SOLUTIONS FOR SUCCESS

PURDUE TECHNICAL ASSISTANCE PROGRAM // A YEAR IN REVIEW

Purdue technical assistance

2012

Purdue University
FROM THE ACTING PRESIDENT

Now in its 27th year, Purdue’s Technical Assistance Program (TAP) continues to expand its service in ways that benefit the everyday lives of the state’s residents, businesses and healthcare providers. I invite you to learn more about TAP’s important work in this annual report, showcasing our many successes in working with partners throughout Indiana.

One of the state’s and the nation’s greatest needs — improving systems of healthcare delivery — is one TAP is addressing head-on. TAP is supporting transformation by focusing on patient-centered care, disease-based management and reducing hospital re-admissions. TAP has worked with more than 90 hospitals, trained more than 3,000 healthcare and public health workers, partnered on projects with nearly 100 health departments within and outside Indiana, and assisted more than 2,300 physicians as they strive for “Meaningful Use” compliance of electronic health records. TAP is well positioned to support this transformation by partnering with and advising its clients on the latest strategies and competencies to improve care, manage margins and facilitate compliance.

In addition, the business sector continues to face tough economic times. TAP approaches this challenge in many ways: helping companies become more productive, develop new products and services, solve difficult technical problems, and adopt green production methods. TAP also promotes Indiana business through the “Made in Indiana” initiative and has partnered with Vincennes University to support manufacturing in the Southwestern region of the state.

In total, TAP has engaged 174 Purdue faculty, students and staff in service to over 800 employers in the state, achieving significant impacts that benefit all of us every day. Thank you for the role you play.

Timothy D. Sands
Acting President, Purdue University
September 2012
PURDUE HEALTHCARE ADVISORS

TAF’s healthcare division provides clients with a not-for-profit consulting resource that combines clinical and technological expertise with the global resources and the expertise of Purdue. Focused primarily on guiding clients to gain healthcare-related competencies — improving patient care, securing accreditation, meeting government regulations, and increasing practice margins through improvements to productivity, safety and efficiency — the division has seen dynamic growth since its inception seven years ago.

With plans to offer a comprehensive approach to hospitals, health systems and physicians with the aim of transforming the way healthcare is delivered, the division changed its name in July from the Purdue Healthcare Technical Assistance Program to Purdue Healthcare Advisors.

“Our new name and our new tag line — Transforming healthcare through innovative solutions”™ — more accurately reflects what we do,” said Mary Anne Sloan, director of Purdue Healthcare Advisors. “Our new identity now is inclusive of every product/service we provide, and it will enhance opportunities for future growth on a statewide, national and global level.”

In collaboration with Purdue’s School of Biomedical Engineering, Purdue Healthcare Advisors used a computer simulation to assess how the staffing levels and layout of the surgery center at IU Health Arnett could be improved to meet patient demand.
PURDUE HEALTHCARE ADVISORS HELPS SCOTT MEMORIAL EMERGENCY TEAM GO WITH THE FLOW

Scott Memorial Hospital in Scottsburg, Ind., is a critical access hospital with 250 employees that has found success in applying Lean Healthcare methodologies and tools to improve emergency department patient flow. Hospital officials at Scott Memorial wanted to find a way to reduce the time it took for transition of care from the emergency department, in which they treat approximately 13,000 patients annually, to the hospital’s med-surge nursing unit (a general medicine inpatient unit). They began to work on this challenge with the help of the Indiana Flex Program, an initiative funded by the state that aims to pool training and other resources for the state’s 35 critical access hospitals (CAHs) and another 16 critical/acute centers located in rural communities with no acute care hospital. The Indiana Rural Health Association, which manages the program, collaborated with Purdue Healthcare Advisors to introduce Lean Healthcare concepts to nurses, quality managers and other CAH administration leaders.

“The Lean Healthcare project represents a huge step forward in patient care efficiencies and process improvements for the citizens of rural Indiana, and we’ve received overwhelmingly positive feedback from the participating hospitals,” said Becky Sanders, Indiana Telehealth Network director and project coordinator from IRHA.

