

Baylor Performs Successful Cord Blood Transplant in Adult Patient with Rare Blood Disorder

Overview

- Baylor's Blood and Marrow Transplant Program is one of first programs in the country to use umbilical cord blood to treat congenital neutropenia/acute leukemia
- Cord blood transplantation offers immediate availability versus two- to three- month wait for a living donor
- Cord blood may provide greater availability of transplantation for minority populations

use of cord blood to treat this combination of rare diseases of the bone marrow in an adult," says Edward Agura, M.D., a hematologist/oncologist on the medical staff at Baylor Dallas and medical director of the Blood and Marrow Transplantation program.

"The patient has had the disease since age six, and required daily injections of hematopoietic growth factors to live," Dr. Agura says. "She tolerated the injections for most of her adult life, but in April 2006 her blood counts fell to 1 percent of normal, and bone marrow testing showed cancerous degeneration of the marrow to a form of leukemia.

"The need for a transplant was urgent, and because she had no full siblings, a volunteer donor was necessary," Dr. Agura says. "She did not have time for the two- or three- month search

process it normally takes to find a living volunteer donor, so it was essential to find a donation source that was immediately available. The only source like that is cord blood."

A search of the unrelated donor registry worldwide revealed one potential match—from an umbilical cord unit stored anonymously at a cord blood bank.

Pediatric patients have been the primary focus of cord blood transplantation due to the small volume of blood in the donated unit—usually less than a cup-full. The procedure is becoming more widespread in use for adults as research helps doctors make use of the smaller amounts of harvested blood to generate larger numbers of new cells. Some experts believe that cord blood trans-

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PHYSICIANS on the medical staff at Baylor University Medical Center at Dallas, who are part of the Blood and Marrow Transplant Program in the Charles A. Sammons Cancer Center, recently used umbilical cord blood stem cells to treat a 22-year old adult with congenital neutropenia/acute myelogenous leukemia.

"This represents the first successful case recorded in world literature of the

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Endoscopic Options for Esophageal Cancer

ESOPHAGEAL adenocarcinoma is considered the fastest growing cancer in the U.S., with about 14,000 newly diagnosed cases every year. Over the last 25–30 years, the disease has increased 500 percent, primarily due to the growing number of Americans who are obese, have acid reflux disease or heartburn.

“In the first three months I was at Baylor, we saw 11 new cases of esophageal cancer,” says Steven Burdick, M.D., a gastroenterologist on the medical staff of Baylor University Medical Center (Baylor Dallas). “I think it’s important for physicians to be aware of this rapidly rising incidence of tumor. Patients over 40 years of age, with frequent symptoms of reflux or heartburn should be targeted for screening.”

Persistent reflux irritates the lining of the lower esophagus, which over time can lead to damage and the development of Barrett’s esophagus, a precancerous condition. Patients with Barrett’s esophagus have a risk of developing esophageal adenocarcinoma, which is 30 times higher than those without the disease.

Early detection and treatment of this precancerous condition can keep the disease from developing into cancer.

Overview

- Esophageal adenocarcinoma is the fastest growing cancer in the U.S.
- Increase of incidence due to higher rates of obesity, reflux and heartburn
- Endoscopic procedures offer safe and effective treatments for Barrett’s esophagus and dysplasia



The Halo 360 System delivers a short burst of radiofrequency energy to the lining of the esophagus to ablate a thin layer of abnormal tissue.

Several endoscopic techniques are available at Baylor’s Gastrointestinal Lab.

“Esophagectomy used to be the only option, but it has a 2 percent to 5 percent risk of death,” Dr. Burdick says. “Additionally, problems with reflux, stenosis, strictures and dumping syndrome can occur after surgery. Endoscopic procedures appear to be very effective and have a minimal chance of death associated with them.”

Photodynamic therapy involves injecting a drug into the bloodstream, which is then allowed to collect in the tumor over a few days. Using an endoscope, a laser light is focused on the cancer causing the cells to slough off and die. This is the primary therapy for patients with early esophageal adenocarcinoma, high-grade dysplasia or Barrett’s esophagus with dysplasia. Another use of photodynamic therapy is palliative, targeting advanced cancers that block the esophagus.

The Halo 360 System is a new endoscopic procedure that delivers a short burst of radiofrequency energy to the lining of the esophagus to ablate a thin layer of abnormal tissue. The body regenerates new, healthy tissue to replace what was removed. Baylor Dallas is one of the first hospitals in the area to use this technology.

