Small Rural Hospital Improvement Grant Program (SHIP)

Annual Report for FY 2004

Prepared For:
U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Rural Health Policy

Prepared By:
Rural Health Resource Center

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EXECUTIVE SUMMARY

The Small Rural Hospital Improvement (SHIP) grant program annual report for FY 2004 is a summary of the use of SHIP grant funds by 1,523 participating hospitals as reported by the 46 participating State Offices of Rural Health and Puerto Rico. The information summarized for FY 2004, considered with the information from the FY 2002-2003 annual report summary, provides an overview of unmet needs and current activities in small rural hospitals (under 50 beds) throughout the nation. The purpose of the SHIP grant program is to help small rural hospitals pay for the costs related to implementation of prospective payment systems (PPS), comply with provisions of the 1996 Health Insurance Portability and Accountability Act (HIPAA) and support quality improvement and reduction of medical errors (QI).

The number of hospitals participating in the FY 2004 SHIP grant program increased to 1,523; ten more than participated in FY 2003. The use of SHIP grant funds for reduction of medical error and quality improvement activities grew to 53 percent from 49 percent in FY 2003. Use of grant funds for HIPAA activities fell to 39.5 percent from 46.5 percent in FY 2003 while the use of funds for PPS activities remained constant at 6 percent.

Overall, hospitals continue to identify information systems, hardware and software as the area of highest need, followed by equipment, training and education. For FY 2004, an inventory of information communication technology (ICT) purchases with SHIP grant funds was conducted. Seventy-two percent of participating hospitals used SHIP grant funds to invest in ICT. Of these hospitals, 71 percent purchased hardware and software infrastructure – information technology that serves as the foundation for business office, security and quality improvement functions.

SHIP funds distributed through networks, systems and consortiums remains relatively low at about 10 percent of total funds. For FY 2004, approximately $1.5 million was allocated in networks, systems and consortiums. Most hospitals pool funds within a system, network or consortium to realize cost savings through group purchasing.

State Offices of Rural Health administer the SHIP grant program in their respective state. States are eligible to charge up to 5 percent in administrative costs. For FY 2004, the average state administrative charge was 3.88 percent, a .03 percent increase over FY 2003. SORH program goals for SHIP continue to shift from an emphasis on distributing the funds in a timely manner to providing technical assistance and building relationships that will lead to development of networks, systems and consortiums. Thirty-one SORH set a goal of providing technical assistance, an increase of 14 from FY 2003.

The SHIP grant program continues to fill many unmet needs of small, rural hospitals through the purchase of technology, equipment, training and education to fulfill the requirements of PPS, complying with the provisions of the HIPAA security rule, or improving quality and reducing medical error through new technology and systems.
INTRODUCTION

CONTENTS OF REPORT
This report summarizes the awarding of grant funds by State Offices of Rural Health, and use of funds by hospitals, for FY 2004, the third year of the Small Rural Hospital Improvement Grant Program (SHIP) with comparisons to FY 2003 and FY 2002.

PROGRAM BACKGROUND
The SHIP Grant Program is authorized by Section 1820 (g) (3) of the Social Security Act. Its primary purpose was to help small rural hospitals pay for costs related to implementation of prospective payment systems (PPS). Funding for this program was first provided by the Labor/HHS Appropriations Act for FY 2002 in which conference report language expanded the purpose of this grant program to also help small rural hospitals (1) comply with provisions of HIPAA and (2) reduce medical errors and support quality improvement.

Individual hospitals do not apply directly to the Health Resources and Services Administration (HRSA) for this grant. Instead, State Offices of Rural Health (SORH) help rural hospitals to participate in the program. Eligible hospitals submit an application to their SORH; the SORH prepares and submits a single grant application (PHS 5161) to HRSA on behalf of all hospital applicants in the state.

ELIGIBILITY
All small rural hospitals located in the US and the Territories, including faith-based hospitals are eligible to apply through their State Office of Rural Health. For the purpose of this program:
1) “small” is defined as 49 available beds or less, as reported on the hospital’s most recently filed Medicare Cost Report,
2) “rural” is defined as located outside a Metropolitan Statistical Area (MSA); or located in a rural census tract of a MSA as determined under the Goldsmith Modification or the Rural Urban Commuting Areas (RUCAs), and
3) “hospital” is defined as a non-Federal, short-term, general acute care facility. Hospitals may be for-profit or not-for-profit. Tribally operated hospitals under Titles I and V of P.L. 93-638 are eligible to the extent that such hospitals meet the above criteria.

