom-maine.net
207-865-1478 (tel)
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When biologist Leroy Hood’s children were young, he tucked them into bed each night with stories featuring a character named Harry Golden. Harry found himself in scientific predicaments, such as being on a planet where everything was ice. The children had to use scientific methods to solve Harry’s problems. Hood’s dream, upon retiring from the Institute of Systems Biology in Seattle, is to write children’s books.

Like Hood, many medical writers would like to fan the fires of scientific thinking for young people. The idea appeals to our proclivity for generativity, giving something to the next generation. This article is for those who have said, “Some day I would like to write for youth.”

What does writing for youth mean?
The youth market is diverse. It can generally be separated into the following age categories, in years.

- **3 and younger.** Magazines and picture books for this age group have 1-line, simple texts. They are difficult to write because every word must count. Children in this age group enjoy books about practical things, such as the importance of brushing teeth and naming parts of the body; they also enjoy books about animals.

- **4–7.** These are the ages at which children are in preschool and primary grades. Preschool-aged children are beginning to make decisions, such as what foods to eat and what physical activities to undertake. Some obesity experts believe that this age group is most important in forming habits that will affect lifestyle. Children of these ages love stories about children, food, exercise, and diseases. Teachers in the early grades use books on these topics during story time, and the need for books for this market is critical.

- **8–11.** Children in this age group have a sense of wonder for fascinating facts. You can find fascinating facts to write about in a variety of places. If you have not read the book Grossology, by Sylvia Branzai, pick up a copy at your library; you may be grossed out, but you will learn a lot of fascinating science information. An example of a science-related article that children love is an article in the children’s magazine, Odyssey, “Beam Me Up, Smellie,” which is about the chemistry of smell. Another approach is to learn what science subjects are being taught in school and write about those topics.

- **12–18.** This is the young adult market. Parents of this age group may be surprised that children of this age are designated as young adult. However, youths of this age group are beginning to think abstractly, just like adults. Writing for the young adult market has many things in common with writing for adults: primarily, good writing. John Fleischman’s book about Phineas Gage, the Vermont railroad worker who had a steel bar go through his skull in 1849 and lived 12 more years, is a wonderful example of a story that fascinates readers in this age group. John got the idea for the book when attending a conference in Cavendish, VT, where the skull was displayed. Who was surrounding the skull? Kids.

What are the types of publications for youth?

- **Magazines.** About 100 children’s publications want articles about science; plug the name of a magazine into Google for sample stories. Some examples of well-known magazines for children are Highlights for Children and Cricket. Go to the children’s section of your public library for a collection of children’s magazines to see the types of stories they contain.

- **Books.** Many books focus on diseases, especially those common in childhood, such as chickenpox.

- **Reference and education books.** Demand writing (writing about a required topic in a specified amount of time) in schools is creating a need for more reference books; these should combine fun and information. Publishers of books at this level may ask for your résumé, so they can learn about potential authors’ background and interests. For example, Oxford University Press, which publishes for middle-grade students, requires its authors to have scholarly credentials. Greenwood Press wants people who have extensive knowledge on a topic and uses lots of science writers. For example, topics to be published in the Greenwood medical science series include stem cell research and gene therapy.

- **Specialty markets.** These markets include museums, textbooks, e-books, CDs, and videos.
How do I get started?

- **Read, read, read.** Look in bookstores and the children's section of the library. Study the market. There are also many books on writing for children.

- **Write, write, write.** Keep your antennae up for ideas with primary sources. Andy Boyles, science editor for Highlights for Children, wants 800-word articles that use interviews and primary sources. Your challenge is to work in the quotes from experts. Find a voice for storytelling, and forget about sounding like reading from an encyclopedia.

- **Study the market.** The short list of resources at the end of this article should get you started.

- **Enter contests.** These are non-threatening ways to get a manuscript ready. Go to [www.writers-editors.com](http://www.writers-editors.com) for contests that might fit into science writing.

Writing for the youth market has its ups and downs. The downside is the abysmal pay. But the upside is the feeling of sharing your talent in a new way with an interesting twist. The motivation of generativity is powerful. Although writing for youth is challenging, we can be satisfied that we are giving our gift, that we are fanning the fires of science for another generation.

Evelyn Kelly has been a medical writer for more than 20 years and has written numerous articles and books for the youth market. Her latest publications are Obesity and Stem Cells for Greenwood Press. She is also a professor of education for Saint Leo University, St. Leo, FL. She will lead a noncredit workshop on writing for children and young adults at the 2007 AMWA Annual Conference.

**RESOURCES**

**Books**

**Web Sites**
- Society of Children's Book Writers and Illustrators ([www.scbwi.org](http://www.scbwi.org)).
- Children's Writer ([www.childrenswriter.com](http://www.childrenswriter.com)). The Institute of Children's Literature.
- Kids' Link Eurekalert!
- Science News for Kids ([www.sciencenewsforkids.org](http://www.sciencenewsforkids.org)).

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What types of insurance should I have?

As a freelance, I believe the 2 most vital types of insurance to hold are health and long-term disability (LTD). Health insurance is a given, and often, freelances gain their health insurance through their working spouse or partner. I’ve done both—had my own company policy (back in the day when insurance companies would write group-of-one policies) and been insured through my wife’s plan. The choice is ultimately one of benefits and cost. Disability, on the other hand, is often overlooked by freelances, and I believe it is just as important as health insurance. I had LTD insurance through my previous employer. When I left the company, I contacted the insurer and exercised my option to continue the plan although I had no verifiable income at the time because I was just starting out. I’ve taken every chance I’ve had to increase the coverage. LTD is a policy you hope never to have to enforce, but the thought of not having it if I needed it is frightening. My LTD policy not only provides coverage if I am completely disabled, but also pays if I am able to work but not at my previous level of income.

There is always much discussion about liability and errors and omissions (E&O) insurance. As an S-corp, I gain substantial personal liability protection by working through my company. Liability policies can be expensive. I do not carry a liability policy, although I would never recommend to someone not to have it. That is a personal decision. Some big companies, including pharmaceutical companies, are now demanding that their vendors carry E&O insurance. Since I freelance primarily as a subcontractor to those vendors (medical education and medical communications companies, and medical advertising agencies), I am usually covered by my clients’ policies. E&O insurance can be expensive, although I understand from a recent discussion on the AMWA Freelance Listserv that reasonably priced E&O policies are available through a company called CM&F Group (www.cmfgroup.com/ipc_per_small_business.html) under the “Clinical Research Professionals” drop down list. I do not know anything about this company or its product, so I am not recommending it. I also understand it may be possible to add E&O to your homeowner’s insurance policy. The agent for your homeowner’s policy should be able to address this question.

As a freelance, do I need disability insurance?

When you freelance, income stops when work stops! Can you afford to lose a big chunk of income “if you get hurt and can’t work?”

I bought disability insurance several years ago and promptly forgot about it, except for paying the yearly premium each February. I should have dusted it off annually, read and understood the myriad clauses, and weighed my benefits against my increasing salary. I should have done this before I got sick last year and needed the benefit income. Unfortunately, the salary I was covering when I took out the policy was much less than the salary I now make. Lesson learned too late. I would have had to pay more for a cost of living adjustment (COLA) policy. Hmm... decisions, decisions.

Ask yourself: If I was disabled and unable to work as a result of an accident or illness, what would I do for income? Now, don’t shortchange your value. Your ability to earn a living is your most significant asset. If you provide a second income, carefully weigh your contribution to the family.

Remember, if you are self-employed, you don't qualify for Workers' Compensation and most (63%) disabilities are nonwork-related anyway. While Social Security will pay some disability benefits, they don’t start unless you are out of work for more than 12 months and you must not be able to perform “any gainful employment.” These benefits will not provide sufficient income replacement to maintain your predisability standard of living.

A better choice is an individual disability income insurance policy. Study your policy and know whether it is a short-term policy (waiting period of 0 to 14 days with a maximum benefit of 2 years) or a long-term policy (waiting period of several weeks to several months with a maximum benefit period ranging from a few years to the rest of your life). Mine was the latter, but it was a surprise that I would have no income for 3 months. I didn’t read or remember the fine print!

Disability insurance will replace only 50% to 70% of your income (which is a kind of assurance for them that you will be motivated to return to work). So save now to pay your deductible and save money for the percent of income that won’t be replaced. Disability income is not taxed if you are self-employed and pay the premiums yourself. So, you
I just received a letter informing me that one of my clients, who owes me for several small jobs, has declared Chapter 11 protection from bankruptcy. Should I assume that I’ll never see my money?

Not necessarily. I had a similar thing happen to me several years ago. When I received notification of a court hearing regarding my client’s Chapter 11 filing, I called a lawyer friend to see if I needed to attend in order to protect my interests. He told me that it wasn’t necessary to attend the hearing and advised me that I should probably just “write it off as a bad debt.” Based on his advice, I did not attend the hearing and assumed that there was nothing I could do to get the money owed me (about $2,500). A day or two after the scheduled court hearing, I received a call from a freelance graphic artist who did attend the hearing and discovered a way that creditors could collectively protect their interests. She asked if I would be willing to be on a Creditors’ Committee, which usually consists of those individuals who hold the 7 largest unsecured claims. This committee has the power to accept or reject any reorganization plan that the business presents to the Bankruptcy Judge. I agreed to be on the committee. We subsequently voted to reject the first 2 reorganization plans the business presented. Before we had the opportunity to review (and possibly reject) a third plan, the mother of this small business owner offered to “buy off” the creditors for 50 cents on the dollar, and we accepted the offer. A few months later, I learned that the man was back in business, under a new name, and was again advertising for freelance writers and graphic artists. Of course, I can’t guarantee that you will have a similar outcome (not every small business owner has a rich mother who can bail him out), but it is good to know that creditors do have some power in this situation.

In retrospect, there may have been some warning signs.

• This was a new client that I found by answering an advertisement in the local newspaper.
• The pay was quite good, but the projects were all “quick turnaround.” Although I billed immediately after finishing each project, the account executive always called me about a new assignment before I’d received payment for the previous one.
• When I realized how far behind they were in paying me, I refused to take on another project until I received payment. The president of the company (whom I’d never met) called me and pleaded with me to take the assignment. As an incentive, he offered to pay me 10% of what they owed. Fortunately, I refused. Within a week after I sent the client a certified letter requesting payment in full of the past due account, I received notice that they had declared Chapter 11 protection.

— Donna Miceli

The AMWA Journal is pleased to announce the addition of Elizabeth L. Smith to the Freelance Forum Panel. Elizabeth has been a freelance medical writer since 1979 when she and her partner, Richard Bell Smith, founded Smith Simon Company. Over the years, she has written and produced materials in all media for major pharmaceutical clients, medical communication companies, and national medical associations. A Fellow and former President of AMWA, she resides in the Blue Ridge Mountains of Virginia.
**Interviewee: Jessica Ancker, ELS, MPH**

**AMWA:** What is your current position?

**Jessica:** I am currently a PhD student in the Department of Biomedical Informatics at Columbia University. My primary responsibility is to conduct research on how to express probability and risk information in nonword formats, such as graphs and interactive educational computer programs. I also teach statistics for journalists at the Columbia Journalism School and a course, Designing and Editing Tables and Graphs, at the University of Chicago, Graham School. I’m also a workshop leader for AMWA.

**AMWA:** What is biomedical informatics and how did you become interested in this field?

**Jessica:** Biomedical informatics is the study of optimal ways to use complex health-related and biology-related information. It involves philosophical questions such as “What is information?” as well as pragmatic ones such as “How can we help people use it most effectively?” I had never even heard about the field until about 3 years ago. At that time, I was looking for an area in which I could develop some of my own research. I was interested in how to communicate health and medical information and, specifically, in understanding how people reason about numbers. The biomedical informatics department offered a course about how cognitive science could explain some aspects of human reasoning about complicated information, and that’s what got me interested in this field.

**AMWA:** What is your current research project?

**Jessica:** I am currently developing an interactive computer game that will be used to help patients understand their risk for a particular disease or condition. Even though there has been a lot of research done in this area, people still misinterpret individual risks. It is hard for people to understand what the numbers mean. When people are told that they have a 10% risk of something happening, do they really understand what that means? Some of the previous work in this area has focused on describing risks with words, and others have focused on using graphics, such as bar charts and stick figures. My work involves using a more interactive approach. We have already developed a prototype for the interactive game and have been testing it in focus groups.

**AMWA:** In addition to teaching people about the risk of a condition or a disease, are there other areas that would benefit from your research?

**Jessica:** I think our research will also help in developing materials for general health education and informed consent.

