Technology Return on Investment Analysis

Ross Return on Investment (ROI) Analysis			,								
Capital Purchase	BCSS Return on Investment (ROI) Analysis			Year 0	1	2	3	4	5	6	7
Section Sect											
Software and upgrades \$0											
RF Network installation		220									
Total Capital Expenses											
Total Capital Expenses	RF Network Installation		\$45,000								
Dingoing Operating Expenses											
Annual lease expense for software and handhelds, including maintenance \$300,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Total Capital Expenses			\$45,000							
Annual lease expense for software and handhelds, including maintenance \$300,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0											
Printer and paper supplies* Additional pharmacy technician labor (FTE) for barcoding and inventory/catalog ma (2 FTE) Additional pharmacy technician labor (FTE) for barcoding and inventory/catalog ma (2 FTE) Nursing project manager Additional nurse go-live support resources Additional nurse go-live support resources \$10, \$50, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$											
Additional pharmacy technician labor (FTE) for barcoding and inventoryicatalog ma. (2 FTE) Additional pharmacy technician labor (FTE) for barcoding and inventoryicatalog ma. (2 FTE) Nursing project manager (IFTE) \$82,701 \$86,836 \$91,178 \$95,737 \$100,523 \$105,550 \$110,827 Nursing project manager (IFTE) \$75,000 \$0 \$102,960 \$108,108 \$113,131 \$119,189 \$125,149 \$131,406 \$137,976 Additional nurse go-live support resources \$75,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Annual lease expense for software and handhelds, including maintenance				\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Nursing project manager	Printer and paper supplies ^a				\$0	\$0	\$0	\$0	\$0	\$0	\$0
Additional nurse go-live support resources Maintenance (included above) Batteries for hand-held (included above) So \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Additional pharmacy technician labor (FTE) for barcoding and inventory/catalog ma	(2 FTE)			\$82,701	\$86,836	\$91,178	\$95,737	\$100,523	\$105,550	\$110,827
Additional nurse go-live support resources Maintenance (included above) Batteries for hand-held (included above) So \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Nursing project manager	(1FTE)			\$102,960	\$108,108	\$113,513	\$119,189	\$125,149	\$131,406	\$137,976
Maintenance (included above) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0		, , , , , , , , , , , , , , , , , , ,			\$75,000			\$0		\$0	
Batteries for hand-held (included above) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0					\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ongoing Savings-Hard					\$0	\$0	\$0	\$0		\$0	\$0
Ongoing Savings-Hard	Total Operating Expenses				\$560.661	\$494,944	\$504.691	\$514.926	\$525.672	\$536.955	\$548.803
Printer and paper supply cost avoidance (\$22,000) (\$22,880) (\$23,795) (\$24,747) (\$25,737) (\$26,766) (\$27,837)					, ,	, , ,	, ,	, , ,	, , .		, , , , ,
Bulk drug purchases less than unit dose medications (\$92,000) (\$95,680) (\$99,507) (\$103,487) (\$107,627) (\$111,332) (\$116,409)	Ongoing SavingsHard										
Bulk drug purchases less than unit dose medications (\$92,000) (\$95,680) (\$99,507) (\$103,487) (\$107,627) (\$111,332) (\$116,409)	Printer and paper supply cost avoidance				(\$22,000)	(\$22,880)	(\$23,795)	(\$24,747)	(\$25,737)	(\$26,766)	(\$27,837)
Net hard savings Savings—Soft Sind Section					(\$92,000)	(\$95,680)	(\$99,507)	(\$103,487)	(\$107,627)	(\$111,932)	(\$116,409)
Ongoing Savings-Soft					\$0	,,,	(1,,	.,,			
ADE avoidance (see calculation below, conservative estimate applied)	Net hard savings				(\$114.000)	(\$118,560)	(\$123,302)	(\$128,234)	(\$133,364)	(\$138.698)	(\$144,246)
