SAFER

THE CHAIR'S INITIATIVES OF THE DEPARTMENT OF PEDIATRICS

ROUND 2

The Children's Hospital *of* Philadelphia®

Hope lives here.

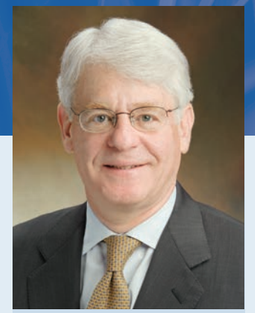
THE CHAIR'S INITIATIVES

Encouraging Excellence

The Chair's Initiatives program provides internal grants that support projects throughout Children's Hospital. Begun by Alan R. Cohen, M.D., Physician in Chief, and Chair, Department of Pediatrics, and Alison Marx, operating officer, Department of Pediatrics, the program develops new projects and nourishes existing efforts, providing funding for staff and support from quality specialists, administrators, information technology and other internal and external resources.

Project teams are held accountable for their results, just as they would be for a rigorous external grant. They must describe a method for reporting measurable outcomes in their application. Regularly scheduled reports are presented to Dr. Cohen and his team during the two years of funding. Ten projects were funded from 2006–2008, six from 2008–2010, and six more are currently under way.

A challenge in healthcare is to continue grant-supported projects when funding concludes. The 16 projects from Rounds 1 and 2 have all continued, funded in a variety of ways. Several are supported in part by the Hospital's operating budget, a reflection of the quality and reach of the Chair's Initiatives.



Alan R. Cohen, M.D.
Physician in Chief
Chair, Department of Pediatrics

Keeping Them Safe

Since its inception in 2006, the Chair's Initiatives program has helped 22 teams turn great ideas into reality. Reflecting the Hospital's commitment to patient safety, we have chosen projects focused on innovation, safety and quality of care.

At The Children's Hospital of Philadelphia there is no higher priority than keeping patients safe while providing the best care. Chair's Initiatives teams have made and continue to make significant contributions to efforts to minimize errors and safeguard the well-being of patients.

Participants in the Chair's Initiatives have included physicians, nurses, computer programmers, researchers, engineers, nurse practitioners and others within many specialties, including gastroenterology, hematology, cardiology, surgery, oncology and emergency medicine. These individuals provide an unflagging willingness to work diligently and collaboratively to move their initiatives forward and to find solutions to complex challenges. Underlying their efforts is a remarkable dedication to their patients.

It has been incredibly gratifying to see every one of our Round 1 and Round 2 projects continue after their two-year cycle of funding concluded. Every day, Chair's Initiatives teams are helping patients and families throughout this great hospital, and I am very proud of their hard work and dedication.

On behalf of my leadership team, including Alison Marx, M.B.A., operating officer, Department of Pediatrics, and Kathy Shaw, M.D., M.S.C.E., associate chair, Department of Pediatrics, I am pleased to showcase the Round 2 Chair's Initiatives.

Anticoagulant Management Program (Page 2) Improving monitoring and care for children taking "blood thinners"

Chemotherapy Tracking Project (Page 5) Computerizing records of cancer patients' drug regimens

CHOPLink Implementation, Quality and Patient Safety (Page 8) Linking clinicians with computer specialists to ensure technology improves care

Collaborative Clinical Pathways (Page 11) Establishing a framework for care guidelines to be created more easily

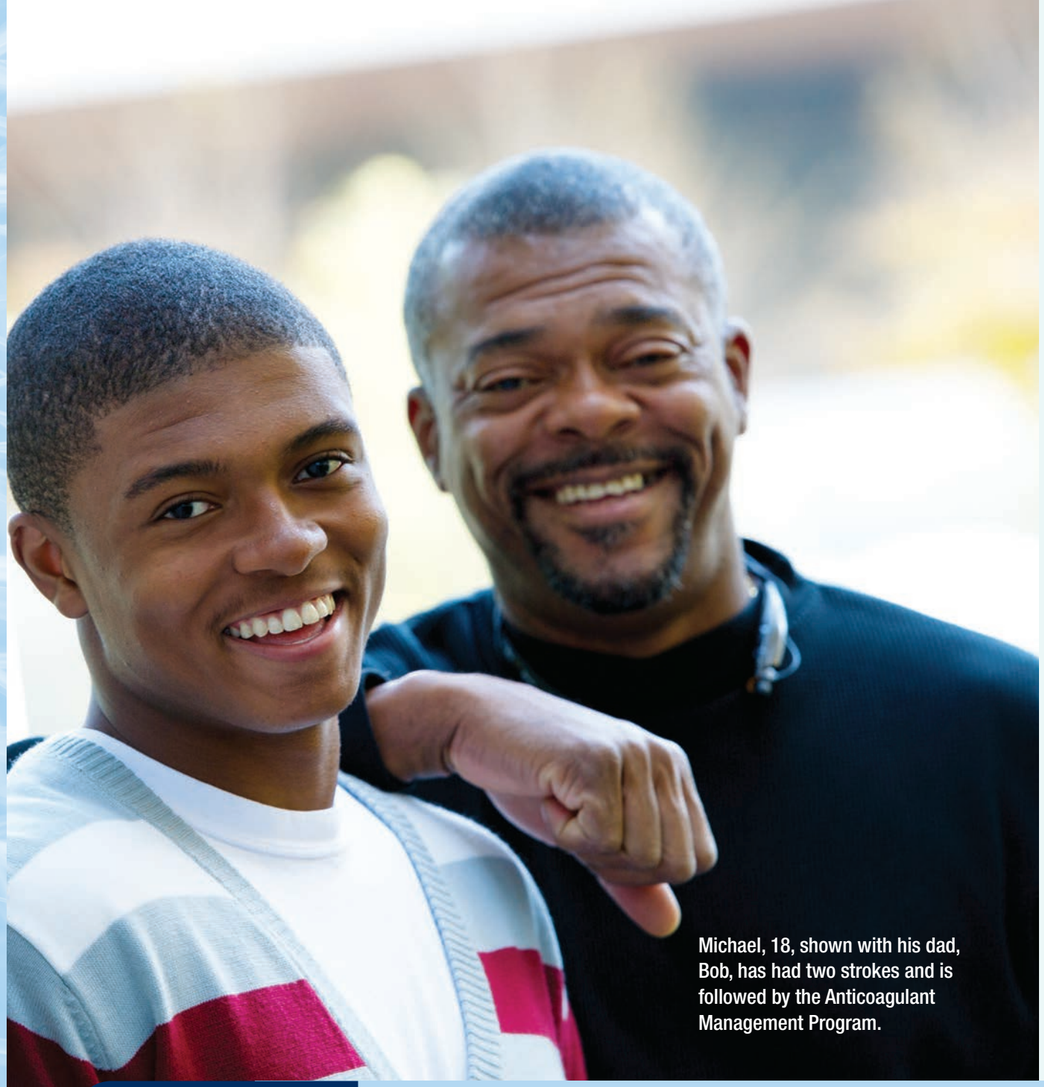
Intestinal Rehabilitation Program (Page 14) Coordinating and improving care for children with intestinal failure

Unit-based Patient Safety Walk-rounds (Page 17) Providing a forum for safety concerns of families and staff

On the cover: Colin, 6 months, (with his dad, Ian) is a patient of the Anticoagulant Management Program.

