

PHYSICIAN Update



Lucile Packard Children's Hospital
STANFORD UNIVERSITY MEDICAL CENTER

A publication for Referring Physicians

Summer 2002

Brain Tumors Treated by Interdisciplinary Team

at Center for Cancer and Blood Diseases at Lucile Packard Children's Hospital

IT'S STANDING ROOM ONLY ON A VERY EARLY MONDAY MORNING, AS A PEDIATRIC NEUROSURGEON, radiation oncologist, oncologist, neuro-oncologist, neuro-radiologist, a couple of nurses, a few residents and fellows, and one medical student pack into a tiny conference room deep inside Lucile Packard Children's Hospital.

This is the Tumor Board, an assembly of Packard specialists who gather once a week to analyze computerized images of brain tumors and pathology slides of biopsies. For the next hour, the physicians seated around the table will compare notes and discuss treatment plans for a dreadful lineup of new cases—cases of real children with scheduled appointments for later that same day—including an ependymoma, pituitary adenoma, medulloblastoma, and astrocytoma.

The Tumor Board provides a regular platform for Packard specialists to brainstorm, share knowledge and exchange expertise about the most acute and rarest forms of childhood brain cancer. But spend a day with the team of brain tumor specialists, nurses, and social workers, and you quickly discover that medical expertise is only part of a family-centered approach to care that embraces a child and her parents when tragedy strikes.

Consider the case of Janet, a 12-year-old girl from Watsonville, who

came to the hospital on Memorial Day weekend complaining of headaches, vomiting, and an ataxic gait. She was operated on within days and the tumor was removed. But now an MRI scan, projected up on the computer screen, reveals what doctors found: an ominously large white mass, about 4 cm wide, lodged deep in the cerebellum. The brain's ventricles appear swollen, indicating severe obstruction.

"I'm 90 percent certain this is a rhabdoid tumor," says neuro-oncologist Paul Fisher, MD, referring to ATRT, or atypical teratoid rhabdoid tumor, a rare and aggressive childhood cancer. "Which is kind of a disastrous diagnosis. Years ago, this tumor was lumped with the medulloblastomas, but then they found that it's associated with a mutation on Chromosome 22... Very rare."

Neuro-radiologist Patrick Barnes concurs. He has just done a search of the hospital's database and found that the most recent other case of ATRT occurred in 1996.

Occasionally, a child whose cerebellum is probed and surgically operated on goes on to develop a condition called post-operative cerebellar mutism, which means that the child becomes mute—usually several days after surgery.

The room empties out. Time for another meeting—this time between Dr. Fisher and the support staff,

which includes a social worker, a pediatric nurse practitioner, and the hospital's director of palliative care. It is 9 a.m., and the tone of discussion is much changed. Less medical, more psychosocial.

Dr. Fisher tells the staff they'll be seeing a 9-year-old Saratoga girl named Clare, who had a low-grade astrocytoma removed from her spine one month earlier. Her prognosis is good; she'll simply be monitored. No radiotherapy. No chemotherapy.

But he does have one concern: Clare's mother is being followed at a local community hospital for a recurrence of breast cancer. "And it's going to be very important for the girl to get the message that her cancer is very different from her mother's," he tells them.

They're also going to be seeing James, a 17-year-old boy from Salinas who's just been diagnosed with germinoma, a highly infiltrative and fast-growing tumor in the pineal gland. James, who will be admitted for chemotherapy and radiation, has had a host of odd symptoms. He drinks water "like a fish," has—unsurprisingly—frequent urination and gained 50 pounds in just a few months.

"But the thing I'm most struck by," says Dr. Fisher, "is that he blames himself for everything. Apparently, he had a job in the mall and everybody assumed he was eating a lot in the food court..."

continued on page 4

Gene Therapy's Best Hope: Hemophilia

Despite recent setbacks, most scientists believe that gene therapy will one day become standard treatment for a whole host of diseases. A good chance for making that a reality lies in ongoing efforts to treat hemophilia, says Stanford clinical researcher Bert Glader, MD, PhD.

"If gene therapy should work, it should work in hemophilia," says Glader, who is a professor of pediatrics in the department of hematology and oncology at Lucile Packard Children's Hospital and associate dean for continuing education at Stanford University School of Medicine.

