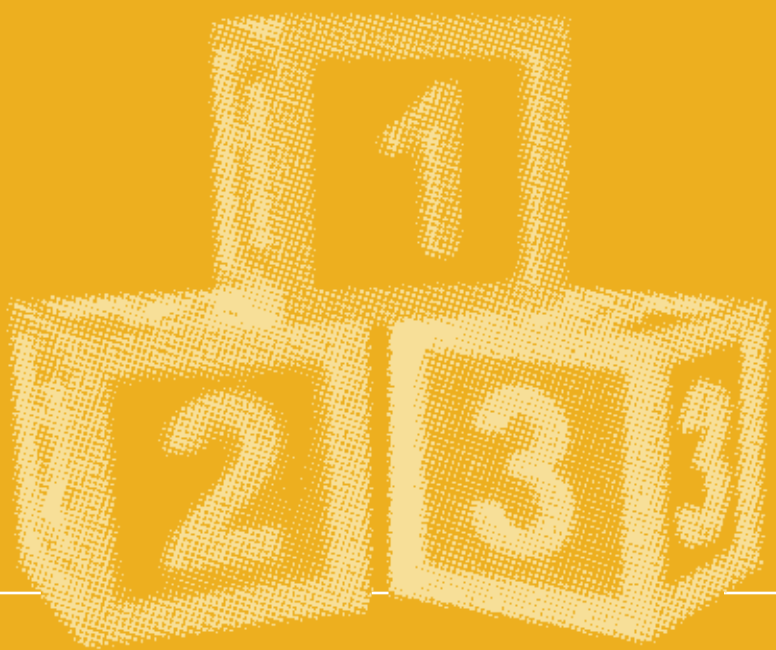
The Colorado Health Foundation™

REPORT

Connecting Colorado's HIT Building Blocks:

Recommendations for Advancing Colorado's Health Information Network Using Federal Stimulus Funds

June 2009



HealthCare

Executive Summary

The Health Information Technology for Economic and Clinical Health Act (HITECH), which was recently enacted as part of the American Recovery and Reinvestment Act, authorizes approximately $48.8 billion in gross federal outlays for health information technology (HIT).

Colorado's health care providers have long recognized the transformative potential of HIT and have begun adopting electronic health records (EHRs) and building the infrastructure necessary to share patient health information, with the goal of creating a statewide health information network. After providing an overview of the status of HIT and health information exchange (HIE) in Colorado today, this brief analyzes HITECH and offers the following ten recommendations, which are intended to help Colorado build on its efforts to date and capitalize on the availability of federal funding through HITECH:

1. To ensure the state's HIT initiatives and policies are coordinated across the State and available funds are spent in the most efficient and effective manner, Colorado should designate a senior-level government official with responsibility for overseeing all State HIT funding and initiatives across all agencies.
2. Colorado should fast-track development of the "State Plan" for HIE that states are required to submit to the federal government in order to qualify for HITECH implementation funding. In doing so, Colorado should leverage the business plan developed by the Colorado Regional Health Information Organization (CORHIO) and create a more detailed blueprint from which to build a statewide health information network. The target completion date for development of the State Plan should be September 30, 2009.
3. Colorado should build off the existing infrastructure established by CORHIO and develop a broader, more formalized statewide collaboration process (SCP) through which the State's Plan for HIE, including common policies, clinical goals, technical requirements, and architectural standards for Colorado's statewide health information network, will be developed.
4. CORHIO should work with the State to determine how much funding is necessary to develop the State Plan required under HITECH, and to develop a plan to secure such funding on an expedited basis, whether from the State, through private sources, or both.
5. Given how important the federal regulatory process will be in the implementation of HITECH, Colorado should provide the federal government with feedback and advice on relevant issues.
6. Colorado should develop a consortium, led by CORHIO and consisting of organizations across Colorado with experience in promoting effective EHR adoption and use, to apply for funding under HITECH as a regional extension center, which would provide technical and change management assistance to health care providers struggling with implementing and adopting EHR technology.
7. Colorado should engage in a systematic assessment of the State's HIT workforce funding needs to determine how to leverage HITECH's two workforce training grant programs, which may be utilized to support everything from undergraduate, graduate and post-doctoral level training in medical informatics to training for physicians and allied health professionals in the everyday use of EHRs.

8. In partnership with the Colorado Office of Information Technology and CORHIO, the Colorado Telehealth Network should determine how best to complement existing broadband and telehealth efforts with the aim to establish a sustainable network and apply for Broadband Technology Opportunities Program and Distance Learning, Telemedicine, and Broadband Program funding made available through HITECH.
9. To facilitate a Western states regional approach to HIE, Colorado should invite neighboring states to participate in the SCP and work with the Western Governors' Association to explore a process for reconciling differences in state privacy laws to enable interstate HIE.
10. Colorado should evaluate the need of the State's health care providers for up-front capital to purchase and implement EHRs so that it can determine whether to apply for HITECH funding to establish an EHR loan fund. If the State elects to apply for EHR loan funds, it should identify potential sources to satisfy the requirement that the State provide $1 of state funds for each $5 of federal funds.

Thank You

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Overview

The Health Information Technology for Economic and Clinical Health Act ("HITECH"), which was recently enacted as part of the federal stimulus package (also known as the American Recovery and Reinvestment Act or ARRA), authorizes approximately $48.8 billion in gross federal outlays for health information technology (HIT).[1] In enacting HITECH, Congress clearly recognized that merely transforming health information from the paper to the digital age will not in itself lead to improvements in our health care system. As stated by incoming National Coordinator for HIT, Dr. David Blumenthal, in a recent article in the *New England Journal of Medicine*, "[HIT]—computers, software, Internet connection, telemedicine—[should be seen] not as an end in itself but as a means of improving the quality of health care, the health of populations, and the efficiency of health care systems."[2]

Colorado's health care providers have long recognized the transformative potential of HIT and have begun adopting electronic health records (EHRs) and building the infrastructure necessary to share patient health information, with the goal of creating a statewide health information network spanning the Western Slope to the Eastern Plains. In order to capitalize on the availability of federal funding through HITECH, which could amount to $468 million in Medicare and Medicaid EHR incentive payments alone for Colorado providers,[3] Colorado will be required, in a very short period of time, to build on its efforts to date and implement a statewide strategy for HIT, including:

- Developing a state plan to draw down HITECH's health information exchange (HIE) implementation funds (described further below)
- Establishing a statewide collaboration process to ensure broad stakeholder participation in Colorado's statewide HIE activities
- Developing a sustainability model for HIE throughout the state
- Ensuring necessary levels of meaningful EHR adoption by providers.

After providing an overview of the status of HIT and HIE in Colorado today, this brief analyzes HITECH and offers a set of ten recommendations to help guide Colorado in its execution of these and other key statewide HIE implementation tasks.

HIT in Colorado: Progress and Opportunity

Though its population is relatively small—only approximately 4.9 million residents[4]—Colorado aims high with its health care goals, striving to be the healthiest state in the nation and to use HIT to get there. Most Coloradans live in cities or suburbs, with nearly 75 percent residing in just 8 of the state's 64 counties.[5] About 15 percent of Coloradans live in rural areas, dispersed widely across the state.[6]

Some 57 percent of Coloradans receive health insurance through their employers, 8 percent are covered by Medicaid and 9 percent by Medicare.[7] Another 9 percent are covered by other sources.[8] About 17 percent are uninsured, just slightly above the national average of 15 percent.[9]

Coloradans are served by 80 hospitals, 10,500 physicians, 211 nursing facilities and 15 Federally Qualified Health Centers (FQHCs). Denver and Colorado Springs boast the largest health care facilities in the state. As a general matter, however, Colorado's health care facilities are relatively small. More than half of hospitals have fewer

than 100 beds. Colorado's physicians generally practice in small groups, with 65 percent in practices of 17 or less, although the state's two largest practices—Kaiser Permanente and University Physicians—alone account for 16 percent of the State's total. Colorado has eight medical referral regions (regions within which providers cross-refer patients to one another), including one that is anchored by Albuquerque, New Mexico. The seven regions within Colorado's borders are Fort Collins, Greeley, Boulder, Denver, Colorado Springs, Pueblo and Grand Junction, though many cross state lines into Kansas, Nebraska, Wyoming and Utah. These medical referral regions present natural boundaries for regional HIT initiatives that could form the basis of a statewide health information network.[10]

Statewide HIT adoption rates have not been measured. Nationally, only 7.6 percent of non-federal hospitals and 13 percent of ambulatory providers have implemented "basic" EHRs that include certain clinical documentation but not clinical decision support.[11] In other words, while there has been progress, there is work to be done.

The Colorado Regional Health Information Organization (CORHIO)

There are several measures of a state's progress in implementing HIT, with adoption of EHRs being one of the most fundamental. Also important is the development of a coordinated strategy for statewide HIT adoption and HIE, and the presence of a state-level organization with responsibility for making it a reality. Unlike many other states, Colorado has met the latter measure in the form of the Colorado Regional Health Information Organization (CORHIO).