CHAIR'S INITIATIVES

Anticoagulant Management Program



Michael, 18, shown with his dad, Bob, has had two strokes and is followed by the Anticoagulant Management Program.

Challenge

Anticoagulants are often associated with harmful errors. Children require these drugs, known as "blood thinners," for a range of issues: strokes, heart problems, and use of long-term IV catheters or other invasive devices, which can cause clots. Precise dosing is incredibly important to patient safety — too much of the drugs can cause hemorrhaging, and too little can result in clots.

Safe use requires numerous lab tests to gauge how the anticoagulant is working and to make sure the child isn't bleeding internally. Proper dosing requires ordering the right tests at the right time, and then reviewing them and adjusting dosage. Patients respond differently to anticoagulants, so monitoring them when they first go on the drugs is critical. When patients go home, parents must understand the importance of dosing correctly and continuing tests and appointments.

A group of hematologists and pharmacists saw a need for better monitoring of anticoagulants and began improvements. A Chair's Initiatives grant allowed them to expand quickly: They brought in other disciplines and formed the Hospital-wide Anticoagulant Management Program.

Accomplishments

- Wrote guidelines ("clinical pathways") for heparin, enoxaparin, warfarin and other anticoagulants. The guidelines, on the CHOP Intranet, help with dosing decisions.
- Improved process for ordering from pharmacy. A clinician ordering an anticoagulant is prompted to enter information about lab results and goals.
- Hired a full-time pharmacist to monitor every inpatient on anticoagulants. This person reviews lab results and dosing and consults with the team managing the child's care.
- Expanded hours for a nurse practitioner and nurse to visit every patient on anticoagulants before discharge to educate the family. Developed family education materials.
- Developed education for staff, including a required online module for nurses and classes for nurses, residents and pharmacists.
- Established case review. A multidisciplinary team reviews problematic cases so that problems can be addressed before they reoccur.

Team

Marilyn Blumenstein, C.R.N.P., M.S.N.
Daniela Davis, M.D., M.S.C.E.
Sarah Erush, Pharm.D.
Therese Giglia, M.D.
Connie Law, Pharm.D.
Bob Mullen, Pharm.D.
Miriam O'Neill, R.N.
Leslie Raffini, M.D.
Donna Schilling

Thanks to the efforts of the Anticoagulant Management Team, a vulnerable group of patients is safer.

"When he was in the hospital they would test his levels every week, making sure he was in therapeutic range, that the dose was correct. Now that he's home we bring him in once a month to have his levels checked. It has been an extreme comfort for my husband and me. Everyone is helpful and informative, and we feel that our baby is in wonderful hands."

– Sue, whose 6-month-old Colin (on the cover) was born three months premature and developed a blood clot in a chamber of his heart.

Michael with hematology nurse practitioner Marilyn Blumenstein, C.R.N.P., M.S.N.

Anticoagulant Management Program

A Department of Pediatrics Chair's Initiative

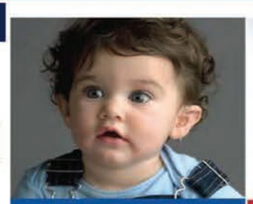
Project Goal

Goal: Develop and institute guidelines that will improve the safe and effective use of anticoagulant therapy.

Aim: Reduce the likelihood of patient harm associated with anticoagulants by increasing compliance to >90%

Implementation/Accomplishments

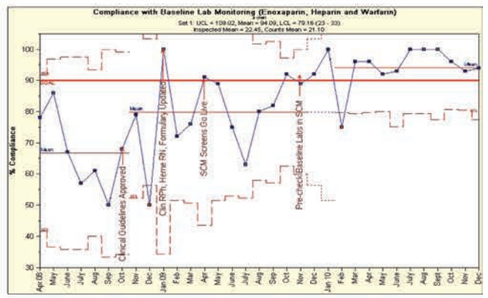
- Formed multi-disciplinary team
- Developed Clinical Pathway Guidelines (CPG) for therapeutic anticoagulation (heparin, enoxaparin, warfarin) in October 2008.
  - Formulary monographs updated to reflect CPG (Jan 2009)
  - Linked CPG to formulary (Jan 2009)
  - Linked SCM order set to CPG (April 2009)
- Developed CPG for direct thrombin inhibitors (Dec 2009)
- Developed CPG for thrombolytics (May 2010)
- Clinical Decision Support
  - SCM order pathways for anticoagulants include baseline and monitoring labs, goal range, indication, and link to Clinical Pathway Guidelines (April 2009)
  - SCM order pathways for thrombolysis (alteplase) include baseline and monitoring labs, and link to Clinical Pathway Guidelines (June 2010)
- Anticoagulation Monitoring
  - Employment of a Clinical Pharmacist to monitor all inpatients on anticoagulation to ensure that the CPG are followed. (Jan 2009)
- Education for Clinicians
  - Nursing – Learning Link Online module (March 2009)
  - Pharmacy – Module/Inservice (October 2009)
  - Physician – Inservice (April 2009)
  - Heparin Induced Thrombocytopenia Materials (Jan 2010)
- Education for Families
  - Developed CHOP specific patient education materials (2008)
  - Patient education provided by hematology nurse/"super-users" (Jan 2009)
- Case Review
  - Cases in which anticoagulation management is problematic will be review by a multi-disciplinary team (case report form developed in March 2009)
- Critical Lab Review
  - All inpatient cases with PTTs > 220, INR >3.5 and anti-Xa levels > 1.0 are reviewed on a monthly basis to evaluate whether guidelines are followed. Targeted education post-review.