**AMWA:** Do you currently work with any medical writers?

**Jessica:** One member of our research team is a full-time medical and health writer. Her primary responsibility is to develop materials for a health education Web site in Harlem, NY. As part of this work, she also does research on local resources for health consumers and outreach to community groups, as well as coordinating research meetings and taking meeting minutes.

**AMWA:** For what positions in the medical writing and editing field would one need a good background in biostatistics?

**Jessica:** It would help anyone in this field to get a little background in statistics because it helps people understand how knowledge is produced in medicine and science. Almost any medical writer/editor can benefit from understanding how research is designed and from learning how to look at numbers in scientific articles. Some professionals might also need a deeper understanding of statistics. For example, authors’ editors and people working in regulatory documentation might need to create or edit tables and graphs and work on articles that rely heavily on quantitative information.

**AMWA:** How would a medical writer/editor gain a good understanding of biostatistics without having to take several classes in statistics?

**Jessica:** I would recommend that anyone who is interested...
in this area take AMWA's Statistics for Medical Writers and Editors. This course is designed to introduce complicated ideas in a clear and easily understood fashion. (It's currently taught by Tom Lang and Bart Harvey, who are great teachers, as well as by me). A more in-depth 3-day course is offered through the medical editing certificate program at the Graham School of General Studies. Another great resource is How to Report Statistics in Medicine, by Tom Lang and Michelle Secic. I don't necessarily recommend that medical writers take biostatistics courses at a university, because the material is likely to be heavily math-oriented and often not relevant to medical editors/writers.

**AMWA: What is your educational background?**

**Jessica:** My undergraduate degree is in the history of science. I also have a master's degree in public health, focusing in biostatistics.

**AMWA: What positions in the medical writing and editing field have you held?**

**Jessica:** Before I worked in the medical editing and writing field, I worked for several newspapers as a general reporter covering politics, crime, and other local news. My first position in the medical editing/writing field was at a university where I worked as an editor for the medical school alumni journal and for a newsletter in the technology field. My next position was as an author's editor at the Cleveland Clinic Foundation. I found this job through a relative (my sister-in-law, Joan Affleck) who is an AMWA member and noticed the job listing in the AMWA “pink sheet.” At the Cleveland Clinic, I learned a tremendous amount from my boss, Tom Lang. I also had an opportunity to develop and teach medical writing classes for the physicians. My next position (after I earned my master degree in biostatistics) was in a Columbia University research group, where I spent about half my time as a medical writer and the other half working in biostatistics.

**AMWA: What position in the medical editing and writing field did you find the most fulfilling?**

**Jessica:** Each position has given me an opportunity to learn new things. As an author's editor, for example, I found that I was learning new stuff every day. Because I worked with physicians from different fields, I had to develop a broad medical vocabulary. This type of vocabulary can come in handy for medical writers/editors throughout their career. My job at the Cleveland Clinic helped me discover that I also really love teaching, so all of my work teaching AMWA workshops over the years has been wonderful.

**AMWA: What do you think is the most challenging aspect of medical writing and editing?**

**Jessica:** As medical writers/editors, we need to act as a mediator between the person who is creating the knowledge and those who need to read about that knowledge. Many experts find it hard to interact with newcomers to their field. It's like their brains take a shortcut, and they forget what it was like the first time they learned about their field of expertise. One good example of this is doctors. During their training, doctors learn to use a highly specialized vocabulary, and then many of them forget how to use ordinary language to communicate with their patients. So a major challenge for medical writers is to become familiar with the content area without losing the perspective and vocabulary of the layperson.

**AMWA: What qualities do you think a good medical writer should have?**

**Jessica:** One of the most important qualities to have is the eagerness to learn new skills and ideas. Also, having an appreciation of the scientific process is important. Writers/editors who can understand a researcher's goals and point of view are better skilled at preparing the work for a professional audience or translating it for a general audience. Of course, having excellent basic language skills is always a plus.

**AMWA: What advice would you give to a newcomer to the field of medical editing and writing?**

**Jessica:** It is important to learn and to develop as many new skills as possible. Everything will come in handy at some point. One very useful skill-building task is to apply a scientific perspective to your own writing by testing its effectiveness with actual readers, in a sort of informal peer-review process. I often do this by giving a draft of something that I have written to my husband, who is a professional writer but not an expert in scientific matters. I can then ask him where the explanations or language were confusing and use that feedback to make changes.

**AMWA: What mistakes have you seen made by newcomers to the field of medical editing and writing?**

**Jessica:** One of the problems that I experienced early on as an author's editor was that I was not sensitive to the norms for different scientific communities. Each community uses a particular jargon or format for communicating their information. For example, journals in nursing often expect an extensive literature review in the introduction, whereas articles in medical journals often have a much shorter introduction and a more extensive discussion section. I worked on an article for a nursing journal but imposed the medical formatting, and the article was rejected with a stinging note that the authors needed to learn more about how to write. (Ouch!) So it's important for medical writers/editors to learn to appreciate these differences.
The Council of Science Editors (CSE), an international membership organization devoted to promoting excellence in scientific communications, began its life as the Conference of Biology Editors. Founded in 1957 through the joint action of the National Science Foundation and the American Institute of Biological Sciences, the association was known as the Council of Biology Editors throughout much of its history. In 2000, the members voted to change its name and update its mission in recognition of an expanding membership base and relevance to all sciences. Today the Council serves the needs of science editors writ large, and enjoys close relationships with a number of scientific publishing organizations, both national and international. Throughout its existence, CSE has retained its identity as an independent organization that functions through the volunteer efforts of its members.

CSE welcomes members from the entire global scientific community, including those engaged in scholarship, research, publishing, and information science. CSE members range from editor-in-chief to publisher; from author to marketing specialist; from associate editor to graphic designer; from printer to electronic publishing specialist; from section editor to production editor; and from indexer/abstractor to information specialist/science librarian. Through CSE, technical editors, authors’ editors, freelances, and science writers can share the latest trends with copyeditors, managing editors, XML experts, and typesetters. By bringing together all the stakeholders, the Council has established itself as an authoritative resource on issues essential to effective communication of scientific information. Recently, CSE members have worked to promote integrity in scientific publishing and to raise awareness of the impact the publishing profession can have on sustainable development.

The Council has become a trusted resource for scientific communicators throughout the world. By fostering networking, education, and discussion opportunities, CSE has been able to attract more than 1,100 members. Approximately 15% of AMWA members also belong to CSE.

Member benefits include the following:
- Science Editor, a bimonthly magazine that publishes meeting session reports, industry news, essays on publishing, and original peer-reviewed articles
- Reduced registration fees for the CSE Annual Meeting and CSE’s highly regarded short courses
- Retreats, neutral forums for discussion of key issues of concern to all interested in the future well-being of scholarly publishing
- Personal access to other CSE members through the CSE Membership Directory, a members-only benefit
- Publication discounts on all CSE publications, including 20% off Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers, 7th edition
- Classified ads on the CSE Web site for $50
- A professional community and support network
- Best practices shared through the Council’s educational seminars and courses
- A continual flow of information on new technologies, editorial policies and procedures, publishing trends, and ethical concerns, including the recently released “CSE’s White Paper on Promoting Integrity in Scientific Journal Publications”
- CSE Website, www.councilscienceeditors.org, with up-to-date information, announcements, editorial policies, links to resources, events calendar, and job postings

Member dues for 2007 are $156 in North America (Canada, United States, and Mexico) and $185 in the rest of the world. The worldwide student rate is $41.
The best venue for enhancing professional skills is the AMWA annual conference. Just look at the number of educational opportunities that are offered this year in Atlanta:

- 96 3-hour workshops
- 43 open sessions
- 74 breakfast roundtables

Whether you’re a freelance or employed in industry, the academic or association arena, or a journal or publications setting, you can gain valuable knowledge to help you advance in your career. From tips on resources and tools to scientific overviews to ethical standards, there is a topic for everyone at the AMWA annual conference. See the preview of the conference beginning on page 58, and learn more about the new science fundamentals certificate program on page 80. If you’re a student or new to the field, the conference can be especially beneficial. Read the account of one first-time attendee in Albuquerque on page 83.

Gain writing/reporting experience and add to your portfolio by reporting on sessions at the AMWA 2007 Annual Conference for the AMWA Journal. If you are interested in this opportunity, send an e-mail message to the Journal editor (amwajournaleditor@hotmail.com) and note which open sessions you plan to attend and which one you would prefer to cover. Not only will your brief report (500-750 words) help to enhance your skills but it also will be of great value to the many AMWA members who can’t make it to the conference. You may even be able to earn credit toward an AMWA Professional Development Certificate with your written report. Send an e-mail message today!

Correction in a local newspaper: “An article last Sunday about the students who received perfect scores on the new SAT tests misstated the fraction of the writing score based on multiple-choice questions. It is two-thirds, not three-quarters.”

From the New York Times News Service, in an article by Noam Cohen (March 4, 2007): “When half a dozen students in Neil Waters’ Japanese history class at Middlebury College in Vermont asserted on exams that the Jesuits supported the Shimabara Rebellion in 17th-century Japan, he knew something was wrong. . . . The obscure, though incorrect, information was from Wikipedia, the collaborative online encyclopedia, and the students had picked it up cramming for his exam. . . . At Waters’ urging, the Middlebury history department notified its students that Wikipedia could not be cited in papers or exams. . . . With the move, Middlebury jumped into a growing debate within journalism, the law and academia over what respect, if any, to give Wikipedia articles, written by hundreds of volunteers [italics mine] and subject to mistakes and sometimes deliberate falsehoods. Wikipedia itself has restricted the editing [by volunteers] of some subjects, mostly because of repeated vandalism or disputes over what should be said. . . . Although Middlebury’s history department has banned Wikipedia in citations, it has not banned its use [because “Wikipedia is simply too handy to expect students never to consult it.”].

NOURelts PERFECT
By Edie Schwager

Contact:
Leslie E. Neistadt, ELS
E-mail: neistadt@hughston.com
Phone: (706) 576-3322
www.bels.org
Are you a writer with a liberal arts degree and a thirst for scientific information? A university-trained scientist who wants to brush up in your original field, get exposure to updated concepts, or learn more about areas outside your specialty? If you answered “yes” to any of these questions, read on for information on a new, exciting educational offering from AMWA.

AMWA’s mission is to promote excellence in medical communication and provide educational resources in support of that goal. The association has offered educational programs since its founding in 1940, launching the core curriculum certificate in 1979 and the advanced certificate in 1986. As its membership has grown, AMWA continues to look for new ways to meet the needs of members. (This article often refers to “members,” but it should be understood that AMWA’s educational programs are available to nonmembers as well as members.) For example, 2 core curriculum workshops, “Basic Grammar and Usage” and “Punctuation for Clarity and Style,” were recently developed into self-study workshops to provide alternative ways to earn certificate credit; more self-study workshops are in the works. While the core and advanced certificate programs fill a variety of AMWA members’ needs, more can be done. In the 2005 Member Needs Assessment, a substantial proportion of members said they would like to see the educational programs expanded in the area of clinical science (44%) and basic biologic science (32%). This desire matches up with the educational background of AMWA’s members: 25% to 32% reported receiving their highest degrees in humanities, including English, journalism, communication, or technical writing.

Later that year, a task force was formed to explore how AMWA might develop a new curriculum to provide the science education that members were requesting. Chaired by Sue Hudson, the task force included Melanie Fridl Ross, Barbara Snyder, Susan Aiello, Naomi Ruff, Lois Baker, Michele Vivirito, Lori Alexander, Karen Klein, Andrea Gwosdow, Larry Argenbright, Dominic De Bellis, and MaryAnn Foote. At the fall 2005 meeting of the Board of Directors (BOD), the task force outlined basic concepts behind a proposed new science curriculum. The BOD approved the concept and directed the task force to continue its work. After 2 years of development, the certificate program in science fundamentals will be launched at the 2007 AMWA Annual Conference in Atlanta.

The Curriculum in Science Fundamentals
The new curriculum in science fundamentals provides medical communicators with an opportunity to deepen and expand their understanding of basic concepts in science and medicine. This curriculum is not intended to provide a comprehensive education in the sciences, nor does it attempt to replace a university science degree. Rather, it focuses on the needs of writers and editors, with workshops designed to orient participants to a scientific area and give them a foundation for further study.

What Does the Curriculum in Science Fundamentals Look Like?
Modeled on the AMWA core curriculum certificate program, the curriculum in science fundamentals comprises general and specialty workshops. Their purpose is to give members tools for writing about the sciences, including terminology, basic concepts and systems, commonly used methods, and key references and resources. The people who will attend these workshops do not need to do science; rather, they need to be able to write about it and understand others’ writing about it. The science fundamentals curriculum includes several workshops (Table 1), many of which will be offered at the 2007 Annual Conference; more workshops are in the development pipeline.

