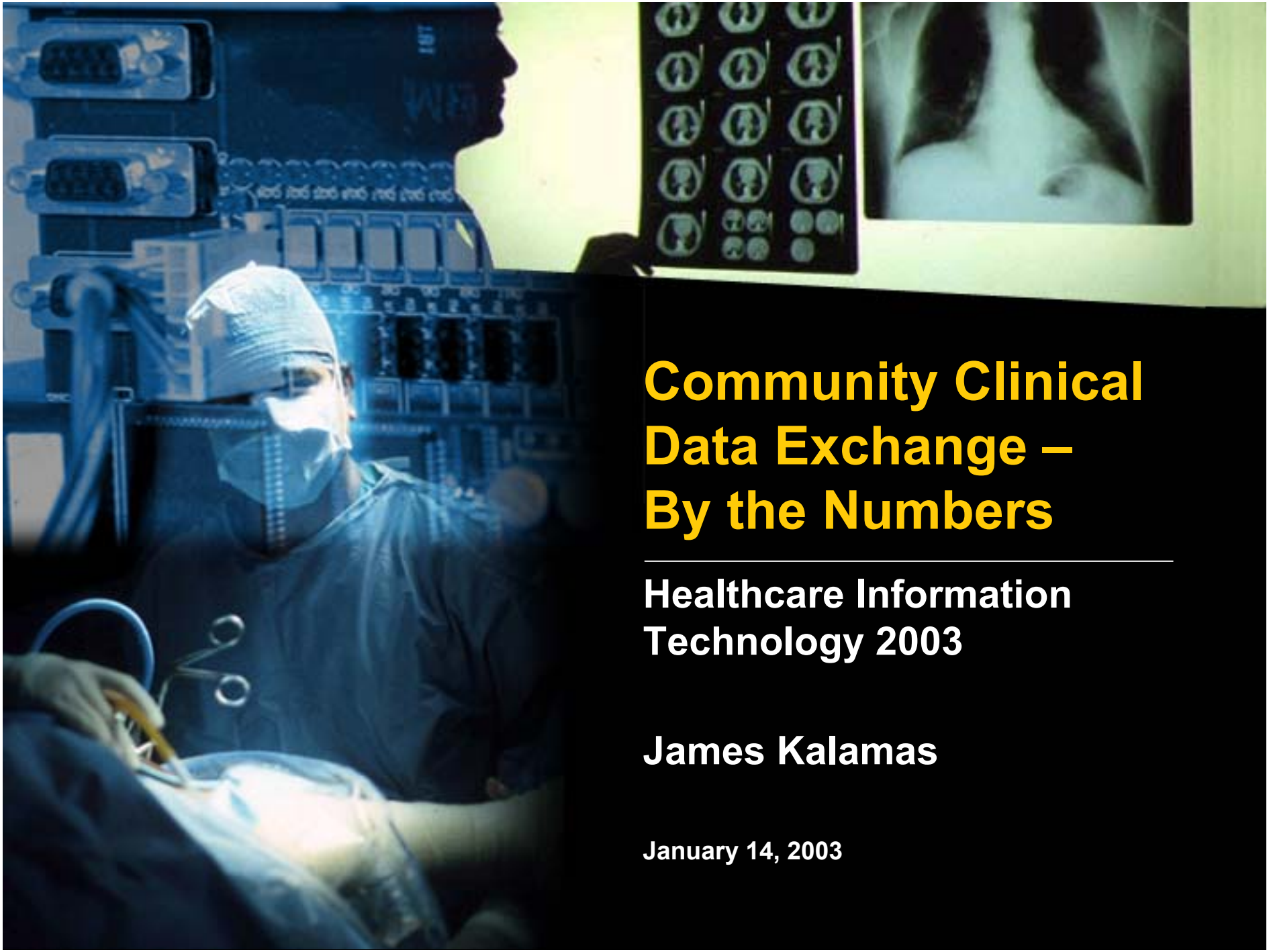


Community Clinical Data Exchange – By the Numbers

Healthcare Information Technology 2003

James Kalamas

January 14, 2003

WE ATTEMPTED TO QUANTIFY THE FINANCIAL VALUE OF CCDE

Questions we set out to answer

- What are the quantifiable economics for community clinical data exchange (CCDE)?
- How do these economics impact success of CCDE?

Major activities

- Interviewed major healthcare system constituents
- Reviewed academic literature
- Estimated costs and benefits
- Built financial model to value CCDE

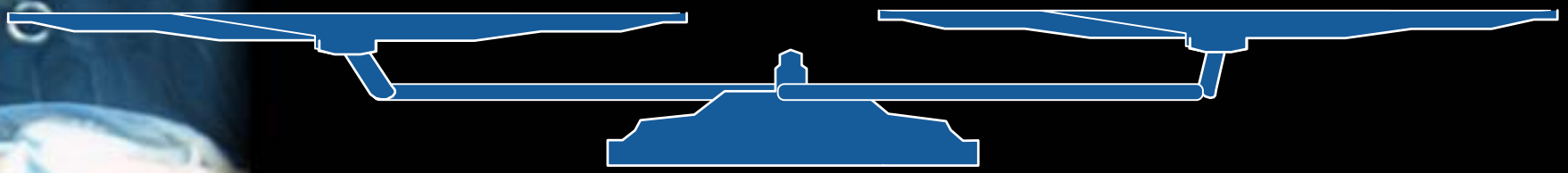
WE ESTIMATED VALUE BASED ON TANGIBLE ELEMENTS OF COSTS AND BENEFITS

Costs

	Cost drivers
Implementation- Initial startup costs (year 1) for defined community	• Hardware • Software • Development • Installation • Training
Support- Annualized costs for maintenance of CCDE from years 2-5 (assumes a 5-year life cycle)	• Maintenance contracts for hardware/software • Application support • Ongoing help desk/systems administrator

