Iowa e-Health
Business and Financial Sustainability Plan

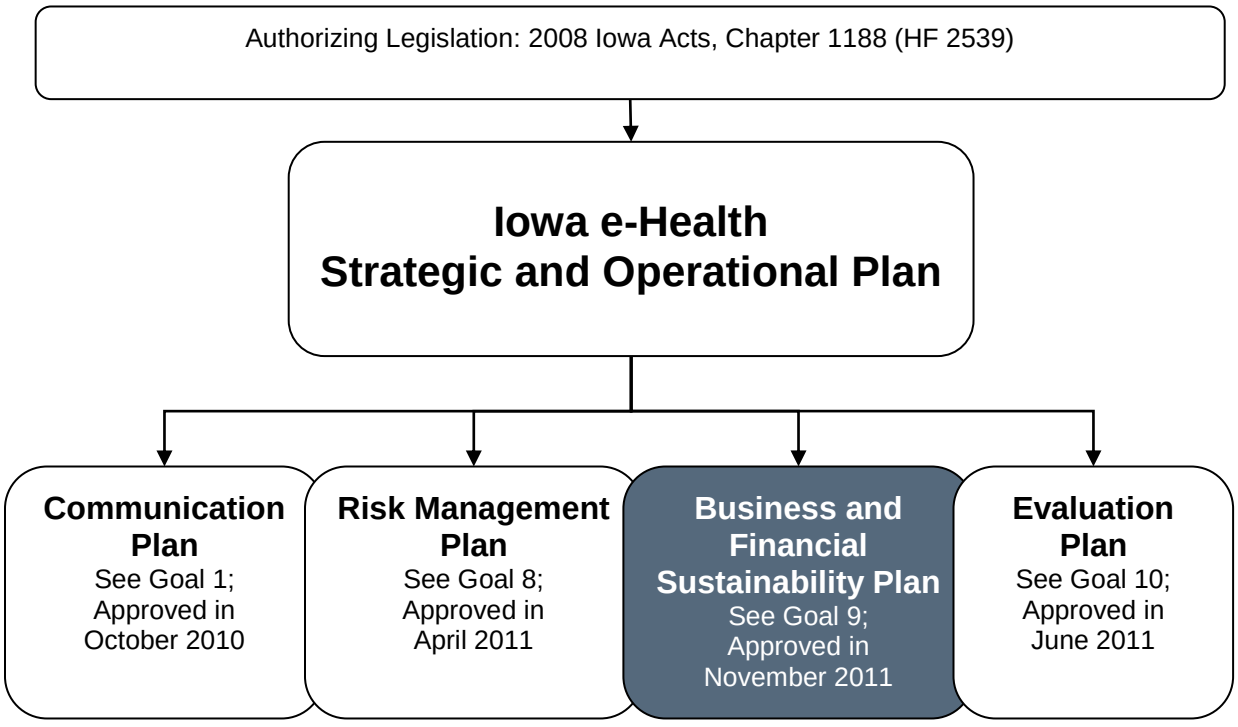
November 9, 2011

IOWA DEPARTMENT OF PUBLIC HEALTH
Office of Health Information Technology

The Iowa e-Health vision is for a healthier Iowa
through the use and exchange of electronic health information
to improve patient-center health care and population health

The Iowa e-Health Strategic and Operational Plan is a required deliverable of the State Health Information Exchange (HIE) Cooperative Agreement Program sponsored by the U.S. Department of Health and Human Services' Office of the National Coordinator for Health Information Technology (Health IT) and managed by the Iowa Department of Public Health. The Strategic and Operational Plan is a major milestone for Iowa summarizing the valuable discussions and planning of the e-Health Executive Committee, Advisory Council and workgroups that have been taking place since January 2009.

There are a variety of coordinating plans that have been developed to help execute the goals, objectives, and strategies of the Iowa e-Health Strategic and Operational Plan. All plans are developed through a transparent, multi-stakeholder process to identify and satisfy the business and clinical requirements for Iowa e-Health and IHIN. Additional information is available at http://www.IowaeHealth.org.



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Change History and Plan Approvals

Change History

Date:	Changes:
11/9/11	1. Original plan

Plan Approvals

Description	Approved By:	Date:
1. Approval of the Business and Financial Sustainability Plan	e-Health Executive Committee State Board of Health	10/28/11 11/9/11

Frequently Used Terms and Acronyms

ARRA	American Recovery and Reinvestment Act
CMS	Centers for Medicare and Medicaid Services
EHR	Electronic Health Record
Health IT	Health Information Technology
HIE	Health Information Exchange
HITECH	Health Information Technology for Economic and Clinical Health Act
IDPH	Iowa Department of Public Health
IHIN	Iowa Health Information Network
IME	Iowa Medicaid Enterprise
LTC	Long-Term Care
ONC	Office of the National Coordinator for Health Information Technology
PHR	Personal Health Record
REC	Regional Extension Center
SFY	State Fiscal Year

I. Executive Summary

Public and private stakeholders agree there is value in Iowa e-Health, the statewide collaborative effort to increase adoption and use of health information technology (health IT). The tools and services provided through Iowa e-Health and more specifically the statewide health information exchange (HIE) initiative known as the Iowa Health Information Network (IHIN) have the potential to help improve quality of health care, assure patient safety, and increase efficiency in health care delivery.

The Iowa e-Health Business and Financial Sustainability Plan is a major milestone for Iowa, which provides a foundation and clear path to a sustainable business model for the IHIN. The key components of a business plan are outlined throughout this document, including: market, customer, value, product, price, promotion, budget, financing and risk. The plan illustrates value cases for various stakeholder types, projects expenditures, and models various revenue strategies most appropriate for Iowa. A successful business and financial sustainability plan will instill trust among Iowa's stakeholders that the proposed plan is realistic, equitable, fair, and sustainable.

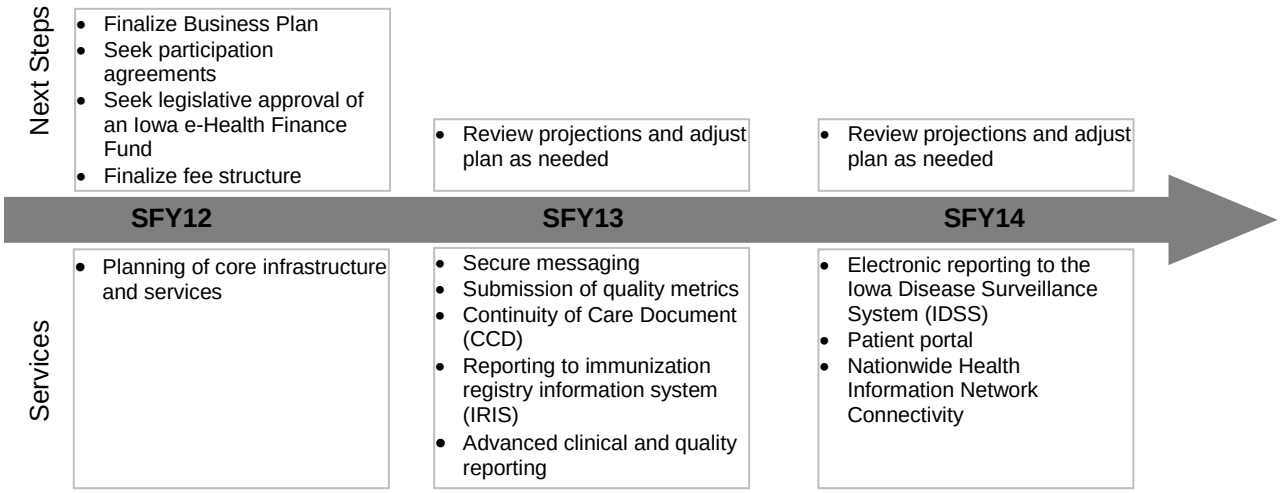
Key value cases illustrated in the plan include:

Providers
- Continuity of care
- Efficiencies and cost savings
- Reduction in medical errors

Payers
- Improved health outcomes
- Reduced claims payments
- Lower administrative costs

Consumers
- Continuity of care
- Improved health care outcomes
- Access to health information

Figure I.1: Timeline for Next Steps and Introduction of Services



Financing Approach and Strategies

Initial startup capital and long term operational revenue are necessary to support the business and technical operations required to fulfill this opportunity for Iowans. The initial startup capital will come from federal and state government. The majority of this initial financing is already secured through the State HIE Cooperative Agreement Program available through the U.S. Department of Health and Human Services as a result of the 2009 American Recovery and Reinvestment Act. Iowa has been awarded $8,375,000 for Iowa e-Health planning and implementation. The second source of capital financing is state general appropriations which meet federal match requirements. Iowa e-Health and Iowa Medicaid are also collaborating to pursue a third major source of capital financing through Centers for Medicare and Medicaid Services Health IT for Economic and Clinical Health Act (CMS HITECH).

Once the system has been constructed and the functionality demonstrated, the operational revenue will come from income generated through participation fees, projected to cover all expenses by state fiscal year (SFY) 2016.

The following recommendations were developed by the Business and Financial Sustainability Plan Workgroup (established in House File 649), approved by the Executive Committee and Advisory Council, and approved by the State Board of Health.

IHIN Participation Fees

IHIN participation fees are based on the financial model scenario included below and in ***Section XIII***. In the development of this plan, participation fees were extensively discussed with stakeholders and approved by the Business and Financial Sustainability Plan Workgroup, Executive Committee and Advisory Council, and the State Board of Health. It is the recommendation of these bodies that legislation be introduced during the 2012 Iowa legislative session to give the department authority to collect fees from IHIN participants. This authority is critical to the success and sustainability of the IHIN.

Iowa e-Health has established the participation fee structure based on the following guidelines:

- For access and utilization of Iowa e-Health services
- Based on a State Fiscal Year (SFY), which is July 1 – June 30
- Determined during the Iowa e-Health annual budgeting process
- Approved by the Iowa e-Health Executive Committee
- Implemented as part of the Iowa e-Health participation agreement
- Consistent among all participants according to the approved fee structure

Establishment of the Iowa e-Health Fund

It is the recommendation of the Business and Financial Sustainability Plan Workgroup, Executive Committee and Advisory Council, and the State Board of Health that legislation be introduced during the 2012 Iowa legislative session to create a separate fund within the state treasury where all fees collected and revenues arising from the operation of the IHIN will be deposited. IDPH will expend monies in the fund only on activities and operations of Iowa e-Health. The legislation should also include provisions that monies in the fund will not revert at the end of the state fiscal year, and will be subject to financial and compliance audits by the auditor of state.

Strategies to Avoid the use of General Fund Appropriations for Sustainability

Iowa e-Health recognizes that IHIN sustainability must occur without the ongoing use of dedicated General Fund appropriations. To that end, the financial model scenario included in ***Section XIII*** shows a clear path of sustaining the IHIN with participation fee revenue, and not dedicated General Funds. In SFY12, Iowa e-Health will receive $514,294 in General Funds to ensure Iowa meets State HIE Cooperative Agreement Program match requirements. Within the two-year state budget, Iowa e-Health anticipates receiving this funding in SFY13, after which time dedicated General Fund appropriations cease.

To further emphasize the importance of IHIN sustainability without General Fund appropriations, Iowa e-Health will implement the following strategies:

1. Annual review of IHIN participation fees, as outlined in ***Section XIII***.
2. Development of monthly, quarterly and annual financial statements that report IHIN participation rates, revenue and expenses, and whether projections are being met.
3. If financial statements report projections are not on target, Iowa e-Health will develop and submit to the Executive Committee and Advisory Council action steps to implement changes to meet targets and projections (e.g., increase marketing, offer additional services).
4. Iowa e-Health must cultivate business relationships with other potential IHIN participants, and implement new IHIN services to meet future business needs of stakeholders.

5. Iowa e-Health will establish a Funded Depreciation Account for the planned replacement of current equipment assets, and an Improvement and Development Account to dedicate revenue to the future enhancement of the IHIN (e.g., additional functionality and services).

Financial Model Scenario

There are many variables that impact the final fee structure. These variables include projected versus actual participation rates, meeting implementation timelines, and projected versus actual expenditures. For this reason, Iowa e-Health examined a variety of potential financial scenarios in order to see how changes in expenses, participation levels, and revenues would impact the fee structure. After vetting numerous scenarios and gathering feedback from stakeholders, the following financial scenario is considered by the Business and Financial Sustainability Plan Workgroup, Executive Committee and Advisory Council, and State Board of Health as the most likely and realistic case. This scenario maximizes available federal funding from the Office of the National Coordinator (State HIE Cooperative Agreement Program) and the Centers for Medicare and Medicaid Services (CMS HITECH funding).

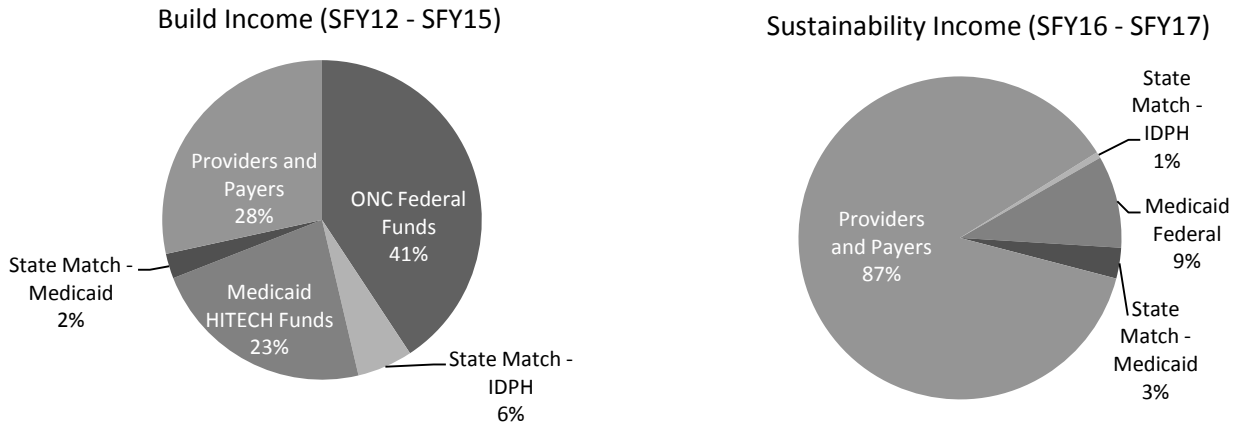
The following assumptions were used in the creation of the financial model:

- Funding from CMS HITECH will be received to support the IHIN build (SFY12 – SFY15)
- State General Fund appropriations specifically for Iowa e-Health will end after SFY13
- State government agencies begin paying participation fees for services beginning in SFY14
- Hospital efficiency adjustment incentives (discount for shared infrastructure) begin in SFY14
- Participation by Iowa hospitals reaches 88% by the end of SFY17
- Participation by Iowa provider practices (primary and specialty care) reaches 50% by SFY17

Build Income (startup capital) will account for the largest share of income during the development of the IHIN (SFY12 through SFY15). During this time period, the sources of this build income are: 1) ONC State HIE Cooperative Agreement Program ($7,818,633); 2) State General Fund Appropriations ($1,028,588); and 3) CMS HITECH 90/10 Funding ($7,450,000). Beginning in SFY16, build income is no longer available and the IHIN will be sustained through revenue generated from IHIN services.

Sustainability Income (operational revenue) will begin in SFY13 as participants connect to the IHIN and use services. The sources of operational revenue include hospitals, provider practices, state government agencies, payers, long-term care centers, home health providers, pharmacies, and labs. Participants will enter into Participation Agreements (i.e., contracts) with Iowa e-Health that will require participation fees be paid in order to use IHIN services. As Iowa e-Health begins collecting fees in SFY13, an estimated $709,500 will be collected from participants during that fiscal year. This amount increases dramatically as participation steadily grows. For example, in SFY17, Iowa e-Health estimates generating $4,312,000 in participation fees – an amount that exceeds expenses.

Figure I.2: Distribution of Build and Sustainability Income for Core Infrastructure and Services *(does not include Advanced Clinical and Quality Reporting)*



Expenses will be incurred during the build and on-going operation of the IHIN. The total expense over the 6-year timeframe is $28,013,468, averaging $4,668,911 annually. The expense items are critical to the success of the IHIN and will, at a minimum, be reviewed annually by the Executive Committee and Advisory Council to ensure revenue is allocated efficiently and effectively. Expenses include IHIN infrastructure and services, funded depreciation, system improvement and development, technical assistance, communication and outreach, travel, legal services, indirect (i.e., administrative support, office space, fiscal services), and personnel.

Personnel expenses include salary and fringe for the following state employee positions within IDPH:

- Communication and Outreach Coordinator
- Evaluation Coordinator
- Executive Director / State Health Information Technology Coordinator
- IT Project Manager
- Program Assistant
- Strategic Planning Coordinator
- Implementation Support Specialist (added in SFY13)

Table I.1: Pro Forma Budget

Income	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Startup Capital (Build)						
ONC Federal Funds	$ 2,246,148	$ 2,640,820	$ 2,931,665	$ -	$ -	$ -
State General Appropriation	$ 514,294	$ 514,294	$ -	$ -	$ -	$ -
Medicaid CMS HITECH Funds	$ 2,150,000	$ 1,900,000	$ 1,700,000	$ 1,700,000		
Operational Revenue (Sustainability)						
Direct Connection: Hospitals	$ -	$ 396,250	$ 1,053,750	$ 1,104,250	$ 1,389,250	$ 1,419,250
Direct Connection: Provider Practices	$ -	$ 17,750	$ 126,000	$ 253,000	$ 319,000	$ 420,000
Direct Connection: Other Provider Types	$ -	$ 10,500	$ 65,500	$ 119,000	$ 179,500	$ 251,250
Provider Portal	$ -	$ 35,000	$ 134,500	$ 191,500	$ 244,000	$ 296,500
State Government Agencies	$ -	$ -	$ 25,000	$ 25,000	$ 525,000	$ 525,000
Payer IHIN Service	$ -	$ 250,000	$ 800,000	$ 900,000	$ 1,400,000	$ 1,400,000
Income	$ 4,910,442	$ 5,764,614	$ 6,836,415	$ 4,292,750	$ 4,056,750	$ 4,312,000
= Total Income	**$ 4,910,442**	**$ 5,764,614**	**$ 6,836,415**	**$ 4,292,750**	**$ 4,056,750**	**$ 4,312,000**
Expense						
HIE Infrastructure & Services						
Non-Recurring	$ 3,065,222	$ -	$ -	$ -	$ -	$ -
On-Going Operations	$ 646,357	$ 2,940,393	$ 2,647,721	$ 2,647,721	$ 2,647,721	$ 2,647,721
Funded Depreciation Account	$ -	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
Improvement and Development Account	$ -	$ 200,000	$ 200,000	$ 200,000	$ 283,973	$ 301,840
Personnel						
Salaries and Fringe	$ 560,366	$ 670,499	$ 724,138	$ 782,069	$ 844,635	$ 912,206
Indirect Expense	$ 148,497	$ 177,682	$ 191,897	$ 207,248	$ 223,828	$ 241,735
Technical Assistance for Participants	$ -	$ 650,000	$ 600,000	$ 600,000	$ -	$ -
Communication and Outreach	$ 350,000	$ 300,000	$ 200,000	$ 150,000	$ 100,000	$ 70,000
Travel	$ 25,000	$ 25,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Legal Services	$ 80,000	$ 80,000	$ 60,000	$ 40,000	$ 40,000	$ 40,000
Other Expenses	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
Total Expense	**$4,910,442**	**$5,118,574**	**$4,718,756**	**$4,722,038**	**$4,235,157**	**$4,308,502**
Annual Ending Balance	$ 0	$ 646,040	$ 2,117,659	$ (429,288)	$ (178,407)	$ 3,498
Cumulative Ending Balance	$ 0	$ 646,040	$ 2,763,699	$ 2,334,411	$ 2,156,004	$ 2,159,503

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

Table I.2: Adoption Rates

	Number of Entities					
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Project Phase	Build				Sustain	
Startup Capital (Build)						
Federal Funds (ONC)	Not Applicable - See Projected Total Revenue					
State General Appropriation						
Medicaid						
Operational Revenue (Sustainability)						
Direct Connect: Hospitals						
Percent of Hospitals (total=118)	0%	20%	39%	49%	85%	88%
Percent of Beds (total=11,303)	0%	51%	75%	80%	93%	94%
Over $750M Annually	0	1	1	1	1	1
$500M - $750M Annually	0	1	1	1	1	1
$250M - $499M Annually	0	5	5	5	5	5
$150M - $249M Annually	0	1	6	6	6	6
$100M - $149M Annually	0	5	8	8	8	8
$50M - $99M Annually	0	3	8	8	8	8
$25M - $49M Annually	0	2	5	11	17	18
$15M - $24M Annually	0	3	6	10	28	30
Under $15M Annually	0	3	6	8	26	27
Direct Connect: Provider Practices						
Percent of Facilities* (total=948)	0%	2%	12%	29%	38%	50%
Percent of Providers (total=6,475)	0%	22%	29%	39%	45%	52%
Over 90 Providers	0	4	6	8	8	8
61 - 90 Providers	0	1	2	2	2	2
31 - 60 Providers	0	2	4	6	8	12
21 - 30 Providers	0	1	2	6	6	6
11 - 20 Providers	0	1	10	20	30	40
6 - 10 Providers	0	5	40	80	100	150
1 - 5 Providers	0	5	50	150	200	250
FQHC/RHC	0	1	4	6	8	10
Direct Connect: Pharmacies						
Independent	0	6	10	20	30	45
Chain (15 or fewer locations)	0	1	1	2	4	5
Chain (16 or more locations)	0	1	2	2	3	4
Direct Connect: Labs						
Independent	0	0	3	9	15	20
Affiliated (one fee per group)	0	0	1	2	2	2
Direct Connect: LTC, AL, Nursing, and RCF						
Over 400 Beds	0	0	0	1	2	3
301 - 400 Beds	0	0	1	2	2	3
201 - 300 Beds	0	0	1	2	2	4
151 - 200 Beds	0	0	2	2	3	4
101 - 150 Beds	0	0	2	4	6	8
51 - 100 Beds	0	0	3	4	6	8
1 - 50 Beds	0	0	4	6	8	10
Direct Connect: HH, Behavioral Health, Therapies, Other						
Over 90 Providers	0	0	0	1	2	3
61 - 90 Providers	0	0	0	1	2	3
31 - 60 Providers	0	0	0	1	2	3
21 - 30 Providers	0	0	1	2	3	4
11 - 20 Providers	0	0	2	4	6	10
6 - 10 Providers	0	0	2	4	6	10
1 - 5 Providers	0	0	3	6	8	12
Provider Portal (per facility)						
Over 90 Providers	0	0	1	2	2	2
61 - 90 Providers	0	0	1	2	2	2
31 - 60 Providers	0	1	5	6	8	10
21 - 30 Providers	0	5	10	15	20	25
11 - 20 Providers	0	10	20	30	40	50
6 - 10 Providers	0	30	40	50	60	70
1 - 5 Providers	0	25	50	75	100	125
State Government Agencies**						
Medicaid	0	0	0	0	1	1
Public Health	0	0	1	1	1	1
Payer IHIN Service						
Over 500,000 covered lives	0	1	1	1	1	1
100,000 - 499,000 covered lives	0	0	1	1	2	2
Under 100,000 covered lives	0	0	0	1	3	3

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Total number of facilities does not include all practices within a health system.

**Additional state government agencies may be added as their participation and fees are better defined.

Table I.3: Fee Structure

Fee						
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Project Phase	Build				Sustain	
Startup Capital (Build)						
Federal Funds (ONC)	Not Applicable - See Projected Total Revenue					
State General Appropriation						
Medicaid						
Operational Revenue (Sustainability)						
Direct Connect: Hospitals	**Per Hospital**					
Percent of Hospitals (total=118)						
Percent of Beds (total=11,303)						
Over $750M Annually	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
$500M - $750M Annually	$ -	$ 40,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
$250M - $499M Annually		$ 30,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
$150M - $249M Annually	$ -	$ 22,500	$ 45,000	$ 45,000	$ 45,000	$ 45,000
$100M - $149M Annually	$ -	$ 15,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
$50M - $99M Annually	$ -	$ 10,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
$25M - $49M Annually	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
$15M - $24M Annually	$ -	$ 3,750	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Under $15M Annually	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: Provider Practices	**Per Provider Practice / System**					
Percent of Facilities (total=948)						
Percent of Providers (total=6,475)						
Over 90 Providers	$ -	$ 2,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	$ -	$ 1,250	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	$ -	$ 1,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	$ -	$ 750	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
FQHC/RHC	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Direct Connect: Pharmacies	**Per Pharmacy**					
Independent	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Chain (15 or fewer locations)	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Chain (16 or more locations)	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Direct Connect: Labs	**Per Lab**					
Independent	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Affiliated (one fee per group)	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: LTC, AL, Nursing, and RCF	**Per Provider Organization**					
Over 400 Beds	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
301 - 400 Beds	$ -	$ 1,375	$ 2,750	$ 2,750	$ 2,750	$ 2,750
201 - 300 Beds	$ -	$ 1,125	$ 2,250	$ 2,250	$ 2,250	$ 2,250
151 - 200 Beds	$ -	$ 875	$ 1,750	$ 1,750	$ 1,750	$ 1,750
101 - 150 Beds	$ -	$ 625	$ 1,250	$ 1,250	$ 1,250	$ 1,250
51 - 100 Beds	$ -	$ 375	$ 750	$ 750	$ 750	$ 750
1 - 50 Beds	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Direct Connect: HH, Behavioral Health, Therapies, Other	**Per Provider Organization**					
Over 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
61 - 90 Providers	$ -	$ 1,375	$ 2,750	$ 2,750	$ 2,750	$ 2,750
31 - 60 Providers	$ -	$ 1,125	$ 2,250	$ 2,250	$ 2,250	$ 2,250
21 - 30 Providers	$ -	$ 875	$ 1,750	$ 1,750	$ 1,750	$ 1,750
11 - 20 Providers	$ -	$ 625	$ 1,250	$ 1,250	$ 1,250	$ 1,250
6 - 10 Providers	$ -	$ 375	$ 750	$ 750	$ 750	$ 750
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Provider Portal (per facility)	**Per Facility**					
Over 90 Providers	$ -	$ 2,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	$ -	$ 1,250	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	$ -	$ 1,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	$ -	$ 750	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
State Government Agencies*	**Per Agency**					
Medicaid	$ -	$ -	$ -	$ -	$ 500,000	$ 500,000
Public Health	$ -	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Payer IHIN Service	**Per Payer**					
Over 500,000 covered lives	$ -	$ 250,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
100,000 - 499,000 covered lives	$ -	$ 150,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Under 100,000 covered lives	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Additional state government agencies may be added as their participation and fees are better defined.