"If gene therapy should work, it should work in hemophilia."

Bert Glader, MD, PhD

Glader and his colleagues are currently conducting a clinical trial, treating hemophilia B patients with the latest in gene therapy techniques. "Initially, we will be treating only adults," says Glader. The hope, however, is to one day treat children early in life.

The current trial is based on basic research done by Mark Kay, MD, PhD, professor in the departments of pediatrics and genetics and director of Stanford's Program in Human Gene Therapy. Kay has perfected techniques he first tested in cell cultures, then in mice and finally in dogs.

Hemophilia A and B are rare bleeding disorders resulting from deficiencies of blood clotting factors

VIII and IX, respectively. The diseases affect some 18,000 to 20,000 people in the United States. Children who inherit this X-linked disorder are treated with either blood-produced clotting factors or factors made using recombinant DNA techniques, which can cost in excess of \$100,000 per year.

But both Glader and Kay agree that hemophilia is an ideal candidate for treatment by gene therapy because:

- The pathophysiology of the disease is well understood
- Few environmental factors have an effect on the course of the disease
- People suffering from hemophilia B can have a huge improvement in their quality of life with as little as 1 percent of the normal circulating levels of clotting factor IX
- At 10 to 20 percent of normal, hemophilia B patients would virtually be cured of the disease.

By comparison, previous, highly publicized gene therapy trials were done without good pre-clinical data, Kay explains. The study of many other diseases has suffered from the lack of realistic, representative animal models. Kay says that clinical endpoints of diseases, such as a variety of cancers, are poorly understood. Also, many of the patients treated in previous trials suffered from end-stage disease and were looking toward gene therapy as their last hope.

In the current Phase I-II trial, researchers are using an adeno-associated virus (AAV) that carries the gene for factor IX. Delivering the virus to the liver involves interventional radiologists who insert a catheter into the femoral artery of the patient. The catheter feeds the hepatic artery and then an infusion pump introduces the vector. The virus, in turn, inserts its altered DNA into liver cells that then take over production of the factor.

The current study is being conducted in collaboration with researchers at Children's Hospital

Philadelphia, where the first patient received the therapy in August. Stanford's first participant received it in late January. At this time, all participants are adults. But, Glader says, the goal is to eventually offer

The goal, Glader says, is to eventually offer well-tested gene therapy to children with hemophilia.

well-tested gene therapy to children with hemophilia.

In a previous Phase I study, the Stanford team successfully targeted muscle as the producer of the protein product. The eight participants experienced a decrease in the number of bleeding episodes. Muscle biopsies indicated that all patients produced factor IX, but the circulating levels remained below therapeutic levels. These patients are still being monitored for any long-term effects. The current study focuses on the liver, the place these factors are normally made, in an attempt to increase the amount of factor produced.

The current trial aims at entering 10 participants. The study will take some time to complete, Glader says. That's because patients must first be given unaltered virus and monitored for some time to test for reaction to the virus. "In particular, we are worried about inhibitors to the coagulation factors being produced," Glader explains. "Patients are monitored very closely for any complications or reactions to the vector."

These studies also move slowly because participants are not readily available. People with hemophilia are often reluctant to enroll in gene therapy trials when effective therapy is already widely used. Those who do volunteer, however, know gene therapy is the future, Glader says.

Growing Acceptance for Latest Cancer Treatment

More than 30 years after it was first performed in a patient, bone marrow transplantation is now the treatment of choice for a growing array of childhood ailments, ranging from leukemia to solid tumors and genetic disorders.

“We are developing better ways of doing bone marrow transplantation with less risk,” says Michael D. Amylon, MD, professor of pediatrics at Stanford University School of Medicine and director of the bone marrow transplantation program at Lucile Packard Children’s Hospital.

Approximately 45 children receive bone marrow transplants each year at Packard Children’s Hospital. A planned inpatient unit—to be completed in 2004 or 2005—will increase that number to 60 and make the hospital one of the largest pediatric bone marrow transplantation programs in the country.