From the 20 participating hospitals, 153 healthcare workers earned Lean Healthcare Yellow Belt Certifications through Purdue, and 40 of these workers went on to earn either their Green Belt or Black Belt Certifications. The team from Scott Memorial Hospital combined two focus areas and was able to apply lean principles and methodologies through Purdue training and project-based coaching to reduce by two-thirds the time from emergency department discharge disposition to med-surge unit admission.

“PATIENTS GET ANXIOUS WAITING TO BE MOVED FROM THE EMERGENCY DEPARTMENT TO A REGULAR ROOM. OUR FIRST STEP IN REDUCING THAT ANXIETY WAS TO REMOVE THE ‘NO FLY ZONE’ OR THE TIME BETWEEN 6:15 AND 7:00 IN THE MORNING AND EVENING WHEN NO PATIENTS COULD BE TRANSPORTED TO ANOTHER UNIT. ALTHOUGH THE ‘NO FLY ZONE’ WAS USED TO REDUCE INTERRUPTIONS FOR NURSES DURING SHIFT CHANGES, OUR LEAN TRAINING REVEALED THAT THESE FLOW RESTRICTIONS ONLY SERVED TO EXTEND PATIENT TIME ON THE ER STRETCHER.”

— Dawn Mays, Vice President of Nursing, Scott Memorial Hospital

PURDUE HEALTHCARE ADVISORS TURN SIMULATION INTO SUCCESS FOR IU HEALTH ARNETT

IU Health Arnett Hospital and Physicians of Lafayette, Ind., wanted to improve services and provide better patient care within one of its ambulatory surgery centers that serves more than 8,500 patients annually. According to Ann Keyes, R.N., IU Health Arnett’s director of surgical services, daily operations in healthcare settings are complex and the resources to implement research projects are limited. So the center turned to Purdue University to better understand how the surgery center’s layout and staffing levels impact patient access, and to determine appropriate proportions of physicians, nurses and rooms to match predictions of patient demand.

Purdue Healthcare Advisors, in collaboration with Purdue’s School of Biomedical Engineering, paired analytical knowledge of the healthcare industry with engineering skill to provide administrators insight into the center’s current processes regarding patient flow, staffing and schedules as well as direction for process improvement.

To get answers for IU Health Arnett, the project team of graduate students led by biomedical engineering professor Mark Lawley, and Purdue Healthcare Advisors’ Karim Boudtamy, Ph.D., utilized computer simulation modeling software, architectural blueprints, clinical informatics, process mapping and quantification; time analyses; and input from physicians and nurses. The creation of a high-fidelity simulation model, which can test changes in room allocations and staffing levels, confirmed what the surgery center leadership suspected was needed in order to increase daily patient access as well as decrease the average patient length of stay — one additional anesthesiologist.

“SOME OF THE PROJECT RESULTS HAVE ACTUALLY VALIDATED CHANGES THAT WE HAD FELT WERE NEEDED, BUT LACKED THE ANALYTICAL DATA TO SUPPORT. FOR INSTANCE, ONE WORK TEAM CREATED A SIMULATION OF PATIENT FLOW IN OUR AMBULATORY SURGERY CENTER AND FOUND THAT THE ADDITION OF AN ANESTHESIOLOGIST WOULD SIGNIFICANTLY INCREASE OUR DAILY THROUGHPUT OF PATIENTS.”

— Ann Keyes, R.N., Director of Surgical Services, IU Health Arnett, Lafayette, Ind.
HAENDIGES & ASSOCIATES PUTS EHR SYSTEM TO MEANINGFUL USE

Haendiges & Associates regained back valuable patient time through the use of an electronic health records (EHR) system at the Kokomo-based OB/GYN practice.

“My staff would spend hours a week hunting for charts,” Dr. Michelle Haendiges, M.D., said. With assistance from Purdue with EHR in “meaningful” ways — ways that improve the quality, safety and efficiency of healthcare delivery, reduce healthcare disparities, engage patients and families, improve care coordination, improve population and public health, and ensure adequate privacy and security protections for personal health information.

