

# ARRA ROI Calculator

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Taking a strategic approach to nationwide EMR adoption can produce meaningful changes for all industry stakeholders, including payers (namely employers, state and federal government), patients, and providers (hospitals, physicians and all other healthcare professionals).

However, sorting out the complexities of the EMR incentives in the American Recovery and Reinvestment Act (ARRA) is challenging. The stimulus bill uses a sliding scale of incentives and disincentives to encourage providers to adopt EMRs sooner rather than later. For the provider, qualifying for the subsidies depends on their patient mix and adoption date. In other words, the higher the Medicare / Medicaid mix, the larger the available incentive for a physician to adopt EMR; the earlier the new technology is adopted, the sooner the provider will realize the increased Medicare and Medicaid payments.

To help decision-makers weigh all the factors as they consider EMR adoption, Ingenix Consulting developed a sophisticated actuarial model that analyzes the effects of various changes on the performance of physician practices while assessing the cost/benefit and return on investment (ROI) of EMR adoption. The ARRA ROI Calculator can be tailored to individual provider circumstances, factoring in such specific characteristics as practice payer/patient mix, specialty and specific use of physician extenders in order to estimate the economic impact of EMR adoption. This model demonstrates a substantial risk that, even with the stimulus incentives, provider costs may exceed provider benefits.

## **ARRA ROI Calculator – Example Physician Scenarios**

Using the model, we've performed the cost / benefit analysis for a few average examples of several physician specialties. Exhibit 1 demonstrates the financial impact to four specialist physicians adopting EMR in 2011 versus not adopting. Financial impact is based on the physician's average patient panel distribution, productivity, and expense.

**Exhibit 1  
Ingenix Consulting  
ARRA Stimulus Impact Model  
Physician Specialist Examples of EMR Adoption Timing**

Patient Mix and Practice Financials	Primary Care		Ophthalmology		General Surgeon		OB/GYN <sup>1</sup>	
	Adopts in 2011	Does Not Adopt	Adopts in 2011	Does Not Adopt	Adopts in 2011	Does Not Adopt	Adopts in 2011	Does Not Adopt
<b>Patient Mix</b>	<b>Percent of Total Patients</b>							
Commercial	66%	66%	48%	48%	53%	53%	57%	57%
Medicaid	11%	11%	4%	4%	7%	7%	30%	30%
Medicare	15%	15%	43%	43%	33%	33%	6%	6%
Other	8%	8%	5%	5%	7%	7%	7%	7%
Subtotal	100%	100%	100%	100%	100%	100%	100%	100%
<b>Practice Financials (in 000s)</b>	<b>Present-value at 1/1/2011 over 7-year period (i.e., 2011 - 2017)</b>							
Practice Income	\$ 3,611	\$ 3,742	\$ 5,841	\$ 6,032	\$ 4,942	\$ 5,107	\$ 6,034	\$ 6,264
ARRA Subsidy	\$ 41	\$ -	\$ 41	\$ -	\$ 41	\$ -	\$ 58	\$ -
Subtotal Revenue	\$ 3,652	\$ 3,742	\$ 5,883	\$ 6,032	\$ 4,983	\$ 5,107	\$ 6,093	\$ 6,264
Practice Expenses	\$ 2,222	\$ 2,234	\$ 3,178	\$ 3,192	\$ 2,211	\$ 2,221	\$ 3,631	\$ 3,651
EMR Costs	\$ 32	\$ -	\$ 32	\$ -	\$ 32	\$ -	\$ 32	\$ -
Subtotal Expenses	\$ 2,254	\$ 2,234	\$ 3,211	\$ 3,192	\$ 2,243	\$ 2,221	\$ 3,664	\$ 3,651
Net Phys. Comp. & Bens. w/EMR	\$ 1,398	\$ 1,508	\$ 2,672	\$ 2,840	\$ 2,740	\$ 2,886	\$ 2,429	\$ 2,613
Net Phys. Comp. & Bens w/o EMR	\$ 1,516	\$ 1,516	\$ 2,879	\$ 2,879	\$ 2,911	\$ 2,911	\$ 2,613	\$ 2,613
Gain/(Loss)	\$ (118)	\$ (8)	\$ (207)	\$ (39)	\$ (171)	\$ (25)	\$ (184)	\$ -
ROI	-263%	N/A	-538%	N/A	-429%	N/A	-467%	N/A

<sup>1</sup> The OB/GYN patient mix has been purposely skewed toward a larger proportion of Medicaid patients to demonstrate the increase in subsidies available to the physician. It does not represent the MGMA average OB/GYN patient mix.