ADE avoidance (see calculation below, conservative estimate applied) (\$1,358,450)			ì		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , ,				,,,	
Other benefits: nursing satisfaction, improved documentation accuracy, reduced liftgation expenses, improved charge capture, patient confidence in care, public relations benefits \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0					(\$1.358.450)	(\$1.358.450)	(\$1.358.450)	(\$1.358.450)	(\$1.358.450)	(\$1.358.450)	(\$1.358.450)
Itigation expenses, improved charge capture, patient confidence in care, public relations benefits \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0					(\$1,000,100)	(ψ1,000,100)	(\$1,000,100)	(φ1,000,100)	(φ1,000,100)	(\$1,000,100)	(φ1,000,100)
Total Savings Potential including soft savings \$1,472,450 \$1,477,010 \$1,481,752 \$1,486,684 \$1,491,1814 \$1,497,148 \$1,502,696 \$1,7014 \$1,497,148 \$1,497,148 \$1,502,696 \$1,401,001 \$1,40											
Total Savings Potential including soft savings (\$1,472,450) (\$1,477,010) (\$1,481,752) (\$1,486,684) (\$1,491,814) (\$1,497,148) (\$1,502,696)					0.2	0.2	0.2	0.2	0.2	0.2	90
Total Net Savings (Loss)Hard Savings Only	Totalions benefits				ψΟ	ΨΟ	ΨΟ	ΨΟ	ψΟ	ΨΟ	ΨΟ
Total Net Savings (Loss)Hard Savings Only (\$45,000) (\$446,661) (\$376,384) (\$381,389) (\$386,691) (\$392,308) (\$398,257) (\$404,557)	Total Savings Potential including soft savings		 		(\$1 472 450)	(\$1 477 010)	(\$1 481 752)	(\$1 486 684)	(\$1 491 814)	(\$1 497 148)	(\$1.502.696)
Total Net Savings (Loss):-Hard and Soft Savings (\$45,000) \$911,789 \$982,066 \$977,051 \$971,759 \$966,142 \$960,193 \$953,893 Cumulative Net Savings (Loss):-Hard Savings Only (\$45,000) \$911,661 (\$868,045) (\$1,249,433) (\$1,636,124) (\$2,028,432) (\$2,426,689) (\$2,831,246)	- our ournigo : otonium monaumy our ournigo		1		(4.,772,400)	(4.,.77,010)	(4.,.01,702)	(4.,.00,004)	(\$.,.51,014)	(4.,.51,140)	(\$.,532,000)
Total Net Savings (Loss):-Hard and Soft Savings (\$45,000) \$911,789 \$982,066 \$977,051 \$971,759 \$966,142 \$960,193 \$953,893 Cumulative Net Savings (Loss):-Hard Savings Only (\$45,000) (\$491,661) (\$868,045) (\$1,249,433) (\$1,636,124) (\$2,028,432) (\$2,426,689) (\$2,831,246)	Total Not Savings (Loss), Hard Savings Only		1	(\$45,000)	(\$446.661)	(\$276 29A)	(\$291.290)	(\$296 601)	(\$303.309)	(\$209.257)	(\$404.557)
Cumulative Net Savings (Loss)Hard Savings Only (\$45,000) (\$491,661) (\$868,045) (\$1,249,433) (\$1,636,124) (\$2,028,432) (\$2,226,689) (\$2,831,246)			1								
			1								
Cumulative Net Savings (Loss)Hard and Soft Savings (\$45,000) \$866,789 \$1,848,855 \$2,825,917 \$3,797,676 \$4,763,818 \$5,724,011 \$6,677,904			 								

Net Present Value	
Internal Rate of Return	
Payback Period (years)	

ADE Cost Avoidance at Hospital XX:

	Literature	Conservative
Assumptions:	method	method1
Annual doses administered per year:	3,650,000	3,650,001
Administration error rate before BCSS in manual system	9.10%	109.10%
Total administration errors per year before BCSS in manual system	332,150	332,150
Administration error avoidance as determined via direct observation study	87%	87%
Administration errors avoided per year following BCSS implementation	288,971	288,971
% of medication errors that result in harm or a PADE (per 1995 Bates study)	1%	0.10%
Total harmful errors avoided per year at Hospital XX	2,890	289
Cost of a harmful medication error (per 1995 Bates study)	\$4,700	\$4,701
Total harmful error cost avoidance per year at Hospital XX as a result of BCSS	\$13,581,614	\$1,358,450

Assumes only 1 in 1000 errors result in harm that add cost to the organization; lowers estimates from 1995 Bates et al research by 10-fold.