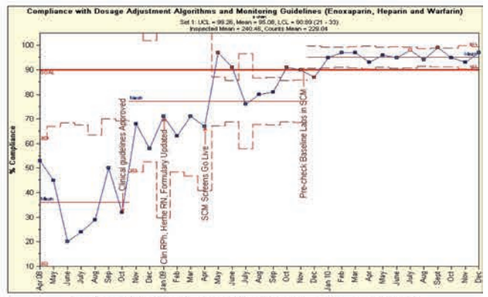


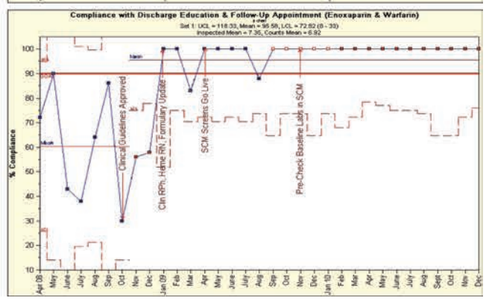
Enoxaparin (Lovenox®)
Important Facts and Logbook
Hemostasis and Thrombosis Center

Warfarin (Coumadin®)
Important Facts and Logbook
Hemostasis and Thrombosis Center

Performance Measures







Next Steps

- Cardiac Center (Targeted activities)
  - Guidelines for the anticoagulation of patients on extracorporeal membrane oxygenation (ECMO) and ventricular assist devices (VAD)
  - A committee has been established to explore the options to standardize the Cardiac Center outpatient use of anticoagulation/antiplatelet medications.

Anticoagulant Work Group

Leslie Raffini, Daniela Davis, Therese Giglia, Connie Law, Marilyn Blumenstein, Miriam O'Neill, Sarah Erush, Donna Schilling, Robert Mullen

Updated March 2011

Poster, "Anticoagulation Management Program," CHOP Quality and Patient Safety Day, May 2011

Chemotherapy Tracking Project

Charles Bailey, M.D., Ph.D., with cancer patient Sofia during an appointment.

Challenge

Oncologists treating children with cancer follow prescribed regimens for doses and timing of chemotherapy. The regimens, established after years of testing, are intended to attain a balance between fighting the cancer and minimizing toxic effects.

Oncologists fine-tune the regimens based on the child's reactions to the drugs. The reactions, in turn, often require additional medications. It's important to keep a careful record of all drugs received. For years these records, called "roadmaps," were on paper, updated manually by each doctor involved in care. The roadmaps were sometimes incomplete and difficult to read or understand, and they didn't always follow the patient through different settings. For example, when a patient receiving chemotherapy as an outpatient was unexpectedly hospitalized, the inpatient oncologist might not have the up-to-date record.

CHOP was switching to a new system for electronic medical records. As this larger paper-to-computer transition occurred, an oncologist recognized an opportunity to analyze the current "roadmap" system, with the goal for improved methods in the electronic realm. With Chair's Initiatives funding, a team created the Chemotherapy Tracking Project.

Accomplishments

- Completed review of 100 paper medical records and identified areas to focus on for improvement; for example, inpatient chemotherapy was recorded more completely than outpatient chemotherapy.
- Created comprehensive chemotherapy ordering and tracking process for CHOP's new computer system.
- Surveyed oncologists, nurse practitioners and others to assess their priorities and get their ideas for the electronic roadmap.
- Reviewed reported chemotherapy errors and near-errors, and found that missing information on roadmaps was a common cause of error.
- Completed updates to current "standard operating procedures" for chemotherapy drugs, and harmonized with standards for clinical trials. (Many patients participate in drug trials and other studies.)
- Created a prototype of an electronic roadmap.

Team

Charles Bailey, M.D., Ph.D.
Bobbie Bayton, C.R.A.
Colleen Callahan, C.R.N.P.
Christopher Forrest M.D., Ph.D.
Megan Henning, R.N.
Saira Khan, M.S.
Shannon Lewis, R.Ph.
Jo Minton
Stephanie Powell, R.N.
Anne Reilly, M.D.
Beth Storey, R.N.
Cathy Timko, C.R.N.P
Geraldine Uy

Work on the Chemotherapy Tracking System continues. The project will contribute to improved computer tracking systems, keeping pediatric cancer patients safer.

Oncology patient Sofia, shown with her grandfather.

Poster, "Implementing an Electronic Chemotherapy Tracking System to Improve Care and Safety," CHOP Quality and Patient Safety Day, May 2011

CHOPLink Implementation, Quality and Patient Safety

CHAIR'S INITIATIVES

Raman Sreedharan, M.D., reviews an after-visit summary with Joyce, 4, and her mother, Jane.

Challenge

CHOP has switched to a new computer system to manage electronic medical records and other patient care functions. This has been a complicated undertaking at CHOP, which has 28,000 inpatient admissions and more than one million outpatient visits annually.

As the system was phased in (the effort is called CHOPLink), doctors, nurse practitioners and other clinicians began noticing areas for improvement. For example, during visits they were spending too much time clicking through screens to enter information into the electronic medical record, taking focus away from the patient. Menus for ordering medications were not refreshed with new FDA-approved drugs. The process for updating patients' medication lists was confusing, leading to potentially dangerous inaccuracies. These and other concerns affected patient safety and quality of care.

With Chair's Initiatives funding, clinicians with experience in programming and other areas of information technology (IT) formed a team to help improve the new system. Calling itself the SWATT Team (Specialists with Advanced Technical Training), the group grew, attracting more clinicians as well as IT specialists from CHOP.

Accomplishments

- Visited other institutions with the same computer system (Epic) to analyze what was working and not.
- Surveyed CHOP clinicians to identify concerns and suggestions about the new system.
- Created an enhanced, standardized and family friendly "after-visit summary," a document parents receive at the end of every visit. Populated from the new computer system, it lists plan for care, medications, upcoming appointments and more.
- Served as a resource to the Hospital's IT specialists in identifying and prioritizing fixes.
- Created a "Tips and Tricks" sheet to explain common areas of confusion.
- Began providing proactive advice to the Hospital's computer specialists as they put new pieces of the system into place.
- Prioritized, piloted and guided development of outpatient letter-faxing capabilities and enhanced progress notes.

Team

Scott Aikey
Jeffrey Bryers
Ellen Capone
Bimal Desai, M.D.
David Friedman, M.D.
Trude Haecker, M.D.
Deborah Joers
Sara Kinsman, M.D., Ph.D.
David Langdon, M.D.
Eli Lourie, M.D.
Anthony Luberti, M.D.
Barbara Malloy
Jeffrey Martinez
Alison Marx
David Piccoli, M.D.
Natalie Plachter, M.D.
Douglas Powell
Kathy Shaw, M.D., M.S.C.E.
David Sherry, M.D.
Jonathan Spergel, M.D., Ph.D.
Anna Spraycar
Raman Sreedharan, M.D.
April Taylor
James Treat, M.D.
Barbara Ulircuis
Donald Younkin, M.D.
Joseph Zorc, M.D.
Kathleen Zsolway, D.O.

