THE COVENANT Chart

COVENANT HealthCare

COVENANT MEDICAL STAFF NEWSLETTER | MARCH 2013

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People Make the Difference

Dr. Sara Rivette, Covenant HealthCare Chief of Staff

When I first returned to Saginaw after completing my residency in Washington D.C. nearly 24 years ago, I assumed that it would be a temporary stay until I found a permanent place to practice. However, after reuniting with physicians (some of whom I had known from childhood) and getting involved with the community, I came to truly appreciate the diversity, dedication and strong sense of connectivity that was inherent to this area and hospital.

For me, people make the difference and are the main reason I have made Saginaw my home. I like what I see. For example, I have learned that most of the medical professionals in the area came to Saginaw to build a career as well as raise a family, and in between these two endeavors, still find time to give back to their community through various annual fundraisers, events and initiatives. These volunteer activities range from supporting the Covenant Kids program and working at local soup kitchens to participating in free screening clinics and even contributing knowledge to *The Chart*.

I have also found that physicians in this region are fully committed to the ideals of respect, engagement and safety – which are reflected in the 2012 Physician Engagement Survey. To me, this dedication is linked to the integrity and sustainability of any organization, but perhaps especially to medical facilities due to the intersection of life, death and the rainbow of related emotions. In this environment, working together as a cohesive team is especially critical. Having a shared focus on the future is absolutely essential. And keeping patients happy, healthy and safe is of paramount importance – the reason why we do what we do.

I am extremely glad that the serendipity of life led me back to this region. Going forward, I look forward to working with all of you to improve the quality of life of our patients, and to sharing medical updates in *The Chart* that will drive both personal reward and professional success for us all.

Sincerely,

Dr. Sara Rivette, Chief of Staff

Dealing with Breast Density

GUEST AUTHOR
Dr. Mark Ludka, Diagnostic Radiologist, Advanced Diagnostic Imaging, PC

Over the past few years there has been growing interest in both the radiology literature and lay press regarding mammographic breast density and how it relates to breast carcinoma. This article provides a simple summary.

Dense Breasts and Cancer

Breast imagers have long known the limitations dense breast tissue places on detecting lesions mammographically. More recently there has been mounting evidence that dense breast tissue not only makes cancer harder to detect, but is also associated with an increased risk of its development.

Some studies have shown the risk of developing breast cancer increased by up to six-fold in women with extremely dense breasts. While overall mammographic sensitivity for the detection of breast cancer is often quoted at 85-90%, this number can be reduced to 50% in women with extremely dense breasts.

Changes in Reporting

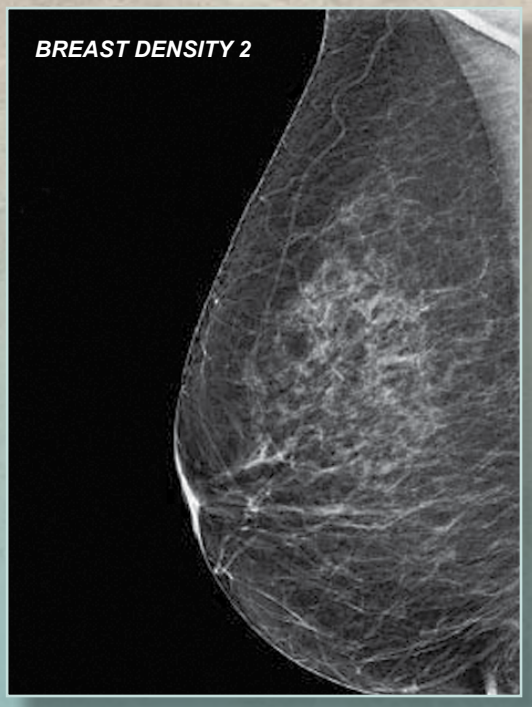
These facts have sparked interest from various patient advocacy groups who have pushed for breast density assessment as part of the mammography report. In response, many states have adopted legislation mandating inclusion of breast density assessment in mammography reports and some also require this to be included in the notification letter sent to the patient. Note that Michigan has not yet adopted this law; it is currently in the "discussion" phase and likely will be enacted in the future. For more information see: http://areyoudenseadvocacy.org/dense/.

In addition, the American College of Radiology has developed a breast density grading scale which physicians and facilities – including Covenant HealthCare – have begun to include in their mammography reports. As shown in Figure 1 at bottom of page, the scale includes four levels of breast density from Level 1 (almost entirely fatty replaced) to Level 4

The four-level breast density scale:

LEVEL 1 Fatty replaced
LEVEL 2 Scattered fibroglandular densities
LEVEL 3 Heterogeneously dense
LEVEL 4 Extremely dense

Figure 1



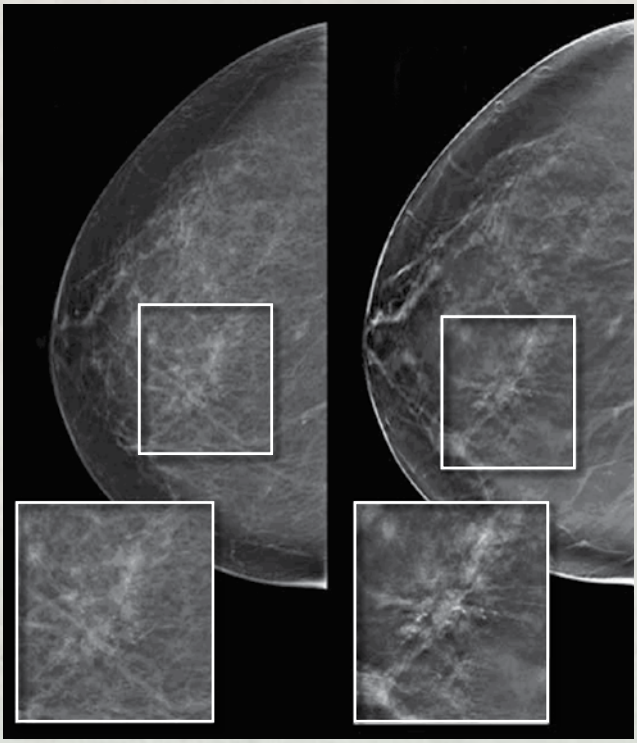


Figure 2

A speculated lesion is difficult to see on a standard mammogram due to overlapping glandular tissues (above, left), but becomes much more conspicuous on the tomographic image (above, right).