Table 1. Workshops in the Curriculum in Science Fundamentals

<table>
<thead>
<tr>
<th>General Workshops</th>
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<tbody>
<tr>
<td>The Basics of Genetics</td>
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<tr>
<td>The Basics of Molecular Biology</td>
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<tr>
<td>The Basics of Cell Biology</td>
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<tr>
<td>The Basics of Human Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>Biomedical Research Design</td>
</tr>
<tr>
<td>Basics of Epidemiology for Medical Communicators</td>
</tr>
<tr>
<td>Statistics for Medical Writers and Editors†</td>
</tr>
<tr>
<td>Reporting Correlation &amp; Regression Analyses†</td>
</tr>
<tr>
<td>Elements of Medical Terminology†</td>
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<table>
<thead>
<tr>
<th>Specialty Workshops</th>
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<tbody>
<tr>
<td>Drug Interactions</td>
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<tr>
<td>Pharmacokinetics</td>
</tr>
<tr>
<td>Understanding and Reporting the Results of Routine Clinical Laboratory Tests</td>
</tr>
<tr>
<td>Basic Immunology for Medical Writers and Editors</td>
</tr>
<tr>
<td>Introduction to the Nervous System</td>
</tr>
<tr>
<td>Introduction to Orthopedic Surgery</td>
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†Will be part of both the core and science fundamentals curricula.

*Sue Hudson is president-elect of AMWA, Barbara Snyder is 2006-2007 Administrator of Education, and Karen Potvin Klein is 2006-2007 Annual Conference Workshop Coordinator.
Benefits of the Science Fundamentals Certificate Program

The workshops in this new program offer a unique perspective—one that is focused on the needs of writers and editors. Like the core and advanced workshops, the science fundamentals workshops will enhance your knowledge and skills, help you achieve your professional and personal goals, and reflect positively on you, your employer, and AMWA. For managers of medical writing and editing departments, the program offers a path for focusing or facilitating the career development of staff members. For long-time AMWA members, the program offers an opportunity to earn a new certificate, enhancing their participation in AMWA and giving them new reasons to attend the annual conference and chapter conferences. More in-depth information can be obtained from science courses at local colleges or universities, or on-the-job programs.

Earning the Certificate in Science Fundamentals

Ready to sign up? You can earn a certificate in science fundamentals by enrolling in the science fundamentals certificate program, paying the enrollment fee, and successfully completing 4 general workshops and 4 specialty workshops in the science fundamentals curriculum.

At this time, applicants for the science fundamentals certificate program may choose any specialty workshops; multiple specialty certificates are not currently offered. After more science workshops are developed, multiple specialties may be defined (analogous to the editing/writing, pharmaceutical, public relations, and marketing, education, and freelance specialties in the core curriculum).

After enrolling, you have 6 years to complete the certificate; the period may be extended for another 4 years by paying a renewal fee. Workshops may be taken in any order during the 6-year period (although some workshops may have prerequisites).

Workshops may be taken without enrollment in a certificate program. However, enrollment is required to earn credit toward a certificate. As with the core and advanced certificate programs, participants can receive credit for workshops already successfully completed by enrolling in the certificate program within the 90-day grace period after the date of the workshop. As is true for the other AMWA certificate programs, previous work experience, education, degrees, or credentials may not be applied to certificate requirements.

The Relationship Between Core and Science Fundamentals Certificate Programs

As you have probably noticed, many of the workshops in the science fundamentals curriculum were originally developed as part of the core curriculum. For a transition period of 5 years, these workshops will be included in both the core and science fundamentals curricula. After 5 years, most of the science-related workshops will be moved to the science fundamentals curriculum. Because their content applies to all AMWA curricula, a few workshops, including “Statistics for Medical Writers and Editors,” “Reporting Correlation and Regression Analyses,” and “Elements of Medical Terminology,” will remain part of both the core and science fundamentals curricula indefinitely.

Workshops may be applied to only 1 certificate. For example, if you take “Basics of Cell Biology” for credit toward a core curriculum certificate, you may not apply the same workshop toward a science fundamentals certificate. If you have already taken a science workshop under the core curriculum program but have not yet earned a core curriculum certificate, you may decide to apply credit for that workshop to the science fundamentals certificate program. After credit for a workshop is applied to the science fundamentals program, it can no longer be applied to a core curriculum certificate. You may be enrolled in both the core or advanced and science fundamentals certificate programs simultaneously.

If you are currently enrolled in the core curriculum program but would prefer to earn a science fundamentals certificate, you can transfer the remaining term of your enrollment to the science fundamentals certificate program. If you take a nonscience workshop for core curriculum credit and later transfer your enrollment from the core curriculum to the science curriculum, you retain the credit you have earned forever and may apply it to a core curriculum certificate by re-enrolling in the core curriculum. See the FAQs box on page 82 for answers to specific questions.

Case Study 1: Switch or Stay?

Chris has been enrolled in the core curriculum program for 2 years. She has successfully completed the following workshops: Statistics for Writers and Editors, Basics of Molecular Biology, Basics of Cell Biology, and Sentence Structure and Patterns. Although she would ultimately like to complete her core certificate, she is considering enrolling in the new science fundamentals certificate program. What are her options?

1. Chris can retain her remaining 4 years of enrollment in the core curriculum certificate program and also enroll in the new science fundamentals curriculum for a 6-year period. Both enrollments will run in parallel, and Chris can earn credit for workshops in both curricula:
   • “Statistics for Medical Writers and Editors,” “Basics of Molecular Biology,” and “Basics of Cell Biology” may be applied to either the core or science fundamentals certificate.
   • The credit she has earned for “Sentence Structure and Patterns” remains on her record and will be applied to the core certificate when she completes that certificate.

2. Chris can transfer the remaining 4 years of her enrollment from the core certificate program to the science fundamentals program. If she wishes, she can apply her credit for “Statistics for Medical Writers and Editors,” “Basics of Molecular Biology,” and “Basics of Cell Biology” for credit toward a core curriculum certificate.
Do You Want to Develop a New Workshop?
The science fundamentals curriculum will include workshops in key general science topics (eg, genetics, molecular biology), plus specialty workshops in normal human anatomy and physiology by body system (eg, cardiovascular system or nervous system). The curriculum will also include workshops on diseases, diagnostic methods (eg, laboratory methods, imaging systems) and treatments (eg, drugs, medical devices). Some topics are in development as either credit or noncredit workshops, but many more are needed. Some of these workshops may be developed by current leaders in the core or advanced curriculum, but new leaders with expertise in the sciences and a desire to teach are also encouraged to consider developing and leading workshops. If you have spent your career peering at red blood cells, prodding the amygdalas of rodents, or pondering pacemakers, the science fundamentals curriculum needs you.

The process of developing new workshops for the science fundamentals curriculum is the same as the process for core and advanced workshops; most begin as noncredit workshops and progress to credit status. If you are interested in developing a workshop, contact Dane Russo at AMWA headquarters (dane@amwa.org). She’ll put you in touch with the Education Administrator and Annual Conference Workshop Coordinator. For more information about this process, visit the workshop leaders’ section in the Members Only area of the AMWA Web site (AMWA > Education/Certificates/ Information for Workshop Leaders). The information listed there includes frameworks for developing basic science and body systems workshops. The task force developed these frameworks to ensure the consistency and quality of new workshops.

Case Study 2: Rewriting History?
John completed his core curriculum certificate several years ago. Since then, he has successfully completed numerous AMWA workshops, including “Biomedical Research Design” and “Basics of Epidemiology for Medical Communicators,” without being enrolled in an additional core certificate program. Now, he is interested in earning the science fundamentals curriculum certificate. Can he get credit for the workshops he has completed after he finished the core curriculum certificate program?

Unfortunately, no. To earn credit for any workshop, John must be enrolled in a certificate program when he takes that workshop (or within the 90-day grace period). He can earn credit toward the science fundamentals certificate by enrolling in the certificate program and completing the appropriate workshops.

FAQs About the Science Fundamentals Curriculum

Is AMWA suggesting that a 3-hour workshop prepares a person adequately to write about a scientific topic?
No. Just as a 3-hour workshop about writing does not make a writer, a 3-hour workshop about a scientific topic does not make a scientist. The emphasis is on providing some background in a scientific area and giving writers a foundation for further study.

Will the science fundamentals credit workshops have pre-course assignments (homework)?
Yes. As with other AMWA credit workshops, the pre-course assignments help the participants prepare to learn the content of the workshop and give the workshop leader important information about the skills and needs of the participants. Successful completion of the pre-course assignment is required to earn credit for the workshop.

I just enrolled in the core curriculum program, but I would rather earn this new certificate first. May I switch my enrollment from the core certificate program to the science fundamentals certificate program?
Yes, you may switch your enrollment; any remaining time will be transferred to the science fundamentals certificate program. (See Case Study 1: Switch or Stay?)

Can I be enrolled in 2 certificate programs (core or advanced and science fundamentals) at the same time?
Yes. The only restriction is that each workshop counts for credit only once, in only 1 certificate program.

Can I earn 2 or more science fundamentals certificates?
Not at present. After this program is in place for several years and more workshops have been developed, AMWA may decide to separate workshops into specialty areas. At that time, a path would be specified for people to earn more than 1 certificate in science fundamentals.

Are there any self-study workshops in the science fundamentals curriculum?
Not at present. An important criterion for selecting a topic for development as a self-study workshop is that the content should be stable and unlikely to change, so the workshop will have lasting value for those who use it. This principle will be considered when self-study workshops are selected for development.

References
2. AMWA data on file.
As a new AMWA member who recently dived into the ocean of medical communication as a freelance, attending the 2006 AMWA Annual Conference was the best decision and investment I have ever made for my career. With passion to write and an advanced degree in science, I had been thinking of switching my career from a bench scientist to a science and medical writer for some time. However, becoming a full-time freelance medical writer before I truly understood what medical writing was really about was not my own choice. Early this year, my postdoctoral fellow position at the National Cancer Institute (NCI)-Frederick and Science Applications International Corporation Frederick, along with many other research fellow and scientist positions, was “terminated in force” due to a budget shortage at the NCI. So I thought about making the switch. However, all full-time medical writer positions require at least 2 or 3 years of medical writing experience, which I didn't have. Without many other choices, I decided to give freelancing a try.

Unfortunately, most clients expect years of experience from freelances also. Even though I have an advanced degree in science, years of postdoctoral training in the biomedical field, and a number of research articles published in prestigious scientific journals, getting assignments was still tough. In the first few months, I sent out many queries along with my résumé, but hardly received any response. I was very discouraged and doubted I would make it. Thanks to the advice from many experienced medical writers, I joined AMWA. As a new member, I visited AMWA's Web site frequently. It was there that I started to figure out what medical writing was about and learned many tips for how to build up credibility and get clients.

When I discovered that AMWA's 66th Annual Conference would be held in Albuquerque, NM, in October 2006, I was excited. The workshops and open sessions ranged from how to write final clinical study reports to how to market yourself as a freelance writer, and I almost felt many of the sessions were designed especially for me. I immediately registered for the conference on the day registration opened and signed up for 4 workshops (3 credit and 1 noncredit). As a first-time annual conference attendee, I also signed up for a conference coach.

As time for the conference came close, I became anxious. Although the workshops were relatively cheap compared with similar workshops offered by other organizations, airfare and hotel still cost a great deal of money, especially because money would come directly out of my own pocket and I hadn't made much money yet. I was not sure if the conference would be worth my money and time. But there was no time to change my mind. On October 25, I flew to Albuquerque from Maryland. After I checked in at the Hyatt hotel around 4:00 PM, I headed across the street to the convention center, where the conference was going to be held during the next 3 days. Under Albuquerque's deep blue sky, visitors were strolling on the street, but my heart was beating faster and faster as I walked toward the convention center. I kept asking myself: Is this going to be the right place for me?

There were already dozens of conference attendees chatting, reading, and writing at the convention center when I walked in. The people in the registration area were nice and friendly, and they gave me my badge and program, along with a warm welcome. Not knowing anybody else at the convention center, I headed for the area where first-time conference attendees were supposed to meet their coaches. I was anxiously waiting to meet my coach.

Ten minutes before 5:00 PM, coaches (distinguished with a gold star on their badges), and first-time conference attendees (identified by a distinctive red dot on theirs), started to walk in and sit at the tables. Many first-time attendees seemed to know their coaches very well or at least knew at which table they were supposed to sit. But I had no clue who my coach was and where I was supposed to sit. Finally, I asked someone who my coach was; she checked her list and told me my coach's name and showed me the table where I should sit. Thank you Mary J. Zoll, Janice J. Zimmerman, and Barbara T. Zimmerman for including me in your conversations! You made me feel welcome.