CORHIO is a nonprofit organization with a mission to represent the interests of all Colorado stakeholders and ensure that HIE develops to improve health and health care across the state. The CORHIO board includes a diverse mix of key public and private sector representatives from the spectrum of health care interests, including consumers. In addition to its board, CORHIO has several committees and work groups to engage stakeholders throughout the state, including consumers, employers, doctors, hospitals, nursing homes, pharmacies, home health agencies, health plans and others. With funding from the federal Agency for Healthcare Research and Quality (AHRQ), CORHIO has built an HIE, called the Point of Care Inquiry System, that includes The Children's Hospital, Denver Health & Hospital Authority, Kaiser Permanente Colorado and the University of Colorado Hospital. The HIE, which began operating on December 1, 2008, allows 500 emergency department clinicians to share patient information at the point of care.

Governor Bill Ritter has officially designated CORHIO as Colorado's state-designated entity to apply for and distribute HITECH's HIE implementation funding, and has charged the organization with "provid[ing] leadership and coordination of health information technology related efforts across Colorado to improve health care quality and value."[12] Governor Ritter's selection of CORHIO reflects its unique ability to link Colorado's many HIT initiatives in the service of Colorado's statewide goals, and builds on its role as a statewide convener/collaborator and provider of technical services to existing (and future) regional HIEs across the State, as described in more detail in its Business Plan.

Other Colorado HIT Initiatives

In addition to CORHIO, Colorado has an impressive array of other HIT initiatives from which to build. Indeed, Colorado's health care system is embracing HIT at the individual provider level, the health system level, and the community level, in a truly organic display of innovation. Among the numerous examples are:

- **Quality Health Network (QHN):** This is a fully-functional HIE on the Western Slope, currently serving 300 health care providers and 1,300 online users in Mesa County. The HIE is expanding its operations to include all of the Western Colorado and Eastern Utah providers within its medical trade area. QHN gives participating providers clinical messaging services, which include electronic diagnostic examination results ordering and delivery, electronic referrals and consults, and electronic workflow processes to improve efficiencies. Additional data shared between HIE participants include emergency room and surgical notes, discharge summaries, ambulatory care progress notes and other clinical data. Participants also have access to QHN's EMR (Electronic Medical Record)-Lite software, which provides clinical decision support and e-prescribing capabilities, and gives providers the ability to manage their chronically ill patients through a disease registry. Providers are also able to access patient medication and immunization histories, allergies and problem lists, as well as order diagnostic tests and receive test results. QHN has routed more than 367,000 e-prescriptions to area pharmacies as of December 2008.

- **Colorado Associated Community Health Information Exchange (CACHIE):** One of Colorado's statewide quality initiatives, CACHIE is building a data warehouse to electronically collect patient information (from clinic EHRs), and measure and report back on the quality of care provided by Colorado's 15 FQHCs and other safety-net clinics. CACHIE's goal is to enable Colorado's safety-net clinics to use their HIT tools for quality reporting and improvement purposes, including satisfying the Health Resources and Services Administration's (HRSA's) health disparities collaborative reporting requirements and collection of health outcomes data to support public and private payer reimbursement reform. CACHIE is a collaborative project of the Colorado Community Health Network and the Colorado Community Managed Care Network, with funding from HRSA, AHRQ, the Colorado Health Foundation and member investments.

- ***Healthy Connections*:** This grant program was launched by the Colorado Health Foundation in 2007. It was designed to enable safety-net clinics to successfully plan, implement and utilize HIT tools (e.g., EHRs), better coordinate health care services (e.g., physical, mental and oral health) for underserved Coloradans, and generally improve the quality of care they provide. Recognizing that safety-net providers are the sole source of health care for one in ten people in Colorado and have unique HIT needs, *Healthy Connections*, in its first year, awarded $2.5 million to 21 safety-net organizations. In the program's second phase, launched in August 2008, the Colorado Health Foundation will award an additional $6 million for HIT projects, this time with a focus on rural safety-net providers and nascent efforts to build HIEs in communities around Colorado.

- **Colorado Telehealth Network (CTN):** Though the majority of Coloradans live in the State's metropolitan centers, 47 of Colorado's 64 counties are rural. Access to care for the residents of these counties is limited: 14 of Colorado's rural counties have no hospital and seven have no dentist, making the ability of providers and patients in these areas to consult with metropolitan providers integral. Recognizing the need for broadband connectivity to facilitate this type of collaboration, the Colorado Hospital Association and the Colorado Behavioral Healthcare Council are working to create a statewide high-speed broadband data transmission network known as CTN, with $9.8 million in funding from the Federal Communications Commission's Rural Health Pilot Program, matching funds from participants and grant funds from the

Colorado Health Foundation. CTN has an overall budget in excess of $11 million, and has demonstrated that medical consultations via video conference are effective and will increase access to quality medical care for Colorado's underserved rural populations. In addition, CTN will provide access to interstate and intrastate medical education and telemedicine services in the future. As of August 2008, 90 Colorado hospitals, and 298 community health clinics, mental health centers and FQHCs have agreed to participate in CTN, positioning it to become one of the largest telehealth networks in the nation.

These are but a few of Colorado's impressive HIT initiatives. The Northern Colorado Health Alliance in Greeley, Community Health Partnership in Colorado Springs, Avista-IPN in Louisville, providers in the San Luis Valley and Boulder, and many others are also operating HIEs or developing their information sharing and quality improvement capacity.

Driven by these and other efforts, Colorado has made a name for itself on the national stage, contributing thoughtful leadership to the federal government's nationwide HIT effort. Colorado's HIT stakeholders participate in the National eHealth Collaborative (formerly the American Health Information Community), which is charged with making HIT recommendations to the Office of the National Coordinator for Health Information Technology, and the federal Health Information Security and Privacy Collaboration, which is charged with developing and testing solutions for the privacy and security of interstate HIE. The State-Level HIE Consensus Project, sponsored by the Office of the National Coordinator and the American Health Information Management Association Research Foundation, is playing a key role by cataloging and describing the characteristics and distinct contributions of state-level HIEs across all states and as part of emerging national strategy. This project is directed by a Coloradan. And, most recently, a Colorado physician and public health expert, Dr. Arthur Davidson, was appointed to the new HIT Policy Committee established under HITECH and charged with recommending to the Office of the National Coordinator a policy framework for the development of a nationwide health information infrastructure.

Colorado State Government Commitment to HIT

Colorado benefits from a firm commitment at the highest levels of state government to the role of HIT in bringing high-value, high-quality health care to Coloradans. Under Governor Ritter's Building Blocks for Health Care Reform plan, which is designed to improve quality, reduce costs and expand access to care for Colorado's uninsured, CORHIO received $250,000 in state funding in 2008 and may receive additional funding in future years.

The Governor's reform plan has also resulted in the establishment of the Center for Improving Value in Health Care (CIVHC) to identify and pursue strategies for quality improvement and cost containment. CIVHC is led by the Colorado Department of Health Care Policy and Financing (HCPF) and is designed to bring consumers, businesses, health care providers, insurance companies and state agencies together to develop long-term strategies to achieve a value-driven health care system in Colorado. Among other things, CIVHC is charged with coordinating and integrating the many quality improvement and cost-containment efforts underway across the state—including the U.S. Department of Health and Human Service's Chartered Value Exchange, various pay-for-performance initiatives (e.g., Bridges to Excellence), the Colorado Hospital Association's Colorado Hospital Report Card Program and the work of the Colorado Patient Safety Coalition—so that they transform Colorado's existing health care system from one that rewards volume to one that rewards value, defined as high-quality care at low cost.[13]

Also as part of the Governor's Building Blocks plan, HCPF is proposing to reform the Medicaid program by introducing an Accountable Care Collaborative, which will consist of a statewide data and certification organization and a number of regional care coordination organizations that will offer care coordination and data analysis services to Medicaid providers throughout the State. With assistance from these organizations and alongside the various reimbursement reforms HCPF is undertaking, providers will be able to offer better quality, coordinated care to the state's Medicaid population.

Colorado's legislature, too, is committed to utilizing HIT to reduce health care costs and improve health outcomes for Coloradans. In 2007, the legislature established the Health Information Technology Advisory Committee through Senate Bill 196. It charged the Committee, led by the Governor's Office of Information Technology, with developing a comprehensive, long-term plan for HIT in the state, taking into account use of EHRs, computerized clinical support systems, computerized physician order entry, HIE, and data privacy and security measures, among others. On April 24, 2009, the Committee released a report with its findings and recommendations, which included:[14]

- Designating a single entity as the primary organization to provide governance
- Promoting HIE
- Collaborating with other regional health information organizations throughout the state
- Creating a specific HIT resource within the Governor's Office of Information Technology to coordinate the state's HIT efforts.