BMT, a procedure that involves the injection of hematopoietic stem cells, was once used almost exclusively to treat diseases of various types of blood cells. Over the years, gentler conditioning techniques, along with improved medication to control the rejection of the transplant and graft-versus-host disease, have allowed clinicians to use BMT in an array of diseases.

The first of three categories of disease that responds to transplantation comprises diseases of cells that are descended from the hematopoietic stem cells, such as the red and white blood cells and platelets. BMT essentially replaces all of those cells.

“So any disease that primarily involves one of those cell lines can be cured with a bone marrow transplant,” says Amylon. Into this category fall immunodeficiency diseases that involve lymphocytes, as well as sickle cell disease and thalassemia—genetically determined defects in hemoglobin synthesis.

The second group of candidate diseases comprises different types of cancer, including leukemias and many solid tumors ranging from rhabdomyosarcoma to brain tumors. BMT allows physicians to increase the dosage of chemotherapy and radiation to intensities that destroy the patient’s bone marrow.

Thus new marrow is needed to replace the patient’s ability to make

“We are developing better ways of doing bone marrow transplantation with less risk.”

Michael D. Amylon, MD

blood. It may come from another person or, in some circumstances, may be taken from the child before treatment and given back afterward. When a transplant is performed to treat cancer, the new bone marrow “rescues” the patient from the toxicity of the high dose chemotherapy and radiation, rather than replacing a defective blood cell, as is the case with inherited blood diseases.

The third group includes genetic and metabolic disorders such as adrenoleukodystrophy and Hurler’s syndrome. The rationale behind this is that tissue macrophages descended from hematopoietic stem cells migrate into almost every tissue after bone marrow transplantation. Enzymes produced by these macrophages may then fix the genetic defects in the surrounding tissues.

To broaden the application of bone marrow transplantation and limit its risks, researchers and clinicians at Packard Children’s Hospital are

collaborating with the adult bone marrow transplant program at Stanford Medical Center.

The researchers are studying the mechanisms that trigger graft-versus-host and rejection responses and are also investigating the graft-versus-tumor effect. In the latter, transplanted marrow from a donor recognizes tumor cells as “foreign” and starts to eliminate them—one of the reasons donor marrow is curative.

Clinicians are still facing difficulties finding marrow donors who match patients closely enough. There is a one-in-four chance that a sibling will be a perfect match. When the marrow comes from a less well-matched sibling or a parent, the danger of graft-versus-host disease is significantly higher. Researchers are working to minimize the complications associated with such “mismatched” or “haplo-identical” donors.

“There is a subset of patients for whom we can’t find a donor either in the family or in the unrelated donor registry. That’s the group that probably makes up 30 percent or maybe even a little bit more of the patients we otherwise could be transplanting,” says Amylon. “So if we could use a less well-matched donor safely in them that’s a big group of kids that right now don’t get transplanted because there is no donor.”

Another project aims to use BMT to induce immune tolerance by taking some marrow from a potential solid organ donor and transplanting it into a patient who needs the organ. The donor’s marrow would then reduce the patient’s immune response when confronted with the transplanted organ. In theory, the patient wouldn’t depend on the anti-rejection medicine as heavily.

Says Amylon: “We are on the verge of some significant breakthroughs.”

continued:

Brain Tumor

Dr. Fisher shakes his head. “He’s a very nice boy. The mom’s having a hard time, I think. She has eight kids. The dad is uninvolved.”

By now, it’s nearly 10 a.m., time for walking rounds. Accompanied by social worker Peggy Chavez and pediatric nurse practitioner Ruth Rosenblum, PNP, Dr. Fisher strides to the Pediatric Intensive Care Unit, where they find Janet, sitting upright but unmoving in a wheelchair. Her face is devoid of expression, as occupational therapist Michele Zimmerman feeds her little spoonfuls of applesauce. Her parents stand on opposite sides of the hospital bed, watching silently.

And just as feared, Janet has grown mute. Her parents explain that she woke up from the anesthesia able to speak; then, 24 hours later, her voice and language inexplicably disappeared.

“Sometimes after a big surgery in the back of the brain, children lose the ability to speak for weeks, sometimes months,” Dr. Fisher tells the parents, as Chavez translates. “I think that will get better in time. The effects are temporary.”