The following reception at 6:00 PM was great. The variety of snacks satisfied both my stomach and my taste buds. I relaxed, emotionally and physically, with soothing music.
played by one of Albuquerque’s best bands. Chatting with new friends, dancing with the music, sipping drinks, and nibbling snacks, I had a great time with hundreds of other conference attendees.

According to the program, there was a creative reading session starting at 9:00 PM, right after the reception. Even though I was very tired by then, I was excited to find out what professional medical writers could offer to creative writing.

A number of medical writers volunteered to read their own creative writing pieces, ranging from poems and essays to short stories and book chapters. All the pieces were based on the writers’ personal experiences. Some of them were funny and some of them were sad, but all of them were superb. Along with other audience members, I shared laughs and tears with the readers. I was impressed by the readers'/writers’ talents, and I wished the 1-hour session was longer. By the time I walked back to my hotel room, it was already past 10:00 PM (12:00 AM back home in Maryland). I was exhausted but also excited, and I thought this could be a good conference.

Everything went well during the next couple of days. Roundtable discussions, workshops, and open sessions kept me busy all day long. I am not a morning person, but I got up at 6:00 every morning while I was at the conference. Roundtable discussions, workshops, and open sessions kept me busy all day long. I am not a morning person, but I got up at 6:00 every morning while I was at the conference and did not return to my hotel room until after 10:00 PM. There were so many things to learn and so many people to talk to, and I wanted to learn as much as I could.

All the workshops for which I signed up, including how to write clinical study reports and Investigational New Drug applications, met my expectations. With their many years of writing and teaching experience, the speakers delivered their messages in fun and effective ways. Not only did they teach me how to technically write the regulatory documents, they also taught me how to find opportunities in the medical communication field—opportunities I otherwise would not have had. I was thrilled.

To me, the open sessions and roundtable breakfast discussions were just as valuable as the workshops. I learned what employers are looking for in freelance writers, how to find and keep clients, and how to get further education in the medical writing field. However, with so many things going on at the same time, it was impossible for me to attend all the sessions that interested me.

To save money, I hadn’t signed up for the luncheons and the dinner when I originally registered for the conference. However, the conference coaches suggested signing up for these events onsite, and I am so happy I followed their suggestion. These events were a great time to meet new friends and network, and I met many wonderful writers and editors. I learned a lot from my neighbors at the lunch and dinner tables. It was fascinating to know how diverse professional medical communicators’ backgrounds are and how individuals ended up as medical communicators.

Albuquerque is a beautiful city, and I am a big fan of Mexican food and turquoise, but I didn’t go anywhere other than the conference the whole time I was there. By the end of the conference, I was overwhelmed and very tired, but I was also very encouraged and inspired. I have attended many international and local meetings and conferences, but the 66th AMWA Annual Conference was the best conference I had ever attended. I was amazed by how friendly, open, and helpful those established medical writers were. They seemed to be more than willing to share their knowledge and experiences with newcomers like me.

My flight back to Washington, DC, was in the early afternoon of October 28, but I was not ready to go back home yet. There were still many sessions, including the president’s reception, scheduled for that afternoon and evening. I enjoyed the first two-and-a-half days of the conference and wished that I could enjoy the rest.

Thank you to the conference committee, the speakers, the workshop leaders, the conference coaches, the volunteers, and all the wonderful conference attendees for making my first AMWA annual conference so wonderful. I am looking forward to seeing you all again at the 2007 conference in Atlanta, GA! And next time, I am going to stay until the very last minute.

4 TIPS for New Conference Attendees

For those of you who are new to the medical writing field, the AMWA annual conference is the best place to find out what medical writing is all about and to start building your network. From my own experience, here are some of the important things new conference attendees should know:

1. Register for the conference, book the hotel room, and sign up for the workshops you are interested in as soon as you can. Workshops fill up very quickly.

2. Sign up for all the meal events because they’re great for networking.

3. Whenever possible, sit with different people and talk to them. You never know what they do and how much they can help you until you talk to them.

4. Request a conference coach. Even though my coach didn’t show up, the conference coaches are extremely nice and helpful, and they can pretty much answer all your questions and provide you helpful suggestions and tips before, during, and even after the conference.
American Medical Writers Association  
67th Annual Conference  
October 11-13, 2007  
Atlanta, GA  
68th Annual Conference  
October 23-25, 2008  
Louisville, KY

Association for Business Communication  
Annual Meeting  
October 10-12, 2007  
Washington, DC  
Contact: Dr. Robert J. Myers, Executive Director  
Baruch College, CUNY  
Box BB-240  
One Bernard Baruch Way  
New York, NY 10010  
Phone: (646) 312-3726; Fax: (646) 349-5297  
E-mail: myers@businesscommunication.org  
www.businesscommunication.org

American Academy for the Advancement of Science  
February 14-18, 2008  
Boston, MA  
Contact: American Academy for the Advancement of Science  
1155 Sixteenth Street, NW  
Washington, DC 20036  
Phone: (202) 776-8258  
Fax: (202) 872-4600  
E-mail: natlmtgs@acs.org  
www.acs.org

American Chemical Society  
234th National Meeting and Exposition  
August 19-23, 2007  
Boston, MA  
Contact: American Chemical Society  
1155 Sixteenth Street, NW  
Washington, DC 20036  
Phone: (800) 227-5558 (US only);  
(202) 872-4600 (outside the US)  
Fax: (202) 776-8258  
E-mail: aacsmeeting@aaas.org  
www.aaas.org

American College of Clinical Pharmacy  
Annual Meeting  
October 14-17, 2007  
Denver, CO  
Contact: ACCP  
3101 Broadway, Suite 650  
Kansas City, MO 64111  
Phone: (816) 531-2177; Fax: (816) 531-4990  
E-mail: accp@accp.com  
www.accp.com

American Public Health Association  
Annual Meeting  
November 3-7, 2007  
Washington, DC  
Contact: American Public Health Association  
800 I Street, NW  
Washington, DC 20001  
Phone: (202) 777-2742; Fax: (202) 777-2534  
E-mail: comments@apha.org  
www.apha.org/meetings

American Association of Dental Editors  
Annual Conference  
September 26-27, 2007  
San Francisco, CA  
Contact: American Association of Dental Editors  
750 North Lincoln Memorial Drive, Suite 422  
Milwaukee, WI 53202  
Phone: (414) 272-2759; Fax: (414) 272-2754  
E-mail: adade@dentaleditors.org  
www.dentaleditors.org

American Society of Indexers  
Annual Conference  
May 21-25, 2008  
Denver, CO  
Contact: American Society of Indexers  
10200 West 44th Avenue, Suite 304  
Wheat Ridge, CO 80033  
Phone: (303) 463-2887; Fax: (303) 422-8894  
E-mail: info@asindexing.org  
www.asindexing.org

Association for Women in Communications  
30th Annual Conference  
May 21-25, 2008  
Chicago, IL  
Contact: PRSA  
33 Irving Place  
New York, NY 10003-2376  
Phone: (212) 995-2230; fax: (212) 995-0757  
www.prسا.org

Council of Science Editors  
CSE Annual Meeting  
May 16-20, 2008  
Rockville, MD 20852  
Phone: (301) 770-2920; Fax: (301) 770-2924  
E-mail: raps@raps.org  
www.raps.org

American Public Health Association  
Annual Meeting  
October 19-23, 2007  
Spokane, WA  
Contact: Diane McGurgan  
CASW  
P.O. Box 910  
Hedgesville, WV 25427  
Phone: (304) 754-5077  
E-mail: diane@nasw.org  
www.casw.org

Plain Language Association International  
October 11-14, 2007  
Amsterdam, The Netherlands  
Contact: Plain Language Association International  
E-mail: plain@garbl.com  
www.plainlanguagenetwork.org

Public Relations Society of America  
International Conference  
October 20-23, 2007  
Philadelphia, PA  
Contact: PRSA  
33 Irving Place  
New York, NY 10003-2376  
Phone: (212) 995-2230; fax: (212) 995-0757  
www.prasa.org

Society of National Association Publications  
2007 Annual Publications Management Conference  
November 12-13, 2007  
Chicago, IL  
Contact: SNAP  
8405 Greensboro Dr., #800  
McLean, VA 22102  
Phone: (703) 506-3285; Fax: (703) 506-3266  
E-mail: snapinfo@snaponline.org  
www.snaponline.org

American Society of Indexers  
Annual Conference  
October 4-6, 2007  
Orlando, FL  
Contact: Association for Women in Communications  
3337 Duke Street  
Alexandria, VA 22314  
Phone: (703) 370-7436; Fax: (703) 370-7437  
E-mail: info@womcom.org  
www.womcom.org

European Medical Writers Association  
9th Autumn Meeting  
November 1-3, 2007  
Basel, Switzerland  
Contact: European Medical Writers Association  
Buererstrasse 110C, 7th Floor, P.O. Box 2246  
6302 Zug, Switzerland  
E-mail: info@emwa.org  
www.emwa.org

American Association of Dental Editors  
Annual Conference  
September 26-27, 2007  
San Francisco, CA  
Contact: American Association of Dental Editors  
750 North Lincoln Memorial Drive, Suite 422  
Milwaukee, WI 53202  
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E-mail: adade@dentaleditors.org  
www.dentaleditors.org

Association for Women in Communications  
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33 Irving Place  
New York, NY 10003-2376  
Phone: (212) 995-2230; fax: (212) 995-0757  
www.prasa.org

Society of National Association Publications  
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8405 Greensboro Dr., #800  
McLean, VA 22102  
Phone: (703) 506-3285; Fax: (703) 506-3266  
E-mail: snapinfo@snaponline.org  
www.snaponline.org

Society for Scholarly Publishing  
30th Annual Meeting  
May 26-June 1, 2008  
Boston, MA  
Contact: Society for Scholarly Publishing  
10200 W. 44th Avenue, Suite 304  
Wheat Ridge, CO 80033  
Phone: (303) 422-3914; Fax: (303) 422-8894  
www.sspnet.org
I did not have time to write you a short letter, so I wrote you a long one instead.  
(but often attributed to Samuel Johnson or George Bernard Shaw)

Easy writing makes hard reading.  
— Richard Sheridan  
(but often attributed to Hemingway and others)

Easy reading is damn hard writing.  
— Nathaniel Hawthorne

Writing is easy. You just sit down at the typewriter, open up a vein and bleed it out drop by drop.  
— “Red” Smith  
sports writer and broadcaster

The multitude of books is a great evil.  
There is no limit to this fever for writing.  
— Martin Luther

If the doctor told me I had only 6 minutes to live, I’d type a little faster.  
— Isaac Asimov

Writing is a profession in which you have to keep proving your talent to people who have none.  
— Jules Renard

The relationship of editor to author is knife to throat.  
— Anonymous

Nothing stinks like a pile of unpublished writing.  
— Sylvia Plath

Either a writer doesn’t want to talk about his work, or he talks about it more than you want.  
— Anatole Broyard

The only thing doctors do more than write is procrastinate about writing.  
— Source unknown

Substitute “damn” every time you’re inclined to write “very”; your editor will delete it and the writing will be just as it should be.  
— Mark Twain

The wastebasket is a writer’s best friend.  
— Isaac Bashevis Singer

I love being a writer. What I can’t stand is the paperwork.  
— Peter De Vries

I am returning this otherwise good typing paper to you because someone has printed gibberish all over it and put your name on it.  
— Anonymous English Professor at Ohio University  
(on a student’s essay paper)

Never use a long word where a diminutive one will do.  
— William Safire

Every writer I have known has trouble writing.  
— Joseph Heller

Writing comes more easily if you have something to say.  
— Sholem Asch

An editor is someone who separates the wheat from the chaff and then prints the chaff.  
— Adlai Stevenson

No author likes to be edited as much as he dislikes not to be published.  
— Russell Lymes

I do not like to write—I like to have written.  
— Gloria Steinem

It took me 15 years to discover I had no talent for writing but I couldn’t give it up because by that time I was too famous.  
— Robert Benchley

I always do the first line well, but have trouble doing the others.  
— Moliere

The hardest part of writing is getting to the top of page one.  
— Tom Stoppard

Allow me to add a few of my own (some may be resurrected from my subconscious, having been read years ago).

Title is vital.  

Write like you talk.  

Say what you want about writing, many will say what they want about writers, especially those who say what they want.  

He thinks his writing is manuSCRIPTURES.  

Good writing is merely good editing.  