(extremely dense). By including this information in the medical report, the referring health care provider will be given a general idea of the likelihood that a cancer will be detected based on the parenchymal pattern.

3D Breast Tomosynthesis – A Cool Tool

While mammographic evaluation remains a challenge in patients with dense breasts, there are evolving tools which improve our ability to detect early cancer in these patients. One such tool is 3D breast tomosynthesis, a technology which is now available at the Covenant Breast Health Center. Using this technique, the breast is compressed in the usual way; however instead of taking a single, stationary image, the X-ray beam is moved in a short arc to obtain images at multiple angles. The images are then reconstructed into a series of thin, high-resolution slices through the breast.

This approach is analogous to CT scanning and excludes tissue overlap, allowing lesions to be more easily visualized as shown in Figure 2 on left. The time necessary to acquire the images is only slightly longer than a standard mammogram and while the amount of radiation used is mildly increased, it is well below the U.S. FDA/MQSA* determined safe level. Studies have shown 3D breast tomosynthesis to improve sensitivity and significantly decrease the need to recall patients for additional views.

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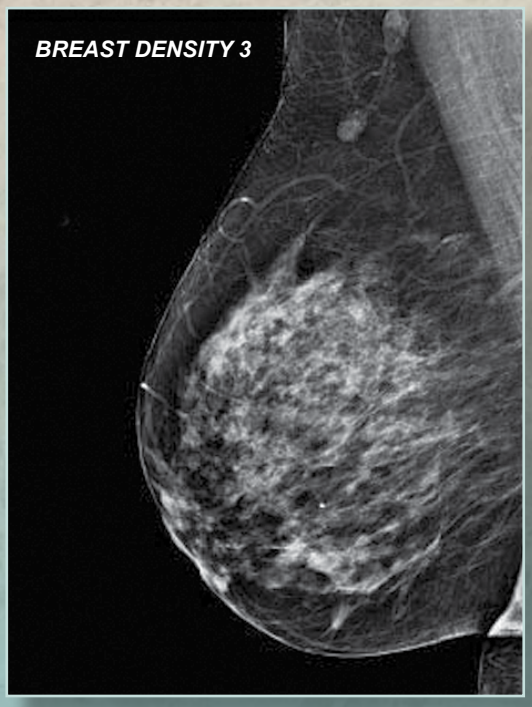

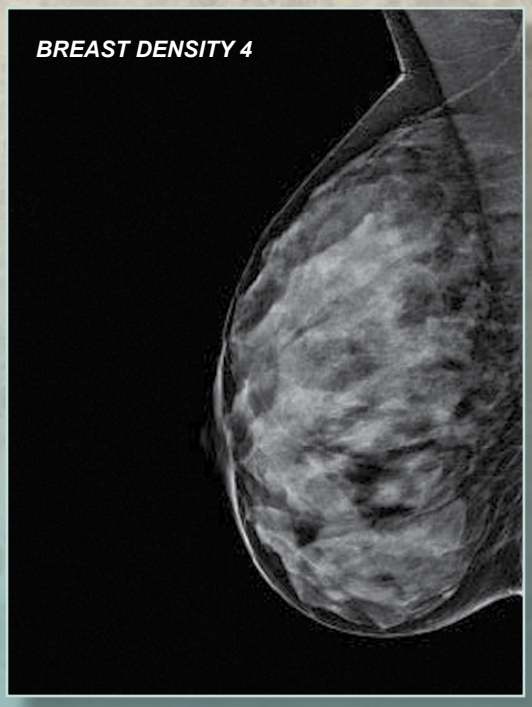

**Mammography Quality Standards Act*

Infant Oral Health and the Dental Home
When to Refer and Why

GUEST AUTHOR
Dr. Jessica Bentoski, Pediatric Dentistry

Tooth decay is on the rise in one of our nation's most vulnerable populations, children living in poverty. Poor children under age 5 have increasing rates of dental caries, also known as tooth decay or cavities. According to the CDC, caries are the most prevalent infectious disease in children, and greater than 40% of our children experience this preventable disease by the time they start kindergarten.

Parental Misconceptions

It's a common occurrence for parents to bring their 3-5 year old into dental offices for a first dental check up. When they find out their child has multiple cavities, they are often shocked. When dentists explain the complex treatment needed to restore some of these teeth, the concern grows.

Some parents confess that they delayed seeking treatment until their child began complaining of toothaches, or ask "Won't they just fall out? They are just baby teeth, right?" While this is true, a child won't exfoliate all the primary teeth until around age 12, and in the meantime, early childhood caries have detrimental effects. They can have a negative impact on a child's growth, cause missed school days and affect quality of life.

Building Awareness

Pediatricians or family physicians play an important role in increasing awareness and preventing caries. The American Academy of Pediatric Dentistry (AAPD) defines a dental home as *"the ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way. Establishment of a dental home begins no later than 12 months of age and includes referral to dental specialists when appropriate."*

Many general dentists and physicians are unaware of this guideline, and studies show that referral to a dental home is often made much later than the first birthday.

Parents should establish a dental home for infants by 12 months of age.

