DEPARTMENT OF HEALTH & HUMAN SERVICES **Indian Health Service**

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SUBJ: RIW - Information Technology Vision and Actions

I. Information Technology Vision for 2007

Information technology will provide universally accessible decision support information, which will positively impact the management and delivery of health care. Through the use of information technology, responsive support for the effective delivery of health services and streamlining of essential administrative services at IHS, tribal, and urban healthcare facilities will be provided. The information systems must be available, accessible, useful, cost effective, and user friendly for users at all levels, and these systems must continue to provide standardized aggregate data that support advocacy for Indian health programs at the national level.

II. Information Technology Goals

The Information Systems Advisory Committee (ISAC) - a 17-member IHS, tribal and urban committee - developed the following prioritized goals that will support the near-term realization of this vision. Each of the goals are linked to one or more of the IHS strategic objectives.

Goal 1. Graphical User Interface (GUI)/Computer-based Patient Record (CPR) - Institute a Graphical User Interface for the Resource and Patient Management System (RPMS). Also institute a state-of-the-art Computerized Patient Record (CPR) with the ability to manage clinical alerts/pathways and that contains data integrated from the various facilities a patient has visited.

Goal 2. REVENUE GENERATION/COST AVOIDANCE - Provide an effective billing/general ledger system that is integrated into the Indian Health Service's (IHS) Health Information System.

Goal 3. DATA QUALITY/ACCURACY - Ensure accurate and high quality public health and administrative data for all I/T/Us.

Goal 4. CONVERSION OF THE OPERATING ENVIRONMENT - Support the conversion from the current operating environment to Cache, a widely used database for health care, from Intersystems Corporation. This would enable continued support and development, and a clear growth path for GUI based applications.

Goal 5. DECISION SUPPORT SYSTEM - Provide universally accessible decision support information that positively impacts the management and delivery of health care. This includes the Executive Information System Support (EISS) software application.

Goal 6. INFRASTRUCTURE/ARCHITECTURE - Maintain enterprise architecture to facilitate the improvement and growth of I/T/U information processing platforms and their interconnectivity, using standardized systems and processes.

Goal 7. SECURITY - Design and provide methods and standards to assure the security and privacy of all patient related data that will meet or exceed HIPAA and other government security requirements.

Goal 8. INTEROPERABILITY - Institute an open standards based information system for the I/T/Us to facilitate the interoperability with commercial systems.

Goal 9. COST ACCOUNTING - Provide a quality cost accounting system that is integrated into the IHS Health Information System.

Goal 10. TRAINING - Provide effective information technology and data management training at all levels.

Goal 11. IT RESEARCH AND DEVELOPMENT - Facilitate activities to look beyond current IT infrastructure, and explore new methods of connecting providers and managers with needed information

Goal 12. TELEMEDICINE COORDINATION - Provide a clearing-house and coordination point for evolving telemedicine experience in the IHS. Facilitate activities to determine central points of repository for digital image files.

Goal 13. STAFFING (AT ALL LEVELS) - Promote adequate staffing standards at all levels to support the information technology support functions.

Goal 14. TECH SUPPORT (HELP DESK) - Provide effective technical support for the current Health Information System.

III. Information Technology Strategy

The IHS is well positioned to take advantage of new technology and application developments in both the government and commercial sectors. Improving the ability to exchange data between RPMS and commercial-off-the-shelf (COTS) solutions is one of the primary strategies to achieve effective interoperability. Currently, our hardware, telecommunications, data center and RPMS are used to exchange data with COTS and government applications through custom and industry standard interfaces.

Future technology characteristics will include increased interoperability as well as the following characteristics:

- RPMS will integrate IHS-developed, VHA-developed, and COTS solutions, all communicating with each other and achieving full interoperability via common industry standards and technologies.
- RPMS will have a fully optimized billing capability and will have introduced a computer-based patient record (CPR) system for point-of-care entry by providers.
- RPMS will be fully HIPAA compliant, including such features that all e-Health will be conducted over secure networks using a Public Key Infrastructure and standards-based messages for claims submission.
- RPMS distributed applications will communicate with each other using common technologies and standards.
- State-of-the-art hardware and telecommunications technologies will be employed to provide required bandwidth.
- Increased use of standardized architectures will be used to handle increased workloads.
- Secure wireless communications will be employed to provide better point-of-care access, using hand-held entry and display devices to increase data access while increasing provider mobility.