Every new author believes his or her manuscript is so good that it will be accepted by the first publication to which it is submitted.  

Good writing is done by the seat of the pants—keeping it glued to the computer chair long enough.  

Critics call his writing magnifiSCENT.

As ST THOMAS is reputed to have said, “That’s all there is, there isn’t any MORE.”
Institutional affiliations are given for information and convenience only. The views expressed, being solely those of the correspondents and the columnist, do not represent those of any institution named or of the American Medical Writers Association. All queries, unless otherwise specified, were received and replied to by e-mail.

DEAR EDIE: I hope you can help me with a specific query about the pluralization of terms that appear quite frequently in Clinical Study Reports. In the guidance documents for the Structure and Content of Clinical Study Reports issued by the International Conference on Harmonisation and by the European Medicines Agency, the plural terms for Institutional Ethics Committees (IECs), Institutional Review Boards (IRBs), and Case Report Forms (CRFs) are abbreviated and pluralized without apostrophes. However, in the comparable documents from the Food and Drug Administration, the plural forms of these terms include apostrophes (IEC’s, IRB’s, CRF’s).

There appears to be a lack of harmonization (excuse the pun) among these harmonized documents. Should the plural (not possessive) forms be as I have given them here or should there be apostrophes?

I look forward to your response; until then, I will stay in my teacup with this punctuation storm.

KAREN WOOLLEY, PhD
CEO, ProScribe Medical Communications
Australia

DEAR KAREN: Excítabat enim fluctus in simpulo. (He used to raise a storm in a teapot.) (Terence)

There is no need for the apostrophes in the FDA’s abbreviations when they are used as plurals (not possessives). This small piece of punctuation (“punctuation” aptly originates in the Latin punctuare, to point) does a lot of work. It can denote a plural, an omission, or a possessive, in addition to other important functions.

Up until several years ago, we wrote “ECG’s” for “electrocardiograms.” We no longer do that in such formulations, maybe because it adds another character to the word. And that’s a consideration for the medical journals, which are always complaining about the cost of printer’s ink and paper. That’s why they don’t use full punctuation—commas and periods—in lists of references anymore, although they used to (examples on request). Incidentally, “EKG” is outmoded, since it is German; we now use the English abbreviation ECG.

We still use the apostrophe to pluralize certain abbreviations and numbers, however: O.K.’d; size 10’s; B-737’s; mind your p’s and q’s. There are many other rules governing use (or omission) of the apostrophe.

In dealing with the ponderosities of the FDA or any other governmental entity, we must realize that they may take months or years to change writing styles in their myriad publications. In the interim, there may be inconsistencies between subsets of departments.

FDA: Please take note.

DEAR EDIE: The examples you provided of abusages were so funny in your workshop in Albuquerque. I forgot to bring my questions to class, so here they are:

Is “suggestive of” the appropriate alternative to “suspicious for”? Are there other common alternatives?

Can you clarify the usage of “on the basis of” rather than “based on”?

KRISTIN KRAUS
University of Utah Health Science Center
Salt Lake City, Utah

DEAR KRISTIN: I wouldn’t use either “suggestive of” or “suspicious for.” A symptom or sign might suggest (not be suggestive of) something, but would not be suspicious for. A person is suspicious, which could mean either that the person suspects something amiss or that the person is a potential evildoer. Yes, inanimate objects can suggest, demonstrate, show, etc.

The reason “based on” shouldn’t be used at the beginning of a sentence is that it could be construed as modifying the...
subject noun or pronoun: “Based on his scanty knowledge, he believed that global warming is not a threat to the planet.” He certainly wasn’t based on his scanty knowledge—perhaps his fundament (look it up). One could write about another, completely different person, let’s say Al Gore, “On the basis of his vast experience, he knew that the planet is in great danger.”

The term “based on” is what is called in the trade an absolute construction, one that is unrelated grammatically or syntactically to anything else in the sentence. Many absolutes are dangling participles. As it happens, I had somewhat the same question about absolutes from another correspondent, and our exchange appeared in the December 2006 issue. Other examples of absolute constructions are “grammatically speaking,” “secondarily,” “considering,” and “judging from.” (Of course there are hundreds of other examples.)

The problem there is that if the absolute is mistakenly linked to the following subject noun or pronoun, the result could be ambiguous and unintelligible at first reading. Our aim should be to make things easy for the reader, shouldn’t it?

DEAR EDIE: Can you help settle a question about “affect” and “effect” that puzzles my colleagues and me? Please overlook the obvious point that the entire sentence probably should be rewritten.

“Patients should not take this medication who are using or have used within the 6 months of Day 0 any drugs expected to effect norepinephrine including but not limited to anti-hypertensive agents, norepinephrine reuptake inhibitors, and serotonin/norepinephrine reuptake inhibitors.”

CATHERINE KOLONKO
Neurocrine Biosciences
San Diego, Calif.

DEAR EDIE: I have two questions for you, Edie. (1) In the following sentences, should singular or plural verbs be used?

A total of 100 patients (was)(were) enrolled in the trial. The majority (95%) (was)(were) considered evaluable for the efficacy analysis.

(2) This question is about the word “none,” which I use mostly as a singular noun. It’s my understanding, though, that this is not always the case. Could you please give me some examples using it as singular and plural?

Thanks a bunch.

CHARLENE A. TUCKER
Cephalon, Inc.
Frazer, Pa.

DEAR CHARLENE: The rule about the verb number with “a” and “the” is easy to remember. In general, “a” (total, number, lot, variety, percentage, majority, average, etc.) takes a
plural verb. “The” (total, etc.) takes a singular verb. That’s because “a” is an indefinite, nonspecific article and “the” is a definite, specific article.

Your cited sentences would read as follows (also see Sidebar): “A total of 100 patients were enrolled in the trial.” “The majority (95%) of patients was considered evaluable for the efficacy analysis.”

Here are some examples of proper usage: “The number of leukocytes was used to diagnose a fulminating infection.” “The majority of individuals (about 90%) with this genetic enzyme deficiency shows few or no abnormal signs.” “A variety of mechanisms, alone or in combination, are deemed to be causative in cardiogenic shock.” “A number of observations of the sun were made during the eclipse.”

Sidebar: I have never been able to find “evaluable” in any dictionary (so far). However, it seems to serve a need, and so may find a place in our lexicons. The alternatives are a mite unwieldy, for example: “The majority (95%) was considered capable of evaluation for the efficacy analysis.” “None [not any] of the aspects of science are learned without diligence.” “None are so blind as those who will not see.” “None [not one] of the Smith family has been designated an heir.” “Of all the features of her face, none is so striking as her blue-violet eyes.”

“None [not any] of the institutions in the consortium have solutions to the problem of the uninsured. When none specifically means not one, a singular verb is preferable: ‘As to the candidates for postdoctoral fellowships, none is from this geographic area.’ (From Medical English Usage and Abusage)

The word none is often mistakenly taken to mean “no one,” but it stems from an Old English pronoun, meaning “not one.” “None [not any] of the aspects of science are learned without diligence.” “None are so blind as those who will not see.” “None [not one] of the Smith family has been designated an heir.” “Of all the features of her face, none is so striking as her blue-violet eyes.”

DEAR Edie: We were having a discussion concerning the appropriate usage of singular and plural verbs with the terms “total” and “number.” I somewhat remember that it is dependent upon the sentence, for example: “A total of 1,300 patients (was)(were) enrolled in the study” versus “The total of 13 medications (was)(were) approved by the P&T committee.”

Can you please clarify the ruling?

EVELYN R. HERMES-DEsANTIS, PHARM D
Robert Wood Johnson University Hospital
New Hope, Pa.

DEAR EVELYN: What a happy coincidence! Please see the correspondence with Charlene Tucker. I hope this answers your query as well.

DEAR LISTENERS: I’ve received a couple of letters pointing out that “trans” should be italicized when it is part of a chemical compound. Of course, I’ve always done that. My entire response was about advertising, not chemical compounds. I’ll paraphrase my response to one correspondent:

If we were to italicize “trans” wherever it appears, what happens to “transacetylation”? Should we now italicize “trans” in such words? You will have noted that well-edited newspapers do not italicize “trans” (but they do properly hyphenate, since these terms are compound adjectives) in such phrases as “trans-fatty foods” and “trans-fat products.” Dorland’s italicizes cis and trans in their usual entry locations, but it does not do so under “Test” entries: “cis-trans test.” Context is all. I have yet to see a chemical formula with trans- or cis- that also includes the word “fats.”

Edie Schwager, a freelance writer, medical editor, and workshop teacher, lives in Philadelphia. She is the author of Medical English Usage and Abusage and of Better Vocabulary in 30 Minutes a Day. Queries and comments, which will be edited, should be sent directly to her in publishable form and preferably by e-mail. Edie answers queries as soon as possible by e-mail.

To avoid back-and-forth, time-consuming messages, please include permission to publish with the questions or comments. For verification, correspondents must provide all addresses, especially the city and state, of the correspondent or the affiliate. The name of the affiliate and other data may be published unless Edie is otherwise directed.

Edie’s e-mail address, not surprisingly, is dearedie@verizon.net.
The Way of the Woman Writer
Janet Lynn Roseman
Binghamton, NY: Haworth Press, 2003, 159 pp., $17.95

Women who wish to develop creative autobiographical pieces will find Janet Roseman’s second edition of The Way of the Woman Writer a refreshing blend of personal commentary and practical exercises that approximates attending one of her workshops. Roseman believes that women have unique challenges in amassing courage to develop writing pieces that reflect their life experiences, particularly since many women undervalue the import of their own intuition and therefore require novel tools to invoke the creative spirit.

Each chapter focuses on spiritual topics, ranging from maternal relationships to grappling with fear, which may contribute unexpected potency to the writing process. For example, Roseman emphasizes the importance of creating rituals, such as lighting candles or setting aside an area of one’s home exclusively for writing. Such rituals stimulate productivity, which can eventually be learned through association and conjured on command. Each chapter ends with a series of exercises intended to cultivate subject matter for an autobiographical essay. Roseman then presents sample essays employing these techniques that were collected from her writing workshops. Nearly all of the exercises are rooted in visualization. Roseman encourages the writer to imagine abstract scenarios, which are to be roughly sketched using color and texture. The writing task then follows as the person describes the drawings. Medical writers who compose peer-reviewed manuscripts will recognize this technique because, as students, they learned to first generate the data figures and then organize the descriptive narrative around them.

Although this easily digestible book awakens the creative spirit, those needing additional guidance on composing a well-structured piece will have to look elsewhere. Also, many exercises may be overly meditative for authors quite accustomed to technical writing, such as the chapter on developing personal power shields. Nevertheless, The Way of the Woman Writer is a well-organized “workshop in a book” meant to help the budding autobiographer weave her own tales. Roseman believes that every woman writer has her own personal mythology to relate and hopes that this guide will add vivacity to the end product.

— Monica M. Horvath, PhD
Monica is a postdoctoral fellow and freelance writer in Raleigh, NC.

Whiplash-Associated Diseases
Rene Caillet, MD
Chicago: American Medical Association, 2006, 226 pp., $59.95

Rene Caillet, an expert on the musculoskeletal system, has filled a gap in the literature with his comprehensive textbook, Whiplash-Associated Diseases (WADs). As the author states in the introduction, the term “whiplash” was “intended to be a description of motion, but has been accepted by physicians, patients, and attorneys as the name of a disease; and this misunderstanding has led to its misapplication by many physicians and others over the years.” The purpose of this book, therefore, is not only to provide the reader with a complete understanding of the mechanics and treatment of these complex diseases but also to discuss psychosocial aspects, long-term disability, and legal issues often associated with WADs.

The book opens with a thorough discussion on the basic biology of WADs. The chapters on functional anatomy and biomechanics are well-written, thoroughly researched texts which, with the aid of clear anatomic line drawings, provide a solid foundation on which the more controversial chapters on patient examination and treatment are based. The author describes the current guidelines and myriad treatment protocols with a professional and balanced tone. However, Dr. Caillet’s many bold statements throughout the book—such as, “The patient must understand the uselessness of most modalities [for treatment of WADs] when used alone and
that these modalities are time-consuming, expensive, and ineffectual”—give some insight into his professional opinion of current management strategies for this family of diseases. The discussions on chronic pain, depression, and the medical-legal aspects of WADs are the most interesting sections of the book, and again voice the author’s obvious frustration with the current lack of standardization in qualifying and quantifying any whiplash-associated disability. The book concludes with an appendix containing 3 short case studies that exemplify the experience of many patients with whiplash-associated injuries—medical history ignored, poor medical evaluation, inappropriate examination, incorrect diagnosis, and nonspecific therapy prescribed—all resulting in insurance claim rejections and continued pain.