AAPD Recommendations

The AAPD makes the following recommendations for the infant's oral health:

- *Oral health risk assessment:* Every infant should receive an oral health risk assessment from his/her primary health care provider or qualified health care professional by 6 months of age. This initial assessment should evaluate the patient's risk of developing oral diseases of soft and hard tissues – including a caries risk assessment, provide education on infant oral health, and evaluate and optimize fluoride exposure.
- *Establishment of a dental home:* Parents should establish a dental home for infants by 12 months of age. The initial visit should include thorough medical (infant) and dental (parent and infant) histories, a thorough oral examination, performance of an age-appropriate tooth brushing demonstration, and prophylaxis and fluoride varnish treatment if indicated. In addition, assessing the infant's risk of developing caries and determining a prevention plan and interval for periodic re-evaluation should be performed. Infants should be referred to the appropriate health professional if specialized intervention is necessary. Providing anticipatory guidance regarding dental and oral development, fluoride status, non-nutritive sucking habits, teething, injury prevention, oral hygiene instruction, and the effects of diet on the dentition are also important components of the initial visit.

Resources

If you'd like to give your patients more information on preventing early childhood caries, you can do an online search for "A Healthy Mouth for Your Baby" or visit the National Institute of Dental and Craniofacial Research online at www.nidcr.nih.gov/OralHealth/Topics/ToothDecay/AHealthyMouthforYourBaby.htm. They will send you free brochures, and also offer a printable version for use in your practice.

For more information, please contact Dr. Bentoski at 989.790.2076 or jbentosk@gmail.com.

Interventional Pain Management
What Is New?

GUEST AUTHOR
Dr. Lakshmana Madala, Anesthesiologist, Pain Consultants of Michigan

Interventional pain management is devoted to the diagnosis and treatment of chronic, debilitating pain and involves special procedures to treat and manage it. Examples include injections of anesthetic medicines to nerves and joints, spinal cord stimulation, implantable drug delivery systems and various ablation procedures to block troublesome nerves.

Many techniques are minimally invasive and targeted to specific types of pain in the back and neck, head and mouth, facial area, muscle and bone. Techniques are also used to alleviate pain due to surgery, malignancy or post-traumatic stress (e.g. phantom limbs).

A variety of treatment modalities are offered by trained pain specialists to reduce the severity of pain, improve the quality of life for patients, and help patients minimize or eliminate prescription pain medications. This can enable patients to increase their activities, return to work, learn new coping skills and accelerate healing.

Below are a few newer modalities in the interventional pain arena.

"Natural" Regenerative Medicine

Regenerative medicine is when the body regenerates or rebuilds itself, and the field is rapidly evolving. *Stem cell treatments* such as bone marrow transplants to treat leukemia have been clinically used since the 1960s. Ongoing research shows that it also has far-reaching implications for treating multiple chronic conditions such as osteoarthritis and degenerative disk disease. In one study, injecting mesenchymal stem cells into degenerative disks in rats showed a trend of increased disk height, suggesting an increase in matrix synthesis in the study group. A second phase of research is being conducted on human subjects with the hope that stem cells will prove to be an effective interventional pain treatment.

Adding *Platelet Rich Plasma (PRP) therapy* to the mix further enhances treatment with no side effects. PRP was first introduced in the 1970s and has been used in many specialties since the 1990s, including orthopedic surgery, plastic surgery, sports medicine, wound care and pain management. PRP involves the injection of concentrated platelets, autologous growth factors and secretory proteins into the damaged area. It is thought to enhance the recruitment, proliferation and differentiation of cells involved in tissue generation to promote healing. A higher platelet concentration corresponds to more growth factors and accelerated tissue growth. In pain management, it is commonly used to treat acute and chronic conditions such as tendinopathy, tendonosis, muscle strain, muscle fibrosis, ligament injuries, arthritis, arthrofibrosis, articular cartilage defects, meniscal injury, chronic synovitis and joint inflammation, rotator cuff tears, ACL tears and osteoarthritis of the knee.

Another area of regenerative medicine, the *human amniotic membrane,* is also being explored to optimize plastic surgery treatments for conditions such as burns and eye injuries. It is rich in collagen and various growth factors that improve wound closure and reduce scar formation, plus it is shown to reduce pain on application.

While it has been employed for nearly 100 years, renewed interest in amniotic membrane treatment has been stimulated by the ability to better preserve the natural membrane. Techniques range from dehydration to temperature-stable allografts. The use of amniotic membrane has been shown to be effective to conditions unresponsive to traditional therapeutic measures. Research is still underway, but the healing properties hold great promise for the treatment of injuries and pain in the future.

Neuromodulation

If we can keep the brain from registering pain, we've won half the battle. Electrical and chemical neuromodulation alters the neurons or neurotransmitters in the nervous system for the purpose of pain relief. *Electrical* modulation includes devices such as spinal cord stimulators that are surgically implanted, or transcutaneous electrical nerve stimulators that are externally positioned. Occipital nerve stimulation, for example, is an excellent treatment for certain types of chronic headaches. *Chemical* modulation infuses substances into the cerebrospinal fluid to block pain using an implanted pump.

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Check Out the Daily Check-In for Safety

Dr. Michael Sullivan, Medical Director, Patient Safety and Quality

> *"Why are we here?*
> *We're making Covenant HealthCare extraordinarily safe – everyone, every day, everywhere!"*

It is with these words that the Daily Check-In for Safety, or DCI, begins each day. The DCI is a daily gathering of managers, directors and executive team members from all aspects of the Covenant HealthCare system to discuss, resolve and track any problem that potentially impacts patient safety and the quality of care that we provide to our patients every day.

A Landmark Report

In 1999, the landmark report *To Err is Human* was published by the Institute of Medicine. This report stated that 44,000-98,000 patient deaths per year resulted from medical errors. This brought patient safety and the care we provide to the forefront of the American public and defined the scope of the problems that occur. This report jumpstarted the patient safety movement and sparked interest in the science and methodology of High Reliability Organizations.