But just because Janet can’t speak, it doesn’t mean she lacks understanding. And now Dr. Fisher imparts the most painful, crucial information: That the tumor is malignant, that it will require chemotherapy and radiation, and that it is important that Janet hear these words and understand that “malignant means the same as cancer.”

In the next couple of days, he and Rosenblum will perform a spinal tap, and, with the parents’ permission, a permanent IV line will be implanted.

“Does it hurt, the line you’re going to put in?” the mother asks. Both parents seem calm, but they have lots of questions.

“Sometimes we’re asked by

families, ‘What if we found it months ago? Would anything be different?’ The answer is no,” Dr. Fisher says firmly. “This is a matter of luck or God—whatever you want to call it. What matters is what kind of tumor it is and how it responds to treatment.”

Stephen Huhn, MD, the chief of pediatric neurosurgery, has just entered the room. He is the surgeon who operated on Janet a few days earlier, and now he kneels in front of the little girl and asks her to squeeze his hand. Harder, he says, as an aria from *Madame Butterfly* plays fuzzily in the background.

By 12:30, the examination rooms in Clinic D are filling up with parents and their kids—the same kids whose brain scans were magnified up on a couple of computer screens just hours earlier. Clare, a spunky little girl who looks like she could be swinging on the monkey bars, is the one who just had spinal surgery last month.

Dr. Fisher lifts up her T-shirt and examines a 4-inch scar of stapled stitches running down the length of her spine. She wiggles her toes, laughing happily, and parades up and down the little room for her neurologist.

Dr. Fisher splits a wooden tongue depressor in half, lengthwise, and runs the sharp end along her bare

foot. Is it going up or is it going down? She guesses, gets it wrong, and Dr. Fisher decides that she shows a lack of proprioception—an inability to sense fully where you are in space. Then he refers her to a hospital orthopedist for an examination of her spine.

“You’re boring,” Dr. Fisher tells her, to her guffaw. “Boring is good here. You want to be boring.”

Down the hall, a ninth grade girl from San Benito waits with her parents. Jessica had a pilocystic astrocytoma removed from her ventricles, the fluid areas of the brain. Her spinal fluid dynamics have been left abnormal ever since, and now she has a shunt.

On many mornings, she says, she wakes up to terrible headaches that sometimes last all day. Rosenblum and Dr. Fisher consult outside the examining room; they’ve already tried Ritalin with Jessica, but it only seemed to worsen the pain. She used to be a good student, Dr. Fisher says sadly, but now—he makes a big zero with his thumb and forefinger—“She has no memory. From the pressure of the tumor.”

They decide to prescribe Elavil before bedtime, which will make her sleepy and hopefully, reduce the headaches.

continued on page 5



Dr. Stephen Huhn, Chief of Pediatric Neurosurgery and Dr. Paul Fisher, one of a handful of neuro-oncologists in the U.S., examine a young child following successful surgery and treatment for a rare brain tumor.

continued: Brain Tumor

The last child may well be the hardest. Alyssa, now 5, has been coming to Packard for nearly three years and just had her fourth recurrence of PNET, an embryonal tumor known to be very aggressive. Back on chemotherapy, she is “holding her own”—despite the fact that many of her teeth have fallen out along with her hair. Today, she greets her doctor as soon as he enters the room by silently, shyly, holding both arms out in front of her.

The inner arms are covered with large, ugly circles that look almost like ringworm. A fungal infection. After calling in Stacey Teicher, a pediatric nurse practitioner, Dr. Fisher writes a prescription for Lotrimin.

He leaves the room, and Alyssa runs her fingers through her mother’s long, thick hair. When Dr. Fisher returns, he’s holding an appointment form for Alyssa. She needs to come back to the hospital in two days, he says, in order to be seen by a dermatologist.

“Every once in a while you see someone who’s been on chemotherapy for a long time and they become immune-suppressed and you see a fungal rash that’s all through their body,” he tells the young mother.

“I don’t think that’s true, but we need to have it checked out. You and I have been down this road so many times. She gets herself in a hole and then she crawls out of it.”

Suspect Cancer? Refer Early.

The cure rates for all pediatric cancers are on the rise. However, research shows that a child’s chances of being disease-free depend on how and where they are treated. Statistics show that the four-year disease-free survival rate nearly triples when patients are cared for at designated pediatric cancer centers using research-based protocols.