If the purpose of this book was to inform at the basic level and question at the higher level, then Rene Caillet has achieved his objective. Whiplash-Associated Diseases is a textbook that teaches the facts without skimming over gaps in the current knowledge. Dr. Caillet makes a point of highlighting the many gaps in this particular field. It is this property that makes this book essential reading for anyone involved in this area of medicine—from medical students to practicing physicians to insurance and legal specialists to the patients themselves. It seems that until these gaps in knowledge are filled, for both physicians and patients, WADs will remain little more than a pain in the neck.

— Eleanor K. Duff, PhD

Eleanor is a writer and editor in Montreal, Quebec, Canada.

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One of the many key features of Healthfinder is an extensive health library, accessible from the main top navigation bar as well as from the links in the Diseases, Conditions and Injuries and Drug Database sections on the home page.

The visitor can browse the health library by topic or hyperlink to various resources.

The Information by Topic area is organized and categorized alphabetically into sections, including Alternative Medicine, Diseases & Conditions, Featured National Health Observances (with links to organizational Web sites), and Frequently Asked Questions (FAQs). Selecting a topic provides not only search results but also links to Health News and to professional organizations related to the chosen subject of interest. For example, choosing the topic “acne” will yield current health news pertaining to acne, FAQs about the condition, and links to information on other sites. In addition, there is a list of 3 dermatology-related organizations with links to their Web sites.

The Special Resources section includes Drug Database, which provides information on hundreds of prescription and over-the-counter drugs, as well as other useful resources such as the Drug Interaction Checker; Guide to Diagnostic & Surgical Procedures; Guide to Diseases, Conditions, & Injuries; and links to medical journals and other health-related resources.

Other value-added sections of this site include Consumer Guides, which provide consumers with information to help them make informed choices about doctors, prescriptions, hospitals, long-term care, and health insurance; En Espanol, which caters to a Spanish-speaking audience and is organized similarly to its English counterpart; and Kids pages, containing child-friendly interactive health care information.

The site is easy to navigate, as the title line on each page shows where you are and where you have been, eg, Home > Health Library > Prevention & Wellness > B > Back Injury. You can click on any linked part of the title line and you will return to that page. An A to Z topic list is a key part of the navigation and appears on all main sections of the Web site.

— Flora Krasnoshtein, MSc

Flora is a freelance medical copywriter in Toronto, Ontario, Canada.
Members Provide Information in AMWA Web & Internet Technology Survey

The Web and Internet Technology (WIT) Committee conducted an anonymous survey of AMWA members to find out how satisfied they are with AMWA's Web site, what services they'd like to see, and which resources AMWA should adopt for the future. The results of the survey will help AMWA continue to move forward by providing more services and improved resources to its members every year. A chance to win an iPod music/video player (a $250 value) was offered as an incentive to members to respond to the survey. The lucky winner was Robert Bonk, of Chester, PA. Many thanks to everyone who responded. The WIT committee is currently in the process of evaluating the survey results.

Valuable Member Resource

As a benefit to its members, AMWA provides free access to Harrison's Online, which features the complete contents of Harrison's Principles of Internal Medicine, 16th Edition. Harrison's is an authoritative, widely used medical textbook that addresses all fundamental aspects of internal medicine. It encompasses basic science, pathophysiology, clinical signs and symptoms, and diagnosis and treatment of disease. Take advantage of this invaluable resource by clicking on the link in the Members Only area of the AMWA Web site.

Check Your Curriculum Record

Are you working toward an AMWA curriculum certificate? Not sure what you've taken or how many more courses you need? You can view your AMWA curriculum record and check your progress any time by visiting the AMWA Web site and clicking on Education/Certificates > My Curriculum Record.

AMWA Launches AMWA Update

In February, AMWA launched the AMWA Update, AMWA's new e-mail communication vehicle for members. To keep communications timely, reduce costs, and be more environmentally friendly, AMWA Updates are sent monthly and, in April, replaced the monthly postal mailings that have been sent from AMWA headquarters in the past. Be sure to read your AMWA Update! It will keep you abreast of upcoming chapter conferences, AMWA's annual conference, new information and resources on the Web site, and news about AMWA's Listservs. The Update will also contain links and news to keep you up-to-date on issues related to the profession.

Stay Up-to-Date on Style and Save 20%

Thanks to a special arrangement, AMWA members can enjoy a 20% discount on the cost of purchasing the new 10th edition of the AMA Manual of Style. To take advantage of this offer, you must order the manual through the AMWA Web site. Log on to the Members Only page today to get your copy of this valuable resource.
Each year, the slate of AMWA officers is chosen by the Nominating Committee, which consists of the President-Elect (who serves as chair) and 6 voting members who are not members of the Executive Committee (EC). The Nominating Committee receives from AMWA headquarters the names and biographies of all members meeting the criteria for the 3 elective offices: President-Elect, Secretary, and Treasurer. Members of the committee discuss the potential candidates and select 1 candidate for each position. The names of these candidates are then presented to the Board of Directors for approval at its spring meeting.

The President-Elect automatically assumes the office of President at the annual business meeting held during the annual conference of the following year. The 2007-2008 AMWA President will be Sue Hudson. A member of AMWA since 1997, Sue has served AMWA in many capacities on the national level. Before becoming President-Elect in 2006, she served as Secretary and chair of the Constitution and Bylaws Committee, following a term as Administrator of Education. She has also served as Workshop Coordinator for the annual conference (2003-2004), member of the Constitution and Bylaws Committee (2005), Administrator of Chapters (2002-2003), Administrator of the Annual Conference (2001-2002), and member of the Nominating Committee (1999). She has also led roundtables and workshops and moderated open sessions at the annual conference. At the chapter level, she is a past president of the Pacific Southwest Chapter, and she directed the West Coast regional conference at Asilomar in 1999, 2001, 2003, 2005, and 2007. She was awarded fellowship in 2004. Sue earned a bachelor's degree in journalism at the University of Minnesota and currently collaborates with her husband in their freelance business, Medical Writing Associates, in Simi Valley, CA.

The following candidates were approved by the Board of Directors at its spring 2007 meeting:

**President-Elect**

The President-Elect must be a fellow of AMWA and must have held several positions on the EC or must have served on the EC for at least 3 years; in either case, he or she must be an EC member when nominated as President-Elect.

Cindy W. Hamilton, PharmD, ELS, an AMWA member since 1984, will complete her fourth term as Treasurer this year. She has also served on the EC as Administrator of the Annual Conference (2002-2003), Administrator of Chapters (2001-2002), and local arrangements chair for the Annual Conference (2000-2001). She chaired the task force that, in 2002, developed a position statement on the contributions of medical writers to scientific publications. She has also served the association as a member of the following: Web and Internet Technology Committee (2003-2006; chair, 2005-2006), Constitution and Bylaws Committee (2005-2006), Elections Task Force (chair, 2003-2005), and Grants Task Force under the Department of Development (2004-2005). Cindy was instrumental in organizing a satellite group of AMWA members in southeastern Virginia, and she has also led AMWA workshops, open sessions, and breakfast roundtables. She was awarded fellowship in 2005.

Since 1990, she has been principal of Hamilton House, a medical writing and editing firm in Virginia Beach. Before then, she worked at a medical communications company, taught pharmacy courses, was a clinical pharmacist, and was a clinical research scientist at a major pharmaceutical company. She is accredited by the Board of Editors in the Life Sciences as a life sciences editor. She holds a doctor of pharmacy degree from the University of the Sciences in Philadelphia and a bachelor of science degree in pharmacy from the University of North Carolina at Chapel Hill.
Secretary
The Secretary must have served in at least 2 capacities on the EC within the 5 years immediately preceding his or her nomination and should be a fellow of AMWA.

Thomas Gegeny, MS, ELS, a member since 1998, has been a member of the EC for 4 of the past 5 years. He is currently completing his first term as Secretary. He has also held the position of Administrator of Web and Internet Technology (2005-2006), Administrator of the Annual Conference (2004-2005), Administrator of Publications (2002-2003), and Administrator of Membership (2001-2002). He was awarded fellowship in 2004. He has been a workshop leader since 1999 and has also been a plenary speaker, breakfast roundtable coordinator, and open session speaker at AMWA annual conferences. His other appointments include member of the Education Committee (2001-2003) and Publications Committee (2002), and chair (2003) and member (2004) of the Web and Internet Technology Committee. He has been active in the Southwest Chapter, serving as Webmaster, Program Chair, President, and Director-at-Large. Now in the New England Chapter, Tom is a medical writer at Envision Pharma in Southport, CT, after serving for several years as the Executive Director and Senior Editor at The Center for AIDS Information & Advocacy in Houston, TX. He holds a master's degree in biomedical sciences from the University of Texas Houston Health Science Center.

Treasurer
The Treasurer must have served on the Budget and Finance Committee within the 5 years preceding nomination to the position.

Judith M. Pepin, PhD, has been a member since 1997. She currently serves on the EC as Administrator of Development. She has held 3 terms as a member of the Budget and Finance Committee (2006-2007, 2004-2005, 2003-2004) and 1 year as a member of the Web and Internet Technology Committee (2005-2006). Judi has also served 6 years as Treasurer of the Ohio Valley Chapter (2000-2006) and was the Ohio Valley Chapter delegate for 3 years (2003-2006). Judi has been employed by Procter & Gamble since 1990 and is currently a medical writer at Procter & Gamble Pharmaceuticals in Mason, OH. She holds a doctorate and a master of science degree in pharmacology and toxicology from the University of Connecticut School of Pharmacy in Storrs, CT, and a bachelor of arts degree in biochemistry from Smith College in Northampton, MA. She completed her postdoctoral training at the Cleveland Clinic, Department of Vascular Cell Biology and Atherosclerosis.

Procedure for Additional Nominations
According to AMWA's Bylaws (Article III.1b), additional nominations for President-Elect, Secretary, or Treasurer may be made by any member whose dues and special assessments are current, provided that any such nomination is submitted in writing to the secretary of AMWA at least 30 days before the annual business meeting (at the annual conference [October 11-13, 2007]). Such a nomination must state clearly the qualifications of the candidate, must be signed by 50 members in good standing as of December 31 of the previous year, and must be accompanied by a letter from the candidate stating that he or she is willing to serve if elected.

Questions about how the AMWA election works?
Visit www.amwa.org and review Election Process FAQs posted this year in the Members Only section.
Spring is in the air! As I write this column, I have just finished putting the Harley away after a quick little 50-mile run around Cleveland. One of the sure signs of spring is the sound of motorcycle engines at dusk as the biker community revels in the odd, clear, over-32-degree days that punctuate the change of season.

Another sure sign of the season is the annual spring Board of Directors meeting. Preceded by a half-day meeting of the Executive Committee (EC), the Board meeting was held on March 30 and 31, 2007, at the Marriott Suites in Bethesda, MD. The tireless AMWA volunteers and headquarters staff have been quite busy over the past few months, and I am pleased to be able to report on their progress to date.

Tom Gegeny, our Secretary, has been working with Donna Munari, our Executive Director, to compile the minutes of the October 25 and 28 meetings of the Board. These were approved by the Board on Friday, along with updates to the bylaws of the Florida, Mid-Atlantic, Ohio Valley, and Rocky Mountain chapters.

Our Treasurer, Cindy Hamilton, presented the quarterly financial report and also presented the budget for fiscal year 2007-2008, which the Board approved. Cindy is working on the next AMWA Salary Survey—so watch the AMWA Update for instructions on how you can participate. The more members who contribute to the survey, the more valid the results will be, so I encourage everyone to participate in this anonymous survey!

President-Elect Sue Hudson presented the slate of officers to the Board for its consideration and vote. I am greatly pleased to report that all 3 candidates received unanimous approval from the Board! (See page 93 for the slate of candidates.) Sue is also working with other departments and members to bring you additional educational opportunities—but more on that later.

Immediate Past President Susan Siefert shared the good news that our keynote speakers for the Atlanta annual conference have been confirmed. (See page 60.)

Not content merely to launch a new monthly electronic communication tool, Mary Royer, Administrator of Web and Internet Technology, is working with Ronnie Streff to develop and launch an exciting new Listserv package for our freelance members. She is also working with Sue Hudson, Barbara Snyder, and others to develop AMWA’s first Webinar, featuring Cheryl Iverson and Annette Flanagan.

Scott Mertsger, Administrator of Awards, shared the nominees brought forward by the Fellowship Award and Swanberg Award committees. The Board was quite pleased to approve these outstanding nominees. (Watch the AMWA Update for announcements.) Scott has also been busily working with his committee members and with Shari Lynn at headquarters on the Eric Martin and other awards.