This policy brief is consistent with and builds off of the recommendations included in the Committee's report.[15]

HITECH: Where It's Trying to Take Us and How

Colorado's HIT initiatives have positioned it to take full advantage of HITECH, which is designed to stimulate widespread, meaningful use of EHRs and to improve the quality and efficiency of health care. HITECH establishes a new federal HIT policy and standards framework and authorizes approximately $48.8 billion in funding for various HIT initiatives.[16] Approximately $46.8 billion will be distributed through Medicare and Medicaid as incentive payments to eligible health care providers for EHR adoption and use.[17] The remaining $2 billion will be distributed through a series of grants, loans and technical assistance programs designed to support provider EHR use and to spur HIE at the state, regional and local levels.[18]

By requiring *meaningful* use (a concept discussed in more detail below) of EHRs, HITECH ties distribution of its incentive payments not just to a provider's implementation and use of EHRs, but to a provider's use of EHRs to electronically exchange information with other health care stakeholders, report performance information, and engage in care coordination and quality improvement activities, including, potentially, use of self-populating tools like longitudinal patient registries and advanced clinical decision support. HITECH's various provisions are described in detail below. Figure 1 sets forth a graphic description of HITECH's funding flows.

Federal Policy and Standard-Setting Framework

HITECH's federal policy and standard-setting framework consists of three components:

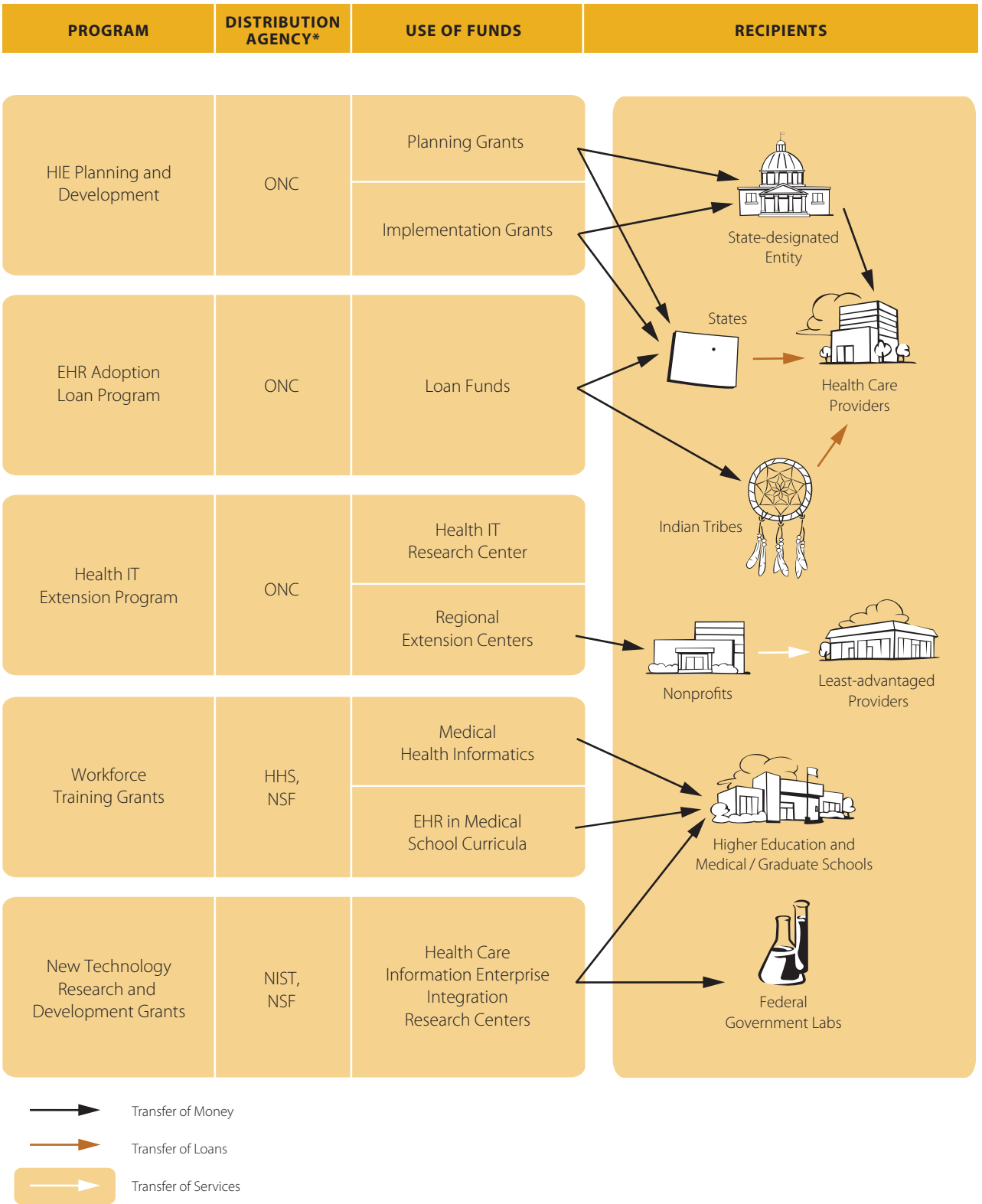
- **Office of the National Coordinator for Health Information Technology.** HITECH funds will be disbursed by various agencies within the Department of Health and Human Services, under the coordination of the Office of the National Coordinator. In addition, the Office of the National Coordinator is charged with:
  - Updating the Federal HIT Strategic Plan that reports on specific objectives, milestones and metrics, including the utilization of an EHR for each person in the United States by 2014
  - Providing oversight and coordination for the new HIT Policy and the HIT Standards Committees (described below)
  - Reporting to Congress within 12 months on any additional funding or authority needed to ensure full participation of stakeholders in the national HIT infrastructure
  - Establishing a governance mechanism for the nationwide health information network.

- **HIT Policy Committee.** HITECH creates a new Federal Advisory Committee called the HIT Policy Committee, charged with recommending to the Office of the National Coordinator a policy framework for the development of the nationwide health information infrastructure, including recommending an order of priority for the development, harmonization and recognition of standards, implementation specifications and certification criteria for the electronic exchange and use of health information.

- **HIT Standards Committee.** HITECH also creates a new Federal Advisory Committee called the HIT Standards Committee that will recommend to the Office of the National Coordinator standards, implementation specifications, and certification criteria for the electronic exchange and use of health information. While the HIT Policy Committee will set priorities for standards development, the HIT Standards Committee will recommend which standards are to be adopted. HITECH does not specify how existing processes relating to standards development and harmonization, through organizations like the Health Information Technology Standards Panel, Certification Commission for Healthcare IT and the National eHealth Collaborative, will fit into the new framework.

Figure 1. *HITECH's Funding Flows*

Appropriated Funds ($2 billion in gross outlays)



Entitlement Funds (roughly $34 billion in gross outlays)

PROGRAM	DISTRIBUTION AGENCY*	USE OF FUNDS	RECIPIENTS
Medicare Payment Incentives	CMS	Incentive Payments through Carriers	Acute Care and Children's Hospitals; Physicians and Dentists; Nurse Practitioners and Midwives; FQHC
Medicaid Payment Incentives	CMS and States	Incentive Payments through State Agencies. Requires 30% share of Medicaid (except children's hospitals).	Acute Care and Children's Hospitals; Physicians and Dentists; Nurse Practitioners and Midwives; FQHC

Requires "meaningful" use of EHR.

Source: Manatt Health Solutions analysis of federal HITECH Act legislation.
*CMS stands for Center for Medicare and Medicaid Services, ONC is Office of the National Coordinator for Health Information Technology, HHS is Federal Department of Health and Human Services, NSF is National Science Foundation, and NIST is National Institute of Standards and Technology.

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Grant and Loan Programs

HITECH sets aside $2 billion for new programs to develop the infrastructure necessary to support provider EHR adoption and HIE. These programs are summarized below.

Health Information Exchange Planning and Implementation Grants: HITECH authorizes the Office of the National Coordinator to award grants to states and qualified state-designated entities to "facilitate and expand the electronic movement and use of health information among organizations according to nationally recognized standards." States and/or state-designated entities will be eligible for either planning or implementation grants, which may be used for enhancing broad and varied participation in the authorized and secure nationwide electronic use and exchange of health information and promoting the use of EHRs for quality improvement, including through quality measure reporting.

Table 1. *HIE Planning and Implementation Grants*

Funding Mechanism	Federal appropriations.
Funding Entity	Department of Health and Human Services, through the Office of the National Coordinator.
Allocation Process	Competitive grant process. Details will emerge from the regulatory process.
Matching Funds Requirement	State matching funds may be required in federal fiscal years 2009 and 2010 (and will be required in 2011). The statute notes that matching funds may be in-kind, but does not provide further detail.
Timing	To be determined.
Funds Flow Through	Office of the National Coordinator.
Eligible Recipients	States or state-designated entities. To be considered a state-designated entity, an organization must be formally designated by the state, be nonprofit and be committed to improving health care quality and efficiency through HIE, among other requirements set out in the statute.
Level of Federal Funding	To be determined.
Funding Requirements	Grants must be used to support HIE planning or implementation. Minimum criteria to receive the larger implementation grants are likely to include operational governance, a technical plan, well-defined clinical use cases, and statewide privacy and security policy guidance.