Table I.4: Projected Total Revenue

Projected Total Revenue							
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17	Cumulative
Project Phase	Build				Sustain		
Startup Capital (Build)							
Federal Funds (ONC)	$ 2,246,148	$ 2,640,820	$ 2,931,665	$ -	$ -	$ -	$ 7,818,633
State General Appropriation	$ 514,294	$ 514,294	$ -	$ -	$ -	$ -	$ 1,028,588
Medicaid	$ 2,150,000	$ 1,900,000	$ 1,700,000	$ 1,700,000	$ -	$ -	$ 7,450,000
Operational Revenue (Sustainability)							
Direct Connect: Hospitals			**Total Hospitals**				
Over $750M Annually	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 450,000
$500M - $750M Annually	$ -	$ 40,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 360,000
$250M - $499M Annually	$ -	$ 150,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 1,350,000
$150M - $249M Annually	$ -	$ 22,500	$ 270,000	$ 270,000	$ 270,000	$ 270,000	$ 1,102,500
$100M - $149M Annually	$ -	$ 75,000	$ 240,000	$ 240,000	$ 240,000	$ 240,000	$ 1,035,000
$50M - $99M Annually	$ -	$ 30,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 670,000
$25M - $49M Annually	$ -	$ 10,000	$ 50,000	$ 110,000	$ 170,000	$ 180,000	$ 520,000
$15M - $24M Annually	$ -	$ 11,250	$ 45,000	$ 75,000	$ 210,000	$ 225,000	$ 566,250
Under $15M Annually	$ -	$ 7,500	$ 30,000	$ 40,000	$ 130,000	$ 135,000	$ 342,500
Direct Connect: Provider Practices			**Total Provider Practice / System**				
Over 90 Providers	$ -	$ 8,000	$ 24,000	$ 32,000	$ 32,000	$ 32,000	$ 128,000
61 - 90 Providers	$ -	$ 1,500	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 25,500
31 - 60 Providers	$ -	$ 2,500	$ 10,000	$ 15,000	$ 20,000	$ 30,000	$ 77,500
21 - 30 Providers	$ -	$ 1,000	$ 4,000	$ 12,000	$ 12,000	$ 12,000	$ 41,000
11 - 20 Providers	$ -	$ 750	$ 15,000	$ 30,000	$ 45,000	$ 60,000	$ 150,750
6 - 10 Providers	$ -	$ 2,500	$ 40,000	$ 80,000	$ 100,000	$ 150,000	$ 372,500
1 - 5 Providers	$ -	$ 1,250	$ 25,000	$ 75,000	$ 100,000	$ 125,000	$ 326,250
FQHC/RHC	$ -	$ 250	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,250
Direct Connect: Pharmacies			**Total Pharmacies**				
Independent	$ -	$ 3,000	$ 10,000	$ 20,000	$ 30,000	$ 45,000	$ 108,000
Chain (15 or fewer locations)	$ -	$ 2,500	$ 5,000	$ 10,000	$ 20,000	$ 25,000	$ 62,500
Chain (16 or more locations)	$ -	$ 5,000	$ 20,000	$ 20,000	$ 30,000	$ 40,000	$ 115,000
Direct Connect: Labs			**Total Labs**				
Independent	$ -	$ -	$ 3,000	$ 9,000	$ 15,000	$ 20,000	$ 47,000
Affiliated (one fee per group)	$ -	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 35,000
Direct Connect: LTC, AL, Nursing, and RCF			**Total Provider Organization**				
Over 400 Beds	$ -	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
301 - 400 Beds	$ -	$ -	$ 2,750	$ 5,500	$ 5,500	$ 8,250	$ 22,000
201 - 300 Beds	$ -	$ -	$ 2,250	$ 4,500	$ 4,500	$ 9,000	$ 20,250
151 - 200 Beds	$ -	$ -	$ 3,500	$ 3,500	$ 5,250	$ 7,000	$ 19,250
101 - 150 Beds	$ -	$ -	$ 2,500	$ 5,000	$ 7,500	$ 10,000	$ 25,000
51 - 100 Beds	$ -	$ -	$ 2,250	$ 3,000	$ 4,500	$ 6,000	$ 15,750
1 - 50 Beds	$ -	$ -	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,000
Direct Connect: HH, Behavioral Health, Therapies, Other			**Total Provider Organization**				
Over 90 Providers	$ -	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
61 - 90 Providers	$ -	$ -	$ -	$ 2,750	$ 5,500	$ 8,250	$ 16,500
31 - 60 Providers	$ -	$ -	$ -	$ 2,250	$ 4,500	$ 6,750	$ 13,500
21 - 30 Providers	$ -	$ -	$ 1,750	$ 3,500	$ 5,250	$ 7,000	$ 17,500
11 - 20 Providers	$ -	$ -	$ 2,500	$ 5,000	$ 7,500	$ 12,500	$ 27,500
6 - 10 Providers	$ -	$ -	$ 1,500	$ 3,000	$ 4,500	$ 7,500	$ 16,500
1 - 5 Providers	$ -	$ -	$ 1,500	$ 3,000	$ 4,000	$ 6,000	$ 14,500
Provider Portal (per facility)			**Total Facility**				
Over 90 Providers	$ -	$ -	$ 4,000	$ 8,000	$ 8,000	$ 8,000	$ 28,000
61 - 90 Providers	$ -	$ -	$ 3,000	$ 6,000	$ 6,000	$ 6,000	$ 21,000
31 - 60 Providers	$ -	$ 1,250	$ 12,500	$ 15,000	$ 20,000	$ 25,000	$ 73,750
21 - 30 Providers	$ -	$ 5,000	$ 20,000	$ 30,000	$ 40,000	$ 50,000	$ 145,000
11 - 20 Providers	$ -	$ 7,500	$ 30,000	$ 45,000	$ 60,000	$ 75,000	$ 217,500
6 - 10 Providers	$ -	$ 15,000	$ 40,000	$ 50,000	$ 60,000	$ 70,000	$ 235,000
1 - 5 Providers	$ -	$ 6,250	$ 25,000	$ 37,500	$ 50,000	$ 62,500	$ 181,250
State Government Agencies*			**Total Agency**				
Medicaid	$ -	$ -	$ -	$ -	$ 500,000	$ 500,000	$ 1,000,000
Public Health	$ -	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
Payer IHIN Service			**Total Payer**				
Over 500,000 covered lives	$ -	$ 250,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,250,000
100,000 - 499,000 covered lives	$ -	$ -	$ 300,000	$ 300,000	$ 600,000	$ 600,000	$ 1,800,000
Under 100,000 covered lives	$ -	$ -	$ -	$ 100,000	$ 300,000	$ 300,000	$ 700,000

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Additional state government agencies may be added as their participation and fees are better defined.

Table I.5: Projected Expenses

	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Infrastructure & Services						
Core: Non-Recurring (setup, testing, licensing, implementation)	$3,065,222					
Core: On-Going Operations (professional services, software maintenance, data hosting)	$146,357	$2,040,393	$1,747,721	$1,747,721	$1,747,721	$1,747,721
Funded Depreciation Account	$0	$40,000	$40,000	$40,000	$40,000	$40,000
Improvement and Development Account*	$0	$200,000	$200,000	$200,000	$283,973	$301,840
Quality Services	$500,000	$900,000	$900,000	$900,000	$900,000	$900,000
Technical Assistance for Participants	$0	$650,000	$600,000	$600,000	$0	$0
Personnel						
Salaries and Fringe**	$560,366	$670,499	$724,138	$782,069	$844,635	$912,206
Indirect Expense	$148,497	$177,682	$191,897	$207,248	$223,828	$241,735
Communication and Outreach	$350,000	$300,000	$200,000	$150,000	$100,000	$70,000
Travel	$25,000	$25,000	$20,000	$20,000	$20,000	$20,000
Legal Services (AG)	$80,000	$80,000	$60,000	$40,000	$40,000	$40,000
Other Expenses (supplies, computers, phones, etc)	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
Total Expense	**$4,910,442**	**$5,118,574**	**$4,718,756**	**$4,722,038**	**$4,235,157**	**$4,308,502**
*Based on an industry norm of 7% of Operational Revenue, with an annual minimum of $200,000.						
**Salaries and Fringe 6 employees (SFY12); 7 employees (SFY13 -- SFY17)						

Table I.6: Projected Total Revenue and Expense

Totals	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17	Cumulative
Startup Capital	$ 4,910,442	$ 5,055,114	$ 4,631,665	$ 1,700,000	$ -	$ -	$ 16,297,221
Operational Revenue	$ -	$ 709,500	$ 2,204,750	$ 2,592,750	$ 4,056,750	$ 4,312,000	$ 13,875,750
Total Income	**$ 4,910,442**	**$ 5,764,614**	**$ 6,836,415**	**$ 4,292,750**	**$ 4,056,750**	**$ 4,312,000**	**$ 30,172,971**
Total Expense	**$ 4,910,442**	**$ 5,118,574**	**$ 4,718,756**	**$ 4,722,038**	**$ 4,235,157**	**$ 4,308,502**	**$ 28,013,468**

Funded Depreciation and Improvement and Development Accounts

A Funded Depreciation Account and an Improvement and Development Account will be established for planned future expenses. The Funded Depreciation Account will be established and used for the planned obsolescence of the technology equipment (e.g., servers) necessary for operation of the IHIN. Estimates have been established for a $200,000 replacement cost at the end of a five-year useful life. The Improvement and Development Account will be funded consistent with technology industry norms at a range of 7% to 10% (current rate used is 7%) of annual operational revenue, with a minimum amount of $200,000 annually. This funding will be used for investment in additional IHIN functionality and services. Examples of potential IHIN services include, but are not limited to: credentialing, enrollment eligibility, vital records (birth and death), newborn metabolic screening, and radiology images.

Transitioning of Technical Infrastructure, Business Operations, and Governance

The governance structure of the IHIN is currently state government led, with a heavily involved public and private Executive Committee and Advisory Council. IDPH manages all business and technical operations of the IHIN, with recommendations provided by the Executive Committee and Advisory Council, and oversight by the State Board of Health. IDPH, the Business and Financial Sustainability Plan Workgroup, and Executive Committee and Advisory Council have discussed and considered the following alternative forms of governance structure:

- **Not-for-Profit**
  Not-for-profit HIEs are driven by their charter to help consumers and the community in which they provide services. Their tax-exempt status helps reduce funding challenges and provide special tax credits/incentives.[1]
- **For-Profit**
  For-profit HIEs are created with private funding and have firm return on investment targets. These organizations look to reap financial benefits from their transactions and have solid start-up funding.[1]
- **Public Utility**
  Public utility HIEs are created and maintained with the assistance of federal/state funds and are provided direction by the federal/state government. The organization's funding source is the primary differentiator for this category along with highly regulated fees and strict monitoring. [1]
- **Quasi-Governmental or Public-Private Partnership**
  The HIE is a private entity started by a public organization. In this model, the board is comprised of both state and private sector representatives. The board is responsible for setting policy and may be also responsible for operation of the HIE.
- **State Led or Public Entity (Current)**
  The HIE is solely governed by the state government. While there may be private sector representation on governance committees, the state government is responsible for the work produced, and is the final authority on the policies and operations of the HIE. The public entity may contract with a non-governmental entity to implement components of the HIE.

[1] Deloitte Center for Health Solutions. (2006). Health Information Exchange (HIE) Business Models: The Path to Sustainable Financial Success.

All forms of governance structure should ideally maintain broad stakeholder representation. The following table indicates advantages and disadvantages for each alternative governance structure considered. While this table does not include all advantages and disadvantages, its intent is to identify some critical factors in evaluating each potential governance option. As the HIE landscape continues to evolve and change so will the elements and viability of each alternative.

Table I.7: Governance Structure Advantages and Disadvantages

Governance Structure	Advantages	Disadvantages
Not-For-Profit	• Generally nimble with regard to governance, operations and procurement • Limited political influence • Low financial risk to state government	• Lengthy transition of IHIN or establishing sub recipient • Transition from state government could create instability • Participant fees may need to increase to cover expenses
For-Profit	• Generally nimble with regard to governance, operations and procurement • Flexibility in structure • Limited political influence • Low financial risk to state government • Incentive to have high-performing system and technology	• Lengthy transition of IHIN or establishing sub recipient • May not be eligible for government (e.g., ONC / CMS) and foundation funds • Transition from state government could create instability • Participant fees may need to increase to cover expenses
Public Utility	• Funded by those who benefit from the system • Regulated environment • Fee collection models and processes already exist	• Few working examples of a public utility model for HIE • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations
Quasi-Governmental	• Generally nimble with regard to governance, operations and procurement • Board structure encourages public-private partnership • May be supported by state or federal funding	• Political influence • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations
State Government Led	• Established processes • Liability coverage exists within state government • State has compelling public health interest • Transparent and open meetings • Resources remain focused on current goals and objectives	• Political influence • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations • High financial risk to state government

Recommendation
It is the recommendation of the Business and Financial Sustainability Plan Workgroup, the Executive Committee and Advisory Council, and the State Board of Health to continue with the current governance structure of the IHIN, at a minimum, through the end of the State HIE Cooperative Agreement Program (March 2014) for the following reasons:

1. Stable governance, business and technical operations will ensure the highest probability of success for IHIN implementation, and will encourage the highest adoption rates and use of the IHIN.
2. A focus on transitioning governance, business and technical operations during IHIN implementation will require an allocation of staff and resources to that transition, thereby reducing the amount of effort provided to implementation.
3. It is uncertain whether entities outside of state government are currently willing to assume the early risks and liabilities during IHIN implementation.
4. IDPH is the state designated entity for the State Health Information Exchange Cooperative Agreement Program and has experience managing this federal funding.
5. If transfer to another entity occurs during IHIN implementation, receiving CMS HITECH funding would be uncertain.

Transition Plan
During the final year of the term of the State HIE Cooperative Agreement Program (ending March 14, 2014), the Executive Committee, Advisory Council, and State Board of Health will review IHIN governance, business and technical operations to determine a new recommendation regarding the transition in governance, business and technical operations of the IHIN.

The recommendation, which will be submitted to the General Assembly and Governor by December 1, 2013, will take into consideration the following critical elements:

- Recognition that a change in governance, business and technical operations has broad implications and may take significant time to plan and execute.
- Expenses may change if governance, business and technical operations are moved to a non-governmental entity (e.g., liability coverage, staffing, fiscal processes).
- Expectations and requirements for CMS funding.
- New forms of governance may develop as the IHIN matures and the health care landscape evolves over time.

II. Background Information about Iowa e-Health

Health information technology (health IT) is recognized by public and private sector leaders as a key tool to support health reform across the nation. President George W. Bush's executive order in 2004, which called for every American to have an electronic health record (EHR) by 2014, was reaffirmed in the American Recovery and Reinvestment Act (ARRA) signed by President Obama on February 17, 2009.

The ARRA will result in a $19 billion investment in a health IT infrastructure for the United States. This funding will support technical assistance for EHR adoption, incentives to health care providers implementing and using EHRs, and infrastructure to enable statewide health information exchange (HIE), known as the Iowa Health Information Network (IHIN), among health care professionals.

Historically, the adoption and use of health IT has progressed slowly throughout the United States. To encourage the use and exchange of electronic health information in Iowa, the Iowa legislature established the e-Health Executive Committee and Advisory Council in 2008 through House File 2539.

The Iowa Department of Public Health (IDPH) and the e-Health Executive Committee and Advisory Council formed Iowa e-Health within the IDPH Office of Health IT to provide leadership and guidance to promote the use and exchange of electronic health information throughout Iowa. Iowa e-Health is a public and private collaboration with broad stakeholder representation from consumers, health care providers, health care purchasers, payers, and state government. The IDPH Office of Health IT provides coordination of health IT activities in Iowa, and specifically the program support and leadership in the development of IHIN.

With a vision of "a healthier Iowa through the use and exchange of electronic health information to improve patient-centered health care and population health," Iowa e-Health is leading the state's efforts to plan and implement the IHIN. This will enable the electronic exchange of health information in a secure format between authorized health care professionals and organizations.

Vision

The Iowa e-Health vision is for a healthier Iowa through the use and exchange of electronic health information to improve patient-centered health care and population health. This initiative will produce a public good that will:

- Improve quality of health care
- Assure patient safety
- Increase efficiency in health care delivery
- Promote and protect the health of Iowans

Goals

- Build awareness and trust of health IT
- Promote statewide deployment and use of electronic health records
- Enable the electronic exchange of health information
- Establish specific clinical exchanges and applications
- Safeguard privacy and security of electronic health information
- Advance coordination of activities across state and federal government programs
- Establish a governance model for Iowa health information exchange
- Ensure sustainable business and technical operations for health IT
- Secure financial resources to develop and sustain the IHIN
- Monitor and evaluate health IT progress and outcomes

III. Overview of IHIN Financial Sustainability

Financial sustainability is the issue that is still perplexing HIEs across the country. Many HIEs have focused their initial efforts on technology, privacy and security, and governance, and unfortunately, postponed the sustainability question to very late in the process. Although sustainability is a difficult issue, it is a priority in the development of the IHIN. During the HIE Strategic and Operational planning process, Iowa recognized the importance of sustainability and has made financial sustainability a high priority. A successful Financial Sustainability Plan will instill trust among Iowa's stakeholders that the proposed plan is equitable, fair, realistic, and sustainable.

At this time, there is no commonly accepted formula for achieving sustainability. Of the current models in place, there are different ways of raising revenue and achieving sustainability. Each sustainability model has pros and cons. Experience and research indicates sustainability is more about the process (the how) than about the answer (the what). Success usually comes from doing the hard work of building consensus between stakeholders and finding the sustainability model that works for each HIE.

In 2010, the Iowa Department of Public Health (IDPH), through a competitive procurement process, contracted with the Hielix and ApeniMED partnership to develop a comprehensive five-year financial sustainability plan for IHIN. The team began work with Iowa e-Health in September 2010. The Iowa e-Health Financial Sustainability Plan is the outcome of their work with Iowa e-Health and its stakeholders.

Research and Analysis

Iowa e-Health used the following sources of information in the research and analysis process of the Financial Sustainability Plan development. The research and analysis findings were used throughout the process and helped form all sections of the Financial Sustainability Plan.

1. **Existing Studies and Research:** Hielix/ApeniMED conducted a comprehensive review of literature, reports, articles, presentations and other materials to inform the work in designing the Iowa e-Health Financial Sustainability Plan. A review of the pertinent literature reveals several key considerations for Iowa as we move forward with the building of IHIN and reaching sustainability. A listing of the relevant documents, reports, articles, presentations and other materials is presented in ***Appendix A***. Listed below are the critical findings from the review of the literature and the environmental scan:
    - IHIN must provide demonstrable and measurable value to each participant.
    - IHIN must maintain a balance between technology and governance. This initiative is about creating the necessary social capital and trust to engage stakeholders and get them to share health care data and information.
    - IHIN participants are more engaged in the project if they have a substantial financial investment in the success of the project. It is important to get major participants involved early and to get them to invest in the project.
    - IHIN is part of a larger health care system and is not the driver of decision-making. It is one of the enablers of change.
    - Moving to electronic health technology requires a well-designed and well-executed transformation strategy.
    - Education of providers and consumers is an important intervention in creating sustainability and needs to be sustained over time.
    - IHIN will evolve over time. As such, opportunities for generating incremental value and new revenues will emerge. Iowa e-Health must be prepared to take advantage of these opportunities.

- IHIN is part of a network of networks. Significant data and information will flow through the IHIN, and it will become, over time, a major data source with opportunities to generate incremental revenues.
- There is a lack of skilled talent to operate a HIE successfully. It is likely that each HIE will have to develop the required skills and competencies internally.
- There will be pressures to take a disciplined incremental approach building on short-term wins while needing to attain economies of scale to support the IHIN long-term.
- Capitation and pay for performance in health care will impact the financial model for the IHIN and need to be assessed during the formation stage to ensure flexibility for change is built into the IHIN financial model.
- Legislative changes will likely be needed for ongoing success of the IHIN.

2. **Environmental Scan:** Existing plans, documents and reports developed by various Iowa stakeholders, workgroups and other Iowa entities were reviewed. The purpose in conducting this review and analysis was to:
   - Identify the current health IT and HIE capabilities in Iowa.
   - Understand the knowledge gaps that may exist.
   - Identify and analyze current and planned HIE operations.
   - Determine what additional data and information may be required to fully understand the HIE and health IT landscape.

   The Iowa e-Health Strategic and Operational Plan included many components of the environmental scan for Iowa. The Strategic and Operational Plan sections most pertinent to the development of the financial sustainability plan include: 1) health IT assets and achievements, 2) gaps, barriers, and preferences of Iowa stakeholders, 3) goals and objectives for health IT and IHIN, 4) IHIN infrastructure and services, and 5) assessment of the health IT landscape. In addition, Iowa e-Health conducted assessments of health IT by provider type (i.e., provider practices, home health agencies, long-term care organizations, radiology providers, pharmacies and labs). Information obtained through these assessments was used to understand the level of health IT adoption, current barriers, preferred services, and willingness to participate in the IHIN.

3. **Iowa Stakeholders:** Iowa e-Health worked with stakeholder organizations, including those representing hospitals, provider practices, state government, consumers, businesses, and payers. The team analyzed all of the operational data collected to determine where the points of intersection occur to determine the common ground for assessing various fees and charges. Points of intersection include:
   - Stakeholder and consumer wants, needs and interests
   - Stakeholder trust
   - Diverse stakeholder value propositions and use cases
   - Current and planned operational and financial capabilities
   - HIE readiness
   - EHR adoption
   - Quality reporting

   High priority preferences and needs have been expressed by stakeholders throughout the planning process and serve as the beginning point for building consensus and creating a sense of equitable treatment between diverse organizations. Iowa stakeholder preferences were determined through assessments conducted by Iowa e-Health, and discussions with the Executive Committee, Advisory Council, and workgroups. Further, Iowa e-Health conducted meetings with stakeholders to determine specific stakeholder preferences, needs, concerns and barriers related to health IT and IHIN. Core to all stakeholders was the desire to securely share

patient information in an electronic, interoperable and useable format – with the ultimate goal of improving the quality, safety and efficiency of health care. Discussions with providers highlighted their belief that HIE has the potential to improve coordination of patient care, which will ultimately lead to higher quality care and better outcomes. Payers see HIE as a way to improve administrative efficiencies (e.g., medical record requests) and improve quality reporting between providers and payers. ***Section V: Stakeholder Engagement*** outlines more information about the preferences and barriers for each stakeholder group.

Funding Approaches

A 2010 report by the eHealth Initiative, a not-for-profit organization based in Washington, D.C., contained information useful in considering how other HIEs are funding both the build and ongoing operations. eHealth Initiative had 107 respondents included in their survey[2]. The following tables present various revenue strategies for consideration.

Table III.1: Sources of Start-up Funds

Type of Funder (Number of respondents citing)	2009	2010
Hospitals	42	63
State government grants	43	57
Other Federal grants	39	50
Private payers	26	35
Physician practices	15	33
Philanthropic sources	19	25
Public payers (Medicaid/ Medicare)	12	14
Medical societies	11	11
Public Health	8	10

Table III.2: Sources of Ongoing Revenue

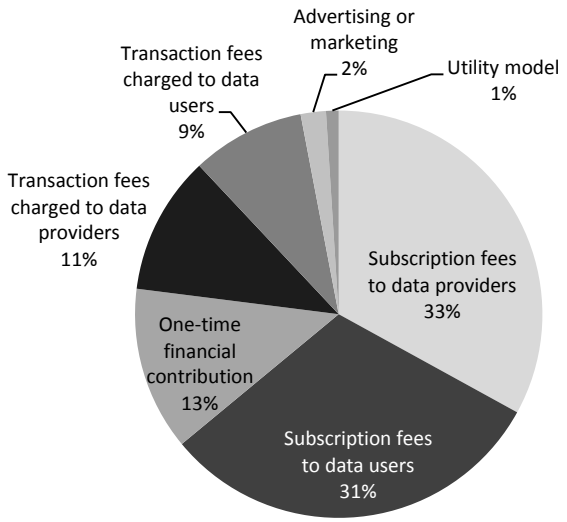
Type of Funder (Number of respondents citing)	2009	2010
Hospitals	26	43
Physician practices	16	32
Private payers	14	25
Laboratories	11	19
Other Federal grants	9	12
State Government Grants	10	11
Public payers (Medicaid/ Medicare)	5	10
Public Health	7	10

[2] eHealth Initiative. (2010). National Progress Report on eHealth.

Table III.3: Funding Sources for Operations

Type of Funding (Number of respondents citing)	2010
Subscription fees or membership dues to data providers	32
Subscription fees or membership dues to data users	30
One-time financial contribution	12
Transaction fees charged to data providers	11
Transaction fees charged to data users	9
Advertising or marketing	2
Utility model – Fees assessed through state for public service	1

Figure III.1: Revenue Sources of HIEs in Other States



Eight sources of funding have been commonly identified and used by other HIEs:

1. **Subscription fees / Membership dues**. Monthly or annual fees depending on the type of HIE participant (hospital, provider, payer)
2. **Fees for optional services**. Fees participants will pay beyond the basic HIE services (e.g., EHR-lite, secondary use of data)
3. **State appropriations**. Funding from the state general fund
4. **Assessment fees**. Fees charged to HIE participants on some characteristic (e.g., number of beds, hospital discharges, covered lives)
5. **Usage fees**. Based on actual volume of usage of the HIE
6. **Grants**. Short-term funding from philanthropies, foundations or government organizations
7. **Cost savings**. Based on projected operational costs saved by each stakeholder joining the HIE
8. **Taxation**. Consumer tax to cover operational costs of HIE

Iowa's analysis of these funding sources is included in ***Section X: Assessing Options for Capital and Operational Funding***.

IV. Planning Approach

Iowa e-Health selected a financial sustainability planning process designed by the Hielix/ApeniMED team, which brings a wealth of knowledge and relevant work experiences:

- Experience working on HIE projects with several other states (Arizona, Florida, Guam, Hawaii, Maryland, Minnesota, Mississippi, Missouri, North Dakota, Ohio, Puerto Rico, and Wisconsin).
- Experience with national committees that coordinate state activities, including: Health Information Management Systems Society (HIMSS), Nationwide Health Information Network, Office of the National Coordinator for Health Information Technology (ONC), and Health Information Security and Privacy Collaboration (HISPC).
- Familiarity with the research published by several national organizations in this field including the eHealth Initiative, National Governors Association (NGA), HIMSS, and the Markle Foundation.

This planning process used eight integrated phases to find the sustainability model that satisfies the wants and needs of stakeholders in Iowa.

Phase 1: Stakeholder Engagement

It is critical to sustainability that the key stakeholders are engaged from the beginning of the process. Therefore, identification of the key stakeholders is a fundamental requirement. These stakeholders will usually include the major hospital systems, the primary payers (including Medicaid), state government, and physician representation. Success factors for this phase include the following:

- Active and meaningful engagement of the key stakeholders as shown by participation in the development of the IHIN system and services, and agreement to help fund IHIN
- Development of trust between stakeholders as shown by a willingness to share financial and operational data and information

Phase 2: Research and Analysis

Information about successful and unsuccessful HIEs is readily available and can provide a solid background about business and financial sustainability planning. Several national organizations including HIMSS, eHealth Initiative, ONC, Center for Medicare and Medicaid Services (CMS), NGA, National e-Health Collaborative (NeHC) and the Markle Foundation have published numerous articles on HIE. In addition, nearly all states and territories have prepared strategic and operational plans for building an HIE and many vendors have published research papers. Success factors for this phase include the following:

- Obtaining relevant use cases from stakeholders supporting the sustainability of the IHIN
- Reporting on the research to stakeholders and receiving feedback on the relevancy to the IHIN

Phase 3: Principles and Stakeholder Value Propositions

Developing a set of consensus based principles outlining how the stakeholders want to establish the HIE is important before funding becomes an issue. Questions such as “Does every participant pay something?” or “Who is on the Board of Directors?” are important considerations. Developing a set of guiding principles can help alleviate difficult discussions that occur as stakeholders begin to participate in an HIE.