Michele Vivirito, Administrator of the Annual Conference, and her committee have put together a simply stunning program. Altogether, between open sessions, breakfast roundtables, coffee klatches, and posters, Michele and her team will be offering more than 150 educational sessions over the 2½ days of the conference. Amazing! But that’s not all—Karon Schindler, Shari, and Donna have also assembled a roster of tours that might just entice you to leave the conference hotel for an hour or two.

But wait! There’s more! Karen Klein, Annual Conference Workshop Coordinator and EC member at large, has been working hard to bring attendees the high-quality workshops that have become the hallmark of the annual conference. Working with Dane Russo at headquarters, Karen is assembling the most diverse and innovative curriculum program ever, including 12 new noncredit courses, 6 science curriculum courses (new in Atlanta!), and 6 noncredit courses that are moving to core status (3 of which are science courses). Additionally, 12 leaders will be making their annual conference debuts, and 16 workshops will be presented by co-leaders—thereby broadening our pool of future leaders and helping to ensure the longevity of AMWA’s curriculum program.

Barbara Snyder, Administrator of Education, and her committee are elbow-deep in reviewing new workshops and leaders for inclusion in the Atlanta Annual Conference curriculum. But that’s not all! Barbara has also been working closely with Sue Hudson (task force chair) and many
others to bring to fruition an effort started 2 years ago: the curriculum in Science Fundamentals. For more on this groundbreaking educational opportunity, please see page 80.

Vicki White, Administrator of Chapters and Membership, led the Board delegates in a special session Friday night, reporting back to the full Board on Saturday. Of note, Vicki shared the delegates’ decision to continue the Chapter Fund. Under this program, 75 cents of each member’s annual dues are placed in a special account. Chapters in financial need may apply to receive monies from the fund to support delegates’ travel to the spring Board meeting. To date, 3 chapters have used the fund.

Judi Pepin, Administrator of Development, is pleased to report that, with more than $100,000 in the Endowment Fund, interest earnings will be available for use next year. Judi presented for Board approval her department’s process for identification, funding, and implementation under the Endowment Fund. She also reported that corporate sponsorships have started to come in, and that Shari at headquarters is already signing up conference exhibitors for Atlanta.

Melanie Ross has also been hard at work as Administrator of Publications. Working with Editor Lori Alexander, she has successfully launched the redesign of the AMWA Journal, which is also joining the Society of National Association Publications (SNAP), a nonprofit professional society serving the needs of association publishers and communications professionals. Look for details and other exciting announcements from Melanie’s committees in my next column.

I’d like to thank all the members of the Board as well as Donna and the whole headquarters staff (Kathie Bauerle-Berg, Melanie Canahaute, Norine Downs, Bonnie Green, Shari Lynn, Dane Russo, and Ronnie Streff), for their hard work these past few months. The first half of our year together has been a study in enthusiasm, effort, and execution! Plans long under consideration are coming to fruition, new programs are driving forward, and ideas are being hatched for future initiatives that will enable us to continue to make positive changes for each other and the association.

**Expert Link** is a new, online directory of child health experts based at the nation’s children's hospitals. A product of the National Association of Children’s Hospitals and Related Institutions it’s designed especially for professional news media. **Expert Link** is searchable by state, an expert's media experience and foreign language skills, and specialty areas such as asthma, obesity and cancer. With a few clicks, you can access information on pediatric specialists, researchers and other child health professionals and how to contact them through hospital public relations contacts.

To start your search for a credible child health spokesperson, please visit www.childrenshospitals.net/expertlink.
Your chapter has decided to produce a newsletter for its members and you have volunteered your time and effort to launch this project. Whether you are starting from scratch or taking over an existing newsletter, some elements of creating an effective chapter newsletter will remain the same. The 2 most important elements are your budget and purpose. Decide on the primary purpose of your newsletter. This decision and your budget allowance to accomplish that purpose will drive all the other decisions you make.

**What is the Primary Purpose of Your Newsletter?**

- Disseminate announcements to chapter members
- Provide educational or informational articles
- Highlight member accomplishments or career tracks
- Inform your readers about chapter and national membership benefits
- Market the chapter and encourage membership

Once you have decided on the main purpose of your chapter’s newsletter, use it to guide the type of content you choose to include for your readers. Knowing what your purpose is will help you establish a production and publishing schedule. For instance, if you are announcing events, your newsletter needs to be received by its recipients in advance of the event.

**Points to Consider When Establishing Your Production Schedule**

You need to decide whether you will produce a monthly, quarterly, or perhaps a biannual newsletter. Before choosing a publishing schedule, focus on the timing requirements of your primary purpose and keep your resources in mind. Do you have a trained staff of volunteers with time available to meet your publishing deadlines? What is your budget and delivery method?

If your budget allows for professional printing and a mailing to members, you will need to allow time in your schedule for the printer to produce the newsletter and for mail delivery. Another budget consideration for traditionally published newsletters is the cost of paper. How much content and how many pages will be required to fulfill the purpose of your newsletter?

**E-Newsletter or Traditional Newsletter**

Your budget and purpose will also guide your choice of newsletter deliverable. Is there money in your budget to have your newsletter professionally printed? What services will you require from the printer? Do you have a volunteer who can design the newsletter and provide the printer with a PDF document ready to go to press? If you have a volunteer with the skills and software to produce your newsletter but no budget for professional printing or mailing, you might consider photocopying and mailing the newsletter or posting a PDF on your chapter’s Web site, or perhaps delivering the PDF to members via e-mail. Whichever route of delivery you choose, you need to be mindful of how the purpose of your newsletter influences scheduling requirements and when your chapter members receive the newsletter.

**Editorial and Production Team**

To assemble an editorial and production staff to get your newsletter up and running, announce volunteer opportunities at chapter meetings or through e-mail broadcasts to your membership. Volunteering to work on a chapter newsletter is a great way for members to gain experience in writing and editorial tasks. Published newsletter articles showcase members’ writing abilities and become valuable marketing tools for volunteers. Member involvement also ensures that the purpose of the newsletter meets the needs of its membership.

**PRODUCTION TIP:**

Give everyone involved with any phase of production a deadline to return comments or content.
Whether you are going it alone or have a group of volunteers, here is a breakdown of required tasks for creating a newsletter and keeping up with the production schedule:

- Schedule and supervise newsletter development and production tasks
- Develop content
  - Who will generate article ideas?
  - Who will write the articles?
- Edit content
- Design newsletter layout
- Create newsletter using desktop publishing
- Proofread final layout
- Produce final product and deliver

Your chapter board or executive committee may want to review the newsletter’s content. Be sure to schedule time for this during the editing phase of production to minimize the impact of changes.

Resources

New England Chapter Launches Web Site

After much forethought and planning, the New England Chapter launched its first Web site on February 19. Located at www.amwa-ne.org, the site provides information for both experienced and would-be medical writers and editors.

Visit the site to:
- Get details about upcoming events
- Link to dozens of other Web sites that offer news, access to biomedical research, information about drugs and diseases, writing resources, and more
- Find out how to locate jobs or to post New England-area positions in the chapter e-mail newsletter
- Read current and back issues of the chapter newsletter
- Learn about AMWA’s education and certificate programs as well as local academic programs in health communication and biomedical sciences
- Discover the astonishing variety of opportunities in medical communication

Visitors to the site can submit a comment on the site or to offer suggestions, click on Contact Us, a link at the top of each Web page.
Florida Chapter Learns About Scripps Florida

By Jamie Frenz, PhD

The Scripps Research Institute, the world’s largest, private, nonprofit biomedical research facility located in La Jolla, CA, has added a new research facility in Palm Beach County, FL. In November 2006, the Florida Chapter hosted Dr. Harry Orf, Scripps Florida Vice President for Scientific Operations and Professor of Chemistry, who presented an overview of the Scripps Florida facility.

According to Dr. Orf, the focus of Scripps Florida—basic biomedical science, drug discovery, and the application of cutting-edge technology to the drug-discovery process—is shaped by three interdisciplinary teams: Drug Discovery, Biomedical Research, and Advanced Technologies. Drug discovery at Scripps is primarily genomic-based; biomedical research encompasses immune disorders, infectious diseases, metabolic disorders, neurobiology, and cancer, and together, Advanced Technologies and Drug Discovery form the Translational Research Institute (TRI).

The TRI seeks to identify and optimize new biochemical targets for drug discovery using high throughput screening (HTS). The institute focuses on cell-based screening, RNA dynamics, genetics, proteomics, medicinal chemistry, animal pharmacology, drug metabolism and pharmacokinetics, structural biology, bioinformatics, HTS, and target-based programs. It boasts a $10 million HTS Core, a highly automated robotics room with the capability to test microquantities of compounds against a variety of assays for biological or biochemical activity. This versatile system is applicable to cDNA, RNA, proteins, and antibiotics.

Scripps Florida promotes bioscience education and awareness in Florida through its Education and Outreach Program for middle school, high school, and undergraduate students. It also offers the Florida Collaborative Seminar Series, which encourages collaboration between researchers from academia and the pharmaceutical industry with Scripps scientists. Finally, as an educational institution, Scripps Florida offers a small graduate program for doctoral degrees in chemical and biologic sciences.

Currently, Scripps Florida has 30 faculty and 206 employees located at its temporary home at Florida Atlantic University’s Jupiter campus. It plans to eventually expand to the size of its La Jolla-based parent facility, which comprises approximately 300 principal scientists and 3,000 employees.

The permanent location of the Scripps Florida site will be in Jupiter, FL, and will consist of a 350,000-square-foot, 3-building complex corresponding to its three interdisciplinary teams. The new facility is expected to initiate unparalleled educational and economic development in biomedical research and drug discovery for the state of Florida. For more information on Scripps Florida, visit www.scripps.edu/florida.

Jamie Frenz recently graduated from Florida Atlantic University in Boca Raton, FL. She is currently a research scientist at Nautilus Biosciences, working on production methods of marine pharmaceuticals. She plans to enter the medical writing field.

Southwest Chapter Presents its 2007 McGovern Award to Steve Sternberg, Pioneer AIDS Reporter*

By Jude Richard, ELS

On February 6, 2007, the Southwest Chapter presented its 2007 John P. McGovern Award to USA Today medical reporter Steve Sternberg at its annual banquet in Houston. In a career spanning nearly 3 decades, Sternberg pioneered medical reporting on AIDS, covering the disease for several newspapers, including The Miami Herald, The Atlanta Journal-Constitution, and USA Today.

Established in 1982, the Southwest Chapter’s McGovern Award annually recognizes excellence in the field of medical communications. The award is named for John P. McGovern, MD, founder and director of the McGovern Allergy Clinic in Houston and a noted educator, author, and historian. Dr. McGovern is a past member of the AMWA Southwest Chapter and became an AMWA Fellow in 1967.

Pamela Paradis Metoyer, ELS(D), McGovern Award Committee Chair, presented the award to Sternberg before 48 attendees, including past McGovern Award recipients Ruth SoRelle (1994) and Barbara Gastel, MD, MPH (2006). Sternberg’s award lecture recounted his journey as a journalist, encapsulated best by his opening statement of “...how I got here and what it means—to me and to you—to cover a modern plague [AIDS].”

Roots of a Career

Sternberg’s career took root while growing up with a mentally retarded brother. “I spent so much time... trying to...”
explain mental retardation to other kids—I wanted them to...stop using the word retard—that I couldn’t stop. I’ve simply expanded my range. I now explain every medical and public health issue you can imagine to the biggest audience I can find.”

After earning a BA in English literature at Ithaca College and an MA at the Johns Hopkins University Writing Seminars’ program in science writing, Sternberg wrote for medical trade publications. In 1981, at the urging of a journalist friend, he started interviewing for medical reporter positions in big cities with competitive newspapers. He finally got his big break at The Miami Herald—one of the best newspapers in America at the time—when its medical writer abruptly quit.

Eyes Wide Open
“I’m suddenly the lead medical reporter at one of the nation’s top metro dailies,” Sternberg said. “I have virtually no experience. AIDS has begun to spread. Even many of the experts believed that AIDS, which was then still unnamed, was a boutique disease of a handful of gays in New York, Los Angeles, and San Francisco,” he added.

“I could see in South Florida that they were wrong. If AIDS was a gay disease, how do you explain the fact that in South Florida many of the patients were Haitian? If AIDS was a gay disease, how do you explain the case of the elderly Broward County man with hemophilia who had given the disease to his wife of...50 years?” Sternberg recounted.

“This story, which appeared first in The Miami Herald under my byline, was the first recognized case of heterosexual AIDS in the United States. It went completely unnoticed for 7 months, until [The New York Times ran a story] based on a case report about the couple in a medical journal.”