HIT Extension Program: HITECH creates new Regional Extension Centers and charges them with providing technical and change management assistance to health care providers struggling with implementing and adopting EHR technology. They are to provide such assistance to all providers in a region, but must prioritize assistance to public or not-for-profit and critical access hospitals, FQHCs, rural or other providers that serve uninsured, underinsured or medically underserved patients, and individual or small group practices.

Table 2. *HIT Regional Extension Centers*

Funding Mechanism	Federal appropriations.
Funding Entity	Department of Health and Human Services, through the Office of the National Coordinator.
Allocation Process	To be determined.
Matching Funds Requirement	The Office of the National Coordinator may not provide more than 50 percent of the capital and annual operation and maintenance funds required to create and operate a Regional Extension Center, although it may waive this matching requirement in the face of economic conditions that render it detrimental to the program. In a notice and request for comments published May 28, 2009, in the Federal Register, the Office of the National Coordinator indicated it will exercise its authority to not require matching funds for awards made in fiscal year 2010.[19] The Office of the National Coordinator may provide funding for no longer than four years.
Timing	Initial awards (which will be for two-year periods) expected to begin as early as the first quarter of fiscal year 2010.
Funds Flow Through	The Office of the National Coordinator.
Eligible Recipients	Nonprofits; likely to be broad array of competing applicants.
Level of Federal Funding	ONC has indicated that the average award per Regional Extension Center could be $1– $2 million up to a maximum of $10 million.
Funding Requirements	Applications will be evaluated on a number of criteria, including the geographic region and provider population covered by the proposed Center, and its capacity to facilitate and support cooperation among local providers, health systems, communities and HIEs, among others.

Workforce Training Grants: HITECH provides for the establishment of two training grant programs to "ensure the rapid and effective utilization and development of health information technologies within the United States' health care infrastructure." The first program will provide grants to colleges and other institutions of higher education to expand medical health informatics programs, which the Secretary may implement in consultation with the Director of the National Science Foundation. The second will provide grants to medical schools and other academic institutions to carry out demonstration projects to develop curricula that integrate certified EHR technology into their clinical education.

Table 3. *Workforce Training Grants*

Funding Mechanism	Federal appropriations.
Funding Entity	The Department of Health and Human Services, in consultation with the National Science Foundation.
Allocation Process	Two types of competitive grants: (1) to colleges and institutions of higher education to expand medical health informatics, and (2) to medical schools to integrate EHRs into curricula.
Matching Funds Requirement	Requires 50 percent match; match may be reduced with demonstrated economic conditions that render the cost-share requirement "detrimental to the program."
Timing	To be determined.
Funds Flow Through	Department of Health and Human Services grant programs; identity of granting agency not yet clear.
Eligible Recipients	• Institutions of higher education. • Graduate health professional schools or programs (including medicine, osteopathy, nursing, dentistry, pharmacy, behavioral/mental health and physician assistance studies).
Level of Federal Funding	To be determined.
Funding Requirements	Priority to existing education/training programs and those designated to be completed in less than six months.

New Technology Research and Development Grants: HITECH authorizes the director of the National Institute of Standards and Technology, in consultation with the director of the National Science Foundation and other appropriate federal agencies, to award grants to establish multidisciplinary Centers for Health Care Information Enterprise Integration to support the development of new health information technologies.

Table 4. *New Technology Research and Development Grants*

Funding Mechanism	Federal appropriations.
Funding Entity	National Institute of Standards and Technology, in consultation with the National Science Foundation.
Allocation Process	Competitive grants.
Matching Funds Requirement	50 percent from third parties, not necessarily states.
Timing	To be determined.
Funds Flow Through	National Institute of Standards and Technology, in consultation with the National Science Foundation.
Eligible Recipients	Higher education institutions and/or federal government laboratories.
Level of Federal Funding	To be determined.
Funding Requirements	Eligible entities include institutions of higher education, or consortia thereof, which may include nonprofit entities and federal government laboratories; grants are designated to fund up to 50 percent of the total cost of the project.

EHR Loan Fund Program: Finally, recognizing that the value of HIE is only as high as the number of users exchanging information through the network, HITECH authorizes the Office of the National Coordinator to award competitive grants to states to develop EHR adoption loan programs for health care providers.

Table 5. *EHR Loan Fund*

Funding Mechanism	Federal appropriations.
Funding Entity	Department of Health and Human Services, through the Office of the National Coordinator.
Allocation Process	Competitive grant process.
Matching Funds Requirement	States or Indian tribes must provide a cash match equal to $1 in state funds for every $5 in federal funds. States may couple their grants with private sector contributions in an attempt to increase the amount of loan funding they can offer providers.
Timing	The Office of the National Coordinator may not award grants prior to January 1, 2010.
Funds Flow Through	The Office of the National Coordinator to states or Indian tribes, which are to use the grants to provide loans to health care providers for EHR adoption.
Eligible Recipients	States or Indian tribes.
Level of Federal Funding	To be determined.
Funding Requirements	Loan funds may be used by providers to: (1) facilitate the purchase of certified EHR technology; (2) enhance the utilization of certified EHR technology (which may include costs associated with upgrading HIT so that it meets criteria necessary to be certified EHR technology; (3) train personnel in the use of such technology; or (4) improve the secure electronic exchange of health information. The state must create an annual strategic plan that: (1) identifies the projects to be assisted through the loan fund; (2) describes the criteria and methods established for the distribution of funds from the loan fund; (3) describes the financial status of the loan; and (4) specifies the short-term and long-term goals of the fund.

Medicare and Medicaid EHR Adoption Incentives

HITECH's attempt to secure nearly universal EHR adoption revolves largely around its Medicare and Medicaid incentive payments, which tie receipt of the funds to a provider's meaningful use of an EHR system. In order to receive incentive payments under Medicare (and potentially under Medicaid at the discretion of the Secretary of the Department of Health and Human Services and the state), eligible providers must:

- "[Demonstrate] to the satisfaction of the Secretary that...the professional is using certified EHR technology in a meaningful manner, which shall include the use of electronic prescribing as determined to be appropriate by the Secretary"[20]
- "[Demonstrate] to the satisfaction of the Secretary...that such EHR technology is connected in a manner that provides, in accordance with law and standards applicable to the exchange of information, for the electronic exchange of health information to improve the quality of health care, such as promoting care coordination"
- "[Be] using such certified EHR technology...[and] submit information...in a form and manner specified by the Secretary, on such clinical quality measures and such other measures as selected by the Secretary."

Under these criteria, providers must use "certified EHR technology" to ensure that funds are spent on EHR systems with at least a minimal degree of functionality. In order for EHR technology to be certified as required, it must include patient demographic and clinical health information, such as medical history and problem lists, and have the capacity to provide clinical decision support, physician order entry, capture and query of information relevant to health care quality, and exchange and integrate electronic health information from other sources, among other requirements.

In requiring that providers demonstrate meaningful use, Congress recognized that widespread adoption of EHRs will yield little benefit to patients if providers don't use them in a way that facilitates better care, provided more efficiently.

Table 6. *Summary of Medicare Incentive Payment Provisions*

Funding Mechanism	Entitlement.
Funding Entity	Centers for Medicare & Medicaid Services (CMS).
Allocation Process	Reimbursement.
Matching Funds Requirement	None.
Timing	Begins in 2011.[21]
Funds Flow Through	Medicare Administrative Contractors.
Eligible Recipients	• Hospitals that are "meaningful users" of EHRs. • Physicians who are "meaningful users" of EHRs (these professionals must choose to be reimbursed under Medicare or Medicaid; the two options are mutually exclusive).
Level of Federal Funding	CMS has estimated outlays for the combined Medicare/Medicaid incentives to be approximately $46.8 billion from fiscal year 2010 through fiscal year 2019. • Hospitals receive base funding of $2 million plus additional funds based on a formula prescribed in the statute. Beginning in federal fiscal year 2015, hospitals that do not qualify as meaningful users are subject to Medicare payment penalties. • Physicians may receive a maximum of $44,000 over five years. Beginning in calendar year 2015, physicians that do not qualify as meaningful users are subject to Medicare payment penalties.
Funding Requirements	Physicians receiving Medicare payments must demonstrate meaningful EHR use, defined as: Use of a certified EHR, including electronic prescribing, that is connected to an HIE, and submission of clinical quality and other measures. All criteria must be met and reconfirmed each payment year. The Department of Health and Human Services Secretary has discretion in allowing alternative means for meeting requirements and can make requirements more stringent over time. Physicians who directly provide, or are employed by an entity that provides a significant percentage of, care to Medicare Advantage enrollees (80 percent of professional services) and furnish at least 20 hours of patient care services per week are eligible for incentive funds through a Medicare Advantage organization, but are prohibited from duplicate payment (under fee-for-service and via Medicare Advantage).