In addition, hospitals located in an area designated by any law or regulation of such State as a rural area (or designated by such State as a rural hospital) are eligible for the SHIP grant program. All Critical Access Hospitals are eligible.

APPLICANTS
Forty-six states and 3 hospitals in Puerto Rico participate in the SHIP grant program (Connecticut, Delaware, New Jersey and Rhode Island have no eligible rural hospital). A complete list of participating states is attached as Appendix C.
FUNDING
Approximately $15.0 million was awarded each year for the first three grant years. In FY 2004, each applicant hospital received an average of $9,304. In FY 2003, each applicant hospital received an average of $9,367. And, in FY 2002, each applicant hospital received an average of $9,927.

APPLICATION & AWARD PROCESS
State Offices of Rural Health submit a grant application to the federal government on behalf of eligible hospital applicants in the state. SORH receive federal funds, verify hospital eligibility, make awards to all hospital applicants and ensure appropriate use of funds. Following the end of the grant period, SORH submit a financial status report to the HRSA Grants Management Office and a summary progress report (that includes individual hospital progress reports) to the Office of Rural Health Policy.

METHODOLOGY

DESCRIPTION OF DATABASE
Quantitative and qualitative data for this report were abstracted from FY 2004 and FY 2003 applications from 46 State Offices of Rural Health (SORH), representing approximately 1500 hospitals, and 3 hospitals in Puerto Rico. Data for FY 2002 were obtained from the progress reports submitted by SORH and the hospitals in each state. Observations and program response information were obtained through the grant review process and from ORHP respectively.

ANALYSIS PROCEDURES
The collected data and information were entered into an Excel spreadsheet for analysis. A simple analysis of the numerical [quantitative] data for each year was performed that yielded totals, averages and percentages for participation and the use of funds. The narrative [qualitative] information was coded to enable simple numerical analysis.

Comments and recommendations from grant reviewers were incorporated in this summary. To develop the SHIP consortium case studies (Appendix A), SORH and affiliated network, system or consortium members were interviewed or submitted reports.

LIMITATIONS OF DATA
This annual report for FY 2004 is compiled primarily from the 46 SORH grant applications and progress reports which are, in effect, a summary of 1500 individual hospital applications and progress reports. Data for all three years were obtained from both applications and progress reports; therefore, this report should be considered an overview of the SHIP grant program to date.
RESULTS

HOSPITALS

APPLICANTS

For FY 2004, 1523 hospital applications were submitted and funded from 46 states and Puerto Rico. In FY 2002 and FY 2003 of the grant program, 1450 and 1513 hospital applications were funded respectively. (Figure 1).

![Number of Participating Hospitals](chart.png)

**Figure 1:** Participation by eligible hospitals increased 4.8 percent over three years, from 1450 to 1523.

Use of Grant Funds

Hospitals were asked to describe unmet needs and their use of grant funds in the areas of 1) Prospective Payment System (PPS), 2) Health Insurance Portability and Accountability Act (HIPAA) compliance, and 3) Quality and Performance Improvement (QI). In FY 2004, PPS activities remained similar to prior years at about 6 percent, while the use of funds for QI continued to increase, rising to 53 percent, corresponding to a decline in use for HIPAA to 39.5 percent (Figure 2).

For FY 2003, a definite shift from HIPAA to QI was observed. PPS activities remained constant at 6 percent of the funds, while HIPAA activities dropped to 46 percent, and QI activities rose to 49 percent, a 113 percent increase from FY 2002 (Figure 2).
**Hospital Use of Funds by Category**

![Graph showing hospital use of funds by category]

**Figure 2:** In FY 04, most funds were used for QI. In FY 03, hospitals used their grant funds nearly equally between HIPAA and QI; where, in FY 02, hospitals used most of their grant funds to address HIPAA.