The SWATT Team has become a crucial bridge between patient care and information technology. Together, people from both sides are making the computer system better and patient care safer.

"When your child has a disease that requires multiple specialists, you deal with so much information. We have appointments at least once a month. We have prescription changes and dietary changes. It's great to have a summary of past, present and future to refresh your memory and help you stay on track."

– Jane, whose daughter, Joyce, sees gastroenterologists, hematologists and endocrinologists at CHOP, commenting on the after-visit summary.

Department of Pediatrics
CHOPLink Implementation, Quality & Patient Safety
A Department of Pediatrics Chair's Initiative

Project Goal

To develop a multidisciplinary clinical team with significant IS expertise and commitment to quality and patient safety who will assist in the design and implementation of CHOPLink for the Department of Pediatrics. Group will work on quality and patient safety issues such as:

Medication Reconciliation
Clinical Letter Generation
Clinician sign-off on documented encounters
Allergy Documentation
Lab result tracking
Compliance with Best Practice Protocols

Accomplishments

Issues In Progress:
- Timely access to EPIC for Residents/Fellows
- Medication Reconciliation
- Approach to non-FDA medications
- Dragonspeak and partial dictation pilots
- Quality of scanned documents (ECMS and HIM in discussion)
- Transition from ICD9 diagnoses to IMO diagnoses on Preference Lists
- Ensuring Timely and Appropriate Rotating Resident Access To EPIC
- Visit Navigator and Review of Systems Enhancements and Discussions
- Inpatient and OR Pathology Result Routing
- Committee informed creation of a PARC Working Group to capture the pharmacy name, address, phone number, and fax number for all inpatients.
- Etiquette/Guidelines for Messaging within EPIC.

Issues Prioritized for Resolution:
- Faxing of outpatient letters to RMDs
- Notification to care team when patients are admitted

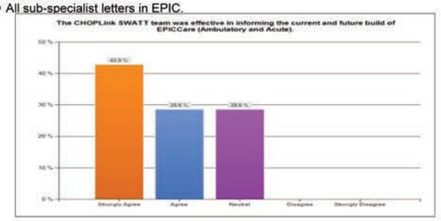
Issues Resolved:
- Medispan now updated monthly
- After Visit Summary Developed
- Hospital Abstract and Care Coordination encounter definitions
- Radiology reports now include who interpreted the report
- Telephone encounters now remain in inbox after encounter is closed unless deleted by the clinician.
- Discrete Sigs

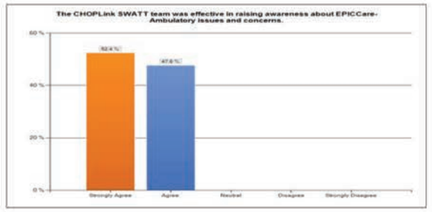
Provided Feedback On:
- New DOT phrase functionality
- New Implantable Device Folder
- My Chart
- Encounter Restriction Programming
- Scanned labs and hot links
- Spring 2008 training module
- Durations for medications

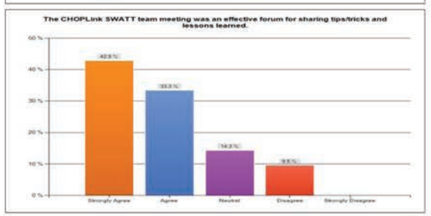
Other:
- Clinicians on SWATT played an active role in supporting the EPIC Acute Go-Live as SuperUsers.
- Committee now viewed as formal institutional CHOPLink forum/ resource, with membership from other Departments expanding.

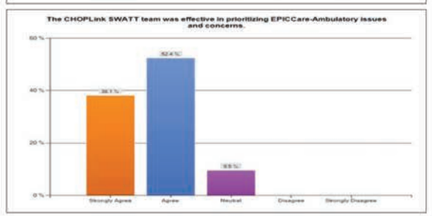
Measures of Success

- Improved implementation for all Divisions not currently on EPIC.
- More effective utilization of the EPIC record.
- Increased collaboration to ensure consistency in all implementations and reduced duplication of effort.
- All Department of Pediatrics physicians and nurse practitioners have (at a minimum) EPIC read only access. Learning Link information provided and tracking report in development.
- All sub-specialist letters in EPIC.









Barriers

- EPIC resource allocation and time.
- Complexity of issues identified.
- Prioritizing and implementing all of the suggestions and required upgrades.

Team Members: David A. Piccoli, M.D., Raman Sreedharan, M.D., James Treat, M.D., David Sherry, M.D., Donald Younkin, M.D., Kathy Zsolway, M.D., Sara Kinsman, M.D., David Langdon, M.D., Jonathan Spergel, M.D., Trude Haecker, M.D., Joe Zorc, M.D., Anthony Luberti, M.D., Eli Lourie, M.D., Bimal Desai, M.D., Natalie Plachter, NP, Jeff Bryers, Anna Spraycar, Scott Aikey, Doug Powell, Barbara Ulricius, April Taylor, Ellen Capone, Alison Marx, Kathy Shaw, M.D., David Sherry, M.D.

Poster, "SWATT: Specialists with Advanced Technical Training: The Department of Pediatrics CHOPLink Implementation, Quality and Patient Safety Committee," CHOP Quality and Patient Safety Day, May 2011

CHAIR'S INITIATIVES

Collaborative Clinical Pathways

James Dodington, M.D., a resident in the Emergency Department, holds Colin, 6 months.

Challenge

When making decisions about care, doctors and nurses face a huge array of options. Which tests should I order? Which antibiotic is best to prescribe? Which specialists should I consult?

"Clinical pathways" are written standards to guide decisions. They detail essential steps for specific problems. They existed for years on paper and are now computer-based. Pathways are particularly useful in emergency rooms, where decisions must be made quickly and about a wide variety of ailments. Creating pathways can be arduous, requiring review of literature and data on best practices, and consensus from numerous physicians, nurses and others.

CHOP Emergency Department (ED) physicians have been leaders in creating widely used pathways. Recognizing the power of pathways to improve care, an ED team wanted to establish a framework, or process, to expedite pathway creation including numerous specialists. They also wanted to make pathways even better by finding a way to track their effect on care.