The IHS has growing needs to continue to develop and improve existing health information systems. Introducing and using new technologies and standards will allow RPMS to respond faster to future business drivers and achieve IT goals. Projects that are presently being undertaken include electronic data interchange and code sets required by the HIPAA regulations; development and deployment of provider order-entry to promote patient safety; Point-of-Sale pharmacy billing to improve collections and decrease time to billing; and improved generic interface systems (GIS) to allow data exchange with the Centers for Medicare and Medicaid Services (CMS) and the States (for immunization registries); enhanced electronic billing capabilities; and standardizing technical architectures.

In order to realize the IT Vision through FY2007, the strategic actions in the following areas must occur:

A. Telecommunications Infrastructure - The capacity and security of the telecommunications network must be enhanced to meet the dramatic increase in system demands.

The IHS telecommunications infrastructure connects IHS, tribal, and urban (I/T/U) facilities to each other and to the national data repository. This infrastructure is used for data transmission, voice traffic, and Intranet/Internet access. Further increases in capacity will be required to support data transmission as well as new telehealth applications. The HHS 5-Year IT Plan includes an initiative to modernize telecommunications networks across the Department. This larger effort will be beneficial in increasing capacity and extending services to I/T/U locations across the nation.

Action: IHS needs to improve security and manage the telecommunications infrastructure through:

- Full participation in the HHS Department-wide Network Modernization effort.
- Full deployment of a national Virtual Private Network to provide IHS business partners and employees with high-bandwidth and a secure method for remotely accessing IHS network resources.
- Deployment of regional firewalls to improve network security.
- Full implementation of the national antivirus gateway to prevent email borne computer viruses.

- Full installation of enterprise management tools to improve management of the network.
- Implement a robust voice traffic reporting system to accurately estimate costs and detect misuse.

Est. Cost*: $ 3.8 million (this does not include usage costs)

B. *Business Systems – Systems to streamline the business process and improve revenue generation must be enhanced.*

The RPMS financial and administrative applications include software that automates financial, billing, and equipment inventory/repair processes. These applications support third party revenue generation, national equipment inventory reporting, planning programs, and provide information in the development of the IHS budget. Other applications support daily business processes across the enterprise.

Action: IHS will achieve sound business practices through:

- Integrated materiel, financial and human resource systems
- Improved RPMS interfaces with commercial and government applications
- Development of enhanced billing and accounts receivable systems
- Development of critical cost reporting systems
- Development of work efficiencies reporting and benchmarking comparisons systems

Est. Cost*: $ 24.8 million

C. *Security – A continuously secure and reliable IT systems environment is vital to supporting our mission.*

The explosive growth of worldwide Internet connectivity, with its accompanying increases in threats, risks, and security events, has made information security and the protection of critical systems a top priority for government and private agencies.

The IHS is responsible for securing information that it collects, records, transmits, and uses in the performance of its mission. Since this information includes agency sensitive information, such as personnel and financial records, as well as individually identifiable health information, it is necessary to establish the conditions and rules under which the IHS electronic systems and networks will operate to ensure the confidentiality, integrity, and availability of the information. This is especially critical in the healthcare environment, where healthcare personnel must balance the requirement for patient privacy along with the requirement to provide sufficient data to healthcare professionals and Government agencies in support of their missions and responsibilities to improve health care in the United States. The basic philosophy behind the IHS Security Architecture is to secure components and secure the data communications. Critical to this success is the security awareness training needed to address the human component of security.

Action: The IHS security infrastructure must be strengthened to protect information systems, data, and information so that the people using the systems can depend on the electronic environment to be reliable, available, accurate, and authorized. This will support achieving compliance with the Government Information Security Reform Act (GISRA), the Health Insurance Portability and Accountability Act

(HIPAA), and other statutory requirements. These actions include, but are not limited to, developing/implementing:

- Establish and implement methods to measure reliability and statistically monitor and track performance.
- Acquire enterprise licenses and implement multi-tier (i.e., gateway, e-mail server, and desktop) computer virus protection program.
- Implement IHS-wide 24/7 monitoring and alerting system to identify security breaches (intrusion attempts, probing, scanning, denial of service attacks, etc) and service disruptions with immediate alerts to incident response team personnel.
- Establish IHS-wide incident notification and response capability to restore critical services or mitigate risk or damage.
- Conduct independent enterprise-level IT infrastructure and risk assessment for IHS.
- Conduct vulnerability assessments for mission-critical systems across the IHS.
- Establish corrective action plans addressing results from all assessments and tests and track to completion.
- Establish robust perimeter protections for all Internet access points into the IHS network.
- Increase the training, education, and certification of IT security staff supporting security activities.
- Technical security features - this includes change to RPMS roles and keys to allow only authorized staff to review patient records. For example, this could include allowing providers to only see records of patients they are treating.
- Implementing systems to insure continuity of IT operations and disaster recovery.

Est. Cost*: $ 9.0 million

D. *Support – Responsive technical and user support is essential to make IT systems effective.*

Action: IHS will develop support systems to:

- Provide needed hands-on and computer-based training on technical applications and equipment.
- Provide consultative services that are responsive to changing tribal and IHS customer needs.
- Provide 24/7 user support/help desk services.
- Provide on-site technical support as needed.

Est. Cost*: $ 6.18 million

E. ***Collaboration and Partnership – Common goals can be more effectively achieved through the collaborative efforts of partners by leveraging resources.***

IHS participates in health information technology sharing activities with the Department of Veterans Affairs (DVA), Department of Health and Human Services (DHHS), Department of Defense (DoD), Centers for Medicare and Medicaid Services (CMS), State agencies and partners with private commercial firms. These collaborative activities would support IHS' architectural direction and specific near-term strategies. By identifying common goals, IHS resources can matched or multiplied to greatly increase the return on IT investment.

Action: Due to limited staff and funding, the IHS should seek to leverage the efforts of the participating organizations to accelerate technology development and implementation by focusing on:

- Establishing the technical infrastructure required to facilitate sharing.
- Utilize existing nationally recognized healthcare standards.
- Work with DVA to align RPMS to their software architecture and obtain new software applications that can be incorporated into RPMS.
- Through cooperative agreements (MOUs and MOAs) work with federal parties to leverage training and development opportunities.

Est. Cost*: $5.6 million

F. ***Consolidation – Key IT services and resources must be consolidated to more effectively meet individual needs while eliminating unnecessary duplication.***

Action: In order to improve efficiency, maximize the use of limited IT support staff, and conserve financial resources, the IHS should consolidate equipment and support locations. This will help to eliminate duplication of functions between Areas, inefficient utilization of existing resources, differing levels of access to IT resources between and within Areas, promote a better return on IT investments. Additionally, in order to achieve economies of scale, the IHS should standardize on specific technologies, manufacturers, and software. Specific actions include:

- Where applicable consolidate the RPMS, email, File Transfer Protocol, and other servers to maximize support, uptime, and cost savings.
- Establishing one standard for office automation tools (word processing, spreadsheets, etc.)
- Consolidate contract vehicles where possible to obtain centralized management and quantity discounts.

Est. Cost*: $0 (Costs will be offset by equipment/staff savings)

G. ***Patient Care and Patient Safety – Information technology is essential to support public health services and promote patient safety.***

Action: A Computer-based Patient Record (CPR) initiative is needed to ensure that providers have access to an individual patient's health related information as well as have the ability to access and update this information. The system must include a Provider Order Entry component with feedback to the provider from decision support tools/systems. In addition, within the IHS health care system, it is critical that this system meets ongoing population based health needs, as well as administrative and business office needs.

Est. Cost*: $ 8.2 million

IV. **Possible Funding Mechanism(s)**

Significant discussion has occurred at the IHS national level and with the ISAC about the issue of funding information technology projects. Often, investments (funding for enhancements) are done at the national level while returns on those investments go directly to the service level. Since most IT projects are not fully funded, any costs avoided, economies gained, or returns gained on investment could be applied to offsetting funding deficiencies. Some potential sources of new funding include:

a) New budget initiatives to add new funding for IT through the formal budget process

b) Leverage funds through cost sharing with other agencies or tribes

c) Discretionary funds available at the end of the fiscal year

d) User fees assessed for new services in proportion to usage levels

e) Accessing third party billing revenue from users based on transactions or collections

f) Redirecting discretionary funds in existing appropriation to priority IT projects

* Estimated Costs are funds needed above current appropriation levels