In order to take advantage of cutting-edge translational research, however, children must be seen early in the diagnostic process. “The best results are when the patient is referred at the first suspicion of cancer,” says Michael Link, MD, who leads the Center for Cancer and Blood Diseases at Lucile Packard Children’s Hospital.

For example, some of the more sophisticated treatments currently used here require immediate testing of fresh biopsy material. In the case of leukemia, these samples are tested in laboratories using microarray technology. Physicians tailor the treatment of child based on the molecular signature of the tumor.

So far, this approach has proven successful, but advanced testing is not an option without properly collected and preserved tissue. “We can’t do research on the tissue if the biopsy is done in a community setting,” Link says. “We want kids referred here and early.”

Late referrals can result in missed treatment opportunities, as well as incomplete population data for researchers. That’s because children who are treated at pediatric cancer centers become part of the National Cancer Institute’s Children’s Oncology Group (NCI-COG). The success of future treatments depends on data that are representative of the full phenotypic, genetic, ethnic and socioeconomic diversity of the population.

Data from NCI trials has also shown that physicians are less likely to refer older children to pediatric cancer centers. A 1997 study showed that less than 25 percent of the cancer patients between 15 and 19 years were enrolled in clinical trials, compared to 94 percent of children under the age of 15. Given the data on four-year survival, these statistics are cause for alarm, Link says. “This is a wake-up call for us. Adolescents with cancer are not able to take advantage of the advances observed with younger children in these trials.”

The American Cancer Society has weighed in on the subject, telling parents that children of all ages who are diagnosed with cancer require the kind of comprehensive care that only pediatric cancer centers can provide. Link agrees: “Participation in clinical trials is a standard of care and should be offered to children with cancer.”

INFORMATION FOR REFERRING PHYSICIANS: Center for Cancer & Blood Diseases

Oncology

Clinic Days and Hours:
Monday-Friday 8:30 a.m.-5 p.m.

(650) 497-8953 Phone
(650) 497-8101 Fax

Service Chief: Michael Link, MD

Radiation Oncology

Clinic Days and Hours:
Monday-Friday 8 a.m.-5 p.m.

(650) 723-6171 Phone
(650) 725-8231 Fax

Service Chief:
Sarah Donaldson, MD

Hematology

Clinic Days and Hours:
Tuesday 9 a.m.-12 p.m.
Thursday 1 p.m. - 3 p.m.
Friday 9 a.m. - 12 p.m.

(650) 497-8953 Phone
(650) 497-8101 Fax

Service Chief: Michael Link, MD

Consolidation of Pediatric Hematology & Oncology Clinics

All childhood cancers to be treated in one location

Plans are underway to consolidate the pediatric hematology and oncology clinics at Lucile Packard Children's Hospital into one unified Center for Cancer and Blood Diseases. The center, one of Packard's six Centers of Excellence, will include a 30-bed inpatient unit, a clinic for follow-up visits and a day hospital for chemotherapy and other treatments.

By bringing together the various clinical services, the center will encourage collaboration among such specialists as oncologists, hematologists, bone marrow transplant specialists, surgeons, neurologists, radiation oncologists, and cancer biologists.

"And this will integrate the inpatient unit with the Day Hospital and oncology clinic," explained Susan Flanagan, RN, Packard's chief operating officer. "We'll have continuity of care for cancer and bone marrow transplant patients."

The center is made possible by a \$20 million gift, among the largest ever given to Packard Children's Hospital (or, for that matter, to any children's hospital). It was given by Anne T. and Robert M. Bass and is expected to support research that will advance treatments for cancer and blood diseases in children.

Ten of the planned beds are already designated for bone marrow transplantation, a procedure now considered standard treatment for many pediatric illnesses, including leukemia, lymphoma, and non-malignant conditions such as aplastic anemia and thalassemia.

Packard Children's Hospital treated 712 children for cancer in 2000, 817 in 2001. A 10-year projection places the number of patients at nearly 900.