“Meeting the federal government’s EHR Meaningful Use standards usually requires that providers make certain adjustments to how they see patients, utilize their EHR and protect their patient information. We expedited this somewhat disruptive process,” said Purdue Healthcare Advisors’ Regional Extension Center director Randy Hountz. Providers and hospitals that achieve the EHR Meaningful Use standard receive federal incentive payments as reimbursement for existing EHR systems. So far, those physicians assisted by Purdue have applied for and earned more than $37 million.

In addition to the grant-related assistance, Purdue Healthcare Advisors partnered with the Indiana State Department of Health to provide no-cost EHR Meaningful Use workshops to critical access hospitals; began guiding specialist healthcare providers toward EHR Meaningful Use compliance; and initiated pilot projects that dovetailed the center’s EHR expertise with disease-based management and patient-centered medical home initiatives.

INFORMATION SYSTEMS REVIEW SECURES PATIENT DATA AT RUSH MEMORIAL

Rush Memorial Hospital in Rushville, Ind., is among the many hospitals and health systems in Indiana working with Purdue Healthcare Advisors to protect the privacy of its electronic patient health information (ePHI).

As healthcare providers seek to comply with the Electronic Health Records (EHR) Meaningful Use requirements, they must conduct or review a security risk analysis, implement security updates as necessary, and correct identified security deficiencies. This step is necessary to successfully become an EHR “meaningful user” in order to receive EHR system reimbursement incentive payments from the Centers for Medicare and Medicaid. An external IT security review by Purdue Healthcare Advisors takes into account those persons with the ability to access, modify and distribute ePHI as well as the administrative and technical deficiencies in EHR systems and the devices and networks used to access the EHR.

Rush Memorial Hospital is a 25-bed critical access hospital that serves approximately 36,000 patients annually. Its information systems department contracted with Purdue Healthcare Advisors to conduct a network security/risk analysis. Hospital officials wanted to ensure that patient data, either at rest or in motion, is secure under the best practices possible. With the latest assessment and validation tools, Purdue Healthcare Advisors supplemented Rush Memorial Hospital’s IT security/privacy measures by analyzing the data at rest and in transit; assessing both physical and virtual spaces; reviewing existing policies and procedures; seeking vulnerabilities in system configurations and networks; conducting on-site interviews with select staff members; and creating a customized threat vulnerability assessment and mitigation plan.
“DURING THE ASSESSMENT, WE HAD THE OPPORTUNITY TO SIT DOWN FOR LENGTHY DISCUSSIONS WITH 40 DIFFERENT AGENCIES, SOME OF WHICH WERE NOT AWARE THEY WERE PART OF THE PUBLIC HEALTH SYSTEM HERE. THERE WERE MISCONCEPTIONS ABOUT WHAT MAKES UP A PUBLIC HEALTH SYSTEM, AND IT’S NOT JUST THE PUBLIC HEALTH DEPARTMENT.”

— Barry McClinton, Administrator, Hamilton County Health Department, Noblesville, Ind.

“THE INITIAL INTERACTIONS CREATED A COMMUNITY THAT HAD NOT EXISTED IN MONTGOMERY COUNTY PRIOR TO THE PROJECT. WE BEGAN TO UNDERSTAND THAT WE WERE NOT ALONE IN OUR SINGULAR EFFORT AND THAT WE COULD WORK TOGETHER. WE ALSO BEGAN TO SHARE INFORMATION AND IDEAS. I BELIEVE IN THE LONG RUN THAT MAY HAVE BEEN THE GREATEST VALUE.”