Over the past several years, Covenant HealthCare has emphasized the importance of patient safety and quality. It has engaged in High Reliability Organization Training, with many key leaders throughout the organization participating in the training and becoming immersed in transforming our culture of safety. The DCI is one of the initial, visible efforts to implement these strategies.

The DCI Process

The DCI began on November 5, 2012, and is held every Monday through Friday at 10:30 a.m. in the Bickel/Geyer conference rooms (Cooper campus). The report is facilitated by a member of the executive team. Managers or directors from 71 departments throughout Covenant HealthCare are required to report daily, either in person or by teleconference. Additional staff and key leaders are invited as well and commonly most members of the executive team are present.

After the opening statement, the number of days since our last serious safety event is announced. A roll call of each department is recited with a report being given or a department declaring "Safe." Surprisingly, this all occurs in 15-20 minutes or less. Following the report, huddles occur between those responsible for reporting and resolving problems. This portion of the DCI usually lasts longer than the initial report.

Any problem that has a potential impact on patient safety and quality is **expected to be reported.**

Over the first month of DCI, more than
450 risks, 59 near misses, 82 precursor safety events, and 1 serious safety event
were identified. Examples of these include patient falls, medication errors, wrong patient and arm bands, core measure fallouts and communication errors.

Reporting and Resolution

Any problem that has a potential impact on patient safety and quality is expected to be reported. Issues are classified as Risks, Near Misses, Precursor Safety Events or Serious Safety Events. These issues are then tracked and recorded. The report must include any problem occurring over the previous 24 hours or expected over the coming 24 hours (as you can imagine, the Monday DCI is a lively report!).

When giving the report, any follow-up or help needed is elicited and a report of what was done on previous issues given. Huddles occur after the report is completed, allowing for real-time problem solving to occur. Over the first month of DCI, more than 450 risks, 59 near misses, 82 precursor safety events, and 1 serious safety event were identified. Examples of these include patient falls, medication errors, wrong patient and arm bands, core measure fallouts and communication errors. The DCI provides the framework for addressing these issues in real time as well as affording the opportunity to dive deeper into process and system flaws.

Building Awareness

The DCI provides everyone throughout the organization, including clinicians and non-clinical staff, executives and volunteers, with a situational awareness of the issues facing us on a daily basis. The DCI:

- Is not a punitive exercise, but one in which people are applauded when bringing problems forward.
- Provides a transparency to problem solving and allows us to share lessons learned throughout the organization.
- Allows us to identify issues that could potentially cause harm before they reach patients and staff, and enables us to identify processes and system flaws that otherwise would go unnoticed.
- Allows for real-time assessment and the ability to address problems in a collegial manner.

Covenant HealthCare has committed to becoming a High Reliability Organization in an effort to provide extraordinarily safe care to our patients. The DCI is one tool that we have begun to use in that effort. It has shown impressive results in a short time and has been enthusiastically embraced throughout the organization. Please stop by one morning to check it out!

Dealing with Breast Density – continued from page 3

Another exciting trend in breast imaging is the use of breast ultrasound in a new way. Targeted breast ultrasound has been used for decades as a diagnostic tool, primarily to further characterize breast masses detected either mammographically or on physical exam. More recently, the use of breast ultrasound as a screening tool has been gaining acceptance. Automated whole breast ultrasound (ABUS) involves attaching the ultrasound probe to an automated arm that scans the breast in continuous vertical rows producing a complete sonographic image set of the entire breast.

While tomosynthesis and breast ultrasound improve our ability to detect cancer in women with dense breasts, **standard mammography remains our most valuable tool** in the early detection of breast cancer.

There is now strong evidence that supplemental screening breast ultrasound performed on those patients with dense breasts (breast density at Levels 3 and 4) significantly increases sensitivity. ABUS has been shown to double the cancer detection rate in dense-breasted women. In addition, the additional cancers detected tend to be smaller than those detected mammographically in this patient subset. Different ABUS systems are currently being evaluated with hopes to introduce the technique later in 2013 at the Covenant Breast Health Center.

Summary

Breast density is a significant factor in both the development and detection of breast cancer, and these supplemental imaging techniques provide significant benefits for dense-breasted women. While tomosynthesis and breast ultrasound improve our ability to detect cancer in these women, standard mammography remains our most valuable tool in the early detection of breast cancer and is recommended yearly in all women – regardless of breast density – beginning at age 40.

For more information, please contact Dr. Ludka at 989.583.5263 or mludka@aol.com.

O→HBO: An Elemental Solution

GUEST AUTHOR
Dr. Dennis Boysen, Medical Director, Covenant Regional Wound Healing and Hyperbaric Medicine Center

The comedian Dave Barry once said: "Not all chemicals are bad. Without chemicals such as hydrogen and oxygen, for example, there would be no way to make water, a vital ingredient in beer."

Perhaps more important than beer is the fact that without oxygen, there would also be very little life on earth. Just as oxygen is essential to life, it is also fundamental to healing wounds and has the added benefit of being toxic to anaerobic organisms and bacteria that cause gangrene.

Increasing the partial pressure (PO_2) of oxygen helps kill bacteria and heal chronic wounds. The therapeutic use of oxygen under pressure – known as Hyperbaric Oxygen (HBO) therapy – has been around nearly 40 years and continues to advance as we learn more about the interaction of oxygen with organisms.

The Paradox of Hypoxia

There are four stages of wound healing: hemostasis, inflammation, proliferation and remodeling. The rate of healing is oxygen dependent – with an average $PO_2 > 40$ mmHg for normal wound healing. Chronic wounds are usually considered "hypoxic" and get stuck in the inflammatory phase. Such wounds may need to be "jump started" with oxygen, as it stimulates:

- An environment for fibroblasts, macrophages and other elements to repair the tissue.
- The processes of neovascularization, epithelialization and collagen synthesis.
- Angiogenesis and growth factor production, especially vascular endothelial growth factor (VEGF).
- Leukocyte killing of aerobic gm-positive and gm-negative organisms.