Benefits

	Benefit drivers
Web enablement- Benefits to individual constituent of bringing own information online	• Lab savings • Radiology savings • Staff savings • Fewer readmissions
Network benefits- Benefits to individual constituent of different health care constituents joining the network	• Fewer medical errors • Enhanced lab revenue from proper coding • Test duplication avoidance • Staff savings



THE FOLLOWING PARTICIPANTS AND INFORMATION ELEMENTS WERE INCLUDED IN OUR COMMUNITY*

Hospital

- Patient demographic information
- Admission, discharge, transfer notes
- Laboratory results
- Radiology results
- Other diagnostic tests (e.g., EKG, cardiac cath, PFTs)
- Hospital medication lists
- Bedside chart information (vital signs, nursing notes)
- Daily physician notes

Imaging Center

- Transcribed reports
- Voice transcriptions
- Images (X-ray, CT, MRI, Ultrasound, Nuc Med)

Laboratory

- Test results

Patient

- None

PBM

- Formulary lists
- Medication list

Physician Group

- Patient demographic information
- Transcribed notes that have been digitized
- Patient insurance information (more likely to come directly from payor)
- Billing information

* Payors excluded due to existing more advanced solutions for payor/ provider information sharing and likely limited provider participation due to payor involvement. Pharmacies excluded given more efficient information sharing via PBMs

WE MODELED 3 HYPOTHETICAL COMMUNITIES

	Constituent type	Total number in community	Penetration	
			Low*	High**
Large	• Major hospital	10	3	7
	• Diagnostic imaging center	5	2	4
	• Independent laboratory	3	1	2
	• PBMs	5	1	3
	• Major physician groups	5	1	3
	• Physicians	5,000	750	1,750
Medium	• Major hospital	6	2	4
	• Diagnostic imaging center	2	1	2
	• Independent laboratory	1	1	1
	• PBMs	5	1	3
	• Major physician groups	2	1	2
	• Physicians	1,000	150	350
Small***	• Major hospital	1	1	1
	• Diagnostic imaging center	1	1	1
	• Independent laboratory	1	0	1
	• PBMs	5	0	3
	• Major physician groups	0	1	0
	• Physicians	200	30	70

* Low penetration is ~33% institution participation and 15% physician usage adoption
** High penetration is ~66% institution participation and 35% physician usage adoption
*** Given low numbers in community, penetration percentages for institution participation not applicable

NET VALUE INCREASED WITH COMMUNITY SIZE AND PENETRATION

$U.S. annual

Penetration

Value

Community size	Low	High
Large	Costs* $1,000,000 Benefits $1,300,000 Net $300,000	Costs* $2,200,000 Benefits $7,900,000 Net $5,700,000
Medium	Costs* $800,000 Benefits $900,000 Net $100,000	Costs* $1,400,000 Benefits $2,600,000 Net $1,200,000
Small	Costs* $490,000 Benefits $180,000 Net ($310,000)	Costs* $780,000 Benefits $600,000 Net ($180,000)

* Includes annual support costs and amortized implementation costs over 5 years

VALUE WAS MODEST FOR EACH CONSTITUENT AND FIRST MOVER DISADVANTAGE EXISTED FOR ALL CONSTITUENTS

$U.S. annual

LARGE COMMUNITY, HIGH PENETRATION

Most likely organizers	Per constituent				Total for all constituents		
	Costs[1,2]	Intrinsic benefits of providing data	Network benefits	Total individual benefits	Number of constituents	Total costs	Total benefits
Hospital	$120,000	$180,000	$110,000	$290,000	7	$840,000	$2,000,000
Imaging center	$110,000	$44,000	$(15,000)	$29,000	4	$440,000	$120,000
Laboratory	$110,000	$70,000	$170,000	$240,000	2	$220,000	$480,000
Physician group	$120,000	$90,000	$280,000	$370,000	3	$360,000	$1,100,000
					MD free riders		
Other physicians	$40	$0	$2400	$2400	1,750	$70,000	$4,200,000
PBM	$110,000	$0	$0	$0	3	$330,000	$0
						~$2,200,000	~$7,900,000
		First-mover disadvantage		*Benefits fragmented*			

[1] Costs are determined by individual site costs plus central costs distributed among participating constituents

[2] Central costs are $280,000 for 1st year and $150,000 annual support costs. For 1 constituent alone on the network, annual costs would run $290,000, which includes all central costs amortized over 5 years and costs for individual site

SUMMARY

- Quantifiable economic value meaningful when sizable network in place
- Substantial first-mover disadvantage
- Hospitals most likely organizers of CCDE
- Quantifiable quality and service benefits could substantially increase value
- Organizational challenges remain