With Chair's Initiatives funding, the Collaborative Clinical Pathways team was formed. The team used "febrile young infant" as the model "super pathway."

Accomplishments

- Convened multidisciplinary team and created pathway for febrile young infant. (Infant less than 56 days old with fever above 100.4° Fahrenheit.)
- Set "performance measures," metrics to show whether the pathway is improving care.
- Developed the first "scorecard" to track performance measures. For example, for infant fever, the scorecard tracks time-span from arrival until the baby receives antibiotics.
- Wrote a 15-page guide to creating pathways.
- Began linking "order sets" to pathways to simplify ordering of medicine and labs.
- Created super pathway for inpatient asthma, and established teams for 11 other conditions, showing increased ease of creating teams and beginning work.
- Created computer modules to educate residents and nurses about pathways.
- Began moving pathways to the Internet for use by partner hospitals.

Team

Louis Bell, M.D.
Susan Coffin, M.D., M.P.H.
Stephen Crawford
Joe Filippoli
Cynthia Jacobstein, M.D.
Ron Keren, M.D., M.P.H.
Jane Lavelle, M.D
Mark Magnusson, M.D., Ph.D.
John Martin
Lina Matta
Maureen McCloskey, R.N.
Elizabeth Moxey
Anna Simon, R.N.
Tara Trimarchi, R.N.
Don Yanaitis
Theo Zaoutis, M.D., M.S.C.E.
Joseph Zorc, M.D.

On the new "Clinical Pathways" site on the CHOP Intranet, "febrile young infant" is the standard provided for teams building pathways. The site has 60 completed pathways, a library that is growing.

"As a resident, clinical pathways augment my educational experience by providing easily accessible guidelines applicable to the common problems we see."
– Jim Dodington, M.D., resident, Emergency Department

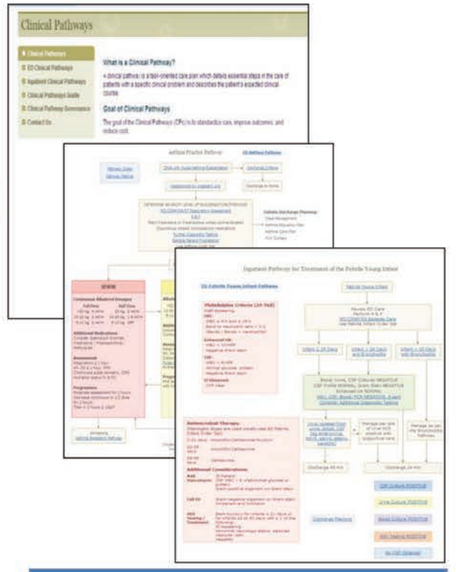
Pathways for Clinical Care
Across the CHOP Continuum
A Department of Pediatrics Chair's Initiative

Project Goal

- Develop, implement, evaluate clinical pathways which are based on evidence and expert consensus to:
  - Improve patient safety, patient outcomes
  - Define current best practice and reduce unnecessary variation
  - Integrate patient care across the CHOP healthcare network
  - Educate bedside care providers, promote effective teamwork, communication
  - Promote appropriate resource utilization and decrease costs
- Priority areas for clinical pathway development were chosen for the Chair/Operating Initiative:
  - ED and Inpatient Pathways for the Care of the Febrile Infant
  - ED and Inpatient Pathways for the Children with Asthma
  - Inpatient Pathway for Children with Appendicitis
  - Pathway for Care of Children with Febrile UTI

Metrics

ED Febrile Neonate Pathway	Pre n=295	Post n = 225	CI's & p-values
>28 days admission	60%	65.8%	
Gentamicin	30%	5.8%	0.2 (0.1-4)
Cefotaxime	50.8%	72.4%	2.5 (1.7, 3.8)
Time to Cefotaxime	341 minutes	288 minutes	p 0.002
Ampicillin	63.7%	44%	0.4 (0.3, 0.6)
Acyclovir < 21 days	6.4%	13.3%	9.3 (3, 30)
Time to urine catheter	162 minutes	143 minutes	p 0.005
Enhanced UA	58.6%	75.6%	2.2 (1.5, 3.3)



Accomplishments

- Clinical Pathways: A Guide to the Process FY 2011 Completed in September 2010
- Developed standardized template for web based pathways
- Developed standardized education module in Learning Link for multidisciplinary care teams
- Automated quality metrics easily accessible to multidisciplinary care teams in progress
- Inpatient Asthma Pathway updated in new format in January 2011
  - ED and Inpatient Asthma EPIC Order Sets developed
  - ED Asthma Performance Measures:
    - Length of Stay (in hours)
    - Admission Rate
    - Readmission Rate
    - Arrival to Corticosteroid (% receiving ; % within 60 minutes)
  - IP Asthma Performance Measures:
    - Length of Stay (in hours)
    - Inpatient Readmission Rate (30 day)
    - ED Readmission Rate (72 hrs)
    - Asthma Care Plan Follow-Up Care Documentation
- Inpatient Febrile Infant Pathway completed in December 2010
  - Inpatient EPIC Order Set developed
  - Performance Measures:
    - Length of Stay ED, IP (in hours)
    - Time to labs, antibiotics
    - Antibiotic usage
    - Transfers to higher levels of care
    - Inpatient Readmission Rate (7 day)
    - ED Readmission Rate (72 hrs)
- Appendicitis multidisciplinary team work in progress
  - Contributors: J. Collins, J. Lavelle, L.Moxey, N. Walker, S. Serves, K. Ross, K. Barnaby, M. Rehman, R. Keren
- Multidisciplinary team for Febrile UTI work in progress
  - Contributors: K. Shaw, N. Plachter, M. Dunne, J. Lavelle, C. Umscheid, M. Pradhan, J. Kim, R. Patel. L. Moxey, M. Carr, T. Colon
- Infrastructure plan presented to CNO/CMO in March 2011
- Pathway development to be incorporated in Hospital Operations in July 2011

Lessons Learned

- It takes a village
- Resources are needed
- Multidisciplinary work is key
- Front line providers must be part of pathway development
- Need high level leadership support

Team Members & Resources

Steering Committee
J. Lavelle, L. Moxey, R. Keren, L. Zaoutis

Web Team
S. Crawford, L. Matta, T. Vekteris

Inpatient Asthma Pathway
M. Magnusson, M. McCloskey

Learning Link
D. Yanaitis

Inpatient Febrile Infant Pathway
L. Bell, A. Simon

EPIC, Metrics
J. Zorc, Tara Trimarchi

Analytics and Reporting
J. Filipolli, J. Martin

Updated March 2011

Poster, "Implementing Clinical Pathways," CHOP Quality and Patient Safety Day, May 2011

Intestinal Rehabilitation Program

CHAIR'S INITIATIVES

Gastroenterologist Christina Bales, M.D., director of the Intestinal Rehabilitation Program, with Saudeeyah, 2

Challenge

Short-bowel syndrome is a rare condition in which part of the intestine has been removed because of injury, genetic disorders or necrotizing enterocolitis (NEC). NEC, in which intestinal tissue dies after infection or loss of blood flow, is most common in premature and sick infants. Because of its large neonatal intensive care unit, CHOP has numerous short-bowel patients. Many are fed through a central line (a long-term IV delivering nutrients to the bloodstream), which increases risk of serious infections and can cause liver disease. A primary goal for these patients is to transition from a central line to a nose or stomach feeding tube and/or regular eating. The right medicines and diet can improve the intestine's ability to absorb nutrients, resulting in a healthier child.