The paradox is this:

- Central wound hypoxia actually plays a pivotal role too, stimulating the vasculization process in wound healing. All wounds have a hypoxic center.
- Peripheral wound hypoxia, however, *deprives* the wound of oxygen, interfering with tissue repair.
- Proper wound healing requires both central hypoxia and adequate peripheral oxygen delivery.

The "gradient concept" addresses those contradictory roles with HBO therapy.

HBO and The Gradient Concept

HBO is necessary when the wound fails to progress. It is a powerful treatment for acute and chronic wounds, improving outcomes by providing specific levels of oxygen to the hypoxic wound, correcting the oxygen deficiency. Medicare-recognized indications for HBO are shown in Table 1.

As shown in Figure 1, shallow oxygen gradients prevent initiation of revascularization of the connective tissue and won't trigger a healing response. The center of an uncomplicated ulcer has oxygen tensions around 5-10 mmHg, but values of 3-5 mmHg will cause further wound breakdown. The chronic late ulcer makes healing worsen with time, leading

Monoplace HBO Chamber

Table 1

Medicare-Recognized Indications for HBO

- Actinomycosis
- Acute carbon monoxide intoxication
- Acute traumatic peripheral ischemia
- Chronic refractory osteomyelitis (6 months or greater)
- Crush injury and suturing of severed limbs
- Cyanide poisoning
- Decompression illness
- Diabetic wound of lower extremity
- Gas embolism
- Gas gangrene (clostridial myositis and myonecrosis)
- Preparation and preservation of compromised skin grafts
- Progressive necrotizing infection
- Osteoradionecrosis
- Soft tissue radionecrosis

Table 2

Benefits of HBO Therapy

- Intermittent correction of wound hypoxia
- Reduction of local tissue edema via vasoconstriction while maintaining higher than normal local oxygen delivery.
- Improved post immune response
- Improved wound metabolism
- Prevention of leukocyte mediated post-ischemic reperfusion injury
- Cytokine and cytokine receptor induction

to the continuation of the "Three H" sequence for non-healing ulcers, indicating Hypovascular, Hypocellular and Hypoxic conditions. The cycle must be broken, hence the need for HBO therapy.

As shown in Figure 2, HBO stimulates angiogenesis for healing by providing a steep oxygen gradient of >20 mmHg. This is the physio-chemotactic factor that attracts wound-regulating macrophages. This, along with lactate, iron and acid, all stimulate macrophage-derived angiogenesis factor (MDAF) and macrophage-derived growth factor (MDGF) – promoting capillary budding and collagen synthesis.

How HBO Works

HBO provides a temporal oxygen gradient to compensate for the lost spatial oxygen gradient. It is achieved by having a patient breathe 100% oxygen in an environment of elevated atmospheric pressure typically ranging from 2-3 atmospheres absolute (ATA) for approximately 2 hours. This can occur in what is called a monoplace chamber in which one patient is treated, or in multiplace chambers that treat several patients at one time, with the patients breathing their oxygen through a mask or hood.

Benefits, shown in Table 2, are achieved via direct pressure, hyperoxygenation, vasoconstriction, edema reduction, enhanced host resistance, neovascularization and reperfusion attenuation.

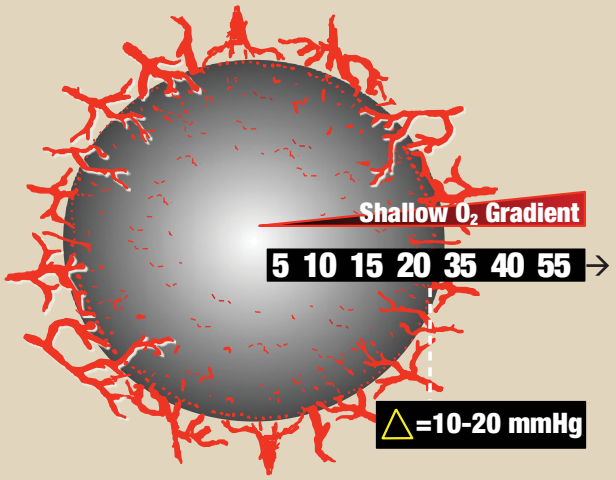
HBO is a relatively safe, non-invasive therapy but does have side effects. These include middle ear, sinus and pulmonary barotraumas and reversible myopia. HBO can also aggravate patients with congestive heart failure and cause grand mal seizures in individuals more sensitive to oxygen. For this reason, patients are thoroughly evaluated to determine contraindications prior to treatment.

As we learn more about HBO therapy, the benefits will continue to improve outcomes and quality of life.

For more information about HBO, please contact Dr. Boysen at 989.583.4401 or dboysen@chs-mi.com.

Figure 1

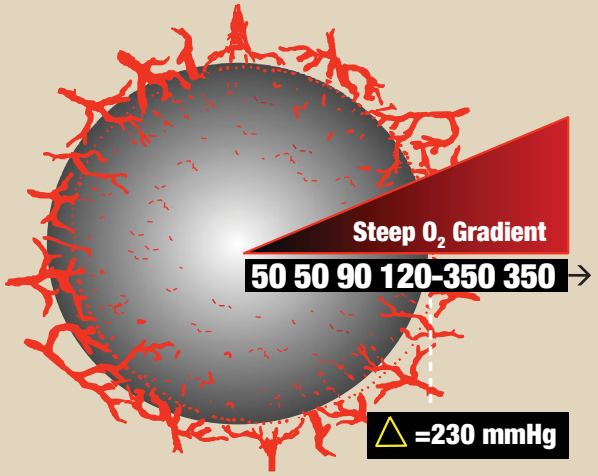
1.0 ATA Air



Shallow oxygen gradients prevent initiation of revascularization of the connective tissue and won't trigger a healing response.