— William Doemel, Professor of Biology at Wabash College, Montgomery County Health System, Crawfordsville, Ind.
MANUFACTURING EXTENSION PARTNERSHIP (MEP)

The Technical Assistance Program/Manufacturing Extension Partnership (MEP) provides high-value solutions to help industry, business and government reach higher levels of performance. Our expertise impacts the continuous improvement processes, human capital, leadership and culture to create lasting positive change in the areas of productivity, growth and technology. From July 2011 to June 2012, Purdue MEP served more than 440 Indiana companies with workforce training and production needs.
Automobiles, electrical devices and other machines have thousands of parts — and thousands of smaller parts. That’s where Small Parts, Inc. of Logansport, Ind., has made its name for more than a half-century, manufacturing 2,500 small parts from eyelets, rings and springs to clamps, washers and brackets.

A 54-year-old manufacturer, however, doesn’t compete on a global scale by sitting still. So Small Parts executives participated in the workshop “Recalibrate your Revenue Engine” that led to an assessment in which Small Parts decided to invest in Solution Selling®.

Rather than just promoting the sale of an existing product, Solution Selling® focuses on the selling of a solution to a customer’s need or problem. By adopting Solution Selling® principles, Small Parts has built on its traditional market dominance with just one automotive company and has closed deals with two other major customers.

Through the Purdue partnership, Small Parts also experienced:

- Tripled market share growth within the transmission component segment.
- 300 percent improvement in closure rate on new business.
- A method for defining unique solutions and linking them to customer problems.

“WE REALIZED OUR TRADITIONAL REACTIVE SELLING EFFORTS WERE NOT ACHIEVING THE REVENUE GROWTH THAT WE DESIRED — EITHER IN QUANTITY OR QUALITY. IF YOU’RE A COMPANY TRYING TO DIFFERENTIATE YOURSELF IN THE MARKETPLACE, I HIGHLY RECOMMEND INVESTIGATING SOLUTION SELLING® OPPORTUNITIES THROUGH PURDUE AND THE MANUFACTURING EXTENSION PARTNERSHIP.”

— Matthew M. Kmetz, Vice President of Sales and Marketing, Small Parts, Inc.
For more than a half-century, Hoosier Spring Co., Inc. in South Bend has made precision springs for major aerospace companies, defense industry contractors and others. To remain competitive and to grow its business worldwide, executives knew Hoosier Spring needed to upgrade its quality management system to the AS9100C Standard.

Enter Purdue. Through the University’s training expertise in risk management, root-cause analysis, internal auditing and Six Sigma, Hoosier Spring implemented product quality and production measures to identify and remove the cause of defects and minimize variability in its manufacturing.

The Results:

- In August 2011, Hoosier Spring passed the audit in remarkable fashion to officially become an AS9100C registered manufacturer.
- The improved method of production from one Six Sigma project will save more than 14 million seconds per year, providing a total annual savings of $313,739.
- Employees are isolating areas of risk and implementing corrective measures that reduce and/or eliminate the risk to streamlined production and reduce the amount of scrap and cost of poor quality (COPQ) numbers.
- The investment and commitment by the management team sent a strong signal to all employees, having a significant positive effect on morale.

“PURDUE IS TAKING THE APPROACH THAT REALLY ALLOWS INDIANA BUSINESSES TO IMPROVE. WE TREAT THE AS9100C CERTIFICATION AS OUR LICENSE TO CONTINUE DOING BUSINESS IN THE AEROSPACE INDUSTRY. THROUGH PURDUE AND ITS EXPERTISE IN RISK MANAGEMENT AND QUALITY IMPROVEMENT, WE ARE BETTER POSITIONED TO COMPETE.”

— Greg Lynch, Quality Assurance Manager, Hoosier Spring Co.
CONNECT TO CAMPUS

TAP opens the door for industries and businesses looking to engage Purdue’s faculty expertise. TAP provides limited no-cost, confidential consulting with Purdue faculty members and graduate students to help companies address a full range of business and technical issues. More than 50 Purdue faculty members from across all 11 of its colleges and schools are affiliated with TAP, working closely on projects aimed at making companies more efficient, effective, productive and profitable. This includes expertise in areas such as advanced manufacturing, business management, human resources, product design and engineering.