Table 7. *Summary of Medicaid Incentive Payment Provisions*

Funding Mechanism	Entitlement.
Funding Entity	CMS and the state.
Allocation Process	Reimbursement.
Matching Funds Requirement	100 percent federal match for incentive payments; 90 percent federal match for administrative expenses, including the tracking of meaningful use, conducting oversight, and pursuing initiatives to encourage adoption.
Timing	Begins in 2011.
Funds Flow Through	HCPF.
Eligible Recipients	• Physicians, dentists, nurse practitioners, nurse midwives, and physician assistants practicing in specific circumstances, who are not hospital-based and have at least 30 percent of patient volume attributable to Medicaid beneficiaries. • Pediatricians who are not hospital-based and have at least 20 percent of patient volume attributable to Medicaid beneficiaries. • Acute care hospitals that have at least 10 percent of patient volume attributable to Medicaid beneficiaries. • Children's hospitals. • Providers in FQHCs or rural clinics that have at least 30 percent of patient volume attributable to "needy individuals," including but not limited to Medicaid beneficiaries. • Third-party entities that sponsor and encourage EHR adoption can also qualify for funding through the Medicaid incentive payment structures. Such entities are likely to serve as de facto purchasing and implementation agents; Medicaid incentive payments for physicians who participate in such arrangements would flow to the third party. It appears a third party must demonstrate that 95 percent of the funding will be used to purchase, operate and maintain the EHR for independent physicians, and the third party is allowed to keep 5 percent of the funding to cover any overhead it incurs in doing so.

Table 7 (continued). *Summary of Medicaid Incentive Payment Provisions*

Level of Federal Funding	CMS has estimated outlays for the combined Medicare/Medicaid incentives to be approximately $46.8 billion from fiscal year 2010 through fiscal year 2019. Note that Medicaid incentive payments may continue to be made through 2021. HITECH leaves discretion to CMS and state Medicaid agencies as to specific payment methodologies, but sets the following caps: • Payments to hospitals are capped at an amount based on the Medicare incentive payment formula. • Payments to physicians and other eligible providers can be no more than the lesser of: 85 percent of the average allowable cost (as determined by CMS) for the purchase and initial implementation or upgrade of an EHR in the first year and for operation, maintenance and use in up to 5 subsequent years; or $21,250 in the first year and $8,500 in up to 5 subsequent years.
Funding Requirements	Demonstrate meaningful EHR use after the first year.

Related Funding Opportunities in the American Recovery and Reinvestment Act (ARRA)

Broadband and Telehealth Funding: Broadband deployment in rural America has been a top policy priority of the federal government, and the ARRA continues this commitment by creating a new Broadband Technology Opportunities Program and authorizing funding for the existing Distance Learning, Telemedicine, and Broadband Program, providing for a total of $7 billion in funding to expand broadband access and use, promote the adoption of telehealth and establish a framework for future investments in both.[22]

Table 8. *Summary of Broadband Technology Opportunities Program*

Funding Mechanism	Federal appropriations.
Funding Entity	U.S. Department of Commerce.
Allocation Process	**Competitive grants.** A Notice of Funds Availability will provide additional grant information, including details about processes, timelines and scoring criteria. A minimum of one grant shall be awarded to each state. **Three grant rounds.** In its Implementation Plan, the National Telecommunications and Information Administration indicated it will publish a Notice of Funds Availability in June for first-round funding, with anticipated awards by December 2009. A second solicitation for proposals is expected between October and December 2009. The third wave of proposals will be solicited in the spring of 2010 so that the final round of awards can be issued before the statutory deadline of September 30, 2010.[23]
Matching Funds Requirement	Recipients or a third party must contribute at least 20 percent of the total cost. This requirement may be waived for financial hardship. Financial hardship criteria have yet to be established.
Timing	Funds available through September 30, 2010.
Funds Flow Through	National Telecommunications and Information Administration.
Eligible Recipients	• State and local governments. • Foundations and nonprofit corporations, institutions and associations. • Any other entity, including broadband service or infrastructure providers, is eligible if the National Telecommunications and Information Administration determines that the funds will promote the public interest. • The National Telecommunications and Information Administration shall consider if applicants are socially and economically disadvantaged small business concerns, as defined under Section 8(a) of the Small Business Act.

Table 8 (continued). *Summary of Broadband Technology Opportunities Program*

Level of Federal Funding	$4.7 billion: 1. At least $250 million will be available for innovative programs that encourage sustainable adoption of broadband services. 2. At least $200 million will be available to upgrade technology and capacity at public computing centers, including community colleges and public libraries. 3. $10 million will go to the Office of Inspector General for Broadband Technology Opportunities Program audits and oversight. 4. Up to $350 million will fund the development and maintenance of statewide broadband inventory maps.
Rural Requirement	None. Broadband Technology Opportunities Program focuses instead on improving access to underserved areas. It does not define "unserved" areas, "underserved" areas or "broadband," rather, Broadband Technology Opportunities Program directs the National Telecommunications and Information Administration to coordinate its understanding of these terms with the Federal Communications Commission.
Funding Requirements	• Grants must be used for one or more of the following: 1. To acquire equipment, instrumentation, networking capability, hardware, software, digital network technology and infrastructure for broadband services. 2. To construct and deploy broadband infrastructure. 3. To ensure access to broadband service by community anchor institutions. 4. To facilitate access to broadband service by low-income, unemployed, aged and otherwise vulnerable populations to give them educational and employment opportunities. 5. To construct and deploy broadband facilities that improve public safety. 6. To undertake other projects and activities that the assistant secretary determines are consistent with the Broadband Technology Opportunities Program's purposes. • Projects must be substantially completed within two years of the awards. • Applicants must demonstrate that they need federal grant assistance to implement their project. • No area of a Broadband Technology Opportunities Program-funded project may receive funding under the Distance Learning, Telemedicine, and Broadband program for the same purpose. However, applicants may apply for and receive funding from both programs.

Table 9. *Summary of Distance Learning, Telemedicine, and Broadband Program*

Funding Mechanism	Federal appropriations.
Funding Entity	U.S. Department of Agriculture.
Allocation Process	• Loans, loan guarantees, grants. • Three funding rounds. • A Notice of Funds Availability will be issued with additional details about processes, timelines and scoring criteria.[24]
Matching Funds Requirement	To be determined.
Timing	• A Notice of Funds Availability is expected to be published in the Federal Register in June 2009. • No deadline for expenditure of funds.
Funds Flow Through	Rural Utilities Service.
Eligible Recipients	ARRA does not specify which entities are eligible. However, current or former borrowers under Title II of the Rural Electrification Act of 1936 and traditional telecommunications borrowers receive priority.
Level of Federal Funding	$2.5 billion.
Rural Requirement	75 percent of a project area must be rural and have insufficient access to high-speed broadband. The criteria for "rural" are being defined. The Rural Utilities Service is working closely with the National Telecommunications and Information Administration to help define program terms.
Funding Requirements	• Certain applicants receive priority, including those: 1. Whose projects will begin promptly after approval. 2. Whose projects will be fully funded if they receive aid. 3. That offer a choice of multiple service providers. 4. With the highest proportion or rural residents that does not have broadband access. • Specific uses of funds are being defined. However, the focus is expected to be on broadband infrastructure. • No area of a Distance Learning, Telemedicine, and Broadband Program-funded project may receive funding from the Broadband Technology Opportunities Program for the same purpose. However, applicants may apply for and receive funding from both programs.

Federally Qualified Health Center Funding: In addition to the Medicare and Medicaid EHR incentive and other funding available to FQHCs under HITECH, the ARRA appropriated $1.5 billion to HRSA to support construction, renovation and equipment, including HIT systems, in health centers and health center-controlled networks receiving operating grants under section 330 of the Public Health Service Act.[25] Of this amount, HRSA has earmarked approximately $125 million to be distributed through HIT Systems/Networks grants. Additional funding for HIT is available through Capital Improvement Program grants. FQHCs and FQHC-controlled networks should have a keen interest, since these funds may be used to support capital costs traditionally ineligible for federal funding.

Table 10. *Summary of FQHC Funding*

Funding Mechanism	Federal appropriations.
Funding Entity	HRSA.
Allocation Process	Formula allocation and competitive grants.
Matching Funds Requirement	To be determined (none required for the initial grant round described below).
Timing	HRSA announced the availability of $850 million in Capital Improvement Program grants, which can be used, among other things, for the purchase of information technology/equipment, including HIT systems and EHR-related enhancements, on May 1. Funding applications are due by June 2, 2009. In its Implementation Plan, HRSA indicated that it will release $125 million in HIT Systems/Networks grants in fiscal year 2009, though it did not include specific dates.[26]
Funds Flow Through	HRSA, through several grant opportunities.
Eligible Recipients	FQHCs and FQHC-controlled networks currently receiving operating grants.
Level of Federal Funding	• Congress appropriated $1.5 billion. • HRSA indicated funds to be available through several grant opportunities, with awards ranging from defined formula allocations to several million dollars for larger capital project needs.
Funding Requirements	FQHCs must use funds for specified infrastructure purposes: • Construction and renovation. • Equipment. • Acquisition of HIT systems.

HITECH Privacy Provisions

In addition to authorizing the federal outlays described above, HITECH includes provisions to significantly strengthen privacy and security standards for health information, requiring the Secretary of the Department of Health and Human Services to appoint a new Chief Privacy Officer and expanding current federal privacy and security protections under the Health Insurance Portability and Accountability Act ("HIPAA"). Among other provisions, HITECH extends HIPAA's reach to business associates, institutes a new national breach notification mandate on Covered Entities and Personal Health Record vendors, places various new restrictions on currently permissible uses and disclosures of personal health information, extends additional rights to patients to control the disclosure of their information and increases HIPAA's enforcement.