Figure 2

2.4 ATA Air



HBO stimulates angiogenesis for healing by providing a steep oxygen gradient of >20 mmHg.

Predicting Breast Cancer Recurrence and Chemo Outcomes

GUEST AUTHOR
Dr. Carlotta Maresca, Breast Surgeon

Traditionally, doctors have been using the breast cancer characteristics of tumor size, grade and status to predict the likelihood of breast cancer recurrence and help determine treatment decisions. While these characteristics help determine the course of treatment, the additional information provided by a new breast cancer predictive assay called the Oncotype DX® can help the physician and patients make even better decisions.

About 100,000 new cases of early stage N-, ER+* breast cancer occur each year in the United States. These patients typically go on to receive chemotherapy after surgery, but only a small portion of them actually derive benefits from this treatment in terms of living longer and avoiding recurrence. This means that a significant number of patients are subject to receiving chemotherapy with little or no gain.

Determining which patient will benefit from chemotherapy has been the question facing many physicians. The Oncotype DX assay can help answer that question.

How the Assay Works

A laboratory test is performed on a sample of the breast tumor to help predict recurrence of breast cancer in women over a 10-year span, and to also predict the benefit of chemotherapy. The test involves the science of genomics which is different than genetics, as it studies the biology of the tumor instead of inherited genes.

**Node-negative (N-), estrogen receptor-positive (ER+)*

The assay is specifically designed for women in Stage I and II ER+ invasive breast cancer where the tumor has not spread to the lymph nodes. The process is simple:

- A sample of the tumor is sent to a company called Genomic Health where the test is performed.
- They determine the level of expression in 21 specific genes in the tumor tissue.
- Based on the level of expression of each gene, a "recurrence score" is assigned.
- The recurrence score is on a scale between 0-100 with higher numbers corresponding to a greater risk of recurrence.

~100,000
new cases
of early stage N-, ER+ breast cancer occur each year in the United States.

Interpreting the Score

The recurrence score is further broken down to low, intermediate and high risk. Although information on recurrence itself is valuable, doctors also want to predict how much benefit can be derived from chemotherapy. It is found that women in the higher risk category received greatest benefit while women in the lower risk category received the least benefit from chemotherapy. For the intermediate group, the benefit is not as clear and is being studied further.

The assay has also been used recently for post-menopausal women with smaller tumors and one or two positive lymph nodes, and also in women diagnosed with DCIS (ductal carcinoma in situ) who received a lumpectomy, to assess benefit of local radiation and prevent the likelihood of recurrence.

A New Era

Tests for this type of predictive assay cost about $3,500 and are covered by many insurance companies due to its proven value. The assay is truly setting the stage for a new era in breast cancer treatment and personalized therapy, based on the biology of the breast cancer tumor. It enables physicians to tailor the therapy to the patient, eliminating the one-size-fits-all approach used for many years.

This is an exciting time and one of several advances that mark the future of breast cancer treatment.

For more information, please contact Dr. Maresca at 989.754.5800 or luimaresca@yahoo.com.

Interventional Pain Management – continued from page 5

Minimally Invasive Decompression Procedures

Minimally invasive spine surgery for decompression has been employed for the past 3-4 years for patients suffering from lumbar spinal stenosis , with hypertrophied ligamentum flavum. Such patients have difficulty standing or walking more than 50 feet and are not candidates for open surgery. Symptoms are typically pain, numbness and tingling in the legs, and are usually diagnosed with an MRI or CAT scan.

The technique is performed under sedation and often as an outpatient procedure. Devices are passed through a one-inch incision to the spinal canal, where stenosis is relieved by removing abnormally thickened ligaments, structures and bone. The results are instant relief of pressure on the nerves and spine, with few complications. Around 15,000 procedures have been performed in the United States, allowing patients to improve their quality of life.

Ultrasonography

Ultrasonography has been a fast-growing field of imaging over the past decade, and is increasingly being used in two key disciplines: pain management and rehabilitation. Ultrasonography offers a high level of reliability and safety (no radiation exposure), lower cost, noninvasiveness, repeatability and convenience. Enhanced technology provides outstanding local visualization of tendons, muscles, nerves, joints and other areas, which leads to an enormous gain in knowledge about the condition.

Ultrasonography enables pain specialists to better diagnose the anatomic causes of various disorders more cost-effectively than radiologic imaging, and provides more flexibility than MRI in certain situations – such as imaging structures having a long anatomic length (such as peripheral nerves). With ultrasonography, pain specialists can more precisely target the treatment, prevent the pain from becoming disabling, improve outcomes and increase patient confidence in the treatment plan.

Summary

When patients are experiencing pain, the earlier the intervention the better. Ongoing breakthroughs in technologies to both diagnose and treat the patient will help physicians get patients off their medications, back to work and enjoying life.

For more information, please contact Dr. Madala at 989.752.1900 or lmadala@pcofmi.com.

New Pap Smear Guidelines
Get Up To Speed!

GUEST AUTHOR
Dr. Jennifer Schmidt, Obstetrician / Gynecologist, Women's OB-GYN, PC

Most women associate their annual exam or well-health visit with their Pap smears. Recently, however, the American Congress of Obstetrics and Gynecology (ACOG) has changed its Pap smear screening recommendations to require less frequent screening for women at low risk.

This is because annual screens were detecting a high number of transient human papilloma virus (HPV) infections that the patient would have likely cleared on her own. These transient infections led to a high number of follow-up visits, procedures and anxiety.

Without intervention, most healthy young women can clear the HPV viral load to undetectable levels over an average of 8-24 months. That said, there are factors that can lead to persistence or progression to cervical cancer such as tobacco use, HIV and an immuno-compromised patient. For example:

- There is a 30% incidence of invasive cervical cancer in women with untreated severe dysplasia (CIN3) after 30 years.
- An HPV infection associated with severe dysplasia without intervention would take 3-7 years on average to progress to an invasive cervical cancer.