**WHAT DID THE SHIP GRANT FUNDS PAY FOR?**

It is clear from the lists of unmet needs and reported use of SHIP grant funds on the application that these participating small rural hospitals have a high need for technology and information systems. There exist a wide variety of needs from desktop personal computers connected to the Internet to wireless networks with computerized order entry and electronic medical record.

For FY 2004, information systems, hardware and software were identified as areas of highest need; followed by equipment, training and education. The most frequently cited expenditures for the PPS category were billing and coding software and charge master review. In the category of HIPAA compliance, many hospitals used their funds for security software and for workspace modifications to increase privacy and security. Reduction of medication errors is an identified component of the QI category. As such, a majority of hospitals invested SHIP funds in pharmacy equipment such as bar code technology, automated medication dispensing machines, computerized order entry and pharmacy management software.

To better understand the current status of information communication technology (ICT) use in small rural hospitals, an inventory of FY 2004 projected use of SHIP grant funds for ICT was compiled (addendum). Of the 1,523 participating SHIP hospitals, 1,095 or 72 percent used some or all of their grant funds to invest in information communications technology (figure 3).
FY 2004 Hospital Use of SHIP Funds

Figure 3: 72 percent of participating hospitals use SHIP grant funds for ICT purposes.

Seventy percent (771) of these hospitals (1095) used SHIP grant funds to secure new or upgrade hardware and software infrastructure – information technology that serves as the foundation for business office, security and quality improvement functions. Twelve percent (127) of the hospitals expended funds on hardware or software related to business office functioning such as coding, billing or accounting software. Forty percent (436) identified their ICT purchases as specific to compliance with the HIPAA security rule. And fifty-eight percent (634) invested in ICT for quality improvement activities.

Consistent with identified needs for FY 2004, in FY 2003 and FY 2002, computer hardware and software were identified as the number one need while consultation, training, and policies and procedures were very high on the list of identified needs. Along with the shift in emphasis from HIPAA to QI in FY 2003, a need for equipment arose as an area of need. Some hospitals planned to purchase medication dispensing equipment, locking medication carts and other pharmacy equipment to reduce medication errors. Additionally, some hospitals identified the need to perform minor renovations in their nursing stations, emergency rooms or pharmacies to increase patient privacy and security. The addition of equipment as an identified need encompassed a wide range. Some hospitals planned to use their SHIP funds to purchase locking medicine cabinets for their emergency rooms. Others were planning to purchase handheld computers and other components of computerized order entry systems.
Hospital Network, System and Consortium Development

One of the primary goals of the SHIP grant program is to encourage hospitals to pool their grant funds in order to increase their purchasing power. It was expected that most of these grant funds would be used to purchase technical assistance, services, training and information technology. To help maximize purchasing power through economies of scale, eligible hospital grantees not already in an existing system or network were strongly encouraged to organize themselves into consortiums and pool their grant funds for the purchase of these services.

For each of the first two years, FY 2002 and FY 2003, about 25 percent of the participating hospitals either identified participation in a network, system or consortium or pooled their SHIP funds to leverage access to programs, services, consultants, and equipment. Most hospitals that pooled funds did so through existing networks or systems. Very few new networks or consortiums were formed solely for the purposes of maximizing SHIP grant expenditures.

In FY 2004, the grant application guidance was revised in an attempt to learn more about networks, systems, and consortiums. SORH were asked to list separately how many hospitals were in existing networks and how many were in SHIP consortiums. This resulted in identification of nearly 42 percent of the participating hospitals as part of a network, system or consortium – 34 percent participate in an existing network and over 7 percent participate in SHIP consortiums.

Overall, SHIP funds invested in networks, systems or consortiums remains relatively low at about 10 percent of total funds. In FY 2004, approximately $1.5 million (of the total $15 million grant program) was invested in networks, systems and consortiums. This is an increase of approximately $440,000 over FY 2002 (Figure 4). The case summaries in Appendix A illustrate a variety of approaches taken by states to pool grant funds for greater impact. These summaries provide examples of successful consortiums but do not represent a complete list of possible approaches that states can promote.
SHIP Funds Allocated to Networks, Systems or Consortiums

$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$

FY 2002
FY 2003
FY 2004

$1,039,290
$1,358,111
$1,476,052

Figure 4: SHIP grant funds allocated to networks, systems and consortiums has increased slightly from FY 2002 to FY 2004; growing from 7 percent to 10 percent of total investment.