“This procedure generally offers fewer complications for the patients, and doesn’t have the photosensitivity side effects of photodynamic therapy,” Dr. Burdick says. “Patients with persistent low-grade dysplasia are good candidates for this procedure.”

Endoscopic mucosal resection is another treatment option. An endoscopic technique allows physicians to “shave off” superficial layers of cancerous tissue in the esophagus. The physician also can examine underlying tissue to determine if cancer is present.

“We often combine these techniques and 85 percent to 95 percent of the time we can completely eliminate the dysplasia,” Dr. Burdick says. “Studies show that these early-stage treatment options offer improvement over surgery or surveillance alone.

“The key is to identify these patients who may be at risk for developing Barrett’s esophagus and dysplasia,” he adds. “Once identified, we can offer some treatment options to prevent esophageal adenocarcinoma from ever developing.”

For more information regarding Baylor’s Gastrointestinal Physiology Lab, call **1-800-9BAYLOR**.

Surgery Offers Hope for Medically Refractory Epilepsy Patients

Overview

- 60 percent to 70 percent of patients show seizure reduction after surgery
- Evaluation in Baylor's Epilepsy Monitoring Unit (EMU) determines surgical options
- Baylor's comprehensive program offers full scope of neurological testing and imaging

SOME PATIENTS with epilepsy, who are medically refractory to seizure medications, may be candidates for surgical intervention for better control of epilepsy. Advances in imaging and localization techniques, available through the Baylor Neuroscience Comprehensive Epilepsy Program, enable patients to experience dramatic improvements in seizure control.

"Sixty percent to 70 percent of patients, who are appropriate candidates for surgical intervention, experience abatement or significant reduction of their seizure activity after surgery," says Richard Naftalis, M.D., a neurosurgeon on the medical staff at Baylor University Medical Center (Baylor Dallas). "The first step before surgery is to determine if patients have really failed drug therapy and to undergo a comprehensive evaluation in Baylor's Epilepsy Monitoring Unit (EMU). Baylor Dallas is fortunate to have on its medical staff a dedicated team of neurologists and neurosurgeons with a special interest in epilepsy."

"Through careful evaluation, the epileptic focus can often be established," says Bruce Jenevein, M.D., a neurologist

and epileptologist, on the medical staff at Baylor Dallas.

"This process typically involves extensive brain imaging with high field strength MRI, looking for areas of scarring or gliosis, cortical dysgenesis or other disruptions of normal cellular architecture within the brain. "PET-CT scanning creates images of metabolic activity within the brain and may highlight the metabolically less active areas in which seizures originate," he adds.

The goal of an EMU evaluation is to create conditions favorable to provoke a seizure in a controlled medical environment. Continuous video and electroencephalogram (EEG) monitoring allow us to study a seizure as it begins and propagates to other regions within the brain, creating a map for epilepsy surgery. If needed, the map can be further refined by temporarily implanting very small electrodes on the surface of the brain itself.

Other imaging (Ictal SPECT) involves intravenous injection of a radio-labeled molecule (Technetium 99 m Tc bicisate "neurolite") during seizure onset. This technique highlights the brain region with increased metabolism and

blood perfusion corresponding to the seizure origin. A procedure using implanted electrodes can be used to map the important functional areas of the cortex, including motor, sensory and speech functions. Brain mapping enables the neurosurgeon to avoid resecting any normally functioning brain tissue. Non-invasive mapping of the brain's functional layout may also be accomplished with functional magnetic resonance imaging (fMRI), Wada (intracarotid brevital) testing and magnetoencephalography (MEG).

"Patients on burdensome doses of seizure medication may be able to significantly reduce or stop their medicines," Dr. Jenevein says. "Many patients whose epilepsy has taken them out of the workforce are able to resume employment and handle greater responsibilities within their families. Many of the patients who have been treated through medical refractory procedures have reported they felt treatment was successful. The outcomes are very promising for most patients.

For more about the Baylor Neuroscience Comprehensive Epilepsy Program information, call **1-800-9BAYLOR**.



A comprehensive evaluation in progress in Baylor's Epilepsy Monitoring Unit.