To address both situations, the ACOG has modified its screening guidelines. This article summarizes the ACOG's recent Practice Bulletin on *Screening for Cervical Cancer* and will bring you up to speed on some changes with screening Pap smear guidelines. The full article (Practice Bulletin 131-Screening for Cervical Cancer) is available in the November 2012 issue of the *Green Journal of Obstetrics & Gynecology*.

When To Start Pap Smears

It is considered safe to begin Pap smear screening at age 21. Prior to this, physicians should discuss the topics of birth control, Gardasil® and safe sex practices to decrease exposure to HPV.

Only 0.1% of cases of cervical cancer occur before 20 years of age, and for young women who are sexually active, studies show they will likely clear an HPV infection without intervention. Consequently, in most cases, Pap smears on women under 21 yield no benefit, instead leading to extra office visits, high anxiety levels, colposcopies with biopsies, and excisional procedures. Worse yet, excisional procedures can put women at a higher risk for cervical stenosis resulting in dysmenorrhea and infertility. Once pregnant, they are then at a higher risk for an incompetent cervix, preterm delivery, and a short cervix requiring extensive monitoring – outpatient or inpatient – during a future pregnancy.

It is considered safe to begin **Pap smear screening at age 21.**

From **age 21-29**, it is recommended to schedule Pap smears **every three years.**

Screening Intervals in the 20s

From age 21-29, it is recommended to schedule Pap smears every three years. When ordering these screens, be sure to order "Reflex HPV if ASCUS" to help with further management if the Pap returns as abnormal. (Note: ASCUS refers to atypical squamous cells of undetermined significance.)

For abnormal Paps, the physician should follow the American Society for Colposcopy and Cervical Pathology (ASCCP) guidelines or refer the patient to a gynecologist for further evaluation. **If the Pap screen is normal, please stress that yearly well-health visits should be continued,** but the Pap can be deferred for 3 years. Co-testing (see below) is not recommended in this age group of women as they likely will have a transient HPV infection and have a low incidence of cervical cancer. This guideline will likely cut in half the number of colposcopies that are being performed, with a marginal difference in lifetime cancer risk (0.69% vs 0.33%).

Screening Intervals in the 30s-Plus

At 30 years of age, the ACOG recommendations give physicians two options.

- Perform co-testing, which is a Pap screen every 5 years along with a high-risk HPV screen. This is the preferred option according to ACOG.
- Continue with cytology (Pap smear) screening every 3 years with "Reflex to HPV if ASCUS."

The reason why ACOG has recommended co-testing in this age group is that it has a better detection rate of adenocarcinoma of the cervix than cytology alone. Women with a negative cytology and negative HPV screen have a very low risk over the next 4-6 years of developing a high-grade lesion of CIN2 or CIN3. Either method is acceptable until age 65.

Table 1: **Interpreting Results**

SCREENING METHOD	RESULT	MANAGEMENT
Cytology Screening Alone	Cytology negative	Screen again in 3 years
	ASCUS and HPV negative	Screen again in 3 years
	All others, such as ASCUS with positive HPV, LGSIL, HGSIL, ASC-H, or AGC	Refer to ASCCP guidelines and/or a gynecologist
Co-Testing	Cytology negative, HPV negative	Screen again in 5 years
	ASCUS and HPV negative	Screen again in 5 years
	Cytology negative and HPV positive	Option 1: 12-month follow up with co-testing
		Option 2: Test for HPV 16/18 genotypes
		- If positive, referral for colposcopy
		- If negative, 12-month follow up with co-testing
	All others	Refer to ASCCP guidelines and/or a gynecologist

When to Stop Pap Smears

Generally, for women age 65 and above, Pap smears are no longer required if they had adequate prior screening or are considered low risk. Physicians should review the Pap smears over the past 10-20 years to determine whether the patient is low risk. Low risk includes women who:

- Have had two or three negative Pap smears in the past 10 years.
- Have no history of high-grade pre-cancer cells on the cervix (CIN2 or higher) in the past 20 years.

A woman of any age who has had a hysterectomy (with removal of the cervix) and has no history of high-grade pre-cancer of the cervix (CIN2 or greater) in the past 20 years can also stop Pap smear screening after her hysterectomy.

Women with CIN2 or greater should continue Pap screening for 20 years after the treatment, even if they are over age 65 and had a hysterectomy.

How to Interpret Results

Remember: only a negative screening result can follow the new 3- or 5- year intervals. An abnormal Pap screen requires further attention. Please see Table 1 for assistance in interpreting results.

Special Populations

Not everyone is considered low risk. Women at greatest risk for developing a high grade of CIN and/or progressing to cancer are those who are:

- Infected with HIV
- Immuno-compromised
- Exposed to diethylstilbestrol (DES) in utero, and/or
- Previously treated for CIN2, CIN3 or cervical cancer.

The Center for Disease Control (CDC) recommends that in the first year after diagnosis of HIV, a woman should receive a biannual Pap smear screening followed by annual screenings. For HIV cases, the CDC supports annual Pap smears at the age of diagnosis (not waiting until age 21).

Immuno-compromised women and women exposed to DES should continue with yearly Pap screening. Women treated for CIN2 or higher remain at risk for recurrence or persistence for up to 20 years after treatment. These women should continue with routine age-based screening for a total of 20 years after the initial post-treatment surveillance period, even if this requires that they continue with Pap smears after age 65.

Summary

The ACOG is encouraging us, as physicians, to allow the woman's body to "heal" itself and clear the HPV virus over time, limiting the number of medical interventions. But, it also allows physicians to maintain a screening interval so as to detect a dysplastic cell before it changes to cancer.