Resource Sharing or Pooling

Of those hospitals that pooled funds, nearly two-thirds (63 percent) did so to realize cost savings through group purchasing. About one-fifth (20 percent) of the hospitals that pooled funds cited collaboration or sharing a knowledge pool as the reason. Achieving administrative efficiencies was cited as a reason for pooling by 23 percent of the hospitals. Three percent of the hospitals pooled funds because they were part of an existing network that offered programs or services that the hospital could “buy into” with their SHIP funds.

Individual hospital needs or plans pre-empted pooling of funds for 89 percent of the hospitals, 23 percent cited geographic isolation as a reason not to pool funds and 14 percent worked with their own affiliations (such as their network hospital or management company) rather than pooling resources for the purposes of the SHIP grant.

* Totals more than 100 percent because some SORH reported more than one reason

State Offices of Rural Health

Each State’s Office of Rural Health (SORH) has agreed to help the Health Resources and Services Administration (HRSA), Office of Rural Health Policy (ORHP) administer the SHIP grant program. SORH responsibilities are to: 1) verify hospital eligibility, 2) help eligible hospitals apply, 3) review and summarize hospital applications and progress reports, 4) submit a consolidated grant application to the federal government on behalf of hospital applicants in the state, 5) manage grant funds, 6) make awards to eligible hospital applicants, and 7) ensure appropriate use of funds.
SORH are authorized to charge up to 5 percent of the total state grant award to cover administrative costs. On average, SORH used 3 percent of the total grant award for administrative costs during the first year and nearly 4 percent for each of the second and third years (Figure 5). Some SORH do not charge any fee for administering the program; for FY 2004, 12 of the 46 states administered the program at no cost, forwarding all of the grant funds directly to hospitals or networks.

![Average State Administrative Charge](image)

**Figure 5:** Although authorized to charge up to 5 percent administrative costs to administer the SHIP grant program, SORH consistently charge below 4 percent.

**Program Goals – State Offices of Rural Health**

SORH stated a variety of program goals for each of the years that are broadly categorized in Figure 6. A shift was observed from FY 2002 to FY 2004 toward providing more technical assistance and building relationships for the purpose of developing QI or group purchasing consortiums.

By FY 2004, SORH were less focused on how to distribute funds and more on how to improve distribution and award funds to hospitals in a timely and efficient manner.
Figure 6: General categories of SORH program goals reported for the three-year period. A shift is observed toward providing technical assistance to hospitals and to building relationships.

SORH RECOMMENDATIONS TO IMPROVE THE SHIP GRANT PROGRAM

Nearly all SORH expressed gratitude for the SHIP grant program and recommended its continued funding. SORH and hospitals offered a variety of recommendations for the Office of Rural Health Policy (ORHP) to improve upon the SHIP program. The most common recommendation each year was for ORHP to provide technical assistance and examples of acceptable activities for each of the areas – PPS, HIPAA and QI – and provide additional information to assist in network, system and consortium development.

Many SORH suggested that elimination of duplicate questions on the application form and the progress report would lead to less confusion for hospitals. Many SORH also recommended that the application process be separate from the progress report. Both of these suggestions have been implemented for the FY 2005 grant process.

PROGRAM OBSERVATIONS & ORHP RESPONSE

It is clear from both the progress reports and grant applications that states and hospitals appreciate the SHIP grant program as a valuable resource for improving the quality of patient care and complying with federal regulations. In the spirit of performance improvement, and in the interest of delivering more value to states and hospitals with these grant funds, the following recommendations were made following the FY 2003 grant reviews. The “Program Response” describes the status of the recommendation for FY 2004 by ORHP.
1. **Observation: Technical Assistance**
   The most common recommendation for program improvement was to offer a Web-based platform for sharing activities, suggestions and a description of scope in each of the areas; PPS, HIPAA and QI. Within that Internet-based resource, it would be useful to include bulletin board or some method for SORH to share resources for equipment, training and consultation. Resources such as evaluations, goals and objectives and survey instruments could be included in a technical assistance site.