Assumptions: Utilization Demand Trend = 2.0%; Unit Cost Trend = 5.0%; Discount Rate = 3.0%  
 Assumed EMR Impacts: Altered physician productivity levels  
 Elimination of paper medical records and handling of medical records

Exhibit 2 illustrates the percentage reduction in the specialist's net compensation and benefits as a function of the year in which they become a meaningful user of EMR.

**Exhibit 2  
 Ingenix Consulting  
 ARRA Stimulus Impact Model  
 % Reduction in Physician Compensation & Benefits  
 Present-value at 1/1/2011 over 7-year period (i.e., 2011 - 2017)**

Specialist	Year in Which Physician Becomes Meaningful User				
	2011	2012	2013	2014	2015
Primary Care	15.4%	15.5%	14.1%	11.9%	0.5%
Cardiology	13.2%	12.8%	11.4%	9.3%	1.2%
Endocrinology	10.7%	10.9%	10.1%	8.7%	1.2%
Dermatology	7.5%	8.7%	8.6%	7.6%	1.2%
Gastroenterology	6.9%	8.0%	7.9%	7.0%	0.9%
General Surgery	6.6%	7.7%	7.7%	7.0%	0.9%
Hematology/Oncology	21.0%	19.0%	16.0%	12.5%	1.2%
Neurosurgery	6.1%	7.4%	7.5%	6.7%	0.8%
Neonatology	9.0%	7.3%	5.7%	4.4%	1.2%
OB/GYN	13.8%	14.3%	13.3%	11.2%	0.2%
Nephrology	14.0%	12.8%	11.0%	8.9%	1.0%
Ophthalmology	11.8%	12.4%	11.7%	10.0%	1.3%
Neurology	16.8%	15.9%	13.9%	11.3%	0.8%
Orthopedics	9.0%	10.0%	9.6%	8.3%	0.7%
Otorhinolaryngology	11.2%	12.4%	12.0%	10.3%	0.5%
Podiatry	7.1%	8.2%	8.1%	7.4%	1.2%
Plastic Surgery	8.1%	10.0%	10.3%	9.3%	1.1%
Pulmonary Medicine	15.8%	14.5%	12.4%	10.0%	1.2%
Rheumatology	12.5%	12.5%	11.3%	9.5%	1.2%
Urology	8.3%	9.3%	9.0%	7.9%	1.3%
Anesthesiology	6.3%	7.5%	7.5%	6.9%	0.7%
Cardio/Thoracic Surgery	7.9%	9.0%	8.9%	7.9%	0.9%

It is important to realize that many of the benefits achieved by EMR adoption are not immediately fruitful. In fact, according to our model, positive benefits are not realized until the latter years of our 7-year financial proforma period. Exhibit 3 supplies a view of the expected financial outcome of a neurologist who becomes a meaningful user in 2011.