High-performance simulation is rarely used by smaller manufacturers because of the high costs and the steep learning curve for most simulation software. However, these barriers were reduced when Jeco Plastic Products reached out to Purdue TAP and connected to Purdue’s ManufacturingHUB.org, a solution provider to the Midwest Project of the National Digital Engineering and Manufacturing Consortium.

This 25-employee firm in Plainfield, Ind., was approached by a major automobile manufacturer wanting to replace the metal pallets they use throughout their worldwide system with a plastic alternative. Plastic pallets are an attractive alternative to steel pallets, which are heavier and prone to rusting.

Jeco engineers got a chance to tap expertise at Purdue University working with professor Thomas Siegmund of the Microstructure Testing and Analysis Laboratory and his graduate student, Srinivas Varanasi, who tested the plastic in their lab and then advised Jeco how to simulate their pallet design using Midwest Project advanced software and high-performance computer resources. As a result, Jeco was able to finalize its pallet design based entirely on simulation, bypassing traditional trial-and-error completely and saving money and months of time.

As part of Phase 1, Jeco made 10 pallets for field testing and shipped them, and they passed the independent certification. Jeco is working on a modification that will increase the size of the order. The full order will be worth up to $5 million per year over multiple years and will significantly increase Jeco employment. Craig Carson, Jeco CEO, said, “All of this we really owe to the collaboration we had with Purdue University and the Midwest Project.”
Private Fleet Backhaul (PFBB) connects Fortune 500 shippers in the transportation business with private fleets all over the United States to transport a variety of products.

The company realized that one way to retain existing customers and attract new ones would be to redesign its website. So PFBB turned to Purdue’s Technical Assistance Program to access the expertise of Connie Justice, IUPUI computer and information technology professor, and her team to change the design, graphics, and utility and create a consistent format.

The new website needed to target audiences that PFBB aims to reach — both private fleet carriers and high-volume shippers.

Rodney French, PFBB general manager, oversaw the three-month-long project while systems administrator Jonathan Reding served as the technical lead, working with Purdue team members Shelly Clark, a computer information technology student at IUPUI, and Rusty Hann. Dana Johnson, public relations coordinator at PFBB, served as a design consultant.

The Results:

■ Revenue up 30 percent from 2011.
■ Amount of loads being transported up 19 percent.
■ Employment has risen to 28.
■ Plans to expand and consolidate operations over the next year.

“PRIVATE FLEET BACKHAUL IS EXTREMELY SKILLED AT ITS CORE BUSINESS OF MATCHING FORTUNE 500 SHIPPERS WITH THE BACKHAUL CAPACITY OF PRIVATE FLEETS. HOWEVER, WEB DESIGN IS NOT ONE OF OUR STRONG SUITS. IT WAS VERY REFRESHING TO HAVE THE KNOWLEDGE AND SUPPORT THAT PURDUE TAP BROUGHT TO THE TABLE.”

— Rodney French, General Manager, Private Fleet Backhaul
In today’s competitive environment, applying sustainable practices and using energy wisely can provide a competitive advantage. The Technical Assistance Program/Energy Efficiency & Sustainability (EES) provides the knowledge and tools to implement effective energy management programs that lead to process improvement and long-term energy saving strategies. Environmentally responsible programs can help companies reduce energy use and improve their bottom lines.
Purdue TAP’s Energy Efficiency & Sustainability department is helping Indiana companies implement cost-effective energy efficiency improvements with the Better Buildings, Better Plants Program (formerly known as Save Energy Now Indiana). Through this U.S. Department of Energy (DOE) Industrial Technology Program grant, companies are raising the bar for all manufacturing facilities and creating American jobs through energy efficiency projects.

This manufacturing-focused energy conservation program assists companies in their efforts to reduce energy costs through a combination of best practices awareness, training and implementation assistance services. EES specialists instruct public workshops, conduct energy audits and work on-site with clients’ energy teams to apply new knowledge, technologies and problem-solving skills.

Program Results from July 1, 2011–June 30, 2012:

- Indiana employees trained = 2,015.
- Electricity Cost Savings = $417,431 per year.
- Natural Gas Cost Savings = $254,203 per year.
- Total Energy Cost Savings = $673,295 per year.
- Emissions Reduction CO2-e = 7,788 tons per year.