   **Program Response**
   ORHP has initiated a contract to provide Web-based technical assistance for SORH and participating hospitals. The SHIP Web site is under construction and should be completed before the end of 2005. It is available at [http://ruralhealth.hrsa.gov/ship.htm](http://ruralhealth.hrsa.gov/ship.htm).

2. **Observation: Application and Reporting**
   Overwhelmingly, SORH expressed appreciation for the simple application and reporting process. SORH comments about this process were generally positive. While SORH were complimentary about the application and reporting process, many requested that ORHP extend the timeline from notification of availability of the SHIP grant to the application deadline.

   **Program Response**
   For FY 2005, the application form was streamlined and the grant guidance revised to clarify several of the areas in question. In addition, progress reports are no longer required as part of the application process. Progress reports are now due within 90 days of the end of the grant period.

3. **Observation: Networks, Systems and Consortiums**
   The SHIP grant program could provide additional value to SORH, hospitals and ultimately to patient care by encouraging SORH to conduct long-term planning to address rural hospital issues. If possible, incentives should be created for SORH to link the SHIP program with the Flex program and existing networks, to encourage the SORH and the State Hospital Association to collaborate or cooperate around rural hospital issues, and for hospitals to network with each other.

   **Program Response**
   As part of the technical assistance function for the Web site, consortium, network and system case summaries are featured. SORH are encouraged to communicate with other SORH that have realized success with these initiatives.

**Appendices**

Appendix A: State Case Summaries  
Appendix B: List of Number of Hospitals by State & Award  
Appendix C: Map of Hospitals by State  
Addendum: Hospital ICT Inventory
The Pennsylvania Office Rural Health (PORH) recognized the power of collaboration for its small rural hospitals within the SHIP category of reducing medical errors and quality improvement. Encouraged by its network of Critical Access Hospitals and their participation in a Balanced Scorecard data collection project, the PORH facilitated the development of Pennsylvania's Safe Medication Practice Quality Initiatives Collaborative.

Through a contract with the Institute for Safe Medication Practices (ISMP), the PORH is working with 10 participating hospitals to standardize data collection and safe medication practices to reduce the system-based causes of medication errors. SHIP funds are used to subscribe to the ISMP collaborative; ISMP collects and aggregates data and works with the collaborative to improve safe medication practices in each participating hospital.

This 15-month project consists of three phases: 1) development of the collaborative and assessment of current practice, 2) defining outcome measures/quality monitoring indicators for the collaborative and recommendations for standardizing and improving error reporting, and 3) ongoing support and education for hospital and collaborative data collection and reporting.

Inspired to achieve the goal of the safest and highest quality hospitals in the country by delivering the right care to the right patient every time, SHIP hospitals in Vermont utilized their funds to support their involvement in two new statewide health care quality initiatives: the Institute for Healthcare Improvement (IHI) - IMPACT Change Model created a proactive system of care to improve quality and patient safety; and the Vermont Blueprint for Health-Chronic Care, a public/private partnership that includes state agencies, health care providers, payers, consumers and other stakeholders.

IMPACT is a national membership network composed of organizations and individuals committed to building a better future for health care. Close to 200 hospitals from around the country are participating. Vermont is the first and only state in the nation in which all hospitals participate in the IMPACT program. Through IHI, SHIP hospitals in Vermont receive practical and proven strategies to improve care in their selected topic areas which include reducing adverse drug events, reducing surgical site infections, improving access to primary care and spreading improvements in chronic care. SHIP grant funds have specifically supported small hospital efforts to select appropriate measures and goals, collect data, and test changes.

The Vermont Blueprint for Health-Chronic Care is a statewide collaborative initiative to implement the Planned Care Model (formerly known as the chronic care model) in primary care physician practices across Vermont. The Planned Care Model is a best
practice model for collaborative care and quality improvement that seeks to accomplish the following objectives: 1) self management for chronic disease patients, 2) an increase in evidence-based practice by health care providers, 3) assistance to communities that support healthy lifestyles, 4) development of a chronic care registry and information system, and 5) sustainability of a health care system that recognizes and invests in quality. The Vermont collaborative is focused on common quality goals and provides a model to improve the health of people with chronic conditions and the health care they receive.