Pediatric cancer is one of the success stories of modern medicine. Forty years ago, about 25 percent of children diagnosed with cancer

survived, according to Philip Pizzo, MD, dean of the Stanford University School of Medicine and a nationally recognized authority on pediatric oncology. Today, that survival rate is close to 80 percent.

And recent studies have shown that children treated at university-affiliated pediatric cancer centers have a nearly 40 percent higher survival rate than those treated at community hospitals. Today, many pediatric specialists believe that, with an infusion of research, clinical trials, and cutting-edge therapies, the mortality rate can

be reduced below 10 percent.

"In many ways, kids are much easier to treat than adults," says Michael Link, MD, director of the Center for Cancer and Blood Diseases. "They're usually healthy. We can treat them very aggressively and they will tolerate the treatment."

To make it happen, the hospital will move five clinics currently situated on the first floor to a site that is off hospital grounds but in close proximity. Building is expected to start in late summer of next year and be completed by fall of 2004.

Ronald McDonald House Moving

It was moving day at Ronald McDonald House and things couldn't have been more hectic: computers were packed away, furniture was donated, and 24 families transferred to their new digs at a local hotel.

The House was being closed for a major expansion that will nearly double the current number of family rooms—from 24 to 46.

The goal of the expansion is simple: to never have to turn another child away. Ronald McDonald House at Stanford provides a home and safe haven for families of children with life-threatening illnesses receiving treatment at Lucile Packard Children's Hospital or Stanford Medical Center.

Many of these children and their families come to Packard from far away. And the financial burden of having to live in a hotel or motel during treatment can prove prohibitive.

Though Ronald McDonald House charges a nominal \$10 a

night, no family is ever turned away due to an inability to pay. Families have been turned away, however, for lack of space, and it is not uncommon to find them spending the night in a hospital waiting room or in their cars.

So on June 12, the current residents were moved to a nearby hotel in which the Ronald McDonald House leased a block of 25 rooms for the projected 14 months of construction. The rooms come equipped with kitchenettes, or at the least, a microwave, a refrigerator, and coffeepot.

The hotel – located about six miles from Lucile Packard Children's Hospital – will provide complimentary breakfasts and dinners, seven days a week, for every family. Shuttle service to and from Packard will be provided by the hospital.

For information,
call (650) 325-5113.

Faculty Update



Ann Arvin, MD



Michael Amylon, MD



Iris Litt, MD

PEDIATRIC FACULTY HONORED

Three members of the pediatric faculty who regularly work with patients and staff at Lucile Packard Children's Hospital were honored recently.

Ann Arvin, MD, received the international award in clinical virology from the Pan American Society for Clinical Virology. It is considered the most prestigious award in the field and reflects Arvin's exceptional body of work in this area.

Michael Amylon, MD, was honored with the Alwin C. Rambar—James B.D. Mark Award for Excellence in Patient Care. This annual award, established in 1984, recognizes a member of the faculty who excels in patient care, is compassionate in dealing with patients and their families and is effective and pleasant in working with staff on behalf of patients. Amylon was chosen from more than 75 nominations. The committee reviewing the nominations noted that Amylon "exemplifies true caring and commitment to patient care." The honor was presented to Amylon at the medical school commencement on June 16.

Iris Litt, MD, was recently appointed as the Marron and Mary Elizabeth Kendrick Professor in Pediatrics at the Stanford University School of Medicine. One of the highest honors given to a member of the faculty, this

appointment recognizes Litt's outstanding accomplishments and contributions both to Lucile Packard Children's Hospital and the medical school. This endowed professorship was established in 1976 through a gift from the Kendricks, who both attended Stanford University. Mary Elizabeth Kendrick has previously served on the LPCH board of directors.

NATIONALLY KNOWN CARDIAC SPECIALIST JOINS HOSPITAL

Stanton Perry, MD, one of the country's pre-eminent pediatric heart surgeons, has assumed his new role as associate professor of pediatrics, director of the pediatric cardiac catheterization laboratory and director of interventional cardiology services at Lucile Packard Children's Hospital.

Perry made international news last year when he performed corrective heart surgery on a fetus, a procedure that turned out to be the first successful fetal treatment of hypoplastic left heart syndrome. The syndrome, which affects 600 to 1,400 children a year, is fatal if left untreated. Treatment of a newborn, however, requires three surgeries, has a 30 percent death rate and costs at least half a million dollars.