EES has also been instrumental in the implementation of energy management systems (EnMS) at several Indiana facilities. EnMSs, including the International Organization for Standards’ ISO 50001 and the Department of Energy’s Superior Energy Performance (SEP) standard, help ensure continual improvement in energy efficiency within manufacturing facilities. Implementation of these programs will help Indiana companies reduce energy-related costs and become even more competitive in the global market.

Advanced manufacturing credential for displaced workers seeking 21st century manufacturing jobs

The Indiana Department of Workforce Development and Purdue University’s Technical Assistance Program teamed up to develop tomorrow’s advanced manufacturing workforce by providing them with the knowledge and tools necessary to drive bottom line results.

The three-day Frontline Green Worker Certificate program educates participants in sustainable manufacturing practices that reduce energy and compliance costs while improving the environment. It also provides graduates with a portable, industry-recognized credential from the Society of Manufacturing Engineers that will make them more valuable to employers. Training was provided at no cost to qualified workers through a U.S. Department of Labor State Energy Sector Partnership grant.

The results:
- In the first four months, 188 participants received their SME Frontline Green Worker Certificate.

W. A. S. T. E.

Participants can now help their future employers eliminate environmental W.A.S.T.E. by assessing the use of Waters, Air, Solids, Toxics, & Energy in their facilities and processes. The elimination of W.A.S.T.E. impacts the bottom line by reducing material, energy and disposal costs, increasing sales, and improving environmental performance.

“EXEMPLARY SOURCE OF SKILLS TO EMPLOY WAYS OF ENGAGING PROSPECTIVE EMPLOYERS AND THEIR COMPANIES IN ENVIRONMENTALLY RESPONSIBLE PROGRAMS.”
— Karen Long, Muncie, Ind.

“I ENJOYED AND GAINED FROM THIS TRAINING. PUTTING A DOLLAR AMOUNT TO IT SEEMS THE MOST EFFECTIVE FOR INDIVIDUALS AND MOSTLY INDUSTRY. THANK YOU FOR THE EXPERIENCE!”
— Ronald Ramsey, Richmond, Ind.

“I THOUGHT THE TRAINING WAS VERY INFORMATIVE AND AN EYE-OPENER.”
— Billy Hanks, Whiting, Ind.

“DEFINING SUSTAINABILITY THROUGHOUT THE CLASS AND CONNECTING IT TO LEAN MANUFACTURING CONCEPTS WILL BE BENEFICIAL WITH COST-SAVING EFFORTS IN THE ENGINEERING AND MANUFACTURING ENVIRONMENTS I WORK IN.”
— John Kemp, Indianapolis, Ind.
In 2011-12, TAP faculty, graduate students and staff worked with more than 507 employers and governmental units in 70 counties across Indiana.

**ECONOMIC IMPACT DATA**

**AUG 2011-JUNE 2012**

- Increased or retained sales: $114.8 million
- Cost savings: $14.9 million
- Capital investment: $32.4 million

**EMPLOYMENT**

- Jobs added/saved: 1,854

**TRAINING**

- Employees trained: 4,509

**DATA FOR BUSINESS AND HEALTHCARE**

**TOTAL: $11,288,761 FROM 227 FUNDING SOURCES**

- **$2,475,000** Service fees from business and healthcare for training and technical assistance
- **$1,889,000** State funding for business assistance
- **$784,000** Indiana Economic Development Corporation funding for manufacturing assistance
- **$300,000** Indiana Office of Energy Development funding for energy efficiency programs
- **$3,105,000** U.S. Health and Human Services funding for electronic health records implementation
- **$873,000** Indiana Department of Workforce Development funding for frontline Green Worker Training
- **$859,000** Indiana Hospital Association funding for Partnership for Patients Initiative
- **$300,000** Indiana University and Dubois STRONG funding for regional advanced manufacturing
- **$309,000** Indiana State Department of Health funding for public health initiatives
- **$394,000** Other