In addition, it is important to understand the value of participation in IHIN for each stakeholder. The probability of successful sustainability will be greatly improved if the IHIN can directly relate its value back to each stakeholder and show a positive return on investment over time for each participant.

While improved quality of care is important to all stakeholders, financial measures are a strong and measurable determinant of sustainability. Success factors for this phase include the following:

- An adopted set of guiding principles for building and sustaining IHIN
- A description of the value propositions for each stakeholder
- Connection of the use cases to stakeholder value propositions

Phase 4: Capital and Operating Strategies

IHIN funding can come from many sources. Capital funding to build and launch IHIN will be different from the operational funding that is likely to come from participants in some form. It is important to identify the sources for each type of funding, determine the probability of obtaining that funding, and develop a strategy to secure the funding required for both building and operating IHIN. Success factors for this phase include the following:

- Determination of the funding required to build as well as operate IHIN until it is sustainable on its own merits
- Identification of the various sources of funding and the requirements to secure funding from each proposed source
- Stakeholder support for the funding strategies

Phase 5: Risk Mitigation

All projects entail risk. Some risks are significant and some are minor. Identifying each potential financial risk and determining a mitigation strategy is important for achieving sustainability. Iowa e-Health has developed a solid risk mitigation strategy covering the five domains of HIE: Governance, Finance, Business and Technical Operations, Legal and Policy, and Technical Infrastructure. This report only focuses on the financial risks directly related to sustainability. In addition, it is important to measure the costs and benefits of each mitigation strategy moving towards sustainability. Success factors for this phase include the following:

- Clear definition of each potential risk related to sustainability
- Prioritization of each risk to determine where mitigation strategies are critical to sustainability
- Analysis of the costs and benefits of each mitigation strategy to determine where resources should be focused to ensure sustainability

Phase 6: Financial Modeling and Scenario Development

Consensus-based decision making is possible when the intersections of multiple stakeholder value propositions can be identified. The process used by Iowa e-Health was keyed to locating these intersections and using them to obtain agreement on critical decisions related to the formation of a sustainable financial plan between divergent stakeholders. Only by finding those critical points that engage and effectively lock in support from stakeholders can progress be made towards the ultimate goal of sustaining IHIN.

Developing a flexible financial model provides decision makers with the capacity to test various assumptions regarding sustainability and reach consensus. Concurrent with the development of the financial model, it is important to identify potential scenarios for how IHIN will develop and grow. Together, decision makers can model the consequences of various scenarios on the issue of sustainability. Success factors for this phase include the following:

- Flexible financial model is designed, tested, and adopted
- Realistic scenarios are created based on various assumptions
- Scenarios are tested against the financial model to determine the appropriate strategy for sustainability

Phase 7: Stakeholder Testing and Modifications

Once the consensus financial model is defined it needs to be tested with the stakeholders for input and additional feedback. As the stakeholders have been involved in the process since the beginning, their input will already have been built into the different scenarios. However, stakeholders generally do not fully commit to a project until the sustainability model is finalized. Therefore, once developed, the sustainability model needs to be tested and modified as needed. Success factors for this phase include the following:

- The desired sustainability model is presented to the key stakeholders and feedback obtained
- Modifications are made to the model as needed
- Stakeholders approve the sustainability model

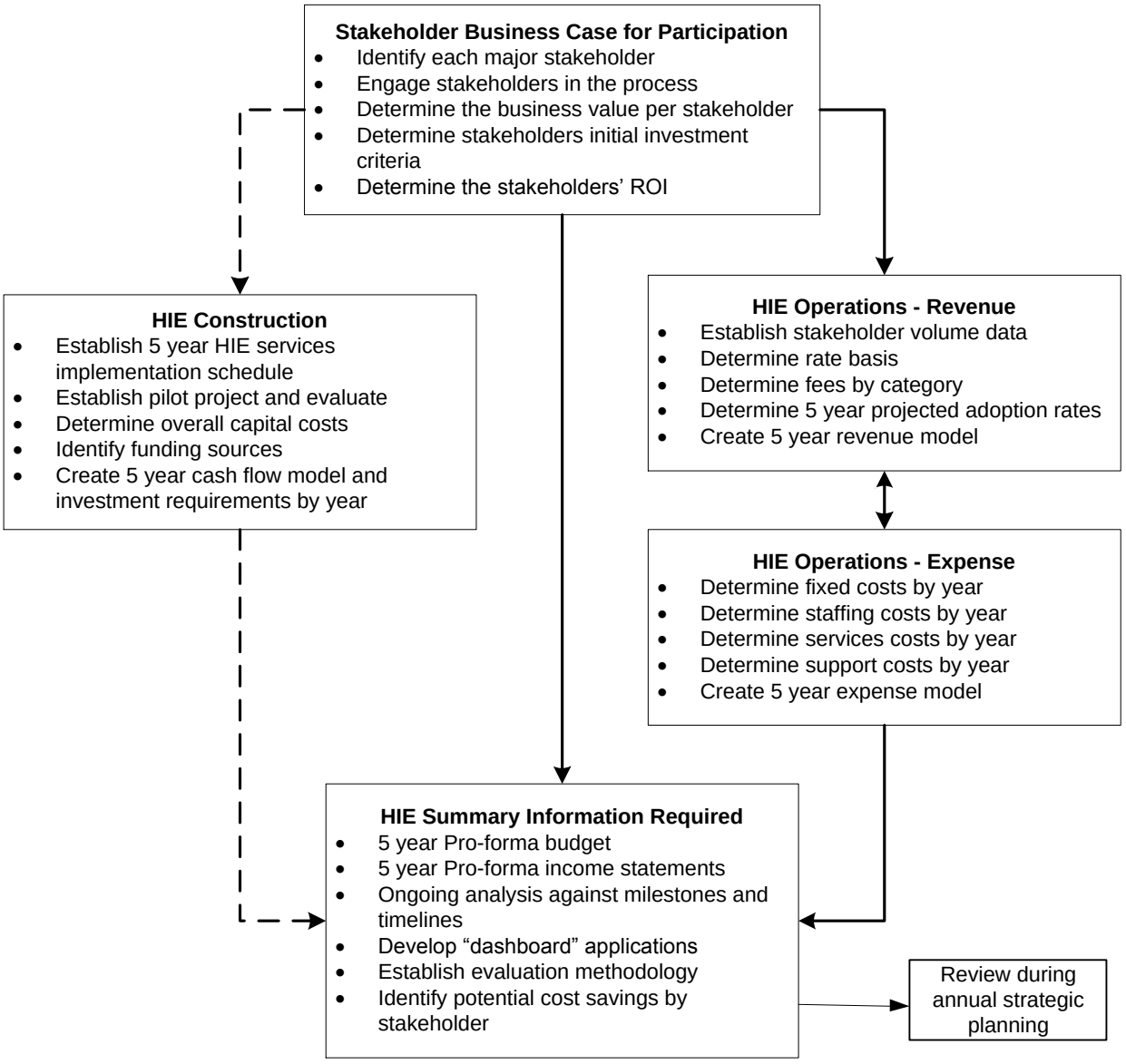
Phase 8: Adoption and Implementation

Once the sustainability model is approved and adopted, IHIN can move forward with implementation. It is important to have key stakeholders publically endorse the model, agree to participate, and make a firm financial commitment to IHIN through the participation agreement. At this point, IHIN may fully move into implementation, knowing there is a sustainable financial model. Success factors for this phase include the following:

- Formal stakeholder approval
- Communication of the approval to all stakeholders, including the Iowa Legislature and Governor
- Participation agreements signed and executed by IHIN participants

The following diagram depicts the steps taken to develop the financial sustainability plan. Iowa e-Health will review components of the plan (e.g.., business case, revenues, expenses, pro-forma budgets) and will modify as needed to ensure sustainability.

Figure IV.1: Steps to Develop a Financial Sustainability Plan



V. Stakeholder Engagement

Since 2009, Iowa e-Health has convened a multi-stakeholder Governance and Finance Workgroup to determine the type of business structure and financial model most suitable for supporting a sustainable HIE. Moreover, governance and finance discussions routinely take place during regularly scheduled e-Health Executive Committee and Advisory Council meetings. In addition to these meetings, Iowa e-Health and Hielix/ApeniMED identified Iowa stakeholders to arrange stakeholder meetings and interviews. The meetings and interviews were used to identify value propositions for the various stakeholder groups, gather recommendations for the financial model, and obtain feedback about potential HIE service offerings.

Organizations that participated in the stakeholder meetings and interviews pertaining to the Financial Sustainability Plan include:

October 6, 2010
- Iowa e-Health Staff
- Wellmark Blue Cross/Blue Shield

October 7, 2010
- Iowa Medical Society
- Iowa Primary Care Association
- Iowa Medicaid Enterprise

October 26, 2010
- Iowa Health System
- University of Iowa Hospitals and Clinics
- Boone County Hospital

October 27, 2010
- Mercy Medical Center - Des Moines
- Iowa Hospital Association

October 28, 2010
- Broadlawns Medical Center
- Iowa Osteopathic Medical Association

November 17, 2010
- Hy-Vee

November 28, 2010
- Mercy Health Network – North Iowa

November 29, 2010
- Iowa Business Council

March 2, 2011
- Iowa Hospital Association
- Iowa Health System

March 4, 2011
- Mercy Medical Center - Des Moines

March 8, 2011
- Genesis Health System

March 11, 2011
- Wellmark Blue Cross and Blue Shield

March 14, 2011
- Mercy Medical Center - Cedar Rapids

March 31, 2011
- Mercy Health Network

April 1, 2011
- Federation of Iowa Insurers

April 5, 2011
- Federation of Iowa Insurers (IHIN demo)

April 6, 2011
- Genesis Health System
- University of Iowa Hospitals and Clinics

The stakeholder meetings and discussions allowed Iowa e-Health to understand each stakeholder's value proposition for the IHIN. In meetings with potential participants of IHIN, they expressed their wants and needs. These expressed wants and needs are the foundation for creating the participant value proposition. The value proposition answers the "*What's in it for me?*" question asked by all potential participants. The following table lists the various preferences and potential barriers as expressed by various stakeholder groups.

Table V.1: Stakeholder Preferences and Potential Barriers

Participant Type	Preferences	Barriers
Consumers	1. Privacy and Security protections 2. Reduced health care costs 3. Improved health care quality 4. Better information at the point of care 5. Accessibility to data independent of patient location	1. Education on the value of HIE 2. Provider resistance 3. Unfamiliar with how exchange works 4. Lack of understanding on the benefits 5. Low consumer demand from providers at this point in time 6. Privacy and security concerns
Providers	1. Ease of use 2. Value added features (i.e. immunization information access, meds reconciliation, allergies, etc.) 3. Continuity of care and care coordination 4. Improved patient care 5. Better population health management	1. Cost 2. Changes to clinical and administrative workflows 3. Lower productivity 4. Skepticism about the Medicare/Medicaid incentive program 5. Liability fears in the case of improper information release
Payers	1. Lower administrative costs 2. Improved health care outcomes 3. Access to more data and information faster 4. Real time connections to providers for approvals on procedures 5. Access to data and information for operations research	1. Perception they should pay for the IHIN as they have the money 2. Patient fears about losing coverage if the payers have access to information 3. Health care reform and its impact on payers 4. Impact of Principal exiting the health insurance marketplace (consolidation of payers)
Purchasers of Health Care Coverage	1. Improved employee health care quality 2. Reduced health care costs 3. Connections to employer driven wellness plans 4. Higher productivity from healthier employees 5. Providing affordable health care coverage for employees	1. Lack of inclusion in the development of the IHIN 2. Concern about paying for the IHIN 3. Employee fears concerning employer access to health information and job security 4. Privacy and security issues 5. Mandatory inclusion of all employees in the insurance plan
State Government	1. Improved health care outcomes 2. Lower health care costs 3. Compliance with Federal standards 4. Population health data and information 5. Disease surveillance	1. Difficult economic environment resulting in low tax revenue 2. Lack of funding for all of the competing needs 3. Changing political environment and uncertainty

VI. Operational / Sustainability Principles

The following financial sustainability principles have been agreed upon by the Iowa e-Health Executive Committee and the Governance and Finance Workgroup:

- **Operate with Transparency and Openness**. All HIE activities should meet the highest standards of an open and transparent organization that strives to keep consumers and stakeholders informed.
- **Build Stakeholder Trust**. Create and foster trust by and between health care stakeholders to further the willingness to exchange health care information and data.
- **Stakeholder Investment**. All stakeholders should contribute financially to the formation and ongoing operation of an HIE.
- **Foster a Culture of Collaboration**. An optimal number of stakeholders must collaborate to build and sustain HIE over the long term.
- **Foster a Culture of Innovation**. IHIN should take advantage of the creative nature of the market in Iowa and develop an organizational culture that taps into and benefits from the innovative ideas of its citizens.
- **Engage Stakeholders.** Efforts must create value for all participants - statewide, regionally, and for each stakeholder's interest. To promote acceptance and adoption, it is important to communicate with and educate all participants early and often regarding the value and benefits of HIE.
- **Promote HIE Solutions.** Every region of Iowa is different and should be given the flexibility and standards to fit into the emerging IHIN infrastructure in the way that is appropriate to service patients and protect patient health data.
- **Leverage Existing Health IT Initiatives and Resources**. A coordinated effort, leveraging existing initiatives and resources, provides the greatest potential for improving health IT adoption rates and IHIN success.
- **Be Inclusive**. Sensitivity to the culturally diverse population should be considered as part of the design, development, and implementation of all IHIN activities.
- **Recognize Existing Efforts**. The capacity for transformational change of an industry of this magnitude, including technical capacity, systems capacity, and most important, social capital, needs to proceed in a way to achieve critical mass and get stakeholders on board early. The health IT strategy should be mindful of, support, and build upon the work and activities at the federal and state levels.
- **Maintain Neutrality**. Ensure the IHIN remains neutral in the competitive marketplace in Iowa and delivers a high quality exchange service that meets the needs of all stakeholders without giving an advantage to any other stakeholder.
- **Foster Fair Processes**. When an issue is complex and various stakeholders may be at odds, create a fair and logical process to research and analyze the issue and determine the outcome.
- **Build a Learning Health System**. As defined by the Office of the National Coordinator (ONC), a Learning Health system is designed to generate and apply the best evidence for the collaborative care choices of each patient and provider; to drive the process of new discovery as a natural outgrowth of patient care; and to ensure innovation, quality, safety, and value in health care.

VII. HIE Participant Value Cases

The value proposition is the statement that describes why an organization would willingly participate in a venture such as an HIE. The value proposition is a clearly defined statement that is designed to demonstrate how a service offering will solve a problem in such a way that the value to the participant is greater than not participating.

The HIE will facilitate efficient communication among providers and support patient-centered care

The average Medicare-enrolled beneficiaries received care from over 6 different physicians in a year, with nearly 5 of these providers within an office setting.

Anderson GF. Testimony before the House Ways and Means Health Subcommittee on April 16. 2002.

Why is the development of a strong value proposition important? A good value proposition will provide convincing reasons why a participant will want to be included in Iowa e-Health. In order to achieve sustainability, the value proposition for each participant needs to be clear, concise and compelling. Linking an organization's value proposition to an achievable return on investment (ROI) is key to keeping the organization engaged throughout the creation and implementation of the IHIN. Developing an ROI for each participant and continually reporting on it during the IHIN formation process and early operational stages will serve as a reminder of the value the IHIN will provide when fully functional.

Participant Value Case – Providers

Based on interviews conducted with stakeholders, the experience shared by other HIEs, and the research conducted by the Hielix-ApeniMED team, the most common reasons for providers to participate in HIE include the following:

- Continuity of Care – Transferring patient records for specialty care needs between physicians, hospitals, long-term care and home health is extremely challenging in a paper-based system. All of the providers interviewed in multiple states indicate the greatest value to them from using electronic records is the ability to have patients' records sent to the referral source prior to the patient arriving for treatment. In addition, the ability to exchange information bi-directionally between providers is critical to the continuity of care for patients.
- Care Coordination – Enabling HIE will enhance communication and coordination in an expanded care environment to effectively provide patient treatment. For many patients, coordination of their care is a necessity, given the complexity of health issues and the number of health care organizations involved. HIE can be a valuable tool that enables better transitions of care and integration of health care delivery among providers.
- Efficiencies and Cost Savings – Providers of all types see EHRs as a way to reduce administrative costs by reducing the need for faxing, copying, mailing, and otherwise transmitting paper records. Through increased use of electronic storage of health records, providers may reduce the cost per square foot of office and storage space, which may translate into savings. The increased efficiencies and the resulting reduction in operating costs offer measurable benefits to providers.
- Reduction in Medical Errors – One significant concern for providers is their liability from medical errors. Electronic records are seen as one key way to help reduce errors. Providers see the ability to exchange patient records and the knowledge gained from the additional information is critical to reducing medical errors. From medication reconciliation, identification of allergies, and the use of clinical decision support embedded in EHRs can help reduce their liability and cost.

Providers are ready to move to the use of technology to provide better patient care, increase operational efficiencies, and reduce medical errors. EHR use in conjunction with HIE technology will offer significant value to this participant group.

Participant Value Case – Payers

Based on interviews conducted with stakeholders, the experience shared by other HIEs, and the research conducted by the Hielix-ApeniMED team, the most common reasons for payers to participate in HIE include the following:

- Improved Health Care Outcomes – EHRs and HIE promise to support higher quality health care and improved outcomes for consumers. As information becomes electronic and is shared by and between providers of all types, studies have shown the quality of care improves. Many payers are already using claims data and information to help providers reduce duplicative tests, offer patients preventive care, and focus on wellness. All of these efforts are aimed at improved health care outcomes.
- Reduced Claims Payments – While better health care outcomes are desired by all IHIN participants, improved outcomes directly benefit payers in the form of lower claims payments and the opportunity for greater profitability. If payers can leverage the IHIN to improve health care outcomes and reduce claims payments, they stand to gain significant benefit from electronic health information technology.
- Lower Administrative Costs – Payers of all types see electronic transmission of information from health records as a way to reduce administrative costs by reducing the need for faxing, copying, mailing, and otherwise transmitting paper records. In addition, much of the new EHR technology produces better claims information and provides it faster resulting in lower administrative costs to the payer. The increased efficiencies and the resulting reduction in operating costs offer measurable benefits to payers.

The HIE will be a helpful tool in providing care for patients with chronic disease

A recent study revealed the annual Medicare payment amounts for a beneficiary with only one chronic condition was $7,172. For those with two conditions, payment jumped to $14,931, and for those with three or more conditions, the annual Medicare payments per beneficiary was $32,498.

Schneider KM, O'Donnell BE, and Dean D. The Prevalence of Multiple Chronic Conditions in the Medicare Population. Health and Quality of Life and Outcomes. 2009, 7:82. http://www.hqlo.com/content/pdf/1477-7525-7-82.pdf.

Payers want to improve health care outcomes, reduce costs, and decrease claims payments by improving health care quality. EHR adoption and use in conjunction with HIE technology will enhance the ability of providers to focus on preventative health care procedures, improve the ability to obtain and capture quality measures, and reduce administrative costs. These benefits will lead to real cost savings and value to payers.

Participant Value Case – Health Care Consumers

Based on interviews conducted with stakeholders, the experience shared by other HIEs, and the research conducted by the Hielix-ApeniMED team, the most common reasons for consumers to participate in HIE include the following:

- Improved Health Care Outcomes – EHRs and the IHIN promise to support higher quality health care for consumers. As patient information becomes electronic and is shared by and between providers of all types, consumers quickly understand how the sharing of complete data and timely information will directly benefit them and result in better health care outcomes.
- Personal Control over Health Care – Many consumers would like to have more control over their personal health care. From scheduling appointments to seeing the results of lab and other tests to maintaining their own medical history, consumers understand the benefits from using electronic records and in having the ability to share their personal health information electronically. As today's consumers control more aspects of their daily lives, medicine is seen as the last frontier and consumers support anything that provides personal control.
- Continuity of Care – Consumers see the value in electronically transferring records for specialty care needs between physicians, hospitals, long-term care and home health. Anything seen as an

improvement to today's paper based system is seen positively and when the quality of patient care is improved, consumers become strong advocates for EHR and HIE.

- Access to Personal Health Care Information – Personal Health Records (PHRs) are gaining in popularity and will become common in only a few short years. Maintaining one's own personal health record will be simpler and much easier if all data and information is electronic. Consumers will want to control and maintain their own personal file of their medical information. The IHIN will be a key mechanism for gaining access to personal records from multiple providers and of great importance to consumers.

Consumers want more control over their medical information. EHR and PHR adoption and use in conjunction with HIE technology will provide consumers with greater access to personal health information, which will offer consumers significant value.

The HIE will offer accessible and timely information about the variety of tests and treatments a patient receives

In 2007, medications were ordered, supplied, or administered at 73% of all office visits. At 42% of all visits, 2 to 7 drugs were ordered, supplied, or administered, and 8 drugs were recorded at nearly 7% of visits. Diagnostic or screening services were ordered or provided at 88% percent of visits.

Hsiao CJ, et al. Electronic Medical Record/Electronic Health Record Systems of Office-based Physicians: United States, 2009. National Center for Health Statistics, Centers for Disease Control.

Participant Value Case – Purchasers of Health Care Coverage

Based on interviews conducted with stakeholders, the experience shared by other HIEs, and the research conducted by the Hielix-ApeniMED team, the most common reasons for purchasers of health care coverage to participate in HIE include the following:

- Lower Health Care Costs – Purchasers of health care coverage cite the high cost of health care coverage as one of the major business expenses. Therefore, anything that can help reduce their premium costs has real and immediate value to them. Health Information technology, in all forms, holds the promise of reducing the cost of care and with it the cost of coverage. Purchasers of health care coverage consider the potential for lowering cost to be of prime importance.
- Employee Wellness – Many employers already have employee wellness programs in place. They have determined over a period of many years that a healthy workforce is more productive, experiences less lost time from illness, and is less costly to insure. Given the benefits of employee wellness, purchasers of health care coverage experience significant value from the benefits offered by health information technology.
- Employee Benefits – In an extremely competitive economic environment, recruiting high quality employees is essential. One valuable tool to help used in recruiting is the ability to offer affordable, to both the purchaser of health care and to the employee, health care benefits. Any way health information technology can facilitate lower cost and make health care affordable is viewed positively by purchasers of coverage.

Purchasers of health care coverage need affordable care for a variety of reasons. Therefore, using health information technology and having the ability to exchange data to improve outcomes is a valuable tool to help reduce overall costs and make health care more affordable. EHR adoption and its use in conjunction with HIE technology will offer purchasers of health care coverage significant value and be a key reason for them to support HIE.

Participant Value Case – State Government

Based on interviews conducted with stakeholders, the experience shared by other HIEs, and the research conducted by the Hielix-ApeniMED team, the most common reasons for state government agencies to participate in HIE include the following:

- Improved Health Care Outcomes – Health care costs, both through Medicaid and the state employees' health care plan, comprise a large expense in any state budget. If health care

outcomes can be improved, the growth in health care costs may be slowed, resulting in significant savings for state government. State government is heavily invested in improving health care outcomes as they are faced with difficult choices of reducing or eliminating services if costs cannot be controlled over the long-term.

- Efficiencies and Cost Savings – Medicaid may use the IHIN as a way to lower administrative costs by reducing the need for faxing, copying, mailing, and otherwise transmitting paper records. The increased efficiencies and the resulting reduction in operating costs offer measurable benefits to Medicaid, in addition to efficiencies that will be realized by participating in a statewide HIE solution. In addition, the electronic reporting of public health data (e.g., immunization data and reportable diseases) to the Iowa Department of Public Health (IDPH) will reduce overall administrative cost and may result in other efficiencies.
- Continuity of Care – Transferring patient records to meet specific care needs is extremely challenging in a paper based system. For example, the Iowa Department of Corrections manages care for inmates while the person is incarcerated, and not on an ongoing basis. While a large portion of their care is done internally, more complex cases are frequently transferred outside the prison system and treated by other providers. Having the ability to transfer records electronically will be a significant benefit. In addition, the ability to exchange information bi-directionally is critical to the collection of information for disease management and other public health purposes.
- Coordination Between State and Federal Programs – The federal government has instituted numerous programs to address health care in the United States. In many cases, the federal government relies on states to help implement federally-funded programs. HIE will enable Iowa to better coordinate efforts with the federal government, which will provide value to both entities.
- Improved Constituent Services – States have a challenge to meet the public's demand for better services at lower costs. Health IT has the ability to help state government meet this challenge. If state government capitalizes on these opportunities, it can offer taxpayers improved services at lower costs.

The HIE will be a tool that helps providers give the right treatment to patients the first time and avoid adverse effects. Adverse effects of medical care, including surgical complications and adverse drug reactions, accounted for 8.8 million physician office visits (8.2 percent of injury visits to physician offices).

Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, D.C. (2001). National Academy Press

State government has much to gain from the implementation of health IT. Rapid adoption of EHR technology and the quick implementation of the IHIN holds great promise for state government to attack one of its most costly responsibilities. This will provide state government significant value and be the primary reason state government should take the lead in building an HIE.

In summary, the IHIN will enable the sharing of vital patient health information to improve health care quality, safety, and efficiency. Iowa e-Health stakeholders have a tremendous opportunity to use this technology to enhance existing practices and create new methods of delivering high quality and efficient patient care. The ultimate goal is to enhance the care patients receive. Health IT is a proven tool that, when used alongside smart practices and policies, can advance the patient and provider experience.

VIII. HIE Stakeholder Value Propositions

In reviewing previous work from the Iowa e-Health Strategic and Operational Plan as well as stakeholder interviews conducted for this project, it was possible to determine the business case for IHIN participation. The business case is converted to a value propositions for various types of stakeholders likely to participate in the IHIN. These value propositions are grouped by stakeholder type and are shown in the following chart. While some minor variations may exist between organizations within each of these categories, the value proposition shown in the chart is generally representative of all organizations in each type of stakeholder group.