This fragile group requires care from numerous departments. Communication among specialists was inconsistent and follow-up after discharge fragmented. A team that included gastroenterologists, surgeons, neonatologists and dietitians felt they could improve care.

With a Chair's Initiatives grant, they formed the Intestinal Rehabilitation Program.

Accomplishments

- Established a team that neonatologists and others call for inpatient consults to advise on feeding and other matters. After the initial consult, the team visits the bedside weekly. Consults have more than doubled in two years to as many as 70 per month.
- Established an outpatient clinic. Patients visit as often as once a month, seeing a gastroenterologist, nurse, dietitian and, when needed, social worker. Previously there was no coordinated outpatient care. Now the team sees as many as 30 children per month.
- Established a database to track outcomes and facilitate research.
- Created a nurse coordinator role and dedicated social worker time for the program.
- Held a short-bowel education day for CHOP nurses, fellows and dietitians, and developed family education materials.
- Obtained FDA "expanded access investigational new drug" approval for Omegaven®, a fat emulsion. Many children fed through central lines develop liver disease. Preliminary studies show Omegaven may limit liver disease when used in feedings.

Team

Christina Bales, M.D.
Allison Ballantine, M.D., M.Ed.
Joy Collins, M.D.
Rose Graham-Maar, M.D., M.S.C.E.
Maria Mascarenhas, M.B.B.S.
Mike Posencheg, M.D.
Meryl Reichbach, M.S.W.
Stacey Ruffin
Brenda Waber, R.D., C.S.P, C.N.S.D., L.D.N.
Sarah Weston, R.D.

With Chair's Initiatives funding, the quality and safety of care for these fragile patients has been greatly improved.

Gastroenterology patient Saudeeyah is one of many children helped by the Intestinal Rehabilitation Program.

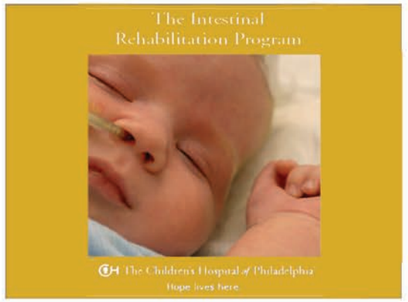
Intestinal Rehabilitation Program

A Department of Pediatrics Chair's Initiative

Team Members: Maria Mascarenhas, MBBS, Joy Collins, MD, Jane Friko, RN, Sarah Weston, RD, Anna Greenwald, MSW, Debbie Kawchak, Cathy Mackell, RN, Lisa Guiglemi

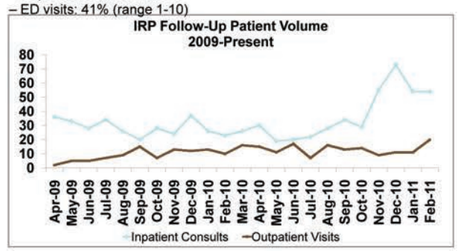
Project Goals

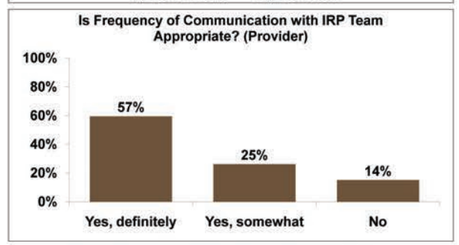
- To develop a comprehensive Intestinal Rehabilitation Program (IRP) that will provide inpatient and outpatient care for patients with short bowel syndrome (SBS).
  - Inpatients will be followed on a weekly basis by the inpatient IRP team (gastroenterologist, nurse, dietitian).
  - Outpatients will be followed by the outpatient IRP team (gastroenterologist, nurse, dietitian, social work).
- To establish monthly meetings with the existing, "SBS/ Dysfunctional Gut-Best Practice Working Group" to develop patient care protocols to optimize care and improve outcomes.
- To develop a database that will closely monitor patient outcomes and facilitate future research.
- To create a patient support group and an institution-wide education day.

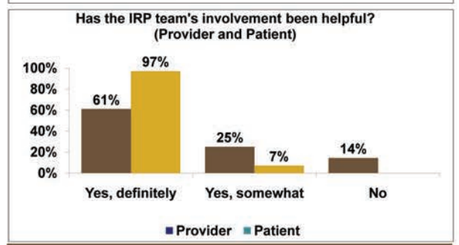


Demographics

- Number of patients: 44
- Male: Female ratio: 29:15
- Age range :0.6 to 20 years
- Prematurity: 36% patients
- Presence of SIBO: 50%
- Presence of PNALD: 36 %
- Use of parenteral nutrition: 70%
- Use of tube feeds: 70%
- Presence of oral feeds: 35%
- Presence of CVL: 81%
- Number of CVL/patient: 1-22
- Recurrent CVL infections: 54% (range 1-11 infections/patient)
- Repeated admissions:70%
- ED visits: 41% (range 1-10)







Accomplishments

1. Continued growth of the IRP clinic .
   - Increased numbers of inpatients seen (average monthly encounters increased from 27.6 patients to 59 patients in the last 5 months -- a 110% increase).
   - Increased number of office visits from year 1 to year 2 (99 to 161 -- a 63% increase).
2. Completed patient satisfaction survey: 93% felt that program was definitely helpful and communication was very good and excellent. Repeated provider satisfaction survey: perception that program was definitely helpful increased from 40 to 61% and somewhat helpful from 7 to 25%. Action plan in development to implement further improvements.
3. Developed Public Relations materials: At a Glance, Neonatology News, Program Brochure.
4. Ongoing monthly meetings of IRP Advisory Committee.
5. Obtained Intravenous Fish Oil Lipid Emulsion (Omegaven) Expanded Access IND from the FDA
   -Approved IRB protocol
   -Administration of Omegaven to 2 patients in the NICU
6. Establishment of database of IRP patients to improve current care and facilitate future research: data beginning to be generated to assess outcomes.
7. Conducted a nursing education day on short bowel syndrome attended by 87 nurses, fellows and dietitians and received a satisfaction rating of 4.72/5.
8. Development of internet website and CHOP intranet site.
9. Successful grant proposal for outpatient CLABSI prevention as part of Chair's initiative.