'Meaningful Use' and Other Key Concepts that Await the Regulatory Process

As a general matter, the Office of the National Coordinator and the Secretary of the Department of Health and Human Services have broad authority to tie the HITECH monies described above to specific policies and standards designed to improve patient care and reduce unnecessary costs, HITECH's ultimate goals. Many of these policies and standards will be specified through the regulatory and procurement processes. Examples include the statute's "meaningful use" requirement and how HIE is defined.

The National Committee on Vital and Health Statistics, a statutorily created advisory body to the Department of Health and Human Services on health data, statistics and national health information policy, heard testimony on both issues from a broad spectrum of HIT stakeholders in Washington, DC, on April 28–29, 2009. While it is still difficult to anticipate the meaningful use and HIE requirements the Department of Health and Human Services may ultimately place on health care providers in order to qualify for HITECH's incentive payments, the hearings uncovered some common themes that could foreshadow the type of policies that will guide HITECH's implementation.

There was widespread agreement on the need to establish greater coordination among health care providers caring for the same patients. From Accountable Care Organizations to disease management, the theme of longitudinal care coordination ran strong. Some speakers expressed support for the effective use of patient registries as a first step in proactively identifying patients with ongoing chronic care needs.[27] Others cited the need for interoperability and cross-site data exchange, which clearly aids and abets longitudinal care coordination.[28] Indeed, the role of HIE in ensuring truly meaningful use of HIT was evident. Speakers representing HIEs cautioned the Department of Health and Human Services against thinking of EHRs and HIE separately, noting the value of the timely transfer of patient information in standardized and actionable formats across the entire continuum of care for things like clinical decision support, health management, quality improvement and population health reporting. In recognition of the importance of HIE, speakers advised the Department of Health and Human Services to require health care providers to devote a portion of their EHR incentive payments to participating in an HIE.[29]

Another common theme that emerged was the importance of *reliable* performance measurement tools and benchmarks—specifically measures of adoption and outcomes, rather than the process measurements that dominate so many of the reporting frameworks in existence today.[30] Speakers also consistently cited the need to feed the information collected through quality measurement tools back to providers at the point of care, part of a larger nod to the importance of clinical decision support to inform treatment decisions in the service of a "learning health care system."[31]

Speakers disagreed, however, on the speed with which providers should be required to engage in the activities described above. While some believed the bar should be set high at the outset, and that HITECH's Regional Extension Centers would ease the burdens of adoption and implementation on providers, others counseled caution, suggesting that providers should be able to adopt electronic clinical tools "á la carte" and that the definition of meaningful use not exceed the current requirements to receive software certification from the Certification Commission for HIT.[32]

Divergent viewpoints aside, National Coordinator for HIT, Dr. David Blumenthal, promised that the definition of meaningful use will play an important role in shaping the nation's overall HIT strategy.

HITECH Timing

Exactly when HITECH's regulations and funds will be released remains unclear. HITECH does, however, place certain deadlines on the Office of the National Coordinator and the HIT Policy and Standards Committees related to federal policy and standard-setting activities and the development of certain new programs. On May 18, 2009, consistent with its statutory deadline (90 days after HITECH's enactment), the Office of the National Coordinator released its Implementation Plan, generally describing how and when it will execute HITECH's provisions.[33] Also in May, CMS submitted a plan detailing how it will implement HITECH's Medicare and Medicaid payment incentives for meaningful use of EHRs.[34] The plan indicates that Medicare incentive payments to eligible hospitals will begin in October 2010, while Medicare incentive payments to physicians and Medicaid incentive payments to physicians and hospitals will begin in January 2011. The plan also notes that CMS will issue proposed rules to allow for public input into the development of the incentive payment programs, map out systems and other requirements to support the incentive programs, and plan a national outreach campaign relating to the programs by the end of 2009, among other milestones that run through 2015 and thereafter.[35]

A process for acting on policy directives from the HIT Policy Committee, released in the Federal Register by the HIT Standards Committee on May 26, indicated the steps the Committee will take to recommend HIT standards, implementation specifications and/or certification criteria to the Office of the National Coordinator and the Department of Health and Human Services.[36] Also posted in the Federal Register (on May 28) was a notice for public comment of the HIT Regional Extension Center program. The description includes a detailed explanation of the program and its goals, procedures to be followed by applicants, selection criteria and maximum funding levels expected to be available under the program. It indicates that the Office of the National Coordinator will formally solicit proposals for the Extension Center program after considering comments obtained through this notice and that awards are likely to be granted in a phased manner, beginning as early as the first quarter of fiscal year 2010 and continuing through the end of the year.[37]

The Department of Health and Human Services must issue an interim final rule adopting the technical standards at Section 3002(b)(2)(B) of HITECH by December 31, 2009. Finally, the Office of the National Coordinator has indicated that the definition of "meaningful use" of EHRs and an updated Federal HIT Strategic Plan will be available before the end of 2009.[38]

Recommendations for Colorado

HITECH is one part opportunity and one part mandate, stimulating Colorado to knit together the pieces of its existing HIT infrastructure into a coordinated, statewide network consistent with federal standards and policy.

The funding to advance the development of Colorado's statewide health information network afforded by HITECH, however, is part of a larger opportunity created by ARRA to strengthen Colorado's economy and create new jobs. Recognizing the need for oversight to ensure these funds are invested effectively, efficiently and wisely, and with a significant level of transparency and accountability, Governor Ritter established the Colorado Economic Recovery and Accountability Board. The Board has created a Web site (www.colorado.gov/recovery) and will undertake additional activities to enable Coloradans to track the disbursement of ARRA funds within the State. Further, the federal General Accountability Office, charged by ARRA with reporting to Congress every two months on the use of ARRA funds by states, has selected Colorado as one of the 16 states whose funding distribution practices it will audit.[39]

Consistent with these accountability goals, the recommendations below are designed to help Colorado disburse and use HITECH's funding to build its statewide health information network in the most effective and efficient manner possible.

Recommendation #1:

Colorado should designate a senior-level government official with responsibility for overseeing all state HIT funding and initiatives across all state agencies.

A number of other states have demonstrated the value in coordinating HIT programs and policies across a state's various agencies and offices. The competing priorities states are asked to fund, even within the confines of the HIT sector, are many. Without clear responsibility and authority for ensuring that funds are spent in a coordinated manner, precious resources, including the significant amount of funding Colorado could receive under HITECH, could be invested with no demonstrable result.

To avoid this very real danger, Colorado should take stock of the various HIT initiatives underway statewide and designate responsibility for advancing Colorado's health information infrastructure to a senior official with the authority and ability to guide HIT policy, funding and implementation decisions across the state's many government agencies. This position should oversee development of Colorado's health information infrastructure in a manner that is tightly coordinated with Governor Ritter's Building Blocks for Health Care Reform plan, and with the activities of HCPF, which is responsible for initiatives like the new Accountable Care Collaborative and other reimbursement reforms under Medicaid. This position should be closely integrated with both the Governor's Office of Information Technology and the Governor's Policy Office.

Recommendation #2:

As a first-order priority, Colorado should fast-track development of the "State Plan" for HIE required to qualify for HITECH implementation funding, setting a target completion date of September 30, 2009.

To qualify for HITECH's HIE implementation grants, states or their designees must submit plans to the Department of Health and Human Services describing how they propose "to facilitate and expand the

electronic movement and use of health information among organizations according to nationally recognized standards and implementation specifications." CORHIO has already begun moving in this direction with the development of its Business Plan. The State Plan for HIE implementation funds should leverage this work, creating a more detailed blueprint from which to build a statewide health information network that achieves HITECH's quality improvement and efficiency goals. The State Plan should include specific milestones and timing requirements for:

- Creating clinical use cases to guide the development of Colorado's statewide health information network and ensure that EHRs and HIE are being used meaningfully and result in tangible improvements in care processes and outcomes (e.g., reduced medication errors by giving clinicians their patients' medication history and reconciliation at the point of care). Initial use cases should focus on e-prescribing, quality measurement and reporting, and care coordination, consistent with the initial statutory requirements for meaningful use included in HITECH.
- Establishing privacy and security policies that protect privacy, strengthen security, ensure informed consent and support the right of Coloradans to have greater control over and access to their personal health information.
- Developing common technical standards, protocols and architectural patterns (e.g., use of a common, service-oriented architecture) for HIT/HIE in Colorado, so that Colorado's health care stakeholders may use a variety of different vendors and technologies, designed according to the unique needs of their patients and in service of their distinct clinical priorities, in an interoperable and consistent manner.
- Developing financial sustainability strategies for HIE throughout the state, including developing a financing vehicle for up-front infrastructure costs, as well as effective reimbursement models to reward health care providers for the provision of high-quality, efficient care through HIT. Consideration should be given to strategies that ensure HITECH's EHR incentive payments are used to strengthen and sustain the state's efficiency, interoperability and care improvement goals.