Table VIII.1: Value Proposition by Stakeholder Type

Stakeholder Type	Value Proposition
All Stakeholders	A. Improved quality of care B. Efficiencies and cost savings C. Assistance qualifying for provider incentive funds D. Standardized process for the secure transmission of clinical and administrative information
Hospitals	A. Greater operational productivity B. Market share/competitive advantage C. Reduced medical errors D. Reduction in Storage of Paper Records
Ambulatory Care and Physician Practices	A. Connectivity to hospitals B. Continuity of care C. Care Coordination D. Easier access to registries (e.g. immunizations) E. Reduced medical errors F. Reduction in Storage of Paper Records
Behavioral Health Providers	A. Protection of patient data B. Continuity of care C. Care Coordination
Consumers	A. Improved health care outcomes B. More control over their own health care C. Access to personal health records D. Continuity of care E. Patient – provider secure messaging
Employers / Businesses	A. Lower health care costs B. Employee wellness C. Employee benefit
Federal Health Services (Indian Health Service, Veterans Administration, Social Security Administration)	A. Continuity of care B. Improved health care outcomes C. Completeness of patient record
Federally Qualified Health Centers / Rural Health Centers	A. Access to numerous registries B. Connectivity to hospitals C. Connectivity to other health care providers
Home Health Care Providers	A. Continuity of care B. Care Coordination C. Access to health records D. Connectivity to other health care providers E. Ability to submit data for regulatory purposes (way to submit OASIS data) F. Reduction in Storage of Paper Records

Stakeholder Type	Value Proposition
Labs	A. Connectivity to providers B. Bidirectional flow of information C. Streamlined disease reporting
Long-Term Care Facilities	A. Continuity of care B. Care Coordination C. Connections to referring providers D. Ability to submit data for regulatory purposes (way to submit MDS data) E. Reduction in Storage of Paper Records
Payers (Medicaid, Private Insurers)	A. Better health care outcomes B. Reduced claims payments from better health care outcomes and improved quality C. Lower administrative costs from increased usage of EHRs
Pharmacies	A. Bidirectional connectivity with prescribing providers B. Easier reporting to regulatory agencies C. Better information regarding patient allergies and contraindications
Public Health Agencies	A. Easier data entry in various registries B. Connectivity to the provider community
Radiology	A. Bidirectional connectivity to referring providers B. Continuity of care C. Faster results delivery
Schools	A. Having appropriate health information for students (e.g., immunizations)
State Agencies	A. Improved constituent services B. Streamlining government services C. Common coordination on state and federal initiatives

IX. HIE Return on Investment (ROI) Measures

Health care in the United States is evolving very quickly as technology begins to create opportunities to remove waste as well as improve efficiency in the health care system. With the introduction of health IT, including EHRs and HIE, opportunities for improving health care and achieving higher quality are just beginning to emerge. With the added ability to share important health information through the IHIN, we stand on the threshold of transformational change.

However, it is important to keep in mind technology is only one of the enablers of this change. Many forces will play a part in changing the delivery of health care, including a greater focus on quality metrics, care coordination, payment reform, and Meaningful Use incentives. Most of these initiatives will rely on technology to help facilitate the changes necessary for success. The IHIN will become a key part of this system as it begins to impact the way health information is shared within Iowa and across the nation.

Since 2004, numerous studies have identified and quantified the ROI associated with implementing health IT. Citations for these studies can be found in ***Appendix E***. With the passage of the ARRA HITECH Act in 2009, the federal government is driving the health care industry from a paper-based system to an electronic-based system. Incentive funds for hospitals and providers are available to help with the transition to EHRs and provide support and training to clinicians to engage in meaningful use of health IT. In addition, funds have been awarded to states to facilitate the exchange of electronic information. These incentive funds and the studies showing the positive ROI available to all segments of the health care industry combine to make a compelling case for moving forward with the transformation to electronic technology.

In a recent study reported in Health Affairs, the authors concluded the benefits of health IT show predominantly positive results. Of the 154 studies examined 96 (62%) were classified as positive. 142 (92%) studies were classified as either positive or mixed-positive, while 12 (8%) of the studies were indicated as negative. Most of the negative findings in the studies were related to reduced workflow productivity and satisfaction, not clinical effects[3].

While the results of several studies clearly demonstrate the advantages of EHRs and HIE, actual results in any clinical setting will depend on the efforts of the staff. In several studies, acceptance by the staff of new and often disruptive technologies was critical to the overall success. Workflow transformation is important to successfully using technology. Therefore, results may vary by organization and the financial savings shown below, while positive, will depend on a variety of local factors.

A brief summary of the results of some of the more pertinent studies completed over the past several years quantifying the ROI for EHRs and HIE is presented below. There are many more studies available but the ones listed clearly establish the value of HIE which Iowa could expect to accrue. The evidence from the following studies shows potential for creating efficiencies in the health care system in Iowa. Calculating the results from the studies shown below, Iowa stakeholders could potentially save or re-allocate over $322,200,000 annually from successfully implementing EHR and HIE technology, as well as begin the transformation to new models and payment systems for the delivery of health care. Realizing these savings and efficiencies will only be accomplished if stakeholders implement policies and procedures that maximize the effectiveness of health IT tools.

[3] Buntin, M., Burke, M., Hoaglin, M, and Blumenthal, D. (2011). The Benefits of Health Information Technology: A Review of the Recent Literature Shows Predominantly Positive Result. *Health Affairs*.

Facilitates Accountable Care Environments
In a March 31, 2011 article published in the New England Journal of Medicine, Dr. Donald Berwick, administrator of CMS, stated the purposes of Accountable Care Organizations (ACOs) are to improve care for individuals, provide better health for populations, and slow the growth in health care costs[4]. The proposed requirements for ACOs include the ability to access health information at various locations. HIE is an effective mechanism to facilitate data sharing across the health care continuum.

Increased provider availability
Providers frequently spend significant staff time searching for patient records. A study in the Journal of Healthcare Information Technology estimates a 35% reduction in chart pulls with the use of health care information technology[5]. The resulting time savings can free up clinical time and allow a provider to see additional patients. In addition, this can result in lower costs of up to $16,900 annually per provider. The estimated savings for Iowa is potentially in excess of $85,000,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Increased productivity from better patient information searches
In a study in the Journal of the American Medical Association, missing clinical information during primary care visits was analyzed. 13.6% of all visits reported missing clinical information including lab results, radiology results, history, medications and other information. The missing information was likely located outside the clinical system at a different provider's location. As a result, patients suffered from delayed care and the need for additional services. In addition, the study reported significant time was spent looking for the records and was often unsuccessful[6].

Lower malpractice litigation
A Rand Corporation study showed that with a decrease of 10 adverse events, there was a corresponding 37% decline in malpractice litigation[7]. The cost of any litigation is difficult to quantify as costs tend to be closely held but any entity should be able to calculate an expense reduction by performing an internal analysis.

Meeting Meaningful Use requirements
HIE is a component of proposed Meaningful Use guidelines required for provider incentive payments through CMS[8]. By enabling the flow of information between disparate providers, it's anticipated that the IHIN will be key to meeting the evolving Meaningful Use requirements. For hospitals, the incentive payments can range from a minimum of $2,000,000 to $10,000,000 or more. For providers, the amount can range from $44,000 to $63,000 per physician depending whether they qualify for Medicare or Medicaid payments.

Reduced administrative expenses
The Center for Information Technology Leadership (CITL) studied the costs of paper-based orders and results. The study concluded providers spend $19.25 per lab order transaction (sending orders and

[4] Berwick D.M. (2011). Launching Accountable Care Organizations — The Proposed Rule for the Medicare Shared Savings Program. *New England Journal of Medicine*.

[5] Stephen Badger. (2006). *Journal of Healthcare Information Technology, 19(2).*

[6] Smith PC, Araya-Guerra R, Bublitz C, Parnes B, Dickinson LM, Van Vorst R, Westfall, JM, and Pace, WD. (2009). Missing Clinical Information During Primary Care Visits. *JAMA, 293(5).*

[7] Greenberg, Michael. (2010). Is Better Patient Safety Associated with Less Malpractice Activity? *Rand Corporation*.

[8] Centers for Medicare and Medicaid Services. (2011). EHR Incentive Program Final Rule. https://www.cms.gov/EHRIncentivePrograms.

receiving results) while the lab spends $20.40 per transaction[9]. The potential annual costs savings could range from $129,000 for a small group practice to $440,000 for a large hospital. It is estimated in Iowa the total annual savings could potentially be in excess of $42,500,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Reduction in medication errors

A study in the New England Journal of Medicine reported almost half of the reported medication errors (dosage, allergy, etc.) were the result of a lack of patient information at the point of care[10]. A Briggs study estimated the cost for medication errors can reach $3,224 per episode[11].

Reduced costs of filing, retrieving, and storing paper records

A study by the University of Wisconsin demonstrated that the use of health IT can reduce the need for filing, retrieving and storing medical records by 85%. Given the cost per square foot of office and storage space this can translate into significant savings for providers. In addition, it is estimated that the average time spent retrieving records can be as much as 18 minutes[12]. Given the average salary of administrative staff, the average provider could see a potential cost savings of $15,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Reduced duplicative consults

Duplicative consults are fairly common in health care settings today. Due to a lack of sharable EHRs, patients are often asked to repeat workups during encounters with health care providers. In a study done for Rhode Island by the Boston Consulting Group, it was estimated that the savings to the state could be $20,000,000[13]. Extrapolating this to Iowa, the savings could potentially be over $60,000,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Reduced duplicative images

The CITL studied the costs of redundancy in external imaging per group or hospital-based practice. The study concluded the annual costs savings could range from $289,000 for a small group to $1,560,000 for a large hospital. A study by Wellmark Blue Cross / Blue Shield estimated the annual cost savings by reducing duplicative images. Extrapolating that data to the entire state, the potential efficiencies could be $19,700,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Reduced duplicative lab testing

The CITL studied the costs of redundancy in laboratory testing. They determined that costs per person for redundant testing were $17.41[14]. Based on their calculations for the population as a whole, the

[9] Johnston D, Walker J, Adler-Milstein J, Bates DW, and Middelton B. (2004). The Value of Healthcare Information Exchange and Interoperability. *Center for Information Technology Leadership (HIMSS).*

[10] Bates D. W. and Gawande A. A. (2003). Improving Safety with Information Technology. *The New England Journal of Medicine, 384 (25*): 2526-2534.

[11] Briggs Corporation. (2006). *National Quality Improvement/Hospitalization Reduction Study*.

[12] HIMSS Stage 7 Case Study. (2010). Healthcare and Information Management Systems Society. University of Wisconsin Hospitals and Clinics.

[13] The Boston Consulting Group (2008). Business case for Health Information Exchange. Rhode Island Quality Institute.

[14] Center for Information Technology Leadership. (2004). The Value of Healthcare Information Exchange and Interoperability.

estimated cost savings for Iowa could potentially be in excess of $63,000,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies.

Reduced emergency department costs

In a recent Rand Foundation study, it was estimated the between 13.7% and 27.1% of all emergency department visits could take place at alternative sites at substantially lower costs. The study estimated the annual savings at $4.4 billion annually across the United States[15]. Projecting these savings to Iowa, the annual savings is potentially $44,000,000 annually, assuming IHIN participants implement the policy and process changes necessary to realize these efficiencies. In addition, a study reported in the Journal of Biomedical Informatics, the value of HIE was studied in the Memphis, Tennessee area. The study concluded the Memphis region could save $8,000,000 annually from HIE by reducing duplicative tests and moving non-acute patients from the ED to treatment in an ambulatory setting[16].

Reduced Potentially Preventable Readmissions (PPRs)

Hospital readmissions are generally preventable if patients receive (1) high quality of care, (2) adequate discharge planning, (3) adequate discharge follow-up, and (4) improved coordination between inpatient and outpatient care teams. As study reported in the Healthcare Finance Review demonstrated that 7.87% of readmissions were potentially preventable. While admission costs vary according to the diagnosis and length of stay, the average for all patients was $9,170.[17]

Reduced transcription costs

In a study completed by the Health Information Management Systems Society (HIMSS), they determined the average provider could save $5,334 annually in transcription costs if EHRs were routinely used[18]. If 25% of the providers in Iowa use transcription services, the total potential savings in Iowa could exceed $8,000,000 annually.

[15] Greenberg, Michael. (2010). Is Better Patient Safety Associated with Less Malpractice Activity? Rand Corporation.

[16] Frisse, Mark E., and Holmes, Rodney L. (2007). Estimated Financial Savings Associated with Health Information Exchange and Ambulatory Care Referral*. Journal of Biomedical Informatics*.

[17] Goldfield, N., McCullough, C, Hughes, J., Tang, A., Eastman, B., Rawlins, L., and Averill, R. (2008). Identifying Potentially Preventable Readmissions. *Healthcare Finance Review, 30, (1).*

[18] Pan, E., Johnston D., Walker, J., Adler-Milstein, J., Bates, D.W., and Middelton, B. (2004). The Value of Healthcare Information Exchange and Interoperability. Center for Information Technology Leadership (HIMSS).

Potential ROI by Stakeholder Group

The following table shows how each stakeholder group potentially benefits from the introduction and use of health information technology.

Table IX.1: Potential Benefits by Stakeholder Group

	Hosptials	Providers	Payers	Medicaid	Labs	Pharmacies	Consumers
Enables alternative care delivery models (e.g., Accountable Care Organizations)	*	*	*	*	*	*	*
Increased provider availability	*	*					*
Increased productivity from better patient information searches	*	*	*	*	*	*	*
Lower malpractice litigation	*	*	*	*	*	*	*
Meeting Meaningful Use requirements	*	*					
Qualification for HITECH Incentive Payments	*	*					
Reduced Administrative expenses	*	*	*	*	*	*	*
Reduction in medication errors	*	*	*	*	*	*	*
Reduced costs of filing, retrieving, and storing paper records	*	*	*	*	*	*	*
Reduced duplicative consults			*	*			*
Reduced duplicative images		*	*	*			*
Reduced duplicative lab testing		*	*	*			*
Reduced emergency room costs		*	*	*			*
Reduced PPRs		*	*	*			*
Reduced referral costs	*	*	*				*
Reduced transcription costs	*	*	*	*	*	*	*

The second step in calculating ROI is to take the macro-level studies shown previously and convert them to an ROI specific for each stakeholder. To assist in this step, Efficiency Worksheets are included in ***Appendix B*** to assist small provider practices and hospitals in calculating potential ROI. These worksheets are designed to guide a smaller provider through a set of calculations to help them determine how the IHIN might be of value to them.

The final step in measuring ROI is to create a process and methodology for calculating ROI over time. The following chart converts the various value propositions into ROI measures for each stakeholder type and establishes a timeline for when the expected return should be calculated by each stakeholder.

Table IX.2: Return on Investment Measure by Value Proposition

Stakeholder Value Proposition	Return on Investment Measure	Timeline
Access to medical information	Answers to specific provider survey questions (e. g. Are you receiving more complete patient information from more sources?)	Annually
Better continuity of care	Improved outcome measures related to quality (e. g. smoking cessation, improved diabetes management)	Three years plus
Bidirectional connectivity to providers	Increased number of connections to the IHIN	Annually
Connectivity to hospitals	Total provider connections to the IHIN	Annually
Connectivity to other health care providers	Increased number of connections to the IHIN	Annually
Coordination on federal initiatives	Improved federal and state program alignment	Annually
Easier data entry to registries	Answers to specific provider survey questions	Annually
Employee wellness	Reduced sick time, lower health insurance costs and improved health care outcomes	Three years plus
Enhanced quality of care	Improved performance on measures related to quality	Three years plus
Financial sustainability	Improved operating margins	Annually
Greater operational efficiencies	Lower operational costs	Annually
Improved financial efficiencies	Lower operational costs	Annually
Provider market share/competitive advantage	IHIN neutrality	N/A
Member support and education	Greater member satisfaction	Annually
Protection of patient privacy	Number of privacy breaches	Annually
Reduced administrative costs	Lower operational costs	Annually
Reduced claims payments	Lower per member payouts from better health care outcomes and improved quality	Annually
Satisfy reporting requirements	Provider survey	Annually

X. Assessing Options for Capital and Operational Funding

IHIN Build Funding

Seven primary financing strategies have been identified for funding the development of the IHIN. Listed below are descriptions of each strategy as well as the advantages and the disadvantages.

Strategy 1 – Federal Funding

In this strategy, the allocations for IHIN development are applied to the building of the IHIN. Iowa received an initial grant of $8,375,000 over a 4-year period (March 2010 to March 2014) for the State HIE Cooperative Agreement Program administered by ONC. Of that amount, approximately $4,800,000 is allocated to building the IHIN. As a result of ARRA provisions such as Health Information Technology for Economic and Clinical Health Act (HITECH), federal funding through CMS is also available to support Medicaid participation in the IHIN. There is flexibility in the amount of money that can be requested from CMS, however there are 10-50% match requirements and the state must demonstrate to CMS that any Medicaid funding meets their requirements.

Advantages	*Disadvantages*
• ONC Funding commitment has been secured • Leveraging CMS HITECH funding would greatly advance the IHIN build	• Funding for building the IHIN may change based on new or expanded federal requirements • State matching requirement increases annually • Scope and requirements may change, resulting in the need to supplement funding to meet stakeholder objectives

Strategy 2 – State Appropriation

In this strategy, funds for building the IHIN are allocated annually for the period of time necessary to build and sustain the IHIN until it becomes self-sufficient.

Advantages	*Disadvantages*
• Once appropriated, funding is usually available for the approved period of time • May be seen as an obligation for the state • A very low per person funding requirement with significant long-term benefits in reduced health care costs	• Political issues in securing support • State budget already under stress from the economy • Is dependent on annual appropriations • General appropriations may be subject to across the board budget cuts

Strategy 3 - Grants

In this strategy, grants from a variety of sources (philanthropic, government, stakeholders) may be used to fund the building of the IHIN and sustaining operations until it becomes self-sufficient.

Advantages	*Disadvantages*
• Can be a good source for capital projects and may be a good way to support specific components of IHIN development • Many grant makers are interested in improving health care outcomes • May include a broader group of stakeholders	• May take several months to apply and obtain approval • Every HIE will be applying for funding • They are a good source of capital and a poor source of operating funding • Without an operational HIE, grants may be hard to secure • Scope and requirements may change – resulting in the need to supplement funding to meet stakeholder objectives • Health outcome and return on investment measures may be difficult to formulate or prove • May require some form of match

Strategy 4 – Up-Front Fees from Stakeholders

In this strategy, significant fees (sufficient to start operations) are charged to the stakeholders to connect to the IHIN at the beginning of operations.

Advantages	*Disadvantages*
• May generate sufficient capital to fund the building and initial operations of the IHIN • A significant early investment provides a major stakeholder incentive to make the IHIN successful • Can demonstrate a financing strategy which may provide access to federal funding (see Strategy 1)	• Stakeholders may be reluctant to participate in something unproven • Sufficient capital may be an issue for some stakeholders • Timing – most stakeholders go through budget cycles, so funds may not be available for many months (or years – depending on how far out the stakeholder must obtain budget approval)

Strategy 5 – Stakeholder Investment

In this strategy, larger stakeholders (payers, major hospital systems) supply portions of the startup capital in exchange for lower operating fees and charges for a specified time period.

Advantages	*Disadvantages*
• Can be done faster than other strategies • Reliable funding if stakeholders agree • Through the public and private collaborative effort, all stakeholders will demonstrate their commitment to the success and sustainability of a statewide system.	• May require the majority stakeholders in any category (payer, provider) to participate so no one is perceived as gaining an advantage • May require approval by various stakeholder governance bodies, adding to the time required to get the funding approved

Strategy 6 – Bond Funds

In this strategy, the State may issue bonds (or include the IHIN in a statewide bond issue for other capital improvements) for creating the IHIN. The bonds are paid for in future years from operating revenues of the IHIN.

Advantages	*Disadvantages*
• Funding is certain if the bond issue is successful	• May require a public vote and the schedule may not work for the IHIN • May require legislative support and that may be difficult in these economic and political times • Revenue may not support the repayment of the loan

Strategy 7 – Loans

In this strategy, a business case is presented to a lending institution for funding to start the IHIN business. The funding may or may not be backed by the state.

Advantages	*Disadvantages*
• Sufficient funds may be obtained over time to fund the building of the IHIN and the initial operations	• May require significant time to prepare the business case and the paperwork for the loan • Lenders may not be willing to invest in a venture without the full faith and credit of the state supporting it • Revenue may not support the repayment of the loan • Collateral may be difficult to provide in support of the loan

Generally, seven funding options are available to build the IHIN. The Governance and Finance Workgroup reviewed these options and prioritized them in the order below. They carefully analyzed each option and recommended to include all seven options within this plan to demonstrate the range of options considered; however, the multi-stakeholder group recommended serious attention focused on only the first three options presented. The workgroup recommended a combination of these funding strategies based on the information available, and an analysis from each of their perspectives (e.g., payer, provider, consumer).

Strategy 1 - Federal Funding
Strategy 2 - State Appropriation
Strategy 3 - Grants

Iowa Medicaid Enterprise, in close partnership with Iowa e-Health, is planning to request approximately $7,450,000 in HITECH funding from CMS to help support the build of the IHIN (SFY12 through SFY15). Although not yet secured, this funding would allow Iowa e-Health the ability to more rapidly implement the IHIN (e.g., offer additional IHIN services; connect more providers sooner). The financial model scenario in which CMS HITECH funding is available for the IHIN is illustrated in ***Section XIII: Financial Scenarios***.

IHIN Sustainability Funding

There were eight different revenue strategies explored as possible methods for funding the ongoing operations of the IHIN. Listed below are descriptions of each strategy as well as the advantages and the disadvantages.

Strategy 1 - Membership Fees (i.e., Subscription Fees)

In this strategy, monthly and/or annual fees are charged to the participant depending on type of role they have (Hospital, Provider Practice, Payer, Employer, etc.). The fee is frequently based on the perceived or estimated value of the IHIN to the participant.

Advantages	*Disadvantages*
• Easy to understand and administer • Flexible structure • Fees based on specific criteria	• Fees don't reflect actual usage • May charge a disproportional share to one stakeholder group

Strategy 2 - Fees for Optional HIE Products/Services

In this strategy, the IHIN creates products and/or services for which it can charge fees for stakeholders to use. Fees are established for various services (consumer services like personal health record [PHR] support, advertising/sponsorships; payer services like obtaining records for payer-provider operations; provider services like submitting quality metrics to payers or reporting bodies, etc.) that stakeholders will pay for beyond the basic services they receive from the IHIN.

Advantages	*Disadvantages*
• Direct correlation between fees and services • Stakeholders only pay for the services they desire	• Difficult to determine basic from added value services • May price some services outside the affordability of smaller stakeholders

Strategy 3 – State Appropriations

In this strategy, the state legislature appropriates funds to build and/or operate the IHIN.

Advantages	*Disadvantages*
• Annual appropriations provide adequate funding for operations • Good source for funding in the early stages of IHIN development	• May be difficult to obtain in these economic and political times • Requires annual education for members of the legislature on the value of the IHIN • May result in a shift toward more government control over activities

Strategy 4 - Assessment Fees

In this strategy, an assessment fee is charged to the participant based on a particular characteristic such as number of beds per facility, number of hospital discharges, total annual revenue, or the number of enrollees in a health plan. Assessment fess can vary by type of participant but are similar within type.

Advantages	*Disadvantages*
• Ensures all stakeholders contribute something to the operations • Flexible • May include a broader group of stakeholders	• Fees don't reflect actual usage • May charge a disproportional share to one group • Annual audits may be necessary to reflect changes in chargeable characteristics

Strategy 5 - Usage Fees

In this strategy, fees are based on the actual usage of the exchange. Frequently, the fees are on a transaction basis so the more a participant uses the IHIN, the higher the fees are to that participant.

Advantages	*Disadvantages*
• Based on actual amount of information exchanged • Measures data volume	• May discourage usage by key stakeholders • Difficult to track and bill • Difficult to administer

Strategy 6 - Grants

In this strategy, support from various governmental agencies or foundations/organizations in the form of grants may be used to fund operations. Frequently, grants are limited to a specific purpose and are generally viewed as better for capital purposes than operational funding.

Advantages	*Disadvantages*
• Many sources available who are willing to support a good cause • Better for capital expenditures than for operational costs	• Generally they are for a specific purpose and for a limited time frame • Usually requires many applications to secure a few grants • May require significant time to prepare application and receive notification of award

Strategy 7 - Cost Savings

In this strategy, payments are based on the projected operational costs saved or avoided by each stakeholder from their participation in the IHIN.

Advantages	*Disadvantages*
• Does not require new operational revenues to cover costs • Easier to sell to Boards of Directors	• Difficult to track and measure • Difficult to identify real bottom line savings • Realizing savings may require layoffs and this seldom occurs with smaller stakeholders

Strategy 8 - Taxation

In this strategy, a specific consumer or business tax may be levied by the legislature to cover the operational costs of the IHIN.

Advantages	*Disadvantages*
• Reliable funding supported by a general tax levy • Includes most users of the health care system	• Difficult to gain approval of legislature • Difficult to change after initial adoption

Generally, eight options exist for funding IHIN sustainability. The Governance and Finance Workgroup reviewed these options and prioritized them in the order below. The group carefully analyzed each option and recommended the financial sustainability plan include all eight options to demonstrate the range of options considered. The workgroup recommended a combination of these funding strategies based on the information available, and an analysis from each of their perspectives (e.g., payer, provider, consumer).

Strategy 1 - Membership Fees
Strategy 2 - Fees for Optional IHIN Products/Services
Strategy 3 - State Appropriations
Strategy 4 - Assessment Fees

XI. IHIN Timeline and Planned Services

IHIN Infrastructure

The IHIN infrastructure will first be developed to enable IHIN services. The key components of the IHIN infrastructure include the following:

- Provider directory
- Master patient index
- Record locator service
- Authentication, access, and authorization
- Patient consent
- Auditing and logging
- Transport and content standards
- Data security

The way in which IHIN participants may access the IHIN are through the following user and system interfaces: 1) provider portal, 2) direct connection to certified EHRs, 3) patient portal, 4) Nationwide Health Information Network connectivity.

The IHIN will be implemented through a phased approach. Development of the infrastructure and IHIN testing will begin in early 2012, with an estimated "go-live" in mid-2012.

IHIN development will occur in two distinct phases: ***build (startup)*** and ***sustainability (operational)***. The build phase will take place between State Fiscal Year 2012 (beginning 7/1/11) and State Fiscal Year 2015 (ending 6/30/15). By the end of this phase:

- All initial IHIN services will be operational (see table below)
- Approximately 74% of hospitals in Iowa will be connected to the IHIN
- Approximately 29% of provider practices in Iowa will be connected to the IHIN

During the build phase, the core IHIN infrastructure and initial services outlined in the following table will be built and available to the "critical mass" of participants. Following the build phase, the IHIN will move into ongoing sustainability, which will begin in SFY 2016 (7/1/15). By the sustainability phase, the IHIN will be solely funded by participants, including providers, payers, and state government agencies. Iowa e-Health will continue to add services and functionalities during the sustainability phase, which will be determined by stakeholder needs, available funding, and the value to participants.

Table XI.1: IHIN Services (Build Phase)

SFY13 (July 1, 2012 – June 30, 2013)	SFY14 (July 1, 2013 – June 30, 2014)	SFY15 (July 1, 2014 – June 30, 2015)
• Secure messaging • Submission of quality metrics • Continuity of Care Document (CCD) • Reporting to immunization registry information system (IRIS) • Advanced clinical and quality reporting	• All services from SFY2013 • Electronic reporting to the Iowa Disease Surveillance System (IDSS) • Patient portal *Nationwide Health Information Network Connectivity	• All services from SFY13 and SFY14

The following are services Iowa e-Health will enable during the build phase. These services will be available for all participants, but specific access will depend each participant's role as defined by IHIN policies.