Perry comes from Boston Children's Hospital and Harvard Medical School.

His arrival will allow LPCH to offer minimally invasive alternatives for patients at the Children's Heart Center.

CANCER BIOLOGY PROGRAM LEADER NAMED

Michael Cleary, MD, professor of pathology at Stanford University School of Medicine, has been named to lead the Cancer Biology Program at Packard's Center for Cancer and Blood Diseases. Cleary is considered a world leader in the molecular biology of leukemia and the general field of cancer biology. He helped establish the first molecular diagnostics laboratory in the department of pathology at Stanford and used his discoveries to improve the diagnosis and treatment of leukemia and other cancers. At Packard, his work will focus on the genetic basis of pediatric cancers and provide the center with a world-class laboratory.

NEW APPOINTMENTS

Adolescent Medicine

Mary Ott, MD

Anesthesia

Laleh Aram, MD
Louise Furukawa, MD
Jyrson Klamt, MD
Aruna Nathan, MD

Cardiology

Daniel Murphy, MD
Stanton Perry, MD
Norman Silverman, MD

Hematology/Oncology

Michael Jeng, MD

Neurology

Ching Wang, MD

Pediatric Radiology

Peter Kane, MD

Pulmonary Medicine

Laurie Witcoff, MD

Radiation Oncology

Iris Gibbs, MD

Vascular Surgery

Frank Arko, MD

Important Contact Information

PHYSICIAN HOTLINE FOR REFERRAL & CONSULTATION

24-hour, immediate referral and consultation
(800) 995-5724
 (650) 843-0136 fax
 referral@medcenter.stanford.edu

CRITICAL CARE CONSULTATION & TRANSPORT

24-hour, immediate consultation for neonatal, pediatric and maternal critical care and transport issues
(650) 723-7342

HOSPITAL PAGE OPERATOR

24-hour access
(650) 497-8000

OTHER CONTACTS FOR REFERRING PHYSICIANS

Admissions
 (800) 995-5724 / (650) 497-8221

Continuing Medical Education
 (650) 497-8554

Diagnostic Imaging
 (650) 497-8376

Radiologist Consult
 (650) 497-8466

Grand Rounds
 (650) 723-5168

Health Plan Services
 (650) 736-1067

Medical Group Services
 (650) 736-1067

Medical Staff Services
 (650) 497-8566

Professional Services Billing for Physicians
 (650) 498-5785

Physician Referral Liaison Service

Coordinates referrals and serves as a communication link between hospital and referring physicians, medical groups and health plans

Monday - Friday 8 a.m. - 5 p.m.
(800) 756-5000 / (650) 498-2526 fax
 referral@medcenter.stanford.edu

CME Courses for Physicians in 2002

10th Annual Pediatric Update
July 19-20 Lucile Packard Children's Hospital

Concurrent Pediatric CME Courses
Sep. 23-28 Mauna Lani Resort, Hawaii

Sep. 23-25, Update in Clinical Pediatrics: Advances in Practice

Sep. 24-26, Advances in the Care of Moms, Babies and Kids

Sep. 25-28, Innovations in Pediatric and Adult Critical Care

For information, call **(650) 497-8555** or visit cme.lpch.org.



Lucile Packard Children's Hospital

STANFORD UNIVERSITY MEDICAL CENTER

725 Welch Road Palo Alto, CA 94304

Physician Update is published as part of an ongoing effort to serve the needs of physicians who refer to Lucile Packard Children's Hospital at Stanford. To share comments or secure more information, contact:

Terry O'Grady, RN, MS
 Director, Community and Physician Relations
 Lucile Packard Children's Hospital
 1520 Page Mill Road, Palo Alto, CA 94305
 (650) 497-8965
 terry.o'grady@medcenter.stanford.edu

Mary Dybdahl
 Manager, Physician Referral Liaison Service
 Lucile Packard Children's Hospital
 725 Welch Road, Palo Alto, CA 94304
 (800) 756-5000
 mary.dybdahl@medcenter.stanford.edu

Non-Profit Org.
 U.S. Postage
PAID
 Palo Alto, CA
 Permit 29