Further, the State Plan should include strategies to ensure that users of Colorado's health information network employ the information they obtain to improve care coordination, reduce medical errors, promote wellness, advance public health and increase efficiencies, among the host of other health reform objectives on which the State has set its sights. As an example, the State Plan might require regional HIEs receiving HITECH funds to offer advanced clinical decision support systems that identify care patterns that deviate from evidence-based guidelines and inform providers of appropriate treatment protocols. To ensure that Colorado and its HIT stakeholders are positioned to draw down HITECH funds immediately upon their release, the State Plan should be completed by September 30, 2009.

Recommendation #3:

CORHIO should immediately establish a statewide collaboration process to review and implement the "State Plan," including establishing the common policies, clinical goals, technical requirements and architectural standards described in Recommendation #2.

CORHIO has already begun strategizing about how to leverage its existing infrastructure to support statewide HIE and maximize the State's receipt of HITECH funds. Consistent with this developing consensus, CORHIO should build off of its existing infrastructure, which includes Technical, Consumer and Outreach, Policy, and Audit and Finance Committees, to implement a broader, more formalized statewide collaboration process

through which the common policies, clinical goals, technical requirements and architectural standards for the State's health information network, as referenced above, will be developed.

The statewide collaboration process should be overseen by CORHIO and driven by workgroups consisting of participants from HIEs and other HIT initiatives throughout the State, as well as representatives from the consumer, employer, physician, hospital, nursing home, pharmacy, home health, health plan and other interested stakeholder groups. The statewide collaboration process should establish formal guidelines that delineate its key goals and organizational strategies and set out the specific roles and responsibilities of all participants in the process along the lines of the following:

- Workgroups should be created to address each of the elements of the State Plan described above.
  - These workgroups should each have their own charter, available to the public, that clearly defines their mission, expected deliverables and the timelines within which the deliverables should be made available.
  - Workgroups must be afforded adequate resources to support their work, including staff or consultants with appropriate technical, clinical, policy and legal expertise.
- A formal process for vetting the common policies and standards advanced by the workgroup should be instituted and should consist of the following:
  - Formal review and adoption (by vote) by the full CORHIO board.
  - After adoption by the CORHIO board, formal review and adoption by the state government.
- As a condition of receiving HITECH funding, HIEs and other stakeholders throughout the State should be required to comply with the common policies and standards developed through the statewide collaboration process. Compliance need not be mandated through law or regulation; instead Colorado and/or CORHIO could mandate compliance through the contracts it employs to disburse HITECH's HIE implementation or EHR loan funds, through any standards it may set for participation in its Regional Extension Center consortium (described further below) or through other similar means.

Recommendation #4:

Secure immediate funding to bankroll Colorado's HITECH activities.

Although Colorado has a robust set of HIT building blocks, implementation of the recommendations outlined in this brief will not be without cost. While we are mindful of state budget constraints, sufficient funding is critical to Colorado's ability to draw down HITECH monies, and the State should explore potential public-private partnerships to do so.

To ensure the State is successful in its pursuit of HITECH funds and in its longer-term pursuit of sustainable statewide HIE, CORHIO should create a plan to fund three distinct phases of development:

1. Immediate funding to develop the state plan required under HITECH
2. Funding to carry out the State Plan, including to meet any state match requirements included in HITECH
3. Long-term funding to sustain the operation of the State's health information network into the future.

CORHIO should immediately work with the State to determine how much funding is necessary to develop the State Plan required under HITECH and to develop a plan to secure such funding on an expedited basis, whether from the State, through private sources or both.

Recommendation #5:

Contribute to the federal regulatory process.

Given how important the federal regulatory process will be in the implementation of HITECH, Colorado should provide the Office of the National Coordinator with feedback and advice, either directly or through the American Health Information Management Associations State-Level HIE Consensus Project, on relevant issues. For example, Colorado should advance the message that HIE must be designed globally and implemented locally (e.g., on a statewide or regional basis in accordance with a well-defined federal framework) and that the nation's HIE infrastructure should be built upon common, nationwide information policies, standards and technical architecture designs that allow for state and regional "bottom-up" implementations, in which different states and regions are free to structure their efforts based on their unique clinical priorities. Colorado should also recommend that, to effectuate these goals, the Department of Health and Human Services should define minimum organizational and functional requirements for HIEs, akin to those described in Recommendation #2, and should require that all recipients of Medicare and Medicaid incentive payments contract with HIEs that meet such minimum requirements.

Colorado should recommend that the Department of Health and Human Services ensures that HIEs meet such requirements through federal regulation or third-party accreditation, a strategy under evaluation in some states to guarantee accountability and transparency across multiple HIEs.[40] These actions will enable providers to connect to HIEs that support the type of meaningful use of HIT that HITECH envisions.

Recommendation #6:

Organize Colorado's Breadth of HIT Implementation Experience into a Super Regional Extension Center that can service Colorado's various health care provider groups.

While it is unclear exactly how the federal government will design the Regional Extension Center program, and while these details will necessarily impact Colorado's strategy for drawing down the funds available under this program, it is quite clear that a number of organizations across Colorado have experience in promoting effective EHR adoption and use, precisely the goal of the Regional Extension Center program. Their services include assisting providers with readiness assessments, product selection, change management, workflow redesign support, and user training and ongoing support, including enabling providers to utilize their HIT tools for quality reporting, analysis and improvement.

In order to build on this experience, utilize it in the most efficient way and avoid duplication of efforts, CORHIO should form a consortium with these organizations and develop a strategy to provide the full range of Regional Extension Center services. CORHIO should then apply for Regional Extension Center funding on behalf of the consortium. As required by HITECH, the strategy should prioritize assistance to public or not-for-profit hospitals or critical access hospitals, FQHCs, individual or small primary care practices, and rural and other health care providers serving the uninsured and underinsured, identifying which organizations within the Regional Extension Center consortium are best suited to support particular provider groups.

In undertaking this strategy, and depending on the ultimate design of the Regional Extension Center program, CORHIO should consider partnering with stakeholders in its border states to provide multistate Regional Extension Center services. Further, in its capacity as a Regional Extension Center, CORHIO should explore the ability to enter into group purchasing arrangements with EHR vendors to secure product in bulk for these

provider groups and to receive Medicare and Medicaid incentive payments on their behalf. Any such group purchasing contracts should require EHR vendors to comply with any federal and/or statewide collaboration process-developed policies and standards in support of an interoperable, statewide health information network.

Recommendation #7:

Assess Colorado's HIT workforce needs to determine the best bang for HITECH's workforce training buck.

Clinical information systems are only as valuable as the organization, analysis, management and use of the information they yield. The dangers of designing and using systems that do not suit clinician and patient needs range from stymieing provider adoption to increasing, instead of preventing, medical errors. Recognizing this, HITECH provides funding for two workforce training grant programs that could be utilized to support everything from undergraduate, graduate and postdoctoral level training in medical informatics to training for physicians and allied health professionals in the everyday use of EHRs.

Colorado should immediately convene all interested stakeholders, including its community colleges, four-year colleges and universities, medical and other health professional schools, and the Departments of Labor and Employment and Higher Education, to collaborate in a systematic assessment of Colorado's medical informatics and HIT workforce training needs, prioritize those needs and assemble applications for federal funding by the Colorado institutions best able to meet them.

Recommendation #8:

In partnership with the Colorado Office of Information Technology and CORHIO, the Colorado Telehealth Network should determine how best to complement existing broadband and telehealth efforts with the aim of establishing a sustainable network and applying for Broadband Technology Opportunities Program and Distance Learning, Telemedicine, and Broadband Program funds.

Colorado continues to advance its commitment to broadband and telehealth through the Federal Communications Commission's Rural Health Care Pilot Program, which allows eligible provider sites to qualify for the program's broadband subsidies. Both the Broadband Technology Opportunities Program and the Distance Learning, Telemedicine, and Broadband Program represent significant opportunities to push the existing program from a pilot stage to an established, robust and sustainable network. In addition, the Broadband Technology Opportunities Program and the Distance Learning, Telemedicine, and Broadband Program offer funds that may provide necessary complementary support, including network operations, monitoring, and site implementation and training.

The Colorado Telehealth Network provides essential leadership and coordination to ensure that the Federal Communication Commission program meets the State's and each of the provider site's telehealth and broadband objectives. The Colorado Telehealth Network should also actively engage in the State's HIE planning activities to make certain that telehealth and broadband are considered priorities.

Recommendation #9:

To facilitate a western states regional approach to HIE, Colorado should invite neighboring states to participate in the statewide collaboration process and work with the Western Governor's Association to explore a process for reconciling differences in state privacy laws to enable interstate HIE.

Patients in neighboring states, such as Wyoming, Nebraska, Kansas, Utah and New Mexico, seek care within Colorado's borders, reflecting Denver's role as one of the region's main metropolitan hubs. Many of Colorado's medical referral regions cross over into neighboring states, a situation that is particularly acute on the Western Slope, where residents of Utah's rural eastern border regularly seek care in Grand Junction, and along the northern Front Range, where patients from Wyoming's southeast corner travel to Fort Collins for treatment.