**Exhibit 3**  
**Ingenix Consulting**  
**ARRA Stimulus Impact Model**  
**Neurology Financial Proforma**

Neurology Physician Compensation Component	Current	Projected						
	2010	2011	2012	2013	2014	2015	2016	2017
<b>Gross Charges (Physician &amp; NonPhys)</b>								
Ambulatory Encounters: E&M	\$ 436,729	\$ 428,320	\$ 445,238	\$ 467,500	\$ 498,238	\$ 536,229	\$ 585,562	\$ 645,582
Ambulatory Encounters: Medical	\$ 6,973	\$ 6,839	\$ 7,109	\$ 7,465	\$ 7,956	\$ 8,562	\$ 9,350	\$ 10,308
Ambulatory Encounters: ER	\$ 6,168	\$ 6,477	\$ 6,801	\$ 7,141	\$ 7,498	\$ 7,873	\$ 8,266	\$ 8,680
Hospital Encounters	\$ 45,666	\$ 44,787	\$ 47,026	\$ 49,377	\$ 51,587	\$ 54,166	\$ 56,875	\$ 59,719
Surgical Cases (IP, OP & Office-based)	\$ 23,218	\$ 22,771	\$ 23,671	\$ 24,854	\$ 26,489	\$ 28,508	\$ 31,131	\$ 34,322
Anesthesia	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interpretation: Laboratory	\$ 3,705	\$ 3,634	\$ 3,778	\$ 3,966	\$ 4,227	\$ 4,549	\$ 4,968	\$ 5,477
Interpretation: Radiology	\$ 53,983	\$ 52,943	\$ 55,034	\$ 57,786	\$ 61,586	\$ 66,282	\$ 72,379	\$ 79,798
Office Procedures	\$ 405,601	\$ 397,791	\$ 413,504	\$ 434,179	\$ 462,726	\$ 498,009	\$ 543,826	\$ 599,568
Subtotal	\$ 982,044	\$ 963,562	\$ 1,002,161	\$ 1,052,269	\$ 1,120,306	\$ 1,204,179	\$ 1,312,357	\$ 1,443,454
Collections Ratio	54.4%	54.4%	54.4%	54.4%	54.4%	54.4%	54.4%	54.4%
<b>Practice Revenue</b>								
Medical Productivity Income	\$ 533,861	\$ 523,814	\$ 544,797	\$ 572,037	\$ 609,023	\$ 654,618	\$ 713,427	\$ 784,694
ARRA Subsidy	\$ -	\$ 18,000	\$ 12,000	\$ 8,000	\$ 4,000	\$ 2,000	\$ -	\$ -
Incentives/Other	\$ 20,450	\$ 20,065	\$ 20,869	\$ 21,912	\$ 23,329	\$ 25,076	\$ 27,328	\$ 30,058
Subtotal	\$ 554,311	\$ 561,879	\$ 577,666	\$ 601,949	\$ 636,352	\$ 681,694	\$ 740,755	\$ 814,752
<b>Practice Expense</b>								
NonPhysician Comp & Benefits	\$ 14,023	\$ 14,724	\$ 15,460	\$ 16,233	\$ 17,045	\$ 17,897	\$ 18,792	\$ 19,732
Support Staff Cost	\$ 117,605	\$ 117,964	\$ 123,862	\$ 136,142	\$ 142,949	\$ 150,097	\$ 157,602	\$ 165,482
General Operating Cost	\$ 134,572	\$ 141,301	\$ 148,366	\$ 155,784	\$ 163,574	\$ 171,752	\$ 180,340	\$ 189,357
EMR License & Implementation Cost	\$ -	\$ 4,500	\$ 4,725	\$ 4,961	\$ 5,209	\$ 5,470	\$ 5,743	\$ 6,030
Subtotal	\$ 266,200	\$ 278,489	\$ 292,413	\$ 313,121	\$ 328,777	\$ 345,216	\$ 362,477	\$ 380,601
<b>Net Physician Compensation &amp; Benefits</b>	\$ 288,111	\$ 283,390	\$ 285,253	\$ 288,828	\$ 307,575	\$ 336,478	\$ 378,278	\$ 434,151
Annual % Change		-1.6%	0.7%	1.3%	6.5%	9.4%	12.4%	14.8%
<b>Physician Comp &amp; Bens w/o Stimulus/EMR</b>	\$ 288,111	\$ 302,516	\$ 317,642	\$ 333,524	\$ 350,201	\$ 367,711	\$ 386,096	\$ 405,401
Annual % Change		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
<b>Net Gain/(Loss)</b>	\$ -	\$ (19,126)	\$ (32,390)	\$ (44,697)	\$ (42,625)	\$ (31,233)	\$ (7,818)	\$ 28,750

As a result of the drop in productivity from EMR adoption, a physician must either choose to accept less income or increase their productivity level to offset the disruption. Exhibit 4 illustrates the annual percentage increase in specialist productivity that would be required to break even (i.e., achieve a return on investment of 100%) after EMR adoption.