Next Steps

1. Use provider and patient satisfaction survey data to continue to improve program.
2. Develop a patient/family support group.
3. Host an annual education day and teaching conferences for inpatient teams.
4. Host Grand Rounds at regional hospitals to increase visibility for program.
5. Use database to analyze outcomes and identify areas for improvement.

Poster, honorable mention, "Improving the Care of Patients with Short Bowel Syndrome (SBS) Through Implementation of an Intestinal Rehabilitation Program (IRP)," CHOP Quality and Patient Safety Day, May 2011

CHAIR'S INITIATIVES

Unit-based Patient Safety Walk-rounds

Journalis, 2, smiled as her mom answered questions during safety walk-rounds in the Emergency Department.

Challenge

"The sign on my son's door says everyone who enters must wear a gown and mask, but some people aren't." "I'm a nurse, and I worry we're not weighing patients enough and that could result in medication dosing errors." "Inpatient medicine is packaged without instructions, and sometimes families take it home at discharge — is that OK?"

At any hospital, there are concerns that patients, families, and even staff are hesitant to voice. Finding and addressing these concerns is crucial to keeping patients safe. But it can be hard to speak up when you are afraid you're the only one who is concerned or you're worried how someone may react.

CHOP aims to be the safest pediatric hospital in the nation by 2015. Central to this goal is an effort to create a culture where people feel comfortable voicing concerns. One of the initiatives put in place to help foster communication is Unit-based Patient Safety Walk-rounds. Walk-rounds provide a safe venue for speaking up about concerns as well as sharing best practices for safety. One or two times per month, teams of nurses, physicians and others walk their units, talking to staff and families and collecting information on topics such as, "If you could fix one thing on our unit to make it a safer place for patients, what would it be?"

Unit-based Patient Safety Walk-rounds were first piloted in CHOP's Emergency Department. The Chair's Initiative grant provided funding to expand Unit-based Patient Safety Walk-rounds to other units.

Accomplishments

- Walk-rounds brought to light numerous issues. A few examples of resulting changes:
  - Staff received education on compliance with "precautions" protocols requiring masks, gowns and other measures when entering rooms of patients at risk for infections.
  - Hospital-wide education was developed on importance of weighing patients regularly.
  - Families may no longer take home medicines from their stay. New workflows among pharmacists, physicians and nurses help ensure every family has prescriptions at discharge so no child goes without the medicine he or she needs.
  - Multi-disciplinary anaphylaxis simulations were developed to help staff care for patients with allergies and other adverse reactions.
- Safety walk-rounds are now in 10 of the Hospital's 15 units.
- More than 500 employees have served on walk-rounds teams, including nurses, doctors, environmental services employees, clerks, social workers and more.
- A poster explaining the benefits of walk-rounds was presented at National Patient Safety Foundation Patient Safety Congress and Institute for Healthcare Improvement National Forum.

Team

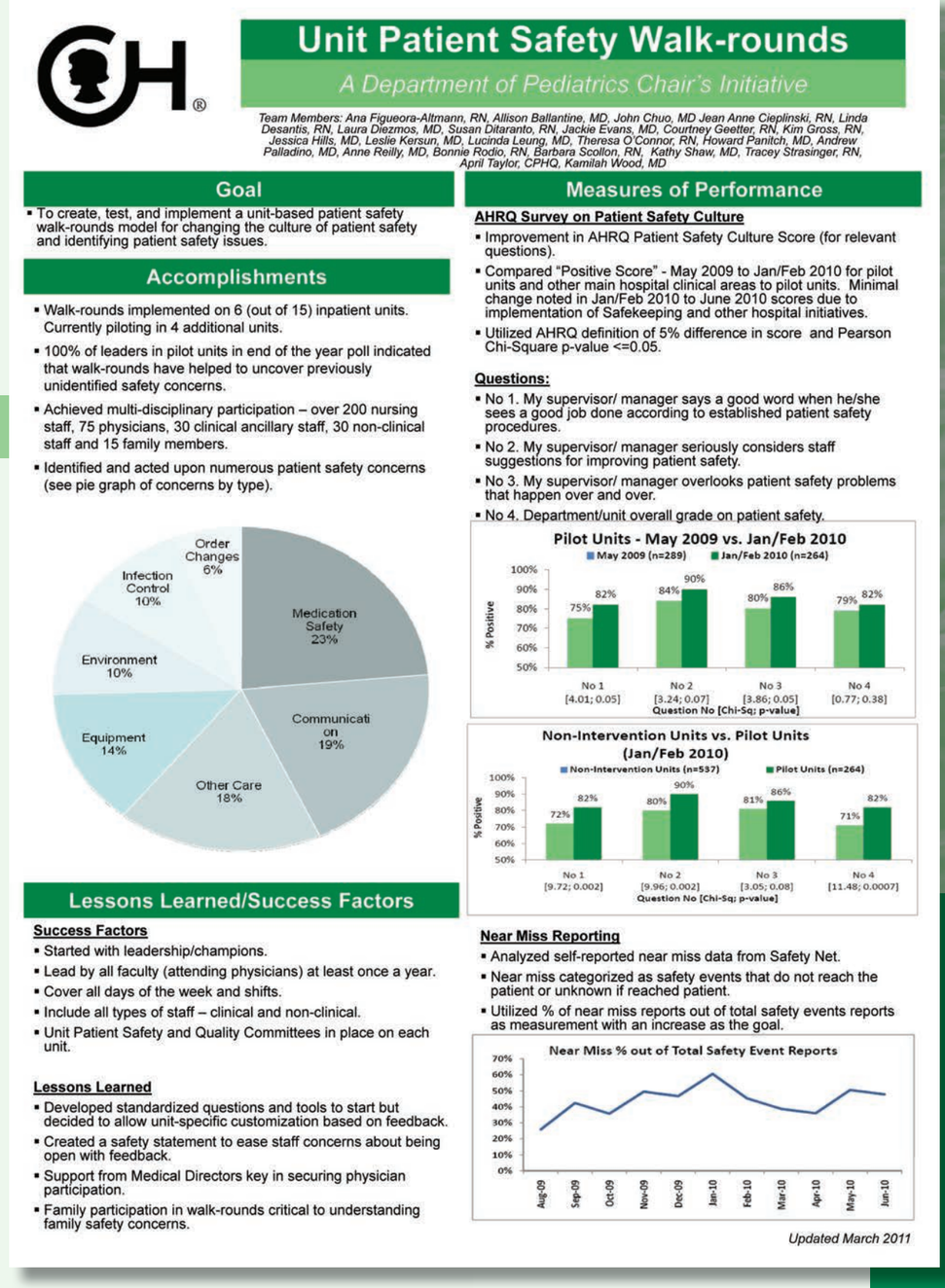
Ana Altmann
Allison Ballantine, M.D., M.Ed.
Annette Bollig
John Chuo, M.D.
Jean Anne Cieplinski
Linda DeSantis
Laura Diezmos
Susan DiTaranto
Jacquelyn Evans, M.D.
Courtney Geetter
Kim Gross
Jessica Hills, M.D.
Tyonne Hinson
Leslie Kersun, M.D.
Lucinda Leung, M.D.
Theresa O'Connor
Kathryn MacDavitt
Andrew Palladino, M.D.
Howard Panitch, M.D.
Anne Reilly, M.D.
Bonnie Rodio
Barbara Scollon
Kathy Shaw, M.D., M.S.C.E.
Tracey Strasinger
April Taylor
Ellen Tracy
Lisa Zaoutis, M.D.