The Vermont Office of Rural Health and the Vermont Association of Hospitals and Health Systems, with the support of SHIP program resources, have provided significant funding to enable hospital participation in these complementary state-wide initiatives that have resulted in common quality goals, models, measures and comparative data to improve health and health care for residents of Vermont.

Wisconsin

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kartheiser@wisc.edu

The Wisconsin Office of Rural Health, located in the University of Wisconsin Medical School, administers the SHIP grant program in Wisconsin. In FY 2004, fifty hospitals applied for SHIP grant funds; thirty individual hospitals and the Rural Wisconsin Health Cooperative (on behalf of 20 hospitals) requested funds.

The Rural Wisconsin Health Cooperative (RWHC) was developed in 1979 by a small group of hospital administrators to share physical therapy services. Since then, the RWHC programs have expanded to include a wide range of clinical, management, consulting, networking and educational services. Modeled after successful Wisconsin dairy cooperatives, its 29 members are exclusively from rural hospitals, each hospital represented by its CEO on the board.

In 2001, the RWHC Board identified the need to collaborate in the area of information technology (IT). RWHC focused on the development of a Wide Area Network (WAN) with robust T1 connections through which its members could access shared data services. In 2002, when SHIP grant funds became available, the State Office of Rural Health partnered with RWHC to encourage small rural hospitals to expend their SHIP funds to enhance their IT infrastructure through the RWHC WAN.

Eighteen SHIP hospitals participate in the RWHC WAN. For 2004, SHIP grant funds were used to offset the costs of a T1 line as well as the benchmarking and QI databases hosted at the RWHC Data Center. RWHC receives SHIP grant funds for each of the participating hospitals which are then applied toward each hospital’s monthly connectivity/subscription fees. Participating hospitals can also request the balance of their SHIP funds for individual projects at any time.
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ADDENDUM
HOSPITAL INFORMATION COMMUNICATIONS TECHNOLOGY (ICT) INVENTORY

This addendum to the SHIP Grant Program Annual Report for FY 2004 is an inventory of 2004 projected use of funds for information communications technology (ICT) and was compiled as a means to begin to understand the current status of ICT use in small rural hospitals.

DATA AND METHODS
Data was abstracted from the 1523 completed hospital grant application forms that asked for “unmet needs” and “use of funds” in the three SHIP categories of PPS, HIPAA and QI. These questions were open-ended and did not ask specifically whether funds would be used to purchase ICT. The information that hospitals offered was categorized by technology use and further summarized to provide an overview of ICT purchases with SHIP grant funds. Hospitals fund multiple projects with SHIP grant funds; therefore, some of the data included in this overview is duplicative.

**FY 2004 Hospital Use of SHIP Funds**

![Pie chart showing 72% ICT and 28% Other](image)

**Figure 7:** Of the 1,523 participating SHIP hospitals, 1,095 or 72 percent used some or all of their grant funds to invest in information communications technology.

The following categories were defined for data abstraction from hospital applications:
- ICT infrastructure (hardware, software, licensing, communications)
- Business office (coding, billing, accounting applications)
- Ancillary services (lab and radiology only)
- Health Information Management (physician and/or nurse order entry, electronic health records, clinical notes, storage and archiving of records)
- Quality improvement (clinical QI initiative applications)
- Pharmacy information technology
- Telehealth
- Online education
- Data benchmarking

For the purposes of the FY 2004 annual report, data was collapsed into the following categories:

- ICT infrastructure
- Quality improvement applications (ancillary services, health information management, clinical QI, pharmacy, telehealth, online education and data benchmarking)
- Business office applications

**FY 2004 ICT Expenditures for HIPAA Security Compliance**

![Pie chart showing 40% Security Compliance and 60% All Other ICT]

**Figure 8:** In a separate count of ICT purchases in all categories listed above, forty percent (436 hospitals) identified their investments as specific to compliance with the HIPAA security rule.
RESULTS

INFRASTRUCTURE
Seventy percent, or 771, of these hospitals used SHIP grant funds to purchase or upgrade hardware and software infrastructure – information technology that serves as the foundation for business office, security and quality improvement functions.