Baylor CHF Program Offers Comprehensive Care

Overview

- Sophisticated treatment, research and transplantation distinguish Baylor's spectrum of care for CHF patients
- Clinic targets medical management, education, nutrition and research
- Alignment of services and treatment protocols benefit patients and physicians

CONGESTIVE heart failure (CHF) is a growing health care concern and is responsible for significant risks of death and disability, as well as significant cost expenditures. The most common reason for admission to the hospital among the Medicare population is heart failure, and the need for comprehensive management of these patients will only continue to grow. To meet that demand and provide a continuum of care for CHF patients, Baylor University Medical Center (Baylor Dallas) is streamlining access to care and services for both patients and physicians.

Clyde Yancy, M.D., medical director of the Baylor Heart and Vascular Institute and chief of thoracic transplantation at Baylor Dallas, is charged with aligning CHF services and treatment protocols.

"An institution like Baylor should and does provide a complete portfolio of care for the heart failure patient with all treatment options represented. We have many of the services needed by the heart failure patient already on site—most

importantly we provide quality care and have health care providers that are already engaged. The physicians' next task, however is to represent the professionals and services offered at Baylor in a comprehensive programmatic structure that benefits all involved—patients, their families, and the physicians and caregivers at Baylor." Dr. Yancy says.

Baylor's sophisticated level of CHF services already includes inpatient care, drug therapy, devices, surgery and an outpatient clinic, with access to heart transplantation as the intervention of last resort," he adds.

Research also plays a prominent role in the continuum and this is something Baylor is actively growing.

"We are already involved in research initiatives, exposing patients to new technology while keeping the medical staff aware of advanced techniques," Dr. Yancy says. "I am impressed with the many physicians in private practice who make time to be involved in research at Baylor. There are a number of really dedicated and sophisticated investigations underway—and more are to come."

Some of the latest research developments include a simple system to remove excess fluid in congested patients, a left ventricular assist device the size of a large egg, and implantable devices capable of alerting physicians before a patient becomes symptomatic.

Baylor's commitment to offer a full spectrum of care for CHF means patients benefit from advanced and effective treatments.

"It used to be that CHF was considered a 'terminal' illness and achieving comfort was the goal," Dr. Yancy says. "Today there are real choices for the treatment of heart failure—real choices that work. We'll never be able to transplant everyone, but we want to treat everyone. And, we want to do so with the most effective therapies suitable for

each individual patient. In most cases, heart transplantation is not required and patients can expect true longevity and restoration of a good quality of life."

The CHF clinic provides another portfolio in the continuum of care, offering medical titration, patient education about the disease, and nutritional counseling. It is physician-directed, but nurse-managed by Mae Centeno, RN, CCRN, CCNS. The outpatient clinic model offers a cost-effective means for patients to become better educated and self-compliant in the management of their disease.

The clinic also has a social worker available to help patients find additional resources if they have exhausted their health benefits.

For physicians, the clinic provides an extension of their practice. Communication and consultation on each case is a priority.

"A big part of what we do is re-orienting physicians and re-educating patients. For the patients with heart failure, we can do so much more for them than ever before," Dr. Yancy says.

"Heart failure is so common and now has many effective treatment options. We want physicians to know we are here to offer their patients a comprehensive plan and options for living with CHF."

To learn more about CHF services, call **1-800-9BAYLOR**.

RE-LY Study Assesses Efficacy of Dabigatran vs. Warfarin (Coumadin®)

Overview

- Dabigatran may offer faster anticoagulation effect with fewer drug or food interactions
- The drug is a direct thrombin inhibitor that prevents thrombosis formation
- Study focuses on atrial fibrillation patients

THE CLINICAL Cardiovascular Research Center at the Baylor Jack and Jane Hamilton Heart and Vascular Hospital is participating in the Randomized Evaluation of Long Term Anticoagulant Therapy (RE-LY) With Dabigatran Etxilate Trial, which is currently enrolling 5,000 people in medical centers around the world.

Cara East, M.D., a cardiologist on the medical staff at Baylor University Medical Center (Baylor Dallas), is the principal investigator. The study focuses on both male and female patients, age 18 years and above, with non-valvular atrial fibrillation (AF) at moderate to high risk for stroke, or systemic embolism with at least one additional risk factor (i.e. previous ischemic stroke, TIA, or systemic embolism, left ventricular dysfunction, age ≥ 75 years, age ≥ 65 with either diabetes mellitus, history of coronary artery disease or hypertension).

Dr. East says dabigatran and warfarin have the same effect on the clotting system, but work at different points in the pathway. “Dabigatran is a direct thrombin inhibitor and, thus directly prevents thrombus formation. Warfarin

works by inhibiting the synthesis of the clotting factors 2, 7, 9 and 10, and thus is able to prevent thrombus formation only after the levels of these factors have fallen,” Dr. East says. “Because both medications prevent thrombus formation, both can prevent clots or result in bleeding. Ongoing studies will assess if they are truly equivalent in their effects.”