Sternberg described the uncertainty and unease journalists felt reporting on a disease that no one really understood. “Nobody knew what was going on, how big or small [AIDS] would turn out to be,” he said. “No one had ever seen a communicable disease that could do to the immune system...what a bomb...did to Hiroshima.

“Amid all of the scientific wrangling, a global epidemic was unfolding. Although we couldn’t see it at the time, the AIDS epidemic I was covering in Miami foreshadowed far better what AIDS would become today, worldwide, than what was happening in the privileged gay meccas of San Francisco, New York, and Los Angeles. AIDS today is a disease of the poor, of the disenfranchised, of the dispossessed; hitting women harder than men and people of color harder than whites.”

When AIDS Comes Home
In 1986, Sternberg left the Miami Herald to begin covering the US Centers for Disease Control and Prevention (CDC) full-time for The Atlanta Journal-Constitution. While working that beat, he began to follow the story of Tom Fox, a coworker at the paper who was dying of AIDS. He recalled wondering how many other people he worked with had the disease. Sternberg followed Fox’s daily struggle with AIDS. Effective AIDS drugs were still years away.

“Every day, I’d go into the newsroom and do my daily reporting job. It was like living in 2 worlds, each blind to the other,” Sternberg said. “To me, Tom was a human being, engaged in the fight of his life. To my editor, Tom was supposed to be a headline ready to run.”

The resulting story, “When AIDS Comes Home,” ran in its entirety after Fox’s death in 1989 and would ultimately win national awards and grudging praise from colleagues at Sternberg’s own paper.

This proved to be a pivotal point in Sternberg’s career. “Thinking back,” he said, “it seems remarkable...that I didn’t stop to wonder what it must be like to have AIDS in a place like Africa, where you don’t have intensive care—or any care at all. That would be the next stage of my journey.”

Into Africa
In 1998, after several years as a freelance and shortly after joining USA Today, Sternberg received an invitation from Sandra Thurman, President Bill Clinton’s recently appointed AIDS czar, to accompany her on an AIDS fact-finding tour of Africa the next year.

“We were fed a bellyful of denial in the South African health minister’s office,” he said. “We visited an AIDS clinic in KwaZulu Natal, heartland of South Africa’s AIDS epidemic.”

Sternberg continued, “In Zambia, we sat facing the country’s president in the mansion. Seated at the huge conference table with us were various other ministers. The president wondered what to do about all the AIDS orphans that seemed to be overrunning the streets. What indeed. There were 90,000 living 2 to a pothole or culvert on the streets of Lusaka alone.

“We visited a day school called Fountain of Hope, funded partly by the US government, where youngsters could get a square meal and learn to read and write. They also learned songs and dances, carefully choreographed, about a climactic battle against HIV, complete with imaginary guns.

“It was this dance routine, in this place, that prompted [US] Ambassador Richard Holbrooke to convene the National Security Council to discuss the security implications of AIDS,” Sternberg recalled. “If these children, or the tens of thousands of orphans in other countries, were to end up with real guns [Holbrooke thought], Africa would be in even worse trouble than it is now.

“When I returned from this trip, overwhelmed and exhausted, I discovered that the newspaper had undergone a reorganization,” Sternberg noted. “Suddenly, there was no place for my story in USA Today.

“I faced the challenge of deciding how to write the story for a newspaper that puts a premium on entertainment, not tragic news. A travel story, I thought. A travel story would do. So I spent weeks crafting a story about a journey through the dark heartland of AIDS in Africa. After my story ran, President Clinton anted up $100 million for AIDS programs overseas. It was a pittance, but it was a start.”

Sternberg recounted his return to South Africa for the Durban AIDS Conference the following year, during which he interviewed Nelson Mandela about South Africa’s AIDS crisis. “[That] story never appeared in the newspaper,” Sternberg said, “not because of any decision by my editors but because Mandela spoke on Friday and USA Today doesn’t publish on weekends. I wrote a piece for the Web instead. It was a harbinger of the future.”

Memory Boxes
Sternberg lamented that coverage of AIDS seems to be dwindling and that the media marketplace is fractured due to advances in technology, such as blogs and podcasts. “As medical journalism moves forward, the challenge for all of us, especially you who are in a position to shape the future, will be to find new ways to balance speed with depth…”

Sternberg closed by offering a story of “memory boxes” he had seen in Uganda, where entire families were being wiped out by AIDS, leaving orphaned children with no memory of their relatives. “Many [Ugandan] mothers [with AIDS] have filled boxes or scrapbooks with narrative family histories, letters, snapshots, and drawings. These so-called memory boxes are documenting a journey through generations, packaging oral history with memorabilia, improvising the only legacy their children will ever have. Whatever route journalism takes, my hope is that the memory boxes we’ve created—of our culture and our history—will survive.” Sternberg finished his lecture to a standing ovation.

A videotape of Sternberg’s lecture is available on the Southwest Chapter Web site, at www.amwasouthwest.org.

Jude Richard is a freelance medical writer and editor in Austin, TX, and is the secretary for the AMWA Southwest Chapter.
MEMBER PROFILE:
Barbara C. Good, PhD

By Bettijane Eisenpreis

Barbara Good’s first job in the medical writing field was at Case Western Reserve University. “Out of a long box of index cards, the personnel manager pulled a card that listed an editorial assistant position at a journal called Laboratory Animal Science and said, ‘You can do this.’ I interviewed for the job and got it. I never thought I’d be a medical writer. I didn’t even know what that was. I just fell into it,” Good says.

Four years after she started working at the journal, editor-in-chief Aaron M. Leash, DVM, recommended her for membership in an organization called AMWA. “In those days you needed to have a sponsor,” she explains. “He was an AMWA member, and right after I got my master’s degree, he did me the honor of proposing me for membership.”

After the journal, Good worked in a variety of medical writing positions in Cleveland and, later, Pittsburgh, in the fields of oncology, neuroscience, psychiatry, and radiology. Since 1998, she has been Director of Scientific Publications for the National Surgical Adjuvant Breast and Bowel Project (NSABP), one of the cancer cooperative clinical trials groups funded by the National Cancer Institute. The NSABP carries out national and international research studies in breast and colon cancer, and its breast cancer studies led to the establishment of lumpectomy plus radiation as the standard surgical treatment for breast cancer in the United States and demonstrated the effectiveness of tamoxifen in preventing breast cancer. Barbara also writes a regular column on breast cancer research for the Pennsylvania Breast Cancer Coalition’s publication FrontLine and does contract work for the Coalition of National Cancer Cooperative Groups.

In 1983, Barbara was talked into entering the PhD program in instructional design and technology as a part-time student at the University of Pittsburgh by the woman who ended up being her dissertation advisor. Despite the pressures of work and study, she served as AMWA’s Ohio Valley Chapter board delegate and as chapter secretary. In 1990, she was appointed Membership Administrator on AMWA’s Executive Committee by then-President Howard Smith, and in subsequent years, she served as Sections Administrator, Treasurer, Secretary, Education Administrator, and Annual Conference Administrator. She claims to have served on AMWA’s Executive Committee “longer than any other living person” (10 years).

Barbara was AMWA’s President for the 1998-1999 year. It was during her presidency that science courses became a standard component of AMWA’s educational program. “Not having been a science major, I needed information and updates in science and medicine, and I knew there were many others like me who didn’t have time to take extra university courses,” she says. “I realized we had expertise in the organization, people who really knew their stuff and could teach the courses.” (AMWA’s offering of science workshops has recently expanded; see page 59.) Another of her contributions to the association came during her stint as Education Administrator, when she resurrected the idea of on-site workshops, a program that in subsequent years has proved financially successful for AMWA.

“AMWA has given me a lot,” she says. “It hasn’t just added to my knowledge of writing and science; it has introduced me to perspectives and ideas I probably would not have been exposed to otherwise. It has provided me with lessons in confidence, awe, interpersonal interaction, support, loyalty, and humility. It has been my professional anchor through job changes and has given me friendships that I expect I will have for the rest of my life.”

One of those friendships is with AMWA Fellow Douglas Hanelline. “I’ve known Barbara for more than 15 years,” says Doug. “She and I worked on a few committees and projects together, and we quickly became what I would call ‘AMWA friends.’ I was proud to be asked by her to be Awards Administrator when she was President. We still keep in touch by mail and e-mail weekly, on all manner of subjects, in English or German. Barbara is a caring and generous person, and it is a credit to AMWA that someone of her caliber should be so willing to contribute to it.”

Former President Marianne Mallia adds: “I’ve known Barbara since my early days on the Executive Committee, and I was honored when she asked me to be her Administrator of the Annual Conference in 1999. That was probably the year we truly bonded, and we have been great friends ever since. Barb is creative and insightful, and she always has an opinion. She is not afraid of controversy if that controversy makes for a better organization or just gets people thinking about alternatives.

“And wherever Barb is, I cannot imagine her without a dog. She loves her rescue dogs and has spent countless hours working to place other rescued animals. For me, getting to know Barb has been another wonderful AMWA benefit.”
I piece the scenes of my novel together slowly, like patches of a quilt. Years have passed since I began building this story out of imagination and words. I have written 2 full drafts from scratch—more than 130,000 words in all. And yet, I am not done, mostly because I do not have to be.

I write this book in the fringes of my schedule, which is set by the deadlines for my real work. The work is real because there is a contracted date for delivery. There is comfort in having a date circled on the calendar—of knowing I will finish a project because I have to.

I do not have to ever finish my novel, which was started back in 2003. To help me get through the first 2 drafts, I used events in my life as deadlines. The first deadline was the due date for my pregnancy. The second was my son's first birthday. Both deadlines were successful in getting me through to the final chapter.

But both of the resulting drafts were rushed. The first draft had characters and storylines I dreamed up and then abandoned—some of those characters might still be wandering around a high school in Maine and wondering where their world went. The subsequent draft had fewer characters, but they went from one scene to the next as fast as I could make them. The poor people had little time to do anything but say their lines and go home.

For this, the third draft, I am expanding scenes and writing ones that did not exist before. I have no timeline for this revision, and as I go slowly, my characters get to experience more. They linger at a locker after school, hear traffic on the next street, and anticipate a first kiss. And when I give them more of a chance to talk, they say things that surprise me.

I like having a project that is not running my life. Sometimes I do yoga before working on the novel to clear my head of all the "have-to's" that incessantly fall over one another if given the chance. When I sit at the computer, I turn off my e-mail and get comfortable. I know things may take a while. Indeed they are. At this rate I may never finish the book. And what if I don't? What will people say when they hear I am still revising? Many of them think that writing "whatever comes into my head" is easy to do. Never mind that no one has told this story before—there is no way of knowing exactly how long it should take. I need a deadline, something to motivate me to add words to the page even if I am not exactly sure what the words should be.

After 4 years and 50-something chapters, I might have learned that this approach does not honor my ability or the characters that I have become fond of. Many of them are teenagers who are dealing with neuroses of their own. So many times I've wanted to tell my main character, a girl who takes comfort in rules, that a little uncertainty is OK.

Maybe she would say the same to me. I may not have to finish my novel for anyone else, but I do for me. This last sentence is a comfort. I do have to finish, I just do not have to know when.
INSTRUCTIONS FOR CONTRIBUTORS

Please refer to the detailed set of instructions for contributors on the AMWA Web site (www.amwa.org).

The AMWA Journal encourages the submission of manuscripts and suggestions for content for its recurring sections.

**Feature Articles:** Original compositions that are timely and relevant for medical writers and editors (approximately 3,000 words).

**Practical Matters:** Articles that provide advice to medical writers and editors at all levels of experience and in all types of practice settings (approximately 700-1,000 words).

**Science Series:** Articles that provide an overview of a specific anatomical or physiologic topic or of a particular disease (approximately 3,000 words). Send suggestions for content to Science Series Editor MaryAnn Foote, PhD, at fmawriter@aol.com.

**Case Studies:** Scenarios providing advice on dealing with ethical dilemmas in medical writing and editing. Send suggestions for content to the Editor at amwajournaleditor@hotmail.com.

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**Career Development:** Information on educational programs, writing competitions, and career development for medical writers and editors of all levels of experience. Send suggestions for content to the Editor at amwajournaleditor@hotmail.com.

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**Letters to the Editor:** Comment on topics published in the AMWA Journal (approximately 500 words or less). Send all letters to the Editor at amwajournaleditor@hotmail.com.

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Hard copies of figures, if necessary, should be sent (with complete documentation of the manuscript they accompany) by postal mail to
Lori Alexander, MTPW, ELS
Editor, AMWA Journal
American Medical Writers Association
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