Examples of computer infrastructure purchases include:
- Upgrading to desktop computers from un-secure dummy terminals
- Upgrading operating systems to a version that would support current privacy and security need
- Purchasing a new server with firewalls and encryption capabilities
- Additional PCs, laptops and printers to increase staff and provider access to data

Examples of communications technology infrastructure purchases include:
- T1 lines and high speed Internet access, wireless networking
- Digital dictation and transcription equipment
- New electronic (some biometric) identification systems for patients and staff

BUSINESS OFFICE
Twelve percent (127) of the ICT hospitals expended funds for hardware or software related to business office functioning such as coding, billing or accounting software.

FY 2004 Business Office ICT Expenditures

Figure 9: 12 percent of hospitals acquired ICT for accounting, billing and coding purposes
QUALITY IMPROVEMENT
Fifty-eight percent (633) of hospitals purchased technology and applications for use in the category of quality improvement and reduction of medical errors.

QI encompasses the following categories:
- Pharmacy IT
- Clinical quality improvement
- Health information management (order entry, chart notes, records archiving)
- Benchmarking databases
- Online education for staff and patients
- Ancillary services (radiology and laboratory)
- Telehealth

**FY 2004 QI ICT Expenditures**

![Bar chart showing expenditure distribution](chart)

**Figure 10:** 633 hospitals allocated SHIP funds for Quality Improvement ICT initiatives; primarily for pharmacy and clinical quality applications

PHARMACY INFORMATION TECHNOLOGY
Forty-one percent (258) of QI investments were in pharmacy information technology. Examples include:
- Medication dispensing systems
- Bar coding and hand-held scanning devices
- Automated medication administration records (MAR) and pharmacy labeling systems
- Remote pharmacist access
- Medication error databases
- Medication verification systems
- PDAs and software for prescribing and drug reference
- Pharmacy computer hardware and software systems
- Modules to link pharmacy with hospital information systems

### Pharmacy-Related ICT Expenditures

![Pie chart showing Pharmacy ICT and All Other QI expenditures](chart)

**Figure 11:** 41 percent of the hospitals using SHIP funds for QI-related ICT allocated those funds for pharmacy related applications.

**Clinical Quality Improvement**

Software and hardware purchases for clinical quality improvement activities comprised 15 percent (167) of ICT purchases. Of these, only one hospital used SHIP funds to purchase decision support software.

Examples of clinical quality improvement ICT purchases include:
- Software for tracking and reporting data associated with utilization review, quality assurance, performance improvement, quality improvement, risk management, infection control and chart auditing.
- Statistical software for occurrence and performance reporting; root cause, process verification, performance patterns, and trend analysis.
- Software and connectivity for compliance and accreditation
- Physician profiling and credentialing software

**Health Information Management (HIM)**

Eighty-nine, or 8 percent of hospitals purchased hardware and software for management for health information. These applications range from a full electronic health record (EHR) to point-of-care order entry to equipment for...
digital storage of patient records. Many of the hospitals purchased self-contained systems for the Emergency Department that include charting, tracking, prescribing, discharge instructions, reporting and coding capabilities.

Some examples of these applications include:
- Physician and nurse order entry
- Electronic Health Record implementation
- Computerized medical record tracking systems, including bar code systems
- Bedside charting systems, wireless mobile computer consoles or carts, laptops for home health care chart notes
- Voice recognition software for dictation
- Remote access to patient information
- Archiving and digitizing patient records for storage

**BENCHMARKING DATA**
For the purposes of quality improvement, it is notable that four percent (47) of the ICT hospitals invested their SHIP funds to participate or subscribe to existing network, state, regional or national benchmarking databases.

**ONLINE EDUCATION**
Thirty-one hospitals (three percent) used a portion of their SHIP grant funds to set up or purchase modules for local or distance employee and patient education in the areas of quality improvement, HIPAA compliance and coding or billing updates.

**ANCILLARY SERVICES**
Three percent (28 hospitals) invested SHIP grant funds in computerized lab or radiology information systems. In addition to the improved reporting and recording of patient results enabled by these systems, digitized imaging was cited as necessary for access to radiologists.

**TELEHEALTH**
Thirteen hospitals (1.2 percent) reported using SHIP grant funds for telehealth. Eleven of the thirteen hospitals invested in tele-radiology applications.