Dabigatran has only been tested so far on patients with AF or for prevention of DVT after knee or hip replacement. Based on Phase II trials results, dabigatran appears to offer the same protection in preventing stroke in AF, but has no drug or food interactions like warfarin (Coumadin®). The drug is taken twice daily and builds to therapeutic levels in about 48 hours; warfarin takes seven to 14 days. Additionally, dabigatran appears

to require none of the ongoing blood tests or dose adjustments that warfarin requires. (See Table 1)

Patients enrolled in the study will have 2/3 chance of being assigned to dabigatran; 1/3 chance of being assigned to Warfarin (Coumadin). This is randomly assigned, although the study is not blinded because Warfarin (Coumadin) patients will still need INR measurements.

Patients will receive either drug at no charge for three years, along with all study-related testing over that same period. The study is not a substitute for regular medical care by a patient’s usual physicians.

For more information on the RE-LY study, or to refer patients, call **1-800-9BAYLOR**.

Table 1: Comparison Between Dabigatran and Warfarin (Coumadin®)

	Dabigatran	Warfarin
Time to full anticoagulation effect	4 doses = 48 hours	4–10 doses, 4–10 days
Time to reverse anticoagulation effect	48 hours	5 days
Dosing	BID	QD
Availability	Not FDA approved yet	Generic available
Need to check blood tests	No INR is actufactually high so do not measure	Check INR at least monthly
Drug interactions	None shown so far	Many, for example: Tylenol®, antibiotics like Cipro® or Levaguin®, antifungals, azoles, all statins, phenytoin Viagra®, Vitamin K
Food interactions	None shown so far	Green leafy vegetables, green tea, chamomile tea, flaxseed oil

Baylor Pharmacy Implements System to Reduce Medication Errors

Overview

- System retrieves previous 4 months' prescription history through national database of Medicare Part D and other insured patients
- Medication reconciliation almost immediate upon patient admission

BAYLOR UNIVERSITY Medical Center's (Baylor Dallas) Pharmacy Services recently implemented the HCS medication reconciliation system to identify and verify patient medications of Medicare Part D and insured patients upon admission. The system provides an effective way to manage potential medication errors for Medicare D and insured patients, and automates the process required by the JCAHO's patient safety requirements.

The HCS system provides access to RXHub®, a national database comprised of most third-party payors, and the prescription history of their insured patients. Currently, the system retrieves medication history from the last four months, although it can retrieve up to 12 months.

Mike Sanborn, RPh, director of Baylor Health Care System Pharmacy Services, says the system provides both safety and timesaving benefits.

"This has provided us with a much better idea of what medications our patients are taking prior to their admission to the hospital," Sanborn says. "So often, a patient is unable to give a complete medication history. It's typically not intentional, but generally happens

with elderly patients on multiple medications or with patients that cannot communicate due to their medical status."

Upon entering the patient's name and insurance information, the HCS system retrieves the medication history within about 40 seconds. The admitting or intake coordinator prints out the report and attaches it to the medical record, providing a readily available and accurate account of a patient's medication history.

"We have found this to be extremely accurate, and rather than having to start a medication history from scratch, it gives us something to validate with the patient," Sanborn says. "It can be even more valuable when a patient has been admitted due to a potential drug-related problem, such as bleeding or hypertension from poor compliance."

Currently, the HCS system matches about 50 percent of the patient popula-

tion at Baylor Dallas. Medicare Part D and most major insurance carriers participate in RX Hub. Texas Medicaid, which covers about 25 percent of the Baylor patient population, does not participate. Sanborn says these patients, along with those who are uninsured, or pay cash, are the only patients who will not be in the system.