**Exhibit 4**  
**Ingenix Consulting**  
**ARRA Stimulus Impact Model**  
**Physician Practice Revenue in Relation to ROI**

Projection Year	Primary Care		Ophthalmology		General Surgeon		OB/GYN <sup>1</sup>	
	Status Quo Productivity	Breakeven Productivity	Status Quo Productivity	Breakeven Productivity	Status Quo Productivity	Breakeven Productivity	Status Quo Productivity	Breakeven Productivity
2011	\$ 504,500	\$ 508,243	\$ 803,832	\$ 810,257	\$ 683,676	\$ 689,197	\$ 833,302	\$ 839,077
2012	\$ 517,949	\$ 525,780	\$ 828,886	\$ 842,508	\$ 704,248	\$ 715,693	\$ 852,717	\$ 864,876
2013	\$ 539,247	\$ 551,642	\$ 865,730	\$ 887,391	\$ 734,860	\$ 752,920	\$ 894,928	\$ 914,211
2014	\$ 569,692	\$ 587,376	\$ 918,099	\$ 949,093	\$ 778,073	\$ 803,797	\$ 953,019	\$ 980,564
2015	\$ 610,157	\$ 634,032	\$ 985,761	\$ 1,027,707	\$ 834,297	\$ 868,996	\$ 1,024,781	\$ 1,062,013
2016	\$ 662,983	\$ 694,362	\$ 1,074,203	\$ 1,129,468	\$ 907,524	\$ 953,104	\$ 1,117,847	\$ 1,166,846
2017	\$ 729,464	\$ 769,930	\$ 1,184,225	\$ 1,255,675	\$ 998,781	\$ 1,057,542	\$ 1,222,489	\$ 1,285,770
ROI	-263%	100%	-538%	100%	-429%	100%	-467%	100%
CAGR <sup>2</sup>	6.3%	7.2%	6.7%	7.6%	6.5%	7.4%	6.6%	7.4%
Δ in CAGR		0.8%		0.9%		0.9%		0.8%

<sup>1</sup> The OB/GYN patient mix has been purposely skewed toward a larger proportion of Medicaid patients. It does not represent the MGMA average OB/GYN mix.

<sup>2</sup> Compounded Annual Growth Rate.

Assumptions: Utilization Demand Trend = 2.0%; Unit Cost Trend = 5.0%; Discount Rate = 3.0%

Assumed EMR Impacts: Altered physician productivity levels

Elimination of paper medical records and handling of medical records

The productivity increase could be driven by seeing more patients or by delivering more services to existing patients. The exhibit demonstrates each specialist's practice revenue for the projection years of our financial proforma. In the long run, the expected efficiencies of adopting EMR should enable the physician to see more patients than not adopting the technology.

## Conclusion

The stimulus incentives – and disincentives – offer a complex array of risks and benefits that will be difficult for physicians to sort out. Declining subsidies based on patient mix, escalating penalties and meaningful use criteria that have yet to be defined make for a tough decision for providers, especially since optimal results won't be achieved unless the entire health care delivery system can become connected. And right now, those that benefit the most ante up the least. Other health care stakeholders must make significant contributions – either by participating with EMRs or funding their implementation – to ensure we achieve widespread EMR adoption and can reap all the benefits of the deep well of health information EMRs can provide.

A nationwide EHR system offers significant benefits for all stakeholders in our health care system. But right now, the costs and benefits are not fairly aligned among them. In order to reach this goal, each stakeholder group must be willing to approach the situation with initiative, understanding and a willingness to commit resources. If not, the benefits of EMRs will remain far off, and the promise of meaningful change will be unfulfilled.