- *Provider to provider messaging.* Ability to provide secure messaging between providers (e.g., request for consultation).

- *Continuity of care document (CCD).* Ability to provide a patient-level clinical summary document between providers when a patient is referred to a specialist or admitted, transferred, or discharged from a hospital. Following are examples of the types of health information included in a CCD. For a more complete list, see the Iowa e-Health Strategic and Operational Plan at www.IowaeHealth.org.
    - *Patient-level clinical summary*. Includes demographics, allergies, diagnoses, family history.
    - *Medication history.* Ability for prescribing providers to access information about medications previously dispensed to a patient, including prescriptions from other providers.
    - *Lab orders and results.* Ability to transmit a patient's laboratory order and the eventual results, through the IHIN, including diagnostic immunology lab and tissue typing.
    - *Anatomic pathology results*: Ability to provide textual report that describes findings from a microscopic examination (e.g., reading pap smears, looking at a biopsy).
    - *Immunization history.* Ability for providers and other authorized users to request and receive an immunization history from public health.
    - *Radiology results.* Ability to provide a description and interpretation of radiology or other images or tests (e.g., x-rays, EKGs).
- *Reporting to the immunization registry information system (IRIS).* Ability to electronically report immunizations administered, from providers to public health.
- *Electronic reporting of reportable diseases*. Ability to electronically report required laboratory results for reportable diseases or conditions, from laboratories to public health.
- *Submission of quality metrics.* Ability for eligible providers to push quality data through the IHIN to payers for meaningful use incentives or other payer incentive programs.
- *Patient portal.* Ability to pull data from EHRs, labs, and other IHIN transactions (e.g., listing of visits, providers seen, diagnoses, procedures, lab values) to populate a personal health record (e.g., Microsoft HealthVault).
- *Advanced Clinical and Quality Reporting Package.*
    - *Automated capture of quality metrics.* Ability to automatically capture and report quality, performance, and/or accountability measures.
    - *Quality indicators.* Ability to provide quality indicator information to providers based on patients' health needs. This may include alerts or reminders for routine care (e.g., annual checkups, wellness, disease management, blood work, foot check).

As the IHIN develops and funding is available, Iowa e-Health may add additional services. Below is a list of potential services that have been considered. Cost and additional participation fees have not been established for these services.

- *EHR Lite.* Ability to provide an IHIN-hosted version of an EHR, which may include the CCD and computerized physician order entry (CPOE), medication orders, and clinical decision support.
- *Claims history.* Ability to combine information from payers' claims data and provide an initial patient history that includes historical medical information such as prior diagnosis, procedures performed and/or prescription history.
- *Enrollment eligibility (prior authorization).* Ability to verify a patient's insurance eligibility and prior authorization for care, procedures, and medications.
- *Formulary.* Ability to make drug benefit coverage information available to prescribers.
- *Discharge summary.* Ability to provide access to a hospital discharge summary through the IHIN.
- *Clinical narrative.* Ability to provide free text that describes previous patient encounters, progress notes, and procedure notes.
- *Images.* Ability to transmit images (e.g., ultrasound, MRI, and EKG).

XII. Financial Sustainability Model Guidelines

During the course of the project, various financial scenarios have been modeled and shared with the Governance and Finance Workgroup and the Executive Committee and Advisory Council. In order to provide clarity to stakeholders regarding the development of the financial model, Iowa e-Health developed financial sustainability model guidelines. These guidelines establish a set of principles and formulas describing how the IHIN will be financed and sustained over time.

General Guidelines
The financial sustainability model is constructed on the principle that entities participating in the IHIN (i.e., health care providers, payers, and state government) should contribute to financing the on-going operations and sustainability of the system.

Activities the Iowa e-Health Executive Committee and Advisory Council will be asked to complete include the following:

- approve this framework and monitor its continued development and implementation
- provide operational guidance and recommendations to the Iowa Department of Public Health and the State Board of Health for Administrative Rules, policies, procedures, and the IHIN Participation agreement
- at a minimum, review the financial sustainability plan annually

All funds appropriated to, granted, and/or collected by Iowa e-Health will be used to support the planning, implementation, and sustainability of Iowa e-Health and the IHIN. During the 2012 Iowa legislative session, Iowa e-Health will pursue the establishment of the Iowa e-Health fund. This fund will be required to: 1) ensure participation fees collected do not revert to the General Fund at the end of each State Fiscal Year, 2) provide funding to enhance the IHIN system and services, and 3) allow operational margin from year to year.

Expense Guidelines
At a minimum, the Executive Committee will review Iowa e-Health expenses on a quarterly basis.

Expenses related to the operational costs of Iowa e-Health include the following:

a. IHIN Infrastructure and Services
    - Non-Recurring Costs (i.e., project initiation and planning; software licensing; install, testing and implementation)
    - On-Going Operational Costs (i.e., data hosting; portal and secure messaging; direct connection; professional services; software maintenance)
b. Funded Depreciation Account
    - A Funded Depreciation Account will be established for the replacement of capital assets and will be funded at a rate not greater than current annual depreciation
    - The account must be used for the purchase of capital items as defined by internal procedures (e.g., servers)
c. Technical Assistance for Participants
    - Assisting in establishing direct connections (EHR to IHIN)
    - Training of the functions and uses of the IHIN
    - Workflow re-design
d. Personnel
    - Salaries and fringe for employees is based on the State of Iowa employee classification system
    - The following personnel will perform the day-to-day business and technical operations of Iowa e-Health and the IHIN:

- Communication and Outreach Coordinator
- Evaluation Coordinator
- Executive Director / State Health Information Technology Coordinator
- IT Project Manager
- Program Assistant
- Strategic Planning Coordinator
- Implementation Support Specialist (added in SFY13)

e. Communication and Outreach
   - Activities include, but are not limited to: provider and consumer meetings, program branding, integrated media campaign, marketing and promotional materials, website development and hosting

f. Other Expenses
   - These expenses include: legal, program evaluation, travel, office equipment and supplies, Executive Committee and Advisory Council meeting expenses

Fee Structure Guidelines

The IHIN participation agreement will be the legal contract between IDPH and the organization participating in the IHIN, and may vary in length.

Iowa e-Health will establish participation fees for access and utilization of IHIN services:

- based on a State Fiscal Year (July 1 – June 30)
- determined during the Iowa e-Health annual budgeting process
- consistent with the fee schedule developed and approved by the Executive Committee and State Board of Health
- implemented as part of the IHIN participation agreement

Changes in IHIN participation fees must receive approval from the Executive Committee and State Board of Health, will be reflected in IHIN participation agreements, and will be based on the following:

- the previous year's expenses, actual IHIN participation rates, and revenue
- the upcoming year's projected expenses, projected IHIN participation, and projected revenue
- changes in IHIN services (e.g., for new services or additional functionality)
- estimated costs to perform desired services (e.g., for new services or additional functionality)

During IHIN implementation, Iowa e-Health will establish policies and Administrative Rules needed to set participation fees for providers with existing connections to other HIE organizations outside of Iowa.

The following guidelines describe the way in which IHIN participation fees will be established for each participant type:

a. Hospital Fees (Direct Connect)
   - Each hospital will be assessed a participation fee based on the hospital's Total Annual Revenue
   - An efficiency adjustment will be given to hospitals that meet ALL of the following criteria:
     - Two or more hospitals that have an ownership or management agreement
     - Shared EHR infrastructure, including a Master Patient Index (MPI) or similar patient matching
     - Ability to sign one participation agreement with Iowa e-Health that covers all owned or managed hospitals
   - All providers employed by the hospital are included in the hospital fee (provider practices and other provider types are charged separately)

b. Provider Practice Fees (Direct Connect)
   - Independent practices. Each practice will be assessed a fee based on the number of providers (full-time and part-time) licensed to practice at the independent level (primary care and specialty)

- Provider practice systems. Affiliated provider practices that meet the following criteria will be assessed a fee based on the total number of providers (full-time and part-time) licensed to practice at the independent level (primary care and specialty) within the system
    - Two or more provider practice locations that are mutually owned and/or managed
    - Shared EHR infrastructure, including a Master Patient Index (MPI) or similar patient matching
    - Ability to sign one participation agreement with Iowa e-Health that covers all owned and/or managed practices
- Local public health departments that offer clinic services are included within the Provider Practice Fee structure

c. Pharmacies (Direct Connect)
    - Independent pharmacies. Each independent pharmacy will be assessed a fee to participate in the IHIN
    - Chain pharmacies. Affiliated pharmacies that meet the following criteria will be assessed a fee to participate in the IHIN
        - Two or more pharmacy locations that are mutually owned and/or managed
        - Shared health IT infrastructure, including a Master Patient Index (MPI) or similar patient matching
        - Ability to sign one participation agreement with Iowa e-Health that covers all owned and/or managed pharmacies that are located in Iowa
d. Labs (Direct Connect)
    - Each independent lab will be assessed a fee to participate in the IHIN
    - Labs affiliated with a hospital or provider practice that meet the following criteria may participate in the IHIN under the hospital or provider practice fee
        - Lab information system is interoperable with the organization's certified EHR system
        - Lab is owned and/or managed by the hospital or provider practice and a separate participation agreement would not be necessary
e. Long-Term Care. Nursing Facility, Assisted Living, Skilled Nursing Facility, Residential Care Facility, Hospice (Direct Connect)
    - Independent provider locations. Each health care organization will be assessed a fee based on the number of beds within the organization
    - Provider organization systems. Affiliated provider locations that meet the following criteria will be assessed a fee based on the total number of beds within the system.
        - Two or more provider locations that are mutually owned and/or managed
        - Shared EHR infrastructure, including a Master Patient Index (MPI) or similar patient matching
        - Ability to sign one participation agreement with Iowa e-Health that covers all owned and/or managed locations
f. Home Health, Behavioral Health, Therapies, Other (Direct Connect)
    - Independent provider locations. Each health care organization will be assessed a fee based on the number of providers within the organization
    - Provider organization systems. Affiliated provider locations that meet the following criteria will be assessed a fee based on the total number providers within the system.
        - Two or more provider locations that are mutually owned and/or managed
        - Shared EHR infrastructure, including a Master Patient Index (MPI) or similar patient matching
        - Ability to sign one participation agreement with Iowa e-Health that covers all owned and/or managed locations
    - The following are definitions for Providers in each group.
        - *Home Health.* Those who are licensed to provide direct clinical services (e.g., nurses, therapists, clinical staff, physicians, social workers)

- *Behavioral Health*. Those who are licensed and/or certified to provide direct clinical services (e.g., physicians, social workers, certified counselors, nurses, therapists)
- *Therapies (physical, occupational, speech)*. Those who are licensed to provide direct clinical services (e.g., physical therapist, speech therapist, nurses)

g. Provider Portal
   - A participation fee will be assessed per facility (e.g., provider practice, public health, lab, home health, long-term care, pharmacy) based on the number of providers within the organization (full-time and part-time) that will have user access to the provider portal
   - Provider portal will allow secure provider-to-provider messaging (based on the provider directory), and querying abilities to view patient information available from IHIN direct connection participants

h. State Government Agencies
   - A participation fee will be charged per state government agency (i.e., Iowa Department of Public Health) for access to the IHIN
   - Specific IHIN services will vary based on the business needs of each government agency

i. Payer IHIN Service
   - A participation fee will be charged to payers that access the IHIN
   - This service will be further determined with payers, and may include the automated capturing of quality metrics, medical record review requests, and quality indicators (e.g., disease management, wellness)

Ending Balance Guidelines

Once sustainability is reached, a positive annual ending balance is important to ensure continuity of services and long-term sustainability. During the annual budgeting process, Iowa e-Health and the Executive Committee and Advisory Council will establish IHIN annual and cumulative ending balance targets for the upcoming fiscal year. At a minimum, the IHIN ending balance will be monitored and reviewed by Iowa e-Health and the Executive Committee and Advisory Council on a quarterly basis, and approved by the State Board of Health.

Funds in excess of ending balance targets may be:

- Refunded to IHIN participants through reduced participation fees the following State Fiscal Year
- Used to purchase IHIN enhancements or information technology capital improvements
- Used to offer additional technical assistance for IHIN participants

XIII. Financial Model Scenario

There are many variables that impact the final fee structure. These variables include projected versus actual participation rates, meeting timelines, and projected versus actual expenditures. For this reason, Iowa e-Health examined a variety of potential financial scenarios in order to see how changes in expenses, participation levels, and revenues would impact the fee structure. After vetting numerous scenarios and gathering feedback from stakeholders, the following financial scenario is considered by the Business and Financial Sustainability Workgroup, Executive Committee and Advisory Council, and State Board of Health as the most likely and realistic case. This scenario maximizes available federal funding from the Office of the National Coordinator (State HIE Cooperative Agreement Program) and the Centers for Medicare and Medicaid Services (CMS HITECH funding). Other financial model scenarios, considered less likely to be realized, are included in ***Attachment D: Alternate Financial Model Scenarios***.

The following assumptions were used in the creation of the financial model:

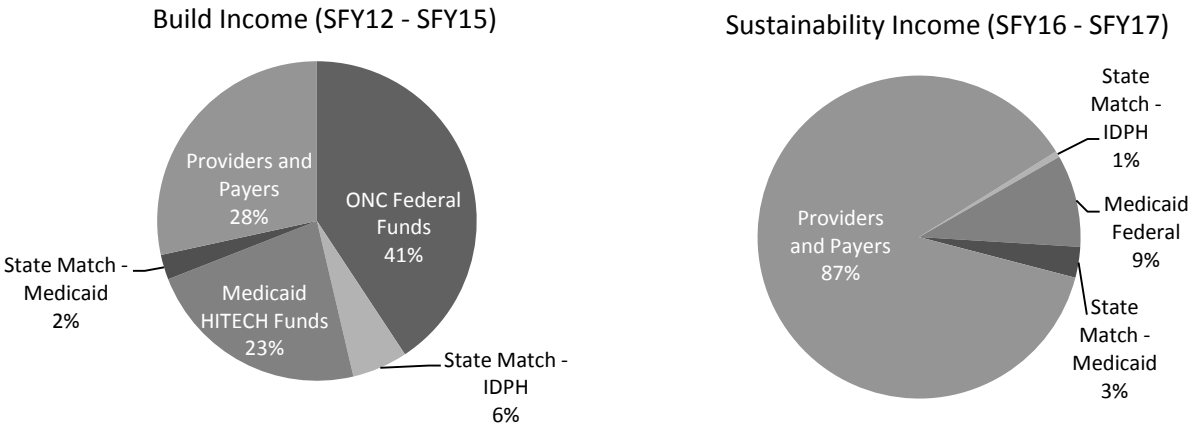
- Funding from CMS HITECH will be received to support the IHIN build (SFY12 – SFY15)
- State General Fund appropriations specifically for Iowa e-Health will end after SFY13
- State government agencies begin paying participation fees for services beginning in SFY14
- Hospital efficiency adjustment incentives (discount for shared infrastructure) begin in SFY14
- Participation by Iowa hospitals reaches 88% by the end of SFY17
- Participation by Iowa provider practices (primary and specialty care) reaches 50% by SFY17

Build Income (startup capital) will account for the largest share of income during the development of the IHIN (SFY12 through SFY15). During this time period, the sources of this build income are: 1) ONC State HIE Cooperative Agreement Program ($7,818,633); 2) State General Fund Appropriations ($1,028,588); and 3) CMS HITECH 90/10 Funding ($7,450,000). Beginning in SFY16, build income is no longer available and the IHIN will be sustained through revenue generated from IHIN services. This category includes the following funding sources:

- State HIE Cooperative Agreement Program. Federal funding from the Office of the National Coordinator for Health IT to plan and implement HIE in Iowa.
- State General Appropriations. IDPH budget request to meet State HIE Cooperative Agreement Program match requirements.
- Medicaid. CMS HITECH funding available through Iowa Medicaid Enterprise to support the IHIN build (90% from CMS HITECH; 10% state match).
- In-Kind Investments. Investments by stakeholders (i.e., providers and payers) includes modifications to existing health IT systems (e.g., purchasing a certified EHR system, updating to the certified EHR version), staff time in preparing to connect to the IHIN, and training of users of the system. Additionally, stakeholders (i.e., state government, providers, payers, consumers) have dedicated time and effort to planning the IHIN, including attending meetings, securing funding, preparing policies, and implementing the objectives of Iowa e-Health. In-kind investments will be included as part of the Implementation Advanced Planning Document to be submitted by IME to obtain CMS HITECH funding.

Sustainability Income (operational revenue) will begin in SFY13 as participants connect to the IHIN and use services. The sources of operational revenue include hospitals, provider practices, state government agencies, payers, long-term care centers, home health providers, pharmacies, and labs. Participants will enter into Participation Agreements (i.e., contracts) with Iowa e-Health that will require participation fees be paid in order to use IHIN services. As Iowa e-Health begins collecting fees in SFY13, an estimated $709,500 will be collected from participants during that fiscal year. This amount increases dramatically as participation steadily grows. For example, in SFY17, Iowa e-Health estimates generating $4,312,000 in participation fees – an amount that exceeds expenses.

Figure XIII.1: Distribution of Build and Sustainability Income for Core Infrastructure and Services *(does not include Advanced Clinical and Quality Reporting)*



Expenses

Expenses will be incurred during the build and on-going operation of the IHIN. The total expense over the 6-year timeframe is $28,013,468, averaging $4,668,911 annually. The expense items are critical to the success of the IHIN and will, at a minimum, be reviewed annually by the Executive Committee and Advisory Council to ensure revenue is allocated efficiency and effectively. Expenses include IHIN infrastructure and services, funded depreciation, improvement and development, technical assistance, communication and outreach, travel, legal services, indirect (i.e., administrative support, office space, fiscal services), and personnel.

Personnel expenses include salary and fringe for the following state employee positions within IDPH:

- Communication and Outreach Coordinator
- Evaluation Coordinator
- Executive Director / State Health Information Technology Coordinator
- IT Project Manager
- Program Assistant
- Strategic Planning Coordinator
- Implementation Support Specialist (added in SFY13)

Table XIII.1: Pro Forma Budget

Income	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Startup Capital (Build)						
ONC Federal Funds	$ 2,246,148	$ 2,640,820	$ 2,931,665	$ -	$ -	$ -
State General Appropriation	$ 514,294	$ 514,294	$ -	$ -	$ -	$ -
Medicaid CMS HITECH Funds	$ 2,150,000	$ 1,900,000	$ 1,700,000	$ 1,700,000		
Operational Revenue (Sustainability)						
Direct Connection: Hospitals	$ -	$ 396,250	$ 1,053,750	$ 1,104,250	$ 1,389,250	$ 1,419,250
Direct Connection: Provider Practices	$ -	$ 17,750	$ 126,000	$ 253,000	$ 319,000	$ 420,000
Direct Connection: Other Provider Types	$ -	$ 10,500	$ 65,500	$ 119,000	$ 179,500	$ 251,250
Provider Portal	$ -	$ 35,000	$ 134,500	$ 191,500	$ 244,000	$ 296,500
State Government Agencies	$ -	$ -	$ 25,000	$ 25,000	$ 525,000	$ 525,000
Payer IHIN Service	$ -	$ 250,000	$ 800,000	$ 900,000	$ 1,400,000	$ 1,400,000
Income	$ 4,910,442	$ 5,764,614	$ 6,836,415	$ 4,292,750	$ 4,056,750	$ 4,312,000
= Total Income	**$ 4,910,442**	**$ 5,764,614**	**$ 6,836,415**	**$ 4,292,750**	**$ 4,056,750**	**$ 4,312,000**
Expense						
HIE Infrastructure & Services						
Non-Recurring	$ 3,065,222	$ -	$ -	$ -	$ -	$ -
On-Going Operations	$ 646,357	$ 2,940,393	$ 2,647,721	$ 2,647,721	$ 2,647,721	$ 2,647,721
Funded Depreciation Account	$ -	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
Improvement and Development Account	$ -	$ 200,000	$ 200,000	$ 200,000	$ 283,973	$ 301,840
Personnel						
Salaries and Fringe	$ 560,366	$ 670,499	$ 724,138	$ 782,069	$ 844,635	$ 912,206
Indirect Expense	$ 148,497	$ 177,682	$ 191,897	$ 207,248	$ 223,828	$ 241,735
Technical Assistance for Participants	$ -	$ 650,000	$ 600,000	$ 600,000	$ -	$ -
Communication and Outreach	$ 350,000	$ 300,000	$ 200,000	$ 150,000	$ 100,000	$ 70,000
Travel	$ 25,000	$ 25,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Legal Services	$ 80,000	$ 80,000	$ 60,000	$ 40,000	$ 40,000	$ 40,000
Other Expenses	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
Total Expense	**$4,910,442**	**$5,118,574**	**$4,718,756**	**$4,722,038**	**$4,235,157**	**$4,308,502**
Annual Ending Balance	$ 0	$ 646,040	$ 2,117,659	$ (429,288)	$ (178,407)	$ 3,498
Cumulative Ending Balance	$ 0	$ 646,040	$ 2,763,699	$ 2,334,411	$ 2,156,004	$ 2,159,503

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

Table XIII.2: Adoption Rates

Number of Entities						
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Project Phase	Build				Sustain	
Startup Capital (Build)						
Federal Funds (ONC)	Not Applicable - See Projected Total Revenue					
State General Appropriation						
Medicaid						
Operational Revenue (Sustainability)						
Direct Connect: Hospitals						
Percent of Hospitals (total=118)	0%	20%	39%	49%	85%	88%
Percent of Beds (total=11,303)	0%	51%	75%	80%	93%	94%
Over $750M Annually	0	1	1	1	1	1
$500M - $750M Annually	0	1	1	1	1	1
$250M - $499M Annually	0	5	5	5	5	5
$150M - $249M Annually	0	1	6	6	6	6
$100M - $149M Annually	0	5	8	8	8	8
$50M - $99M Annually	0	3	8	8	8	8
$25M - $49M Annually	0	2	5	11	17	18
$15M - $24M Annually	0	3	6	10	28	30
Under $15M Annually	0	3	6	8	26	27
Direct Connect: Provider Practices						
Percent of Facilities* (total=948)	0%	2%	12%	29%	38%	50%
Percent of Providers (total=6,475)	0%	22%	29%	39%	45%	52%
Over 90 Providers	0	4	6	8	8	8
61 - 90 Providers	0	1	2	2	2	2
31 - 60 Providers	0	2	4	6	8	12
21 - 30 Providers	0	1	2	6	6	6
11 - 20 Providers	0	1	10	20	30	40
6 - 10 Providers	0	5	40	80	100	150
1 - 5 Providers	0	5	50	150	200	250
FQHC/RHC	0	1	4	6	8	10
Direct Connect: Pharmacies						
Independent	0	6	10	20	30	45
Chain (15 or fewer locations)	0	1	1	2	4	5
Chain (16 or more locations)	0	1	2	2	3	4
Direct Connect: Labs						
Independent	0	0	3	9	15	20
Affiliated (one fee per group)	0	0	1	2	2	2
Direct Connect: LTC, AL, Nursing, and RCF						
Over 400 Beds	0	0	0	1	2	3
301 - 400 Beds	0	0	1	2	2	3
201 - 300 Beds	0	0	1	2	2	4
151 - 200 Beds	0	0	2	2	3	4
101 - 150 Beds	0	0	2	4	6	8
51 - 100 Beds	0	0	3	4	6	8
1 - 50 Beds	0	0	4	6	8	10
Direct Connect: HH, Behavioral Health, Therapies, Other						
Over 90 Providers	0	0	0	1	2	3
61 - 90 Providers	0	0	0	1	2	3
31 - 60 Providers	0	0	0	1	2	3
21 - 30 Providers	0	0	1	2	3	4
11 - 20 Providers	0	0	2	4	6	10
6 - 10 Providers	0	0	2	4	6	10
1 - 5 Providers	0	0	3	6	8	12
Provider Portal (per facility)						
Over 90 Providers	0	0	1	2	2	2
61 - 90 Providers	0	0	1	2	2	2
31 - 60 Providers	0	1	5	6	8	10
21 - 30 Providers	0	5	10	15	20	25
11 - 20 Providers	0	10	20	30	40	50
6 - 10 Providers	0	30	40	50	60	70
1 - 5 Providers	0	25	50	75	100	125
State Government Agencies**						
Medicaid	0	0	0	0	1	1
Public Health	0	0	1	1	1	1
Payer IHIN Service						
Over 500,000 covered lives	0	1	1	1	1	1
100,000 - 499,000 covered lives	0	0	1	1	2	2
Under 100,000 covered lives	0	0	0	1	3	3

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Total number of facilities does not include all practices within a health system.

**Additional state government agencies may be added as their participation and fees are better defined.

Table XIII.3: Fee Structure

Fee						
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Project Phase	Build				Sustain	
Startup Capital (Build)						
Federal Funds (ONC)	Not Applicable - See Projected Total Revenue					
State General Appropriation						
Medicaid						
Operational Revenue (Sustainability)						
Direct Connect: Hospitals	**Per Hospital**					
Percent of Hospitals (total=118)						
Percent of Beds (total=11,303)						
Over $750M Annually	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
$500M - $750M Annually	$ -	$ 40,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
$250M - $499M Annually		$ 30,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
$150M - $249M Annually	$ -	$ 22,500	$ 45,000	$ 45,000	$ 45,000	$ 45,000
$100M - $149M Annually	$ -	$ 15,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
$50M - $99M Annually	$ -	$ 10,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
$25M - $49M Annually	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
$15M - $24M Annually	$ -	$ 3,750	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Under $15M Annually	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: Provider Practices	**Per Provider Practice / System**					
Percent of Facilities (total=948)						
Percent of Providers (total=6,475)						
Over 90 Providers	$ -	$ 2,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	$ -	$ 1,250	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	$ -	$ 1,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	$ -	$ 750	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
FQHC/RHC	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Direct Connect: Pharmacies	**Per Pharmacy**					
Independent	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Chain (15 or fewer locations)	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Chain (16 or more locations)	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Direct Connect: Labs	**Per Lab**					
Independent	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Affiliated (one fee per group)	$ -	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: LTC, AL, Nursing, and RCF	**Per Provider Organization**					
Over 400 Beds	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
301 - 400 Beds	$ -	$ 1,375	$ 2,750	$ 2,750	$ 2,750	$ 2,750
201 - 300 Beds	$ -	$ 1,125	$ 2,250	$ 2,250	$ 2,250	$ 2,250
151 - 200 Beds	$ -	$ 875	$ 1,750	$ 1,750	$ 1,750	$ 1,750
101 - 150 Beds	$ -	$ 625	$ 1,250	$ 1,250	$ 1,250	$ 1,250
51 - 100 Beds	$ -	$ 375	$ 750	$ 750	$ 750	$ 750
1 - 50 Beds	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Direct Connect: HH, Behavioral Health, Therapies, Other	**Per Provider Organization**					
Over 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
61 - 90 Providers	$ -	$ 1,375	$ 2,750	$ 2,750	$ 2,750	$ 2,750
31 - 60 Providers	$ -	$ 1,125	$ 2,250	$ 2,250	$ 2,250	$ 2,250
21 - 30 Providers	$ -	$ 875	$ 1,750	$ 1,750	$ 1,750	$ 1,750
11 - 20 Providers	$ -	$ 625	$ 1,250	$ 1,250	$ 1,250	$ 1,250
6 - 10 Providers	$ -	$ 375	$ 750	$ 750	$ 750	$ 750
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
Provider Portal (per facility)	**Per Facility**					
Over 90 Providers	$ -	$ 2,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	$ -	$ 1,500	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	$ -	$ 1,250	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	$ -	$ 1,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	$ -	$ 750	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	$ -	$ 500	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	$ -	$ 250	$ 500	$ 500	$ 500	$ 500
State Government Agencies*	**Per Agency**					
Medicaid	$ -	$ -	$ -	$ -	$ 500,000	$ 500,000
Public Health	$ -	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Payer IHIN Service	**Per Payer**					
Over 500,000 covered lives	$ -	$ 250,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
100,000 - 499,000 covered lives	$ -	$ 150,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Under 100,000 covered lives	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Additional state government agencies may be added as their participation and fees are better defined.