A number of these contiguous states are developing HIT initiatives. Utah, for instance, has contracted with the same HIE vendor as neighboring QHN, offering a chance for real collaboration in the care for residents of Colorado and Utah alike. To advance the cause of a nationwide health information network and to develop Colorado's HIE capabilities consistent with its medical referral regions, CORHIO should invite representatives from neighboring states to participate in its statewide collaboration process. The involvement of border states in the development of common policies, clinical goals, technical requirements and architectural standards from the outset will ease the effort to connect the region once Colorado's neighbors are ready to exchange information. Additionally, Governor Ritter should explore engaging with the Western Governors Association to reconcile differences in existing privacy law among the region's states and avoid future discrepancies that could impede cross-border and, eventually, nationwide data flow.

Recommendation #10:

Evaluate the need for an EHR loan fund program in Colorado.

Even with HITECH's Medicare and Medicaid incentive payments, many health care providers, especially in Colorado's rural areas, simply will not have access to the up-front capital necessary to purchase and install EHRs. HITECH provides funding for an EHR loan program, but requires states to contribute $1 of state funds for each $5 of federal funds. Given the financial challenges facing Colorado, Colorado should, through CORHIO, undertake a survey to identify the need for up-front capital among those Colorado providers who have yet to purchase EHRs or who require assistance to enhance their use of EHRs. Upon assessment of demand, the State and CORHIO should work together to identify potential funding sources, including contributions from the State's foundations and existing capital loan programs, to satisfy HITECH's match requirement.

References

1. See estimate released May 2009 by the U.S. Department of Health and Human Services, available at http://www.hhs.gov/recovery/index.html. This includes an estimated $46.8 billion in Medicare and Medicaid electronic health record incentive payment funding and $2 billion to be distributed through the Office of the National Coordinator in a series of grants, loans, and technical assistance programs designed to support provider EHR use and to spur health information exchange. See also the CMS ARRA Implementation Plan, available at http://www.hhs.gov/recovery/reports/plans/hit_implementation.pdf and the ONC Implementation Plan, available at http://www.hhs.gov/recovery/reports/plans/onc_hit.pdf. Note that this estimate is significantly larger than the Congressional Budget Office's official score of the ARRA conference agreement, which was released February 13, 2009.
2. Blumenthal D.. "Stimulating the Adoption of Health Information Technology." *New England Journal of Medicine*. April 9, 2009.
3. Colorado accounted for approximately 1 percent of total Medicare expenditures in 2004 and approximately .9 percent of total Medicaid expenditures in 2007. If an average percentage of 1 percent is applied to the $46.8 billion in gross incentive outlays authorized under HITECH, Colorado's providers could stand to receive approximately $468 million in incentive payments. Colorado's Medicare and Medicaid expenditure data taken from The Kaiser Family Foundation's statehealthfacts.org Web site.
4. 2009 Population Estimates, U.S. Census Bureau, Population Estimates Program.
5. Id.
6. Census 2000 Summary File 3, U.S. Census Bureau.
7. "Colorado: Health Insurance Coverage of the Total Population, States (2006-2007), U.S. (2007)." Kaiser Family Foundation. State Health Facts.org. Accessed on April 27, 2009.
8. Id.
9. Id.
10. Numbers and descriptions of Colorado's health care providers, including medical referral regions, taken from the CORHIO Business Plan. See "CORHIO Business Plan." CORHIO and Strategies for Tomorrow. December 2008.
11. See Jha AK, et. al. "Use of Electronic Health Records in U.S. Hospitals." *New England Journal of Medicine*. April 16, 2009, and DesRoches, CM, et al, "Electronic Health Records in Ambulatory Care – A National Survey of Physicians," *New England Journal of Medicine*. July 3, 2008. Generally speaking, researchers in these two studies considered "basic" EHRs to be those that included certain clinical documentation but not clinical decision support and select other functions.
12. Executive Order D 008 09: "Designating the Colorado Regional Health Information Organization as Colorado's Qualified State-Designed Entity to lead efforts to expand the use of health information across Colorado to meet state and federal goals for improving health and health care."
13. For a detailed list of the many initiatives that are helping move Colorado to a value-driven health care system, see HCPF's "Report to the Office of Governor Bill Ritter, Jr.: Establishing the Center for Improving Value in Health Care." December 15, 2008. Available at http://www.colorado.gov/cs/Satellite?c=Page&cid=1216634433584&pagename=HCPF percent2FHCPFLayout.

14. See "Health Information Technology Advisory Committee: Report and Recommendations, April 2009." Available at http://www.colorado.gov/oit.
15. In addition, Colorado benefits from the Governor's holistic approach to information technology, demonstrated by the May 2007 appointment of the State's Chief Information Technology Officer to the Governor's Cabinet. Under the leadership of the State Office of Information Technology ("OIT"), Colorado is centralizing its information technology management, purchasing, spending and planning and is creating statewide enterprise architecture to increase the effectiveness, efficiency and coordination of the services it delivers to State residents using such technologies.
16. See supra note 1.
17. Id.
18. Id.
19. See 74 Fed. Reg. 25550 (May 29, 2009).
20. The e-prescribing requirement does not apply to hospitals.
21. The incentive payments begin in federal fiscal year 2011 for hospitals (which starts October 1, 2010) and calendar year 2011 (which starts January 1, 2011) for physicians.
22. The Colorado Office of Information Technology is leading an initiative to coordinate and vet applications for ARRA's broadband funding. As part of the initiative, the Office will score and provide feedback on vendor applications in an effort to ensure that ARRA's funding is disbursed according to the State's broadband deployment goals and consistent with its broadband mapping exercise. See the "Broadband" page on the Governor's Economic Recovery and Accountability Web site for more information or contact the Office of Information Technology. http://www.colorado.gov/cs/Satellite?c=Page&cid=1236604976643&pagename=OIT-2 percent2FOIT2Layout .
23. See Broadband Technology Opportunities Program (Broadband Technology Opportunities Program) Recovery Plan. May 15, 2009. http://www.recovery.gov/?q=content/program-plan&program_id=7795.
24. See the U.S. Department of Agriculture ARRA Implementation Plan. "ARRA – Broadband Recovery Plan." May 14, 2009. http://www.recovery.gov/?q=content/program-plan&program_id=7686.
25. The Act also appropriated $500 million to support new health center sites and service areas, increase services at existing sites, and support spikes in uninsured populations.
26. See "Recovery Act Program: Health Centers: Capital (Construction, Renovation, Equipment and HIT: $1.5 Billion)" http://www.hhs.gov/recovery/reports/plans/healthcenterscapital.pdf.
27. See the testimony of Dr. Carolyn Clancy, AHRQ, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.
28. See the testimony of Rachel Block, New York eHealth Collaborative, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.
29. See the testimony of William S. Bernstein, Manatt, Phelps & Phillips, LLP, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.
30. See the testimony of Dr. Theresa Cullen, Indian Health Service, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.

31. See the testimony of Dr. C. Blackford Middleton, Partners Healthcare, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.
32. See the testimony of Dr. Farzad Mostashari, New York City Department of Health and Mental Hygiene, Justin Barnes, Greenway Medical, and Dr. John Tooker, American College of Physicians, before the Executive Subcommittee of the NCVHS. Hearing on "Meaningful Use" of Health Information Technology. April 28, 2009.
33. See "Health Information Technology: American Recovery and Reinvestment Act (Recovery Act) Implementation Plan." Office of the National Coordinator for Health Information Technology. http://www.hhs.gov/recovery/reports/plans/onc_hit.pdf
34. See "HHS American Recovery and Reinvestment Act (Recovery Act) Implementation Plan: Health Information Technology – Medicare and Medicaid Incentives and Administrative Funding." Centers for Medicare and Medicaid Services. http://www.hhs.gov/recovery/reports/plans/hit_implementation.pdf
35. Id.
36. See 74 Fed. Reg. 24854 (May 26, 2009).
37. See 74 Fed. Reg. 25550 (May 29, 2009).
38. Town Hall Meeting conducted by the Office of the National Coordinator at the Healthcare Information and Management Systems Society (HIMSS) 2009 annual meeting. See also "Health Information Technology: American Recovery and Reinvestment Act (Recovery Act) Implementation Plan." Office of the National Coordinator for Health Information Technology. http://www.hhs.gov/recovery/reports/plans/onc_hit.pdf.
39. The other 15 states are Arizona, California, Georgia, Florida, Illinois, Iowa, Massachusetts, Michigan, Mississippi, New Jersey, New York, North Carolina, Ohio, Pennsylvania and Texas. The Government Accounting Office released its first bimonthly report to Congress on April 23, 2009. See its new Web site devoted to its ARRA oversight responsibilities, called "Following the Money: GAO Oversight of the Recovery Act" at http://www.gao.gov/recovery/.
40. See "Interoperable Health Information Exchange Policy, Governance and Accountability: Examining the Potential Role for RHIO Accreditation in New York's Health Information Technology Strategy." New York eHealth Collaborative. September 2008. Available at https://www.nyehealth.org.

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