Safety walk-rounds have become an integral tool for identifying safety issues and have helped change the culture to one where people feel more comfortable speaking up.

"Patient safety walk-rounds created a venue for our unit to identify and discuss safety concerns as well as start working on solutions."

– Jessica Hills, M.D., medical director, Medical Hospitalist Team

(from left) Jessica Hills, M.D., Jackie Ravenell, senior nursing aid, and Kathy Alessandroni, R.N., talk to 5-year-old Ethan and his dad during safety walk-rounds.



Poster, first place, "Improving Patient Safety Culture Through Unit-based Patient Safety Walk-rounds," CHOP Quality and Patient Safety Day, May 2011

THE CHAIR'S INITIATIVES

Great History, Great Future

Round 1 (2006–2008)

Access Nurse Advisor and Care Coordination

Nursing roles, systems and tools are created to support patients, families and providers in coordinating both access and care.

ADHD in Primary Care

A team creates computer tools, conferences and other supports to help primary care pediatricians learn and manage patients with attention deficit hyperactivity disorder.

Automated Appointment Reminders

A computerized system is implemented to place standardized reminder calls across specialties to help families remember appointments and support continuity of care.

Center for Bone Health

A team provides specialized care for children with poor bone health and helps establish international care guidelines.

Center for Pediatric Eosinophilic Disorders

A team provides specialized care for rare allergic disorders, attracting patients from across the United States and becoming a model for other hospitals.

Database Development

A team develops databases and Web-based applications to support physicians in research and care.

Multidisciplinary Cancer Survivorship Program

A team created a monthly clinic where cancer survivors see oncologists, endocrinologists, cardiologists and other specialists, resulting in better care coordination for their many needs.

Office of Fellowship Programs

A team coordinates and streamlines application, evaluation, curriculum development and accreditation processes for all fellowship programs in the Department of Pediatrics.

Pediatric Knowledgebase

A team creates a Web-based application that combines data about drugs with data about individual patients to help improve outcomes.

Sudden Cardiac Death Prevention

A cardiologist and staff provide screenings for undiagnosed heart irregularities in children and teens, and training in CPR and automated external defibrillator use for schools.

Round 3 (2011–2013)

A Shared Decision-making Portal for Pediatric Chronic Illness

For conditions such as asthma, communication between families and clinicians about goals, concerns, and the child's condition and progress is key. This team is creating a computer portal where both sides can share information, track progress and make decisions about care.

Assuring Quality and Safety at CHOP Community Pediatric Programs

The CHOP Care Network includes affiliations with numerous local hospitals. This team is designing and implementing a quality monitoring system to ensure that all CHOP-affiliated sites offer the same quality of care.

Improving Hospital Care for and Service Delivery to Individuals with Autism Spectrum Disorders

Children with autism have different reactions to care and require different approaches. This team is piloting strategies for promoting patient comfort and minimizing safety concerns during routine procedures such as sedation before a CT scan.

Minds Matter: Improving Pediatric Concussion Management

Early recognition of concussion signs and symptoms and early implementation of cognitive and physical rest are key to management of acute concussion. This team is analyzing current practice across the institution and recommending improvements in primary care, emergency care, sports medicine, trauma and other areas.

Reducing the Incidence of Outpatient CLABSI (Central Line Associated Bloodstream Infections)

Long-term IV lines called central lines, used to give patients medication and nutrients, bring increased risk of dangerous bloodstream infections. This team is working to translate safety improvements CHOP has made on the inpatient side into the outpatient realm.

Transitioning from Pediatric to Adult Services: A Primary Care Based Model

Good primary care doctors are important to young adults with complicated healthcare needs, but many don't make it a priority to find one after they outgrow their pediatrician. This team is designing tools to help patients find and maintain primary care providers.

A Model for Other Hospitals:

Alison Marx, April Taylor and Jane Lavelle, M.D., gave a presentation on the value of the Chair's Initiatives, "Initiating Improvement: Quality and Patient Safety," at the National Association of Children's Hospitals and Related Institutions' Creating Connections Conference in March 2010 in San Diego.

The Chair's Initiatives Committee includes:

Sara Barton, Tiruayer Battle, Laura Bedrossian, Brandon Calderon, Maryann Chilkatowsky, Lisa Guglielmi, Debbie Guha, Alison Marx, Kathy Shaw, Anna Spraycar, April Taylor and Thomas Yates.

Ryan, 3, is a patient of the Center for Pediatric Eosinophilic Disorders, which got its start as a Chair's Initiative.

Support Excellence

The Chair's Initiatives program funds physicians, nurses, computer specialists and others who focus their knowledge and team-building skills on an area for improvement at Children's Hospital.

The program represents an excellent opportunity for donors interested in helping incredibly bright, motivated teams quickly bring change that truly benefits patients and families. For more information about how you can make a gift, call The Children's Hospital of Philadelphia Foundation at 267-426-5332 or visit GIFT*of*CHILDHOOD.org.

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