Table XIII.4: Projected Total Revenue

Projected Total Revenue							
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17	Cumulative
Project Phase	Build				Sustain		
Startup Capital (Build)							
Federal Funds (ONC)	$ 2,246,148	$ 2,640,820	$ 2,931,665	$ -	$ -	$ -	$ 7,818,633
State General Appropriation	$ 514,294	$ 514,294	$ -	$ -	$ -	$ -	$ 1,028,588
Medicaid	$ 2,150,000	$ 1,900,000	$ 1,700,000	$ 1,700,000	$ -	$ -	$ 7,450,000
Operational Revenue (Sustainability)							
Direct Connect: Hospitals			Total Hospitals				
Over $750M Annually	$ -	$ 50,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 450,000
$500M - $750M Annually	$ -	$ 40,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 360,000
$250M - $499M Annually	$ -	$ 150,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 1,350,000
$150M - $249M Annually	$ -	$ 22,500	$ 270,000	$ 270,000	$ 270,000	$ 270,000	$ 1,102,500
$100M - $149M Annually	$ -	$ 75,000	$ 240,000	$ 240,000	$ 240,000	$ 240,000	$ 1,035,000
$50M - $99M Annually	$ -	$ 30,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 670,000
$25M - $49M Annually	$ -	$ 10,000	$ 50,000	$ 110,000	$ 170,000	$ 180,000	$ 520,000
$15M - $24M Annually	$ -	$ 11,250	$ 45,000	$ 75,000	$ 210,000	$ 225,000	$ 566,250
Under $15M Annually	$ -	$ 7,500	$ 30,000	$ 40,000	$ 130,000	$ 135,000	$ 342,500
Direct Connect: Provider Practices			Total Provider Practice / System				
Over 90 Providers	$ -	$ 8,000	$ 24,000	$ 32,000	$ 32,000	$ 32,000	$ 128,000
61 - 90 Providers	$ -	$ 1,500	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 25,500
31 - 60 Providers	$ -	$ 2,500	$ 10,000	$ 15,000	$ 20,000	$ 30,000	$ 77,500
21 - 30 Providers	$ -	$ 1,000	$ 4,000	$ 12,000	$ 12,000	$ 12,000	$ 41,000
11 - 20 Providers	$ -	$ 750	$ 15,000	$ 30,000	$ 45,000	$ 60,000	$ 150,750
6 - 10 Providers	$ -	$ 2,500	$ 40,000	$ 80,000	$ 100,000	$ 150,000	$ 372,500
1 - 5 Providers	$ -	$ 1,250	$ 25,000	$ 75,000	$ 100,000	$ 125,000	$ 326,250
FQHC/RHC	$ -	$ 250	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,250
Direct Connect: Pharmacies			Total Pharmacies				
Independent	$ -	$ 3,000	$ 10,000	$ 20,000	$ 30,000	$ 45,000	$ 108,000
Chain (15 or fewer locations)	$ -	$ 2,500	$ 5,000	$ 10,000	$ 20,000	$ 25,000	$ 62,500
Chain (16 or more locations)	$ -	$ 5,000	$ 20,000	$ 20,000	$ 30,000	$ 40,000	$ 115,000
Direct Connect: Labs			Total Labs				
Independent	$ -	$ -	$ 3,000	$ 9,000	$ 15,000	$ 20,000	$ 47,000
Affiliated (one fee per group)	$ -	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 35,000
Direct Connect: LTC, AL, Nursing, and RCF			Total Provider Organization				
Over 400 Beds	$ -	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
301 - 400 Beds	$ -	$ -	$ 2,750	$ 5,500	$ 5,500	$ 8,250	$ 22,000
201 - 300 Beds	$ -	$ -	$ 2,250	$ 4,500	$ 4,500	$ 9,000	$ 20,250
151 - 200 Beds	$ -	$ -	$ 3,500	$ 3,500	$ 5,250	$ 7,000	$ 19,250
101 - 150 Beds	$ -	$ -	$ 2,500	$ 5,000	$ 7,500	$ 10,000	$ 25,000
51 - 100 Beds	$ -	$ -	$ 2,250	$ 3,000	$ 4,500	$ 6,000	$ 15,750
1 - 50 Beds	$ -	$ -	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,000
Direct Connect: HH, Behavioral Health, Therapies, Other			Total Provider Organization				
Over 90 Providers	$ -	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
61 - 90 Providers	$ -	$ -	$ -	$ 2,750	$ 5,500	$ 8,250	$ 16,500
31 - 60 Providers	$ -	$ -	$ -	$ 2,250	$ 4,500	$ 6,750	$ 13,500
21 - 30 Providers	$ -	$ -	$ 1,750	$ 3,500	$ 5,250	$ 7,000	$ 17,500
11 - 20 Providers	$ -	$ -	$ 2,500	$ 5,000	$ 7,500	$ 12,500	$ 27,500
6 - 10 Providers	$ -	$ -	$ 1,500	$ 3,000	$ 4,500	$ 7,500	$ 16,500
1 - 5 Providers	$ -	$ -	$ 1,500	$ 3,000	$ 4,000	$ 6,000	$ 14,500
Provider Portal (per facility)			Total Facility				
Over 90 Providers	$ -	$ -	$ 4,000	$ 8,000	$ 8,000	$ 8,000	$ 28,000
61 - 90 Providers	$ -	$ -	$ 3,000	$ 6,000	$ 6,000	$ 6,000	$ 21,000
31 - 60 Providers	$ -	$ 1,250	$ 12,500	$ 15,000	$ 20,000	$ 25,000	$ 73,750
21 - 30 Providers	$ -	$ 5,000	$ 20,000	$ 30,000	$ 40,000	$ 50,000	$ 145,000
11 - 20 Providers	$ -	$ 7,500	$ 30,000	$ 45,000	$ 60,000	$ 75,000	$ 217,500
6 - 10 Providers	$ -	$ 15,000	$ 40,000	$ 50,000	$ 60,000	$ 70,000	$ 235,000
1 - 5 Providers	$ -	$ 6,250	$ 25,000	$ 37,500	$ 50,000	$ 62,500	$ 181,250
State Government Agencies*			Total Agency				
Medicaid	$ -	$ -	$ -	$ -	$ 500,000	$ 500,000	$ 1,000,000
Public Health	$ -	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
Payer IHIN Service			Total Payer				
Over 500,000 covered lives	$ -	$ 250,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,250,000
100,000 - 499,000 covered lives	$ -	$ -	$ 300,000	$ 300,000	$ 600,000	$ 600,000	$ 1,800,000
Under 100,000 covered lives	$ -	$ -	$ -	$ 100,000	$ 300,000	$ 300,000	$ 700,000

Section XII: Financial Sustainability Model Guidelines provides additional information and clarification for the financial sustainability model.

*Additional state government agencies may be added as their participation and fees are better defined.

Table XIII.5: Projected Expenses

	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17
Infrastructure & Services						
Core: Non-Recurring (setup, testing, licensing, implementation)	$3,065,222					
Core: On-Going Operations (professional services, software maintenance, data hosting)	$146,357	$2,040,393	$1,747,721	$1,747,721	$1,747,721	$1,747,721
Funded Depreciation Account	$0	$40,000	$40,000	$40,000	$40,000	$40,000
Improvement and Development Account*	$0	$200,000	$200,000	$200,000	$283,973	$301,840
Quality Services	$500,000	$900,000	$900,000	$900,000	$900,000	$900,000
Technical Assistance for Participants	$0	$650,000	$600,000	$600,000	$0	$0
Personnel						
Salaries and Fringe**	$560,366	$670,499	$724,138	$782,069	$844,635	$912,206
Indirect Expense	$148,497	$177,682	$191,897	$207,248	$223,828	$241,735
Communication and Outreach	$350,000	$300,000	$200,000	$150,000	$100,000	$70,000
Travel	$25,000	$25,000	$20,000	$20,000	$20,000	$20,000
Legal Services (AG)	$80,000	$80,000	$60,000	$40,000	$40,000	$40,000
Other Expenses (supplies, computers, phones, etc)	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
Total Expense	**$4,910,442**	**$5,118,574**	**$4,718,756**	**$4,722,038**	**$4,235,157**	**$4,308,502**
*Based on an industry norm of 7% of Operational Revenue, with an annual minimum of $200,000.						
**Salaries and Fringe 6 employees (SFY12); 7 employees (SFY13 -- SFY17)						

Table XIII.6: Projected Total Revenue and Expense

Totals	SFY12	SFY13	SFY14	SFY15	SFY16	SFY17	Cumulative
Startup Capital	$ 4,910,442	$ 5,055,114	$ 4,631,665	$ 1,700,000	$ -	$ -	$ 16,297,221
Operational Revenue	$ -	$ 709,500	$ 2,204,750	$ 2,592,750	$ 4,056,750	$ 4,312,000	$ 13,875,750
Total Income	**$ 4,910,442**	**$ 5,764,614**	**$ 6,836,415**	**$ 4,292,750**	**$ 4,056,750**	**$ 4,312,000**	**$ 30,172,971**
Total Expense	**$ 4,910,442**	**$ 5,118,574**	**$ 4,718,756**	**$ 4,722,038**	**$ 4,235,157**	**$ 4,308,502**	**$ 28,013,468**

XIV. Financial Sustainability Risks and Mitigation Strategies

Iowa e-Health has identified the most serious risks that may impact the financial sustainability of the IHIN, and specific strategies to mitigate those risks. Iowa e-Health will monitor these on a quarterly basis and modify the risks and strategies as needed. For more information, see the Iowa e-Health Risk Management Plan, available at www.iowaehealth.org/documents/plans/51.pdf.

Table XIV.1: Identified IHIN Sustainability Risks and Mitigation Strategies

Identified Risk	Strategy (in priority order)
Inadequate long-term, sustainable funding to support ongoing operations of the IHIN	1. Increase communication and outreach to encourage participation 2. Examine and revise fee structure
The financial sustainability plan is to aggressive and participation goals and project revenue amounts are not attained	1. Examine and revise the business plan
Iowa providers, consumers, payers and other interested parties do not participate in the IHIN due to an inadequate Return on Investment (ROI).	1. Work with participants to increase the ROI 2. Educate participants on the value of the IHIN 3. Examine the ability to offer value-added services that have a high return
Key participants withdraw from participation in the IHIN, which jeopardizes sustainability	1. Prepare a contingency budget in advance that anticipates this outcome 2. Work with participants to continue to meet their ROI targets 3. Examine and revise the operating budget to reflect the lower income
Lack of support by stakeholders and state government for the IHIN to remain within state government	1. Develop the Technical Infrastructure, Business Operations, and Governance Transition Plan (see below)

Transitioning of Technical Infrastructure, Business Operations, and Governance

The governance structure of the IHIN is currently state government led, with a heavily involved public and private Executive Committee and Advisory Council. IDPH manages all business and technical operations of the IHIN, with recommendations provided by the Executive Committee and Advisory Council, and oversight by the State Board of Health. IDPH, the Business and Financial Sustainability Plan Workgroup, and Executive Committee and Advisory Council have discussed and considered the following alternative forms of governance structure:

- **Not-for-Profit**
  Not-for-profit HIEs are driven by their charter to help patients and the community in which they provide services. Their tax-exempt status helps reduce funding challenges and provide special tax credits/incentives.
- **For-Profit**
  For-profit HIEs are created with private funding and have firm return on investment targets. These organizations look to reap financial benefits from their transactions and have solid start-up funding.
- **Public Utility**
  Public Utility HIEs are created and maintained with the assistance of federal/state funds and are provided direction by the federal/state government. The organization's funding source is the primary differentiator for this category along with highly regulated fees and strict monitoring.
- **Quasi-Governmental or Public-Private Partnership**
  The HIE is a private entity started by a public organization. In this model, the board is comprised of both state and private sector representatives. The board is responsible for setting policy and may be also responsible for operation of the HIE.
- **State Led or Public Entity (Current)**
  The HIE is solely governed by the state government. While there may have private sector representation on governance committees, the state government is responsible for the work of

the HIE, and has the final authority on the policies and operations of the HIE. The public entity may contract with a non-governmental entity to implement components of the HIE.[19]

All forms of governance structure should ideally maintain broad stakeholder representation. The following table indicates advantages and disadvantages for each alternative governance structure considered. While this table does not include all advantages and disadvantages, its intent is to identify some critical factors in evaluating each potential governance option. As the HIE landscape continues to evolve and change so will the elements and viability of each alternative.

Table XIV.2: Governance Structure Advantages and Disadvantages

Governance Structure	Advantages	Disadvantages
Not-For-Profit	• Can generally be nimble with regard to governance and operations • Limited political influence • Low financial risk to state government	• Lengthy transition of IHIN or establishing sub recipient • Transition from state government could create instability • Participant fees may need to increase to cover expenses
For-Profit	• Flexibility in structure • Limited political influence • Low financial risk to state government • Incentive to have high-performing system and technology	• Lengthy transition of IHIN or establishing sub recipient • May not be eligible for government (e.g., ONC / CMS) and foundation funds • Transition from state government could create instability • Participant fees may need to increase to cover expenses
Public Utility	• Funded by those who benefit from the system • Regulated environment • Fee collection models and processes already exist	• Few working examples of a public utility model for HIE • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations
Quasi-Governmental	• Board structure encourages public-private partnership • May be supported by state or federal funding	• Political influence • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations
State Government Led	• Established processes • Liability coverage exists within state government • State has compelling public health interest • Transparent and open meetings • Resources remain focused on current goals and objectives	• Political influence • Regulations can be burdensome • Limited flexibility due to slow decision making • May be unable to react quickly to technology innovations • High financial risk to state government

[19] Deloitte Center for Health Solutions. (2006). Health Information Exchange (HIE) Business Models: The Path to Sustainable Financial Success.

Recommendation

It is the recommendation of the Business and Financial Sustainability Plan Workgroup, the Executive Committee and Advisory Council, and the State Board of Health to continue with the current governance structure of the IHIN, at a minimum, through the end of the State HIE Cooperative Agreement Program (March 2014) for the following reasons:

1. Stable governance, business and technical operations will ensure the highest probability of success for IHIN implementation, and will encourage the highest adoption of the IHIN.
2. A focus on transitioning governance, business and technical operations during IHIN implementation will require an allocation of staff and resources to that transition, thereby reducing the amount of effort provided to implementation.
3. It is uncertain whether entities outside of state government are currently willing to assume the early risks and liabilities during IHIN implementation.
4. IDPH is the state designated entity for the State Health Information Exchange Cooperative Agreement Program and has experience managing this federal funding.
5. If transfer to another entity occurs during IHIN implementation, receiving CMS HITECH funding would be uncertain.

Transition Plan

During the final year of the term of the State HIE Cooperative Agreement Program (ending March 14, 2014), the Executive Committee, Advisory Council, and State Board of Health will review IHIN governance, business and technical operations to determine a new recommendation regarding the transition of the IHIN.

The recommendation, which will be submitted to the General Assembly and Governor by December 1, 2013, will take into consideration the following critical elements:

- Recognition that a change in governance, business and technical operations has broad implications and may take significant time to plan and execute.
- Expenses may change if governance, business and technical operations are moved to a non-governmental entity (e.g., liability coverage, staffing, fiscal processes).
- Expectations and requirements for CMS funding.
- New forms of governance may develop as the IHIN matures and the health care landscape evolves over time.

XV. Adoption and Implementation Strategies

IHIN adoption and implementation is dependent on four key processes to help track and analyze changes over time. These processes include:

1. **Establishing measurable outcomes** – Determining the outcomes from any project is critical to determining progress. Establishing measurable outcomes, by year, as the financial sustainability model is designed is described below:
    - Annual product and service goals
    - Annual goals for IHIN participation and growth
    - Annual IHIN participant satisfaction survey goals
    - Annual service level agreement per the IHIN vendor contract
    - Annual revenue targets
    - Annual expense targets
2. **Continual evaluation** – It is important to build evaluation into the project structure. One way to accomplish this is to budget for it each year and include it in the Office of Health IT Annual Report.
3. **Alignment with stakeholder ROI** – Determining each stakeholder's ROI in the first stages of IHIN implementation is critical to tracking performance over time. It is important to know each value proposition, establish an ROI for it, and track it over time. Stakeholder ROI measures are described in ***Section IX: HIE Return on Investment (ROI) Measures***.
4. **Setting key milestones and decision trigger points** – All projects need established milestones for measuring progress over time. Once they are established, milestones should also contain decision trigger points where go / no-go decisions can be made based on project progress and changing environmental conditions. Examples of key milestones and trigger points are as follows:
    - Engagement of a vendor and contract execution to build and operate the IHIN
    - Key stakeholder commitment to join the IHIN
    - Annual financial targets are obtained
    - Stakeholders can quantify the benefits and ROI for participating in the IHIN

APPENDIX A: RESEARCH ARTICLES

1. ***Document:*** Albritton, P. (2010). *The Colorado story*. Presentation at the Western States e-Connection Summit.
    a. *Summary:* This presentation describes the formation of the Colorado Regional Health Information Organization (CORHIO) as well the development of the organization to date. It also provides the CORHIO principles for achieving financial sustainability.
    b. *Analysis:* The document provides a good framework for financial sustainability from an HIE organization that is currently operational.

2. ***Document:*** *State level health information exchange initiative - development workbook*. (2007). Retrieved from American Health Information Management Association website: http://www.ahima.org/fore.
    a. *Summary:* This workbook was developed as part of the research project conducted by the Foundation of Research and Education (FORE) of the American Health Information Management Association (AHIMA)—under contract to the ONC—to develop practice and policy guidance for state-level HIE initiatives in the areas of governance, structure, operations, financing, and HIE policies. This workbook is a compilation of knowledge and guidance resulting from this research project titled "State-Level Regional Health Information Organizations (RHIO) Models and Best Practices." A representative sampling of state-level HIE initiatives was engaged and studied. States included for in-depth site visits in the study were California, Colorado, Florida, Indiana, Maine, Massachusetts, Rhode Island, Tennessee, and Utah.
    b. *Analysis:* The work involved in this project established the foundation for the five domains defined by ONC in the creation of the Strategic and Operational Plans required from each state. The study outlines many of the core concepts for financial sustainability and provides a good model for building a successful HIE.

3. ***Document:*** Administrative simplification in the physician practice. (2009). American Medical Association. Retrieved from http://www.ama-assn.org/go/simplify.
    a. *Summary:* This white paper focuses the need and justification for simplifying and standardizing the current health care billing, payment and claims reconciliation process. The paper describes the current process and the waste created by multiple processes. It goes on to make recommendations on process improvements and the resulting cost savings.
    b. *Analysis:* According to the AMA study, standardization would save providers over $90 billion per year. This is important because HIEs will begin to force standardization of processes in order to exchange data and information. If successful, these cost savings may be able to be used to help pay for HIE operations.

4. ***Document:*** Anderson, Mark R. (2010, March 1). *Community HIE's with multiple EHRs resulting in an integrated community EHR.* Presentation given in Atlanta, GA.
    a. *Summary:* In this presentation to HIMSS, the results of a community-based HIE project were shared. The results of the project showed how the adoption of EHR technology resulted in improved patient care as well as direct financial benefits to the participants.
    b. *Analysis:* This study clearly shows the value of adopting EHR technology and will serve as evidence of the value electronic technology can provide participants. For example, the study found:
        - Medical record cost reductions between 64% to 74%
        - Transportation cost reduction between 80% to 92%
        - Paper cost reduction s between 61% to 68%
        - Transcriptions cost reduction between 73% to 87%
        - Billing cost reductions between 6% to 12%

5. ***Document:*** Athena Health, Inc. (2009, October). The economics of the patient workflow: Cracking the code of successful EHR design.

a. *Summary:* Athena Health conducted a study to measure the value of EHR technology to participants and this whitepaper describes the results of that study. It describes how EHR technology can impact the entire clinical workflow and how to maximize the benefits from using technology. In addition, using EHR technology will also help participants meet Meaningful Use criteria.
b. *Analysis:* The primary value of this paper is to draw attention to the holistic workflow process used by clinicians to deliver care. Examining the overall workflow will produce benefits beyond what is normally expected. It is important that electronic technology can add value in unexpected places and can help make the adoption case to providers.

6. ***Document:*** The Boston Consulting Group. (2008, December). Rhode Island Quality Institute: Business case for health information exchange.
    a. *Summary:* The report presents a variety of examples regarding the value of HIE in Rhode Island. The examples include improved care delivery performance, enhanced patient-provider interaction and supporting infrastructure for other innovations. The report also outlines a number of approaches to a sustainable business model. In addition, the study calculates the potential savings to the health care systems in Rhode Island from various reductions in costs (duplicative tests, adverse drug events, better record management, excessive admissions, etc.).
    b. *Analysis:* This study provides a significant amount of baseline data comparing the more successful HIEs around the country. It is useful to understand how other HIEs work as well as how they fund operations. The strength of this work is in its analysis of various funding alternatives and the use of data to explore and compare alternatives.

7. ***Document:*** California HealthCare Foundation. (2007, August). The Santa Barbara County care data exchange: Lessons learned. Retrieved from http://www.chcf.org.
    a. *Summary:* This case study looks at the history of Santa Barbara's Regional Health Information Organization (RHIO) and why it was not successful. It also presents lessons learned from that experience, briefly describes two other exchanges that have been more successful, and discusses the policy implications for nascent RHIOs elsewhere. Although the venture had developed a peer-to-peer technology infrastructure that enabled authorized physicians, health care organizations, and consumers in the region to access some electronic patient information securely via the internet, the exchange was unable to overcome major hurdles.
    b. *Analysis:* This report outlines the reasons why the project did not succeed including the lack of a compelling business case, distorted economic incentives, passive leadership among participants, vendor limitations and software delays, and due to a variety of factors, the ventures poor momentum and credibility.

8. ***Document:*** Congressional Budget Office. (2008, May). Evidence on the costs and benefits of health information technology.
    a. *Summary:* This Congressional Budget Office paper focuses on evidence about the benefits and costs of health IT and identifies and analyzes barriers to its adoption. Research indicates that in certain settings, health IT appears to make it easier to reduce health spending if other steps in the broader health care system are also taken to alter incentives to promote savings. By itself, the adoption of health IT is generally not sufficient to produce significant cost savings. The paper also describes the federal role in health IT as both a major payer and funder of health care technology.
    b. *Analysis:* The study concludes savings could accrue in a number of areas including:
        - Eliminating paper medical records
        - Avoiding duplicated or inappropriate diagnostic tests
        - Reducing the use of radiological services
        - Promoting the cost-effective use of prescription drugs
        - Avoiding adverse drug events
        - Improving the productivity of caregivers
        - Reducing the length of hospital stays

- Creating a comprehensive interoperable health IT system, including an HIE that facilitated the sharing of health care information
- Expanding the practice of evidence-based medicine

9. ***Document:*** Center for Information Technology Leadership. (2004). The value of healthcare information exchange and interoperability. Retrieved from http://www.citl.org.
    a. *Summary:* Drawing on an extensive review of a wide range of literature, interviews with clinicians, health care executives and consultations with experts, CITL synthesized existing evidence and built a software model to project the value of HIE and data interoperability. The study examined transactions between providers, between providers and stakeholders with whom they most commonly exchange information, independent laboratories, radiology centers, pharmacies, payers, and public health departments.
    b. *Analysis:* This document has become the seminal research piece most often cited to support the conclusion that HIE will reduce health care costs across the United States. The study projects savings at four (4) different levels of exchange and interoperability. As an example it projects the following best case (level 4), annual, cost savings to the system as follows:
        - Between provider and independent laboratories $31.8 billion
        - Between outpatient providers ns radiology centers $26.2 billion
        - Between outpatient providers and pharmacies $ 2.7 billion
        - Between providers and other providers $13.2 billion
        - Between providers and public health departments $ 0.195 billion
        - Between provider and payers $20.1 billion

10. ***Document:*** College of Healthcare Information Management Executives. (2010, November). Health information exchange (HIE) principles.
    a. *Summary:* CHiME is a 50-Satte network of Chief Information Officers created for the purpose of gathering and communicating relevant in-state IT developments, including HIE formation and sharing information on best practices. This document is an executive summary developed to guide HIEs in meeting Meaningful Use as required under ARRA.
    b. *Analysis:* The document outlines 15 principles to provide guidance to states as they develop HIEs. In addition, the document provides observations as to why the principle is required and offers recommendations to help ensure the principles become the operational standard for HIEs.

11. ***Document:*** Dossier, HP TECH. (2011). Strategy guide to risk mitigation for healthcare. Retrieved from http://www.idgconnect.com/view_abstract/5918/strategy-guide-business-risk-mitigation-healthcare.
    a. *Summary:* The purpose of this study is to quantify the value of reducing network downtime. Given providers concerns about the availability of patient data at the point of care, it is important to understand how critical network availability is to providers.
    b. *Analysis:* In one large Canadian Hospital, building the right EHR system with proper network support, freed up over 780 hours of physician time. The study notes that investing in technology may be costly but the financial payoff can be substantial as well as the benefits of improved patient care.

12. ***Document:*** e-Health Initiative. (2007, May). Summary of the EHR value and sustainability model and tool suite. Washington.
    a. *Summary:* The document outlines a step-by-step process for creating a self-sustaining business model for HIE. It provides four useful tools to help develop a sustainable model. These tools include:
        - Market readiness Assessment Tool
        - Value Tool
        - Risk Estimation Tool
        - Business Plan Template and Pro Forma Tool

b. *Analysis:* While a little outdated, the work done by the e-Health Initiative stands the test of time. It provides the basic background material necessary to understand the variety of factors required for developing a sustainable HIE financial and business model.

13. ***Document:*** e-Health Initiative. (2007). Health Information: From exchange start up to sustainability. Washington.
    a. *Summary:* This study acknowledges that HIEs face an economic dilemma. HIEs are forced to create a transaction efficiency market that depends on highly local networks of trust and altruism, and that yields only modest revenues. The transaction costs alone of forming these markets of trust place HIEs far outside the pale of general business startups. Further, the diminishing returns on transaction efficiencies cannot amortize the investments necessary to create large-scale, fully-functional interoperability. The authors examine 10 operational Regional Health Information Organizations to determine the keys to sustainability.
    b. *Analysis:* The study offers several common observations with lessons that might be applied to any HIE startup. These observations include:
        - Understand that considerable time and capital will be required to create a operational platform for the design and implementation of HIE functionality.
        - Resist the temptation to "build Rome in a day"; disciplined incrementalism and short-term wins are key.
        - Employ a full-time, committed and charismatic project leader who has sound business skills and who will instill confidence in the HIE process across stakeholder interests.
        - Agree at the earliest opportunity on acceptable community standards that address data privacy and security and that account for state and federal requirements.
        - Articulate clearly and demonstrate how the HIE provides gains in efficiency and/or effectiveness. Ultimately, the gains must be proven with financial metrics that stakeholders use to make business decisions.