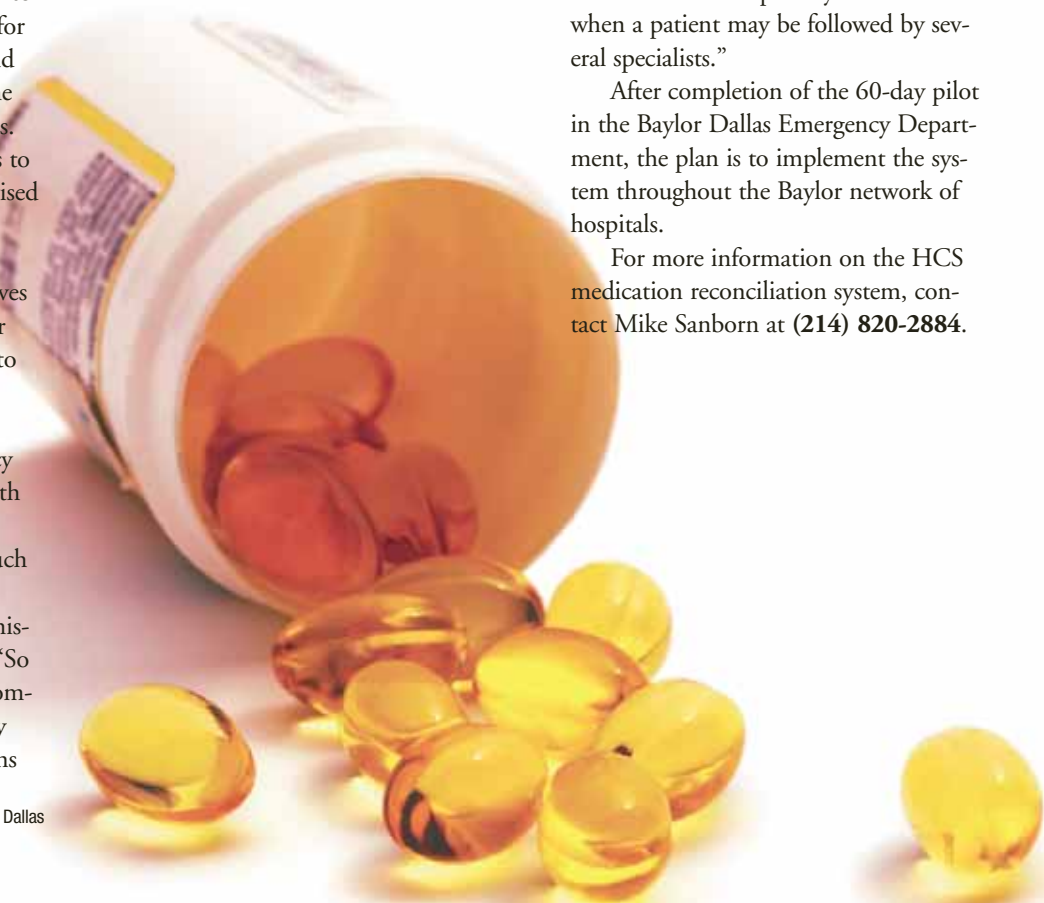
"The patients with the most medications, however, tend to be covered by this program, and that's a big plus," Sanborn says.

The biggest benefit is what the system can do to help prevent medication errors.

"It's exciting that the technology is now available to support the process of medication reconciliation," Sanborn says. "Consolidating all the information about a patient's medication history gives us a complete picture, and enables physicians to see every prescription the patient has had in the previous four months. This is especially beneficial when a patient may be followed by several specialists."

After completion of the 60-day pilot in the Baylor Dallas Emergency Department, the plan is to implement the system throughout the Baylor network of hospitals.

For more information on the HCS medication reconciliation system, contact Mike Sanborn at **(214) 820-2884**.



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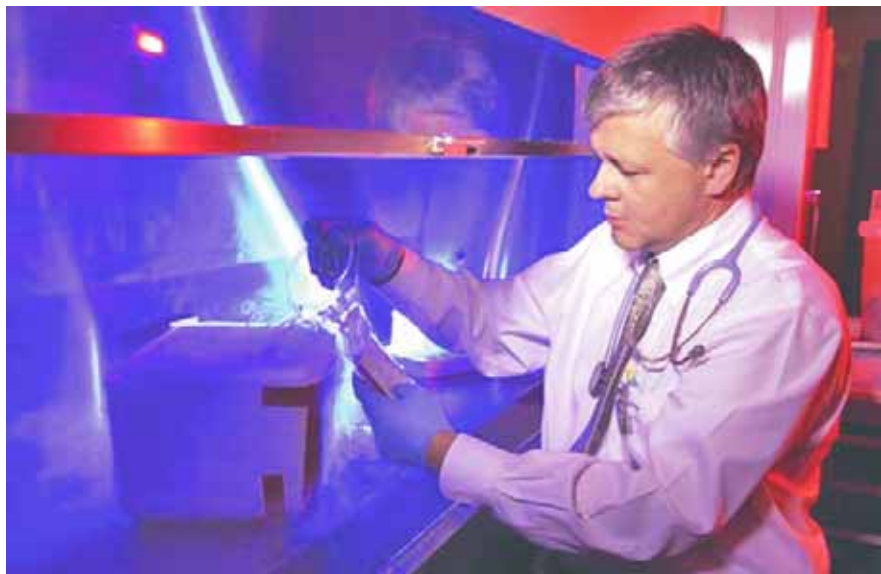
Baylor Performs Successful Cord Blood Transplant