The ACOG recommendations pose a big change in the way many of us have practiced our well-health visits. It also changes the way that most women view their annual exam. It will take time for both parties to adjust to these new guidelines. Meanwhile, please assure patients that when atypical symptoms present, a Pap smear should be performed outside of this guideline.

For more information, please contact Dr. Schmidt at 989.792.3100.

Commentary on Choosing Wisely® Recommendations – Part 2

Dr. Michael Schultz, Vice President of Medical Affairs

This is the second article in a two-part commentary that reflects physicians' opinions on the ABIM* Foundation's Choosing Wisely® recommendations for nine medical societies.

In the March issue, physicians commented on six of the societies and in this issue, the remaining three are covered. As background, see the September issue of *The Chart* in which Dr. Schultz shared his thoughts about health care reform in an article, "Of Rationing and Waste" and discussed the Choosing Wisely initiative to improve patient care and eliminate unnecessary tests and procedures.

NOTE: Choosing Wisely recommendations appear in black, expert's opinions appear in blue.

American College of Cardiology

DR. PAULINE WATSON

Don't perform stress cardiac imaging or advanced non-invasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present.

I agree with this recommendation. Asymptomatic, low-risk patients account for more than 45% of unnecessary "screening." Testing should be performed on the following patients: patients older than 40 with diabetes; peripheral arterial disease; or greater than 2% yearly risk for coronary heart disease events.

Don't perform annual stress cardiac imaging or advanced non-invasive imaging as part of routine follow-up in asymptomatic patients.

Performing stress cardiac imaging or nuclear imaging in patients without symptoms, or on a serial or scheduled pattern, rarely results in a meaningful change in patient care. It can, in fact, lead to unnecessary invasive procedures and excess radiation exposure. An exception: performing tests on patients more than five years after a bypass operation.

Don't perform stress cardiac imaging or advanced non-invasive imaging as a pre-operative assessment in patients scheduled to undergo low-risk non-cardiac surgery.

Non-invasive testing is not useful for patients undergoing low-risk, non-cardiac surgery (e.g., cataract removal). These types of tests do not change the patient's clinical management or outcomes and will result in increased costs. Brief educational messaging to medical colleagues may decrease unnecessary testing.

Don't perform echocardiography as routine follow-up for mild, asymptomatic native valve disease in adult patients with no change in signs or symptoms.

Patients with native valve disease usually have years without symptoms before the onset of deterioration. An echocardiogram is not recommended yearly unless there is a change in clinical status.

Don't perform stenting of non-culprit lesions during percutaneous coronary intervention (PCI) for uncomplicated hemodynamically stable ST-segment elevation myocardial infarction (STEMI).

Stent placement in a non-infarct artery during primary PCI for STEMI in a hemodynamically stable patient may lead to increased mortality and complications.

*American Board of Internal Medicine

American Gastroenterological Society

DR. ROBERT McNIER

For pharmacological treatment of patients with gastroesophageal reflux disease (GERD), long-term acid suppression therapy (proton pump inhibitors or histamine2 receptor antagonists) should be titrated to the lowest effective dose needed to achieve therapeutic goals.

First, be sure you have it clear, such as "What exactly are the therapeutic goals?"

Do not repeat colorectal cancer screening (by any method) for 10 years after a high-quality colonoscopy is negative in average-risk individuals.

The magic word here is "screening," such as a symptomatic patient without any high-risk factors. If there is a strong family history of colon cancer or if signs or symptoms make the colon suspect, then all bets are off.

Do not repeat colonoscopy for at least five years for patients who have one or two small (< 1 cm) adenomatous polyps, without high-grade dysplasia, completely removed via a high-quality colonoscopy.

The operative phrase here is "high quality" colonoscopy.

For a patient who is diagnosed with Barrett's esophagus, who has undergone a second endoscopy that confirms the absence of dysplasia on biopsy, a follow-up surveillance examination should not be performed in less than three years as per published guidelines.

This is true unless warranted by signs and symptoms.

For a patient with functional abdominal pain syndrome (as per ROME III criteria) computed tomography (CT) scans should not be repeated unless there is a major change in clinical findings or symptoms.

However, a major change to the patient may seem like a minor change to the physician. A thorough history and physical, and a little verbal finesse, sometimes go a long way.

American Society of Nuclear Cardiology

DR. PETER FATTAL

Don't perform stress cardiac imaging or coronary angiography in patients without cardiac symptoms unless high-risk markers are present.

In low-risk patients without symptoms, the assessment of coronary circulation – either invasively or non-invasively – has not shown to provide any mortality benefit.

Don't perform cardiac imaging for patients who are at low risk.

Imaging in low-risk patients should be reserved to those who have persistent or recurrent intermediate symptoms.

Don't perform radionuclide imaging as part of routine follow-up in asymptomatic patients.

As there has not been a mortality benefit ascribed to interventional management of stable coronary syndromes, clinical follow-up and aggressive risk factor modification should be followed.

Don't perform cardiac imaging as a pre-operative assessment in patients scheduled to undergo low- or intermediate-risk non-cardiac surgery.

In low-risk patients without cardiac symptoms and with good functional capacity, cardiovascular risk of low- or intermediate cardiac surgery is very low (<1%) and outcomes would not improve with further assessment.

Use methods to reduce radiation exposure in cardiac imaging, whenever possible, including not performing such tests when limited benefits are likely.

Many imaging modalities in cardiovascular disease management are associated with significant radiation exposure (nuclear stress, catheterization, coronary, CTA). Limiting exposure by utilizing appropriate-use criteria and considering non-ionizing modalities (ECHO) when applicable, would reduce this risk.

Please go to www.choosingwisely.org for specific information about the Choosing Wisely initiative, or go directly to http://choosingwisely.org/?page_id=13 for the full list of recommendations. You can also contact Dr. Schultz at 989.583.4103 or mschultz@chs-mi.com.

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