14. ***Document:*** e-Health Initiative. (2010, July). National progress report on e-Health.
    a. *Summary:* The e-Health Initiative conducted a study in 2007 and set forth its *Blueprint: Consensus for Common Action* to guide policy makers and health care leaders. The Blueprint document has served as the basis for many of the provisions of the HITECH Act. Each year since the Blueprint was published, the e-Health Initiative has issued a report on the progress towards the goals set forth in 2007. This document recaps the progress made to date, discuss its findings on the progress and identifies various issues. In addition, it recommend the next step in the process of the goal of health IT and HIE that supports a patient-centric, quality and value driven health care system.
    b. *Analysis:* The report contains a number of valuable insights into progress nationally. It highlights areas where work has been successful and where work is still required. By reviewing the documents, it is possible to find use cases applicable to financial sustainability and business modeling.

15. ***Document:*** Englewood, Colorado Study: EHR cuts long-term operating costs. (2010, October). *HDM Breaking News*. Retrieved from http://www.healthdatamanagement.com.
    a. *Summary:* The Medical Group Management Association recently reported the results of a study they conducted comparing practices using technology with paper based practices of similar size. The results of the study showed the practices using EHR technology, had on average, $49,916 more net revenue per physician. In addition, after five years of EHR use, electronic practices reported a median operating margin 10.1% higher than practices in the first year of adoption.
    b. *Analysis:* The value of this study is to add to the database of information showing the adoption of EHR technology will improve the financial performance of providers adopting technology.

16. ***Document:*** Farrell, Diana M. (2008, December). Why Americans pay more for health care. *The McKinsley Quarterly.* Retrieved from http://www.mckinseyquarterly.com/article_print.aspx?L2.
    a. *Summary:* This McKinsey study showed Americans pay $650 billion more for health care than other countries. The two categories of spending that are the bulk of the expenditures are same-day hospital care and visits to physician offices.
    b. *Analysis:* The value of this study is to support the need for reform of the health care systems and the value EHRs can play in the process. While other factors such as the payment system has large impact, HIEs have a role to play in improving the overall systems and reducing costs.

17. ***Document:*** Baldwin, Gary. (2009, June 1). Measuring ROI. *Health data management*. Retrieved from http://www.healthdatamanagement.com/issues/2009_67/-28263-1.html
    a. *Summary:* This article discusses the challenges of measuring a "hard" Return on Investment related to EHRs and HIE. It does not draw any conclusions but describes a number of factors to consider when calculating an ROI related to the use of technology.
    b. *Analysis:* The article cites a $58,000 per physician annual increase in revenue from a study on the impact of EHR technology. It also cites an annual labor savings of $6,000 for a four physician practice from reduced costs associated with retrieving paper charts.

18. ***Document:*** California Healthcare Foundation. (2007). Healthcare costs 101.
    a. *Summary:* This report tracks health care spending nationally and offers comparisons with other countries. It shows where the spending occurs and calculates percentages increase over time. It provides a good snapshot of health care spending and revenue by source.
    b. *Analysis:* This is a useful report for gaining a national perspective on health care spending and revenue by category.

19. ***Document:*** PricewaterhouseCoopers, LLC. (2009, April). Rock and a hard place: An analysis of the $36 billion impact from health IT stimulus funding.
    a. *Summary:* This report discusses and describes how the stimulus bill will affect a variety of health care providers. It is useful to gain perspective on how the incentive program will impact provider adoption and hence the need for HIE development and use.
    b. *Analysis:* This report provides a good summary of the impact of the stimulus package and how it will impact provider adoption of health IT.

20. ***Document:*** HIMSS. (2009, March). Health Information Exchange Best Practices Task Force Report.
    a. *Summary:* HIMSS formed a task force to identify best practices in HIE in 2009. This document reports the findings from studying 21 HIEs across the country.
    b. *Analysis:* The study reports on finding 14 key best practices including:
        - Belief in uniqueness
        - Physicians and health systems are the primary stakeholders
        - Membership model linked to sustainable funding
        - Government grants are key to survival
        - Buy rather than build
        - Vendor hosted exchanges predominate
        - No fully federated HIEs identified
        - Service oriented architecture common
        - HIEs support common messaging and data standards
        - Adopt data transformation strategies
        - Bi-directional exchange availability
        - Lab results, prescriptions top functions
        - Opt-in, opt-out provisions common
        - Interoperability a concern for most

21. ***Document:*** Indiana Health Information Exchange. (2009, January). Jurisdiction-specific business plan.
    a. *Summary:* This report to ONC describes IHIE's development and growth since inception. It includes a section on sustainability, future financial forecasts and future growth opportunities.
    b. *Analysis:* The value of this report is to understand how one of the more successful, HIEs started and what they did to become successful. The report can serve as a model for other HIE efforts.

22. ***Document:*** OptumInsight. (2010). Formula for long-term HIE sustainability, better health care: The HIE gateway model, Part II: Return model for HIE value-add advanced analytics services.
    a. *Summary:* OptumInsight published a study it conducted using data from the Michiana Health information Network (MHNI). In searching for sustainability, MHIN has included value added services based on Informatics to generate additional revenues in support of HIE operations. Using advanced analytics, the study indicates an HIE with 5,000 providers could add incremental revenue of $3,480,000 annually.
    b. *Analysis:* The value of this study is to help HIEs think about valued added services as a potential revenue source to support operations. There are many opportunities to generate incremental revenue and this study shows one potential path with supporting figures to support the conclusion.

23. ***Document:*** *Iowa e-Health strategic and operational plan.* (2010, May). Retrieved from http://www.iowaehealth.org/provider/ehealth/plans.html
    a. *Summary:* This document is the HIE Strategic and Operational Plan for the State of Iowa as submitted to the Office of the National Coordinator.
    b. *Analysis:* This document provides the Strategic and Operational Plan for Iowa and is the foundation for the Financial Sustainability Plan.

24. ***Document:*** Kansky, John P. (2010, March). Health information exchange (HIE) sustainability: Lessons learned by the Indiana health information exchange.
    a. *Summary:* As one of the more successful HIEs, the Indiana HIE presented a set of principles for sustainability that are in use. These principles include:
        - HIE is a business
        - Leverage the high-cost, high-value assets
        - No loss leaders
        - Independent, local sustainability
        - Natural monopoly
        - The need for scale
        - Avoidance of grants for operational costs
    b. *Analysis:* The value of this presentation was to understand the driving factors for one of the more successful HIEs. Seeing the principles they applied to the operations at IHIE offers good insight into the thinking behind their sustainability model.

25. ***Document:*** Marlin and Associates. (2010, November). Next generation healthcare networks.
    a. *Summary:* Marlin and Associates interviewed 50 companies in health care and talked to industry thought leaders. They prepared a report describing the emerging health IT paradigm. The basic new paradigm is health care is becoming a "network of networks." This will impact how health care is delivered and paid for in the future. The authors offer five key predictions for the future including:
        - Companies in the administration and revenue cycle management will lead an industry consolidation.
        - As the convergence occurs and clinical data business join, new business models will emerge.
        - Companies providing payment services will eventually merge with clearinghouses.
        - Owners of the HIE will contract out the management of data flowing within their networks.

- Payers will embark on offering innovative products to avoid commoditization.

b. *Analysis:* The value of this document is its vision for the future. Building an HIE is challenging, but understanding what the future may look like is invaluable to the builder. Even if the authors are only partially correct, the offer some provocative thinking about the development of HIEs across the country. It is important to consider the implications of their predictions on the operations of the HIE and on future revenue potential.

26. ***Document:*** NHIN cooperative DURSA workgroup. (2009, January). Data use and reciprocal support agreement (DURSA).
    a. *Summary:* This report describes how the Data Use and Reciprocal Support Agreements (DURSA) is intended to work and contains the proposed language or states to use to connect to the nationwide Health information Network (NHIN).
    b. *Analysis:* As one of the critical documents required for NHIN connection, understanding the language, expectations and requirements set forth in this document is critical for any HIE.

27. ***Document:*** ONC. (2010, March). Health IT strategic framework: strategic themes, principles, objectives, and strategies.
    a. *Summary:* This report issued by ONC outlines the direction for ONC for 2011 to 2015.
    b. *Analysis:* The value of this report is to help get a sense of ONC priorities and direction. Having knowledge of ONC's strategy will help position the IHIN for meeting ONC requirements and qualifying for future ONC funding opportunities.

28. ***Document:*** Porter, Cynthia. (2010, December). Healthcare IT news. *Providers perception series: health information exchange.* Retrieved from http://www.healthcareitnews.com.
    a. *Summary:* This presentation contains information from a recent research project describing the perceptions of HIE. It surveyed 120 provider organizations with a wide range of questions about HIE.
    b. *Analysis:* The presentation provided valuable information about the current and planned state of HIE be the provider community. Some of the findings include:
        - 43% of facilities are considering moving to an Accountable Care Organization
        - 45% see HIE as a way to improve connectivity within the health system
        - 53% see a shift to true coordinated care with the implementation of an HIE central repository
        - 53% see cost has the major limiting factor
        - 57% believe improved quality is the major benefits of HIE
        - 65% are unprepared for Stage 2 and 3 Meaningful Use

29. ***Document:*** Root, Jan. *State-wide secure clinical health information exchange.* Presentation given in Utah.
    a. *Summary:* This presentation describes the formation and current operational workings of the Utah HIE. Known as the "Clinical Health Information Exchange (cHIE)", it functions somewhat differently from other HIEs. They have three primary stakeholders (payers, hospitals, and clinicians) and fees are based on the value received by the entity that exchanges the data.
    b. *Analysis:* The value of this presentation is to see how an operational HIE is sustainable using transaction fees as the basis of sustainability. The cHIE model offers a different look at how to build a successful HIE.

APPENDIX B: EFFICIENCY WORKSHEETS FOR PROVIDERS AND SMALL HOSPITALS

Health IT holds the potential to increase the efficiency, cost effectiveness, quality, and safety of our health care system.[20] Studies conducted by the RAND Corporation and the Center for Information Technology Leadership (CITL) have estimated that approximately $80 billion in net annual savings nationally is possible through the use of health IT.[21] Some common return on investment metrics include:

- Reduced use of paper medical records
- Avoided duplicated or inappropriate diagnostic tests
- Reduced use of radiological services
- More cost-effective use of prescription drugs
- Improved the productivity of nurses and physicians
- Reduced the length of hospital stays
- Lower administrative costs

With clinical transformation projects like health IT, there are so many overlapping factors and complexities that make true financial returns on investment difficult to prove.

Iowa e-Health is in the process of developing an evaluation plan that will establish a process for gathering baseline data and monitoring the benefits realized by Iowa providers implementing health IT.

Efficiency Worksheets
The following efficiency worksheets may be helpful for some providers to understand their potential cost savings associated with implementing an EHR system and participating in the IHIN.

Meaningful Use Calculator
Iowa Hospital Association has developed a tool for Iowa hospitals to estimate the financial impact of demonstrating meaningful use versus accepting the Medicare payment reimbursement penalty for failing to demonstrate meaningful use by 2015.

e-Prescribing Calculator
American Medical Association developed a tool to discover how much time a practice could save each week through e-Prescribing. The e-Prescribing cost savings tool is available at https://eprescribing.ama-assn.org/ePrescribing/secure/impact/savingCalcStep1.do.

While the financial value of health IT may be difficult to see and may be contentious at times, the perceived value to Iowa providers (and ultimately consumers) is significant and this technology can serve as a foundational tool that will support broader health payment reform across the nation.

[20] University of Chicago. (2009). Health Information Exchange Economic Sustainability Panel: Final Report, NORC.
[21] Congressional Budget Office. (2008). Evidence on the Costs and Benefits of Health Information Technology,

Fax – Potential Savings

The IHIN will provide an alternative form of secure communication between providers. University of Iowa initiated a data sharing pilot project with Broadlawns Hospital in fall 2010. Early results show the potential for a 40% reduction in the amount of time needed to process faxed health information (e.g., average handling time was reduced from 10 minutes to 6 minutes)[22].

Items faxed per day, pre-implementation		
Work days per month	X	
12 months per year	X	12
Items faxed annually		
Time to process each fax (in minutes)	X	
Divide by 60 to determine time in hours	÷	60
Hours spent processing faxes each year		
40% reduction in time spent processing faxes post-implementation	X	40%
Hours saved by implementing EHR product		
Average hourly administrative rate	X	
Annual cost saving potential		**$**

Though not part of the above calculations, Broadlawns Medical Center in Des Moines estimates that the initial move from paper and faxed based processes to an electronic, integrated EHR resulted in a $3 per visit cost reduction for copying and faxing patient records[23].

FOR ILLUSTRATIVE PURPOSES ONLY

Iowa e-Health will work with IHIN participants to identify baseline metrics and monitor actual cost savings

[22] University of Iowa Hospitals and Clinics, email message to Iowa e-Health. (2011, March 3).
[23] Broadlawns Hospital, email message to Iowa e-Health. (2010).

Record Storage and Printing – Potential Savings

The IHIN facilitates the exchange of electronic health information and does not require maintenance of paper-based record storage systems. Providers moving toward EHRs have the opportunity to reduce expenditures required to support a paper-based system. These costs include but are not limited to paper supplies, filing systems, and dedicated office space required to store paper charts. University of Wisconsin Hospital and Clinics realized an 85% reduction in volume and cost of paper forms after implementation of their EHR system.[24] HealthBridge, a mature and successful HIE based in Cincinnati, estimated a savings of $0.41 per report with the elimination of paper delivery of reports.[25]

Square footage for record storage		
Monthly rent, per square foot	X	
12 months per year	X	12
Annual rent for record storage		
85% reduction in volume of paper records, post-implementation	X	85%
Annual cost saving potential		**$**

Number of reports per month		
12 months per year	X	12
$0.41 savings per report (costs of postage, paper, printers and personnel, based on detailed time and material studies)	X	$0.41
Annual cost saving potential		**$**

Though not part of the above calculations, AC Group's 2006 annual report estimated a cost savings of $3 per chart for due to reduced need for chart folders, dividers, and filing cabinets.[26] The HealthBridge study also estimated a 40% reduction in calls to hospital staff members for reports.

FOR ILLUSTRATIVE PURPOSES ONLY

Iowa e-Health will work with IHIN participants to identify baseline metrics and monitor actual cost savings

[24] Healthcare and Information Management Systems Society. University of Wisconsin Hospitals and Clinics HIMSS Stage 7 [Case Study]. http://www.himssanalytics.org/hc_providers/stage7casestudies_ UnivWisco.asp.
[25] Cincinnati HealthBridge. (2004). HIE study.
[26] AC Group. (2008). Chapter 8 AC Group's 2006 Annual Report The Digital Medical Office of the Future Return on Investment. Retrieved from http://www.acgroup.org/images/2006_DMof_-_Chapter_8_-_EHR_ROI.pdf.

EHR interfaces – Potential Savings

The IHIN provides a hub for disparate EHR systems. Rather than establishing an EHR interface with each data trading partner (e.g., referral provider, pharmacy, lab, public health department), providers can establish one connection with the IHIN and essentially be connected to all of its data trading partners.

Number of hospitals communicate with, electronically, fax, or paper-based process		
Number of physician offices or clinics communicate with	+	
Number of laboratories communicate with	+	
Number of pharmacies communicate with	+	
Number of home health agencies communicate with	+	
Number of long-term care settings communicate with	+	
Total number of connections		
Average connection cost from EHR vendor	X	
Cost without HIE		
Average connect cost from EHR vendor	-	
Cost saving potential		**$**

FOR ILLUSTRATIVE PURPOSES ONLY

Iowa e-Health will work with IHIN participants to identify baseline metrics and monitor actual cost savings

Readmissions – Potential Savings

The IHIN will provide access to continuity of care documents (CCD) and hospital discharge summaries. A recent study in Connecticut estimates a 25% reduction in potentially preventable readmissions due to the availability and use of an HIE.[27]

Number of admissions per month		
Percent of monthly admissions that are Potentially Preventable Readmissions (PPRs)	X	
Number of monthly PPRs		
12 months per year	X	12
Number of annual PPRs		
Percent reduction of PPRs due to HIE	X	25%
Cost of an admission	X	
Annual cost saving potential		**$**

FOR ILLUSTRATIVE PURPOSES ONLY

Iowa e-Health will work with IHIN participants to identify baseline metrics and monitor actual cost savings

[27] Connecticut Statewide Health Information Exchange (HIE) Financial Sustainability Study Final Report: Recommended Funding Methods and Formulas for HIE Financial Sustainability. (2010).

Chart Pulls – Potential Savings

The IHIN will provide an alternative way to request and view patient charts. For example, providers will be able to query the IHIN to view a patient's Continuity of Care Document rather than having to make a phone call to another provider and request the patient chart be pulled and sent via fax. A 2006 article in the Journal of Healthcare Information Technology estimates a 35% reduction in chart pulls in the first year after EHR implementation.[28]

Number of chart pulls each day		
Minutes spent per chart	X	
Average of 3 repeat pulls per chart	X	3
Minutes spent pulling charts each day		
Number of work days per month	X	
12 months per year	X	12
Minutes pulling charts each year		
35% reduction in chart pulls post-implementation	X	35%
Time savings due to EHR implementation (minutes)		
Divide by 60 to determine time savings in hours	÷	60
Time savings due to EHR implementation (hours)		
Average hourly administrative rate	X	
Annual cost saving potential		**$**

FOR ILLUSTRATIVE PURPOSES ONLY

Iowa e-Health will work with IHIN participants to identify baseline metrics and monitor actual cost savings

[28] Badger, S. (2006). Journal of Healthcare Information Technology, 19(2).

APPENDIX C: IHIN PARTICIPATION INTEREST AND MEMORANDUMS OF UNDERSTANDING

Iowa e-Health has actively been collecting information from future participants of the IHIN, including Memorandums of Understanding (MOU) to participate, and participation interest forms. The collection of this information will be used to help guide the implementation of the IHIN. To date, the following information has been collected from potential participants.

Table C.1: IHIN Participation MOUs and Interest Forms

Memorandums of Understanding Received	
Genesis Health System Iowa Health System Mercy Health Network University of Iowa Hospitals and Clinics Wellmark Blue Cross and Blue Shield	
IHIN Participation Interest Forms Completed	**Number**
Hospitals	28
Provider Practices (primary care)	30
Provider Practices (specialty care)	30
Pharmacies	32
Labs	7
Home Health	15
Long-Term Care	28
Behavioral Health	5
Radiology	5
Other (FQHC, Ambulatory Surgery, Local Public Health)	41

APPENDIX D: ALTERNATIVE FINANCIAL MODEL SCENARIOS

The following financial model scenarios were initially developed by Iowa e-Health to outline the financial model under various circumstances (e.g., low adoption, limited federal funding). The Business and Financial Sustainability Plan Workgroup, Executive Committee and Advisory Council, and State Board of Health believe these scenarios are less likely and realistic, and therefore should not be the focus of this plan.

Table D.1: Alternative Financial Model Scenarios

Scenario 2 • Without CMS HITECH • With General Appropriations for SFY12 – SFY13 (federal match)	**Scenario 3 ("Breakeven")** • Without CMS HITECH • With General Appropriations for SFY12 – SFY13 (federal match) • Low Adoption Rates
General Appropriations are available in SFY12 and SFY13	General Appropriations are available in SFY12 and SFY13
State agencies begin paying fees for services in SFY14	State agencies begin paying fees for services in SFY13
No CMS HITECH funding	NO CMS HITECH funding
Provider and Payer Participation Fees • SFY12 – No fee • SFY13 and beyond – 100% fee	Provider and Payer Participation Fees • SFY12 – 50% fee • SFY13 – 100% fee • SFY14 and beyond – 115% fee
Hospital Efficiency Incentives begin in SFY13 as the full rate is charged to hospitals	Hospital Efficiency Incentives begin in SFY13 as the full rate is charged to hospitals
Funding available for technical assistance and communications	Reduced funding for technical assistance and communications
Estimated IHIN Adoption Rates by SFY16 • Hospitals: 88% • Provider Practices: 50%	Estimated IHIN Adoption Rates by SFY16 • Hospitals: 61% • Provider Practices: 40%

Table D.2: Scenario 2 – Adoption Rates and Fees

	Number of Entities					Fee				
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY12	SFY13	SFY14	SFY15	SFY16
	Build				Sustain	Build				Sustain
Investment Revenue										
Federal Funds (ONC)	1	1	1	1	0	$ 4,914,413	$ 1,970,373	$ 933,847	$ -	$ -
State General Appropriation	1	1	0	0	0	$ 514,294	$ 514,294	$ -	$ -	$ -
Functionality Revenue										
Direct Connect: Hospitals	**32%**	**61%**	**78%**	**84%**	**88%**	**Per Hospital**				
Over $750M Annually	1	1	1	1	1	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000
$500M - $750M Annually	0	1	1	1	1	$ -	$ 80,000	$ 80,000	$ 80,000	$ 80,000
$250M - $499M Annually	5	5	5	5	5	$ -	$ 60,000	$ 60,000	$ 60,000	$ 60,000
$150M - $249M Annually	1	5	6	6	6	$ -	$ 45,000	$ 45,000	$ 45,000	$ 45,000
$100M - $149M Annually	3	8	8	8	8	$ -	$ 30,000	$ 30,000	$ 30,000	$ 30,000
$50M - $99M Annually	3	7	7	7	8	$ -	$ 20,000	$ 20,000	$ 20,000	$ 20,000
$25M - $49M Annually	4	9	15	17	18	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000
$15M - $24M Annually	9	18	24	28	30	$ -	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Under $15M Annually	12	18	25	26	27	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: Provider Practices	**2%**	**12%**	**29%**	**38%**	**50%**	**Per Provider Practice / System**				
Over 90 Providers	4	6	8	8	8	$ -	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	1	2	2	2	2	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	2	4	6	8	12	$ -	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	1	2	6	6	6	$ -	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	1	10	20	30	40	$ -	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	5	40	80	100	150	$ -	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	5	50	150	200	250	$ -	$ 500	$ 500	$ 500	$ 500
FQHC/RHC	1	4	6	8	10	$ -	$ 500	$ 500	$ 500	$ 500
Direct Connect: Pharmacies										
Independent	6	10	20	30	45	$ -	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Chain (15 or fewer locations)	1	1	2	4	5	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Chain (16 or more locations)	1	2	2	3	4	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Direct Connect: Labs										
Independent	0	3	9	15	20	$ -	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Affiliated (one fee per group)	0	1	2	2	2	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Direct Connect: Long-Term Care, Assisted Living, Nursing, and Residential Care Facilities										
Over 400 Beds	0	0	1	2	3	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000
301 - 400 Beds	0	1	2	2	3	$ -	$ 2,750	$ 2,750	$ 2,750	$ 2,750
201 - 300 Beds	0	1	2	2	4	$ -	$ 2,250	$ 2,250	$ 2,250	$ 2,250
151 - 200 Beds	0	2	2	3	4	$ -	$ 1,750	$ 1,750	$ 1,750	$ 1,750
101 - 150 Beds	0	2	4	6	8	$ -	$ 1,250	$ 1,250	$ 1,250	$ 1,250
51 - 100 Beds	0	3	4	6	8	$ -	$ 750	$ 750	$ 750	$ 750
1 - 50 Beds	0	4	6	8	10	$ -	$ 500	$ 500	$ 500	$ 500
Direct Connect: Home Health, Behavioral Health, Therapies										
Over 90 Providers	0	0	1	2	3	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000
61 - 90 Providers	0	0	1	2	3	$ -	$ 2,750	$ 2,750	$ 2,750	$ 2,750
31 - 60 Providers	0	0	1	2	3	$ -	$ 2,250	$ 2,250	$ 2,250	$ 2,250
21 - 30 Providers	0	1	2	3	4	$ -	$ 1,750	$ 1,750	$ 1,750	$ 1,750
11 - 20 Providers	0	2	4	6	10	$ -	$ 1,250	$ 1,250	$ 1,250	$ 1,250
6 - 10 Providers	0	2	4	6	10	$ -	$ 750	$ 750	$ 750	$ 750
1 - 5 Providers	0	3	6	8	12	$ -	$ 500	$ 500	$ 500	$ 500
Provider Portal (per facility)	**Number of Facilities**					**Per Facility**				
Over 90 Providers	0	1	2	2	2	$ -	$ 4,000	$ 4,000	$ 4,000	$ 4,000
61 - 90 Providers	0	1	2	2	2	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000
31 - 60 Providers	1	5	6	7	8	$ -	$ 2,500	$ 2,500	$ 2,500	$ 2,500
21 - 30 Providers	5	10	15	20	25	$ -	$ 2,000	$ 2,000	$ 2,000	$ 2,000
11 - 20 Providers	10	20	30	40	50	$ -	$ 1,500	$ 1,500	$ 1,500	$ 1,500
6 - 10 Providers	30	40	50	60	70	$ -	$ 1,000	$ 1,000	$ 1,000	$ 1,000
1 - 5 Providers	25	50	75	100	125	$ -	$ 500	$ 500	$ 500	$ 500
State Government Agencies	**Number of Agencies**					**Per Agency**				
Medicaid	0	1	1	1	1	$ -	$ 500,000	$ 500,000	$ 500,000	$ 500,000
Public Health	0	0	1	1	1	$ -	$ -	$ 25,000	$ 25,000	$ 25,000
Payer IHIN Service	**Number of Payers**					**Per Payer**				
Over 500,000 covered lives	0	1	1	1	1	$ -	$ 500,000	$ 500,000	$ 500,000	$ 500,000
100,000 - 499,000 covered lives	0	1	2	2	2	$ -	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Under 100,000 covered lives	0	0	1	1	2	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000