plantation does not require a perfect match—as is required for living adult donors—because the immature nature of the cord blood stem cells may lead to fewer complications.

Cord blood transplantation may be used to treat any disease of the bone marrow, whether cancer-related or genetic, such as sickle cell anemia. This development offers significant hope for patients, especially those in minority populations.

“The lack of availability of minority donors is a special opportunity for cord blood banks,” Dr. Agura says. “It is an unfortunate fact that minority patients have a somewhat harder time finding transplant donors due to the under-representation of minorities in the living donor registries. Baylor, which already has a large living donor registry, could become a leading minority cord blood bank as well.”

Cord blood transplants will not replace living donors since living donors can donate more than once. Dr. Agura



Dr. Edward Agura performs the final inspection of the cells in the lab.

does expect to see an increased use of cord blood as a source of hematopoietic tissue transplants due to its immediate availability. He also expects that within 10 years, cord blood transplantation may represent as much as one third of all transplants.

The Baylor Bone Marrow Transplant program was founded in 1983 within the Baylor Charles A. Sammons Cancer Center. It is the largest transplant pro-

gram at Baylor Dallas, with more than 3,500 transplants since inception. The center performs 200+ transplants every year. It is also the 10th largest program in the US, based on unrelated donor volumes.

For more information about the Blood and Marrow Transplant program at Baylor Dallas, please contact ConsultLines at **1-800-9BAYLOR**.

Baylor Receives NIH Grant for Lupus Research

Baylor Institute for Immunology Research (BIIR), the immunology research component of BRI, an affiliate of Baylor Health Care System, was recently awarded a \$6.2 million grant from the National Institutes of Health (NIH).

The grant will fund the creation of a Center for Lupus Research led by Virginia Pascual, M.D., an investigator at BIIR. Over the next five years, the NIH grant will fund three research projects to study the immune systems of children with lupus.

“We’re trying to understand how the immune systems of lupus patients differ

from those of healthy individuals,” Dr. Pascual explains. “By better understanding the disease, we hope to find better ways to diagnose and treat it.”

According to Jacques Banchereau, Ph.D., director of BIIR, Baylor researchers have already identified an immune system protein in lupus patients that is much higher than normal during periods of severe lupus symptoms, which can include skin rashes, joint pain and swelling, and inflammation of the kidneys.

BIIR researchers hope this discovery will guide them in the development of a treatment to alleviate lupus symptoms,

leveraging the technology they used to develop the juvenile arthritis treatment.

“We’ve already made significant advancements in our understanding of juvenile arthritis, lupus and diabetes,” adds Dr. Banchereau. “Having identified a new treatment for juvenile arthritis, we hope that treatments for lupus and diabetes are not far behind.”

To find out more about Baylor’s research programs, please call **1-800-9BAYLOR** or visit **BaylorHealth.com**.

Sending a Patient to Baylor University Medical Center at Dallas

With one phone call, a physician can request a referral to a specialist, an appointment for a patient, a consult, or an inpatient transfer.

Call **1-800-9BAYLOR** and a ConsultLines representative will try to assist you and your requests.

Baylor University Medical Center at Dallas has a dedicated nurse to coordinate the transfer of inpatients for physicians in the region. This includes: Emergency Department, OB and neonatal transfers and those transfers without an accepting physician. Inpatient transfers should be current acute inpatients who may require a continuation of acute care, specialized care or a higher level of care not available at your local hospital. The nurse will attempt to find an accepting physician, reserve a bed and work with Baylor's Access Service to verify insurance coverage.

ConsultLines also can help you with other needs, such as reaching specific Baylor departments for information,



or sending you the latest copy of the Physicians and Services Directory. So remember if you make one call to **1-800-9BAYLOR**, we will do our best to take care of you and your patients when you need us.

To be removed from the mailing list, call 1-800-9BAYLOR.

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