Table D.3: Scenario 2 – Projected Total Funding

Projected Total Revenue						
	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
	Build				Sustain	
Investment Revenue						
Federal Funds (ONC)	$ 4,914,413	$ 1,970,373	$ 933,847	$ -	$ -	$ 7,818,633
State General Appropriation	$ 514,294	$ 514,294	$ -	$ -	$ -	$ 1,028,588
Functionality Revenue						
Direct Connect: Hospitals			**Total Hospitals**			
Over $750M Annually	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
$500M - $750M Annually	$ -	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 320,000
$250M - $499M Annually	$ -	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 1,200,000
$150M - $249M Annually	$ -	$ 225,000	$ 270,000	$ 270,000	$ 270,000	$ 1,035,000
$100M - $149M Annually	$ -	$ 240,000	$ 240,000	$ 240,000	$ 240,000	$ 960,000
$50M - $99M Annually	$ -	$ 140,000	$ 140,000	$ 140,000	$ 160,000	$ 580,000
$25M - $49M Annually	$ -	$ 90,000	$ 150,000	$ 170,000	$ 180,000	$ 590,000
$15M - $24M Annually	$ -	$ 135,000	$ 180,000	$ 210,000	$ 225,000	$ 750,000
Under $15M Annually	$ -	$ 90,000	$ 125,000	$ 130,000	$ 135,000	$ 480,000
Direct Connect: Provider Practices			**Total Provider Practice / System**			
Over 90 Providers	$ -	$ 24,000	$ 32,000	$ 32,000	$ 32,000	$ 120,000
61 - 90 Providers	$ -	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 24,000
31 - 60 Providers	$ -	$ 10,000	$ 15,000	$ 20,000	$ 30,000	$ 75,000
21 - 30 Providers	$ -	$ 4,000	$ 12,000	$ 12,000	$ 12,000	$ 40,000
11 - 20 Providers	$ -	$ 15,000	$ 30,000	$ 45,000	$ 60,000	$ 150,000
6 - 10 Providers	$ -	$ 40,000	$ 80,000	$ 100,000	$ 150,000	$ 370,000
1 - 5 Providers	$ -	$ 25,000	$ 75,000	$ 100,000	$ 125,000	$ 325,000
FQHC/RHC	$ -	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,000
Direct Connect: Pharmacies						
Independent	$ -	$ 10,000	$ 20,000	$ 30,000	$ 45,000	$ 105,000
Chain (15 or fewer locations)	$ -		$ 10,000	$ 20,000	$ 25,000	
Chain (16 or more locations)	$ -	$ 20,000	$ 20,000	$ 30,000	$ 40,000	$ 110,000
Direct Connect: Labs						
Independent	$ -	$ 3,000	$ 9,000	$ 15,000	$ 20,000	$ 47,000
Affiliated (one fee per group)	$ -	$ 5,000	$ 10,000	$ 10,000	$ 10,000	$ 35,000
Direct Connect: Long-Term Care, Assisted Living, Nursing, and Residential Care Facilities						
Over 400 Beds	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
301 - 400 Beds	$ -	$ 2,750	$ 5,500	$ 5,500	$ 8,250	$ 22,000
201 - 300 Beds	$ -	$ 2,250	$ 4,500	$ 4,500	$ 9,000	$ 20,250
151 - 200 Beds	$ -	$ 3,500	$ 3,500	$ 5,250	$ 7,000	$ 19,250
101 - 150 Beds	$ -	$ 2,500	$ 5,000	$ 7,500	$ 10,000	$ 25,000
51 - 100 Beds	$ -	$ 2,250	$ 3,000	$ 4,500	$ 6,000	$ 15,750
1 - 50 Beds	$ -	$ 2,000	$ 3,000	$ 4,000	$ 5,000	$ 14,000
Direct Connect: Home Health, Behavioral Health, Therapies						
Over 90 Providers	$ -	$ -	$ 3,000	$ 6,000	$ 9,000	$ 18,000
61 - 90 Providers	$ -	$ -	$ 2,750	$ 5,500	$ 8,250	$ 16,500
31 - 60 Providers	$ -	$ -	$ 2,250	$ 4,500	$ 6,750	$ 13,500
21 - 30 Providers	$ -	$ 1,750	$ 3,500	$ 5,250	$ 7,000	$ 17,500
11 - 20 Providers	$ -	$ 2,500	$ 5,000	$ 7,500	$ 12,500	$ 27,500
6 - 10 Providers	$ -	$ 1,500	$ 3,000	$ 4,500	$ 7,500	$ 16,500
1 - 5 Providers	$ -	$ 1,500	$ 3,000	$ 4,000	$ 6,000	$ 14,500
Provider Portal (per facility)			**Total Facility**			
Over 90 Providers	$ -	$ 4,000	$ 8,000	$ 8,000	$ 8,000	$ 28,000
61 - 90 Providers	$ -	$ 3,000	$ 6,000	$ 6,000	$ 6,000	$ 21,000
31 - 60 Providers	$ -	$ 12,500	$ 15,000	$ 17,500	$ 20,000	$ 65,000
21 - 30 Providers	$ -	$ 20,000	$ 30,000	$ 40,000	$ 50,000	$ 140,000
11 - 20 Providers	$ -	$ 30,000	$ 45,000	$ 60,000	$ 75,000	$ 210,000
6 - 10 Providers	$ -	$ 40,000	$ 50,000	$ 60,000	$ 70,000	$ 220,000
1 - 5 Providers	$ -	$ 25,000	$ 37,500	$ 50,000	$ 62,500	$ 175,000
State Government Agencies			**Total Agency**			
Medicaid	$ -	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,000,000
Public Health	$ -	$ -	$ 25,000	$ 25,000	$ 25,000	$ 75,000
Payer IHIN Service			**Total Payer Service**			
Over 500,000 covered lives	$ -	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,000,000
100,000 - 499,000 covered lives	$ -	$ 300,000	$ 600,000	$ 600,000	$ 600,000	$ 2,100,000
Under 100,000 covered lives	$ -	$ -	$ 100,000	$ 100,000	$ 200,000	$ 400,000

Table D.4: Scenario 2 – Projected Total Revenue and Expense

Totals	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
Investment Revenue	$ 5,428,707	$ 2,484,667	$ 933,847	$ -	$ -	$ 8,847,221
Services Revenue	$ -	$ 3,021,000	$ 3,873,500	$ 4,105,000	$ 4,477,750	$ 15,477,250
- Efficiency Adjustment		$ (252,000)	$ (252,000)	$ (252,000)	$ (252,000)	
Total Revenue	**$ 5,428,707**	**$ 5,253,667**	**$ 4,555,347**	**$ 3,853,000**	**$ 4,225,750**	**$ 23,316,471**
+ Balance from previous year	$ -	$ 2,445	$ 374,529	$ 497,229	$ 363,227	
= Adjusted Total Revenue	$ 5,428,707	$ 5,256,112	$ 4,929,876	$ 4,350,229	$ 4,588,977	$ 24,553,901
Total Expense	**$ 5,426,262**	**$ 4,881,583**	**$ 4,432,647**	**$ 3,987,002**	**$ 4,049,456**	**$ 22,776,950**
Margin	$ 2,445	$ 374,529	$ 497,229	$ 363,227	$ 539,521	
Percent Margin	0%	8%	11%	9%	13%	

Table D.5: Scenario 2 – Projected Expenses

	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
Infrastructure & Services						
Core: Non-Recurring (setup, testing, licensing, implementation)	$3,065,222					$3,065,222
Core: On-Going Operations (professional services, software maintenance, data hosting)	$143,906	$2,040,393	$1,747,721	$1,747,721	$1,747,721	$7,427,462
Quality Services	$500,000	$900,000	$900,000	$900,000	$900,000	$4,100,000
Funded Depreciation Account	$0	$50,000	$50,000	$50,000	$50,000	$200,000
Capital Improvement Account	$0	$200,000	$200,000	$200,000	$200,000	$800,000
Technical Assistance for Participants	$650,000	$500,000	$250,000	$0	$0	$1,400,000
Personnel						
Salaries and Fringe for 8 employees	$529,099	$647,595	$781,667	$844,281	$911,735	$3,714,377
Indirect Expense (27.2% of salary)	$123,035	$153,595	$188,259	$0	$0	$464,889
Communication and Outreach	$275,000	$250,000	$200,000	$150,000	$150,000	$1,025,000
Travel	$25,000	$25,000	$20,000	$20,000	$15,000	$105,000
Legal Services (AG)	$80,000	$80,000	$60,000	$40,000	$40,000	$300,000
Other Expenses (supplies, computers, phones, etc)	$35,000	$35,000	$35,000	$35,000	$35,000	$175,000
Total Expense	**$5,426,262**	**$4,881,583**	**$4,432,647**	**$3,987,002**	**$4,049,456**	**$22,776,950**

Table D.6: Scenario 3 – Adoption Rates and Fees

	Number of Entities					Fee				
	SFY12	SFY13	SFY14	SFY15	SFY16	SFY12	SFY13	SFY14	SFY15	SFY16
	Build				Sustain	Build				Sustain
Investment Revenue										
Federal Funds (ONC)	1	1	1	1	0	$ 4,784,413	$ 2,600,373	$ 433,847	$ -	$ -
State General Appropriation	0	0	0	0	0	$ 514,294	$ 514,294	$ -	$ -	$ -
Functionality Revenue										
Direct Connect: Hospitals	**0%**	**47%**	**52%**	**57%**	**61%**	**Per Hospital**				
Over $750M Annually	0	1	1	1	1	$ 50,000	$ 100,000	$ 115,000	$ 115,000	$ 115,000
$500M - $750M Annually	0	1	1	1	1	$ 40,000	$ 80,000	$ 92,000	$ 92,000	$ 92,000
$250M - $499M Annually	0	4	4	4	4	$ 30,000	$ 60,000	$ 69,000	$ 69,000	$ 69,000
$150M - $249M Annually	0	2	3	3	3	$ 22,500	$ 45,000	$ 51,750	$ 51,750	$ 51,750
$100M - $149M Annually	0	8	8	8	8	$ 15,000	$ 30,000	$ 34,500	$ 34,500	$ 34,500
$50M - $99M Annually	0	6	6	6	7	$ 10,000	$ 20,000	$ 23,000	$ 23,000	$ 23,000
$25M - $49M Annually	0	7	8	9	10	$ 5,000	$ 10,000	$ 11,500	$ 11,500	$ 11,500
$15M - $24M Annually	0	9	10	14	16	$ 3,750	$ 7,500	$ 8,625	$ 8,625	$ 8,625
Under $15M Annually	0	18	20	21	22	$ 2,500	$ 5,000	$ 5,750	$ 5,750	$ 5,750
Direct Connect: Provider Practices	**0%**	**12%**	**29%**	**38%**	**40%**	**Per Provider Practice / System**				
Over 90 Providers	0	6	8	8	8	$ 2,000	$ 4,000	$ 4,600	$ 4,600	$ 4,600
61 - 90 Providers	0	2	2	2	2	$ 1,500	$ 3,000	$ 3,450	$ 3,450	$ 3,450
31 - 60 Providers	0	4	6	8	12	$ 1,250	$ 2,500	$ 2,875	$ 2,875	$ 2,875
21 - 30 Providers	0	2	6	6	6	$ 1,000	$ 2,000	$ 2,300	$ 2,300	$ 2,300
11 - 20 Providers	0	10	20	30	40	$ 750	$ 1,500	$ 1,725	$ 1,725	$ 1,725
6 - 10 Providers	0	40	80	100	100	$ 500	$ 1,000	$ 1,150	$ 1,150	$ 1,150
1 - 5 Providers	0	50	150	200	200	$ 250	$ 500	$ 575	$ 575	$ 575
FQHC/RHC	0	4	6	8	10	$ 250	$ 500	$ 575	$ 575	$ 575
Direct Connect: Pharmacies										
Independent	0	10	20	30	45	$ 500	$ 1,000	$ 1,150	$ 1,150	$ 1,150
Chain (15 or fewer locations)	0	1	2	4	5	$ 2,500	$ 5,000	$ 5,750	$ 5,750	$ 5,750
Chain (16 or more locations)	0	2	2	3	4	$ 5,000	$ 10,000	$ 11,500	$ 11,500	$ 11,500
Direct Connect: Labs										
Independent	0	3	9	15	20	$ 500	$ 1,000	$ 1,150	$ 1,150	$ 1,150
Affiliated (one fee per group)	0	1	2	2	2	$ 2,500	$ 5,000	$ 5,750	$ 5,750	$ 5,750
Direct Connect: Long-Term Care, Assisted Living, Nursing, and Residential Care Facilities										
Over 400 Beds	0	0	1	1	3	$ 1,500	$ 3,000	$ 3,450	$ 3,450	$ 3,450
301 - 400 Beds	0	1	1	2	3	$ 1,375	$ 2,750	$ 3,163	$ 3,163	$ 3,163
201 - 300 Beds	0	1	1	2	4	$ 1,125	$ 2,250	$ 2,588	$ 2,588	$ 2,588
151 - 200 Beds	0	1	2	3	4	$ 875	$ 1,750	$ 2,013	$ 2,013	$ 2,013
101 - 150 Beds	0	2	3	5	6	$ 625	$ 1,250	$ 1,438	$ 1,438	$ 1,438
51 - 100 Beds	0	2	3	4	6	$ 375	$ 750	$ 863	$ 863	$ 863
1 - 50 Beds	0	3	5	7	8	$ 250	$ 500	$ 575	$ 575	$ 575
Direct Connect: Home Health, Behavioral Health, Therapies										
Over 90 Providers	0	0	1	2	2	$ 1,500	$ 3,000	$ 3,450	$ 3,450	$ 3,450
61 - 90 Providers	0	0	1	2	2	$ 1,375	$ 2,750	$ 3,163	$ 3,163	$ 3,163
31 - 60 Providers	0	0	1	2	2	$ 1,125	$ 2,250	$ 2,588	$ 2,588	$ 2,588
21 - 30 Providers	0	1	2	3	3	$ 875	$ 1,750	$ 2,013	$ 2,013	$ 2,013
11 - 20 Providers	0	2	4	6	8	$ 625	$ 1,250	$ 1,438	$ 1,438	$ 1,438
6 - 10 Providers	0	2	4	6	8	$ 375	$ 750	$ 863	$ 863	$ 863
1 - 5 Providers	0	3	4	6	10	$ 250	$ 500	$ 575	$ 575	$ 575
Provider Portal (per facility)	**Number of Facilities**					**Per Facility**				
Over 90 Providers	0	1	2	2	2	$ 2,000	$ 4,000	$ 4,600	$ 4,600	$ 4,600
61 - 90 Providers	0	1	2	2	2	$ 1,500	$ 3,000	$ 3,450	$ 3,450	$ 3,450
31 - 60 Providers	0	5	6	7	8	$ 1,250	$ 2,500	$ 2,875	$ 2,875	$ 2,875
21 - 30 Providers	0	10	15	20	25	$ 1,000	$ 2,000	$ 2,300	$ 2,300	$ 2,300
11 - 20 Providers	0	20	30	40	50	$ 750	$ 1,500	$ 1,725	$ 1,725	$ 1,725
6 - 10 Providers	0	40	50	60	70	$ 500	$ 1,000	$ 1,150	$ 1,150	$ 1,150
1 - 5 Providers	0	50	75	100	125	$ 250	$ 500	$ 575	$ 575	$ 575
State Government Agencies	**Number of Agencies**					**Per Agency**				
Medicaid	0	1	1	1	1	$ -	$ 500,000	$ 575,000	$ 575,000	$ 575,000
Public Health	0	0	1	1	1	$ -	$ 25,000	$ 28,750	$ 28,750	$ 28,750
Payer IHIN Service	**Number of Payers**					**Per Payer**				
Over 500,000 covered lives	0	0	1	1	1	$ -	$ 500,000	$ 575,000	$ 575,000	$ 575,000
100,000 - 499,000 covered lives	0	1	2	2	2	$ -	$ 300,000	$ 345,000	$ 345,000	$ 345,000
Under 100,000 covered lives	0	0	0	1	1	$ -	$ 100,000	$ 115,000	$ 115,000	$ 115,000

Table D.7: Scenario 3 – Projected Total Funding

Projected Total Revenue						
	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
	Build				Sustain	
Investment Revenue						
Federal Funds (ONC)	$ 4,784,413	$ 2,600,373	$ 433,847	$ -	$ -	$ 7,818,633
State General Appropriation	$ -	$ -	$ -	$ -	$ -	$ -
Functionality Revenue						
Direct Connect: Hospitals			**Total Hospitals**			
Over $750M Annually	$ -	$ 100,000	$ 115,000	$ 115,000	$ 115,000	$ 445,000
$500M - $750M Annually	$ -	$ 80,000	$ 92,000	$ 92,000	$ 92,000	$ 356,000
$250M - $499M Annually	$ -	$ 240,000	$ 276,000	$ 276,000	$ 276,000	$ 1,068,000
$150M - $249M Annually	$ -	$ 90,000	$ 155,250	$ 155,250	$ 155,250	$ 555,750
$100M - $149M Annually	$ -	$ 240,000	$ 276,000	$ 276,000	$ 276,000	$ 1,068,000
$50M - $99M Annually	$ -	$ 120,000	$ 138,000	$ 138,000	$ 161,000	$ 557,000
$25M - $49M Annually	$ -	$ 70,000	$ 92,000	$ 103,500	$ 115,000	$ 380,500
$15M - $24M Annually	$ -	$ 67,500	$ 86,250	$ 120,750	$ 138,000	$ 412,500
Under $15M Annually	$ -	$ 90,000	$ 115,000	$ 120,750	$ 126,500	$ 452,250
Direct Connect: Provider Practices			**Total Provider Practice / System**			
Over 90 Providers	$ -	$ 24,000	$ 36,800	$ 36,800	$ 36,800	$ 134,400
61 - 90 Providers	$ -	$ 6,000	$ 6,900	$ 6,900	$ 6,900	$ 26,700
31 - 60 Providers	$ -	$ 10,000	$ 17,250	$ 23,000	$ 34,500	$ 84,750
21 - 30 Providers	$ -	$ 4,000	$ 13,800	$ 13,800	$ 13,800	$ 45,400
11 - 20 Providers	$ -	$ 15,000	$ 34,500	$ 51,750	$ 69,000	$ 170,250
6 - 10 Providers	$ -	$ 40,000	$ 92,000	$ 115,000	$ 115,000	$ 362,000
1 - 5 Providers	$ -	$ 25,000	$ 86,250	$ 115,000	$ 115,000	$ 341,250
FQHC/RHC	$ -	$ 2,000	$ 3,450	$ 4,600	$ 5,750	$ 15,800
Direct Connect: Pharmacies						
Independent	$ -	$ 10,000	$ 23,000	$ 34,500	$ 51,750	$ 119,250
Chain (15 or fewer locations)	$ -		$ 11,500	$ 23,000	$ 28,750	
Chain (16 or more locations)	$ -	$ 20,000	$ 23,000	$ 34,500	$ 46,000	$ 123,500
Direct Connect: Labs						
Independent	$ -	$ 3,000	$ 10,350	$ 17,250	$ 23,000	$ 53,600
Affiliated (one fee per group)	$ -	$ 5,000	$ 11,500	$ 11,500	$ 11,500	$ 39,500
Direct Connect: Long-Term Care, Assisted Living, Nursing, and Residential Care Facilities						
Over 400 Beds	$ -	$ -	$ 3,450	$ 3,450	$ 10,350	$ 17,250
301 - 400 Beds	$ -	$ 2,750	$ 3,163	$ 6,325	$ 9,488	$ 21,725
201 - 300 Beds	$ -	$ 2,250	$ 2,588	$ 5,175	$ 10,350	$ 20,363
151 - 200 Beds	$ -	$ 1,750	$ 4,025	$ 6,038	$ 8,050	$ 19,863
101 - 150 Beds	$ -	$ 2,500	$ 4,313	$ 7,188	$ 8,625	$ 22,625
51 - 100 Beds	$ -	$ 1,500	$ 2,588	$ 3,450	$ 5,175	$ 12,713
1 - 50 Beds	$ -	$ 1,500	$ 2,875	$ 4,025	$ 4,600	$ 13,000
Direct Connect: Home Health, Behavioral Health, Therapies						
Over 90 Providers	$ -	$ -	$ 3,450	$ 6,900	$ 6,900	$ 17,250
61 - 90 Providers	$ -	$ -	$ 3,163	$ 6,325	$ 6,325	$ 15,813
31 - 60 Providers	$ -	$ -	$ 2,588	$ 5,175	$ 5,175	$ 12,938
21 - 30 Providers	$ -	$ 1,750	$ 4,025	$ 6,038	$ 6,038	$ 17,850
11 - 20 Providers	$ -	$ 2,500	$ 5,750	$ 8,625	$ 11,500	$ 28,375
6 - 10 Providers	$ -	$ 1,500	$ 3,450	$ 5,175	$ 6,900	$ 17,025
1 - 5 Providers	$ -	$ 1,500	$ 2,300	$ 3,450	$ 5,750	$ 13,000
Provider Portal (per facility)			**Total Facility**			
Over 90 Providers	$ -	$ 4,000	$ 9,200	$ 9,200	$ 9,200	$ 31,600
61 - 90 Providers	$ -	$ 3,000	$ 6,900	$ 6,900	$ 6,900	$ 23,700
31 - 60 Providers	$ -	$ 12,500	$ 17,250	$ 20,125	$ 23,000	$ 72,875
21 - 30 Providers	$ -	$ 20,000	$ 34,500	$ 46,000	$ 57,500	$ 158,000
11 - 20 Providers	$ -	$ 30,000	$ 51,750	$ 69,000	$ 86,250	$ 237,000
6 - 10 Providers	$ -	$ 40,000	$ 57,500	$ 69,000	$ 80,500	$ 247,000
1 - 5 Providers	$ -	$ 25,000	$ 43,125	$ 57,500	$ 71,875	$ 197,500
State Government Agencies			**Total Agency**			
Medicaid	$ -	$ 500,000	$ 575,000	$ 575,000	$ 575,000	$ 2,225,000
Public Health	$ -	$ -	$ 28,750	$ 28,750	$ 28,750	$ 86,250
Payer IHIN Service			**Total Payer Service**			
Over 500,000 covered lives	$ -	$ -	$ 575,000	$ 575,000	$ 575,000	$ 1,725,000
100,000 - 499,000 covered lives	$ -	$ 300,000	$ 690,000	$ 690,000	$ 690,000	$ 2,370,000
Under 100,000 covered lives	$ -	$ -	$ -	$ 115,000	$ 115,000	$ 230,000

Table D.8: Scenario 3 – Projected Total Revenue and Expense

Totals	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
Investment Revenue	$ 4,784,413	$ 2,600,373	$ 433,847	$ -	$ -	$ 7,818,633
Services Revenue	$ -	$ 2,215,500	$ 3,852,500	$ 4,223,663	$ 4,436,700	$ 14,728,363
- Efficiency Adjustment	$ -	$ (216,000)	$ (216,000)	$ (216,000)	$ (216,000)	
Total Revenue	**$ 4,784,413**	**$ 4,599,873**	**$ 4,070,347**	**$ 4,007,663**	**$ 4,220,700**	**$ 21,376,950**
Balance from previous year	$ -	$ 8,151	$ 226,441	$ 114,141	$ 134,802	
= Adjusted Total Revenue	$ 4,784,413	$ 4,608,024	$ 4,296,788	$ 4,121,804	$ 4,355,502	
Total Expense	**$ 4,776,262**	**$ 4,381,583**	**$ 4,182,647**	**$ 3,987,002**	**$ 4,049,456**	**$ 21,376,950**
Margin	$ 8,151	$ 226,441	$ 114,141	$ 134,802	$ 306,046	
Percent Margin	0%	5%	3%	3%	8%	

Table D.9: Scenario 3 – Projected Expenses

	SFY12	SFY13	SFY14	SFY15	SFY16	Cumulative
Infrastructure & Services						
Core: Non-Recurring (setup, testing, licensing, implementation)	$3,065,222					$3,065,222
Core: On-Going Operations (professional services, software maintenance, data hosting)	$143,906	$2,040,393	$1,747,721	$1,747,721	$1,747,721	$7,427,462
Quality Services	$500,000	$900,000	$900,000	$900,000	$900,000	$4,100,000
Funded Depreciation Account	$0	$50,000	$50,000	$50,000	$50,000	$200,000
Capital Improvement Account	$0	$200,000	$200,000	$200,000	$200,000	$800,000
Technical Assistance for Participants	$0	$0	$0	$0	$0	$0
Personnel						
Salaries and Fringe for 8 employees	$529,099	$647,595	$781,667	$844,281	$911,735	$3,714,377
Indirect Expense (27.2% of salary)	$123,035	$153,595	$188,259	$0	$0	$464,889
Communication and Outreach	$275,000	$250,000	$200,000	$150,000	$150,000	$1,025,000
Travel	$25,000	$25,000	$20,000	$20,000	$15,000	$105,000
Legal Services (AG)	$80,000	$80,000	$60,000	$40,000	$40,000	$300,000
Other Expenses (supplies, computers, phones, etc)	$35,000	$35,000	$35,000	$35,000	$35,000	$175,000
Total Expense	**$4,776,262**	**$4,381,583**	**$4,182,647**	**$3,987,002**	**$4,049,456**	**$21,376,950**

APPENDIX E: BIBLIOGRAPHY

Aurora Sinai Medical Center. (2010, March). *Connecting ED patients to primary care homes.* Real-time solutions for better care and financial outcomes.

Blair, Jeff. (2009, March). New Mexico HIE strategic and operational plans.

The Boston Consulting Group. (2009, June). Board of directors discussion in Boston, MA.

The Boston Consulting Group. (2008, December). Rhode Island Quality Institute: Business case for health information exchange. Boston, MA.

CMS. (2010, July). Medicare electronic health record incentive payments for eligible professionals. Retrieved from http://www.cms.gov/EHRincentivePrograms.

Colorado CORHIO. (2009). State health information exchange strategic plan.

eHealth Initiative. (2007, May). Summary of the EHI value and sustainability model and tool suite. Washington, DC.

eHealth Initiative. (2010, July). National progress report on e-Health.

Englewood, Colorado. (2010, October). Study: EHR cuts long-term operating costs. *HDM Breaking News*. Retrieved from http://www.healthdatamanagement.com/news.ehr-cuts-long-term-operating-costs-41218. .

Florida state health information exchange cooperative agreement program. (2007). Strategic and operational plans.

Fritz, Jennifer. (2010, May). Minnesota strategic plan for health information exchange.

Health data management. (2009, June). *Measuring ROI*. Retrieved from http://www.healthdatamanagement.com.

HIMSS. (2009, April). Leveraging data to improve efficiency, productivity, and quality. *Value-driven healthcare: The advisory board company.* Retrieved from http://www.youtube.com/watch?v=EtRo3QH0fKY.

ILHIE. (2010, July). Illinois HIE strategic and operational plan. Retrieved from http://www.hie.illinois.gov/sop.html.

Lewis, Nicole. (2010, November). Health IT facing consolidation. *Information Week.* Retrieved from http://www.informationweek.com/story/showArticle.jhtml?articleID=228200642.

Mississippi -Office of the Governor. (2010, September). Strategic and operational plan.

Margolis, James W. (2009). Response counts for the medical practice challenges; medical practice today. *Medical group management association.*

MOHITECH. (2010, June). Health information exchange operational plan. Retrieved from http://www.dss.mo.gov/hie/action/pdf2010/operationalplan_draft.pdf.

Monegain, Bernie. (2010, May). Venture capitalist group offers six steps for high-ROI healthcare change. *Healthcare it news.* Retrieved from http://www.healthcareitnews.com/news/venture-capitalist-group-offers-six-steps-high.com

Naimollah, Afsaneh, Guadano, M., Balane-Bolivar, C. (2010). Next generation healthcare Information Networks (HINs). *Healthcare IT market commentary*. New York: Marlin and Associates.

North Dakota. (2010, September). Strategic and operational plan. Retrieved from http://www.healthit.nd.gov/2010/09/01/draftstrategicplan/.

Tennessee. (2009, October). Strategic plan for statewide health information exchange.

Wisconsin. (2010, July). Health information technology strategic and operational plan. *Wired for health.*