

Assessing the Economic Impact of Colonoscopy Patient Navigator Programs



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Goals of Economic Evaluation

1. To assess the costs of the navigator program at three demonstration sites
2. To assess the cost-effectiveness of the navigator program
3. To assess the net financial benefit analysis of the navigator program
4. To develop a tool for estimating the economic impact of a navigator program from the hospital or health system perspective



Results: Program Cost

	<u>Hospital A</u>	<u>Hospital B</u>	<u>Hospital C</u>
Annual cost	\$116,221	\$373,606	\$104,868
Monthly average cost	\$9,685	\$31,134	\$8,739
Total program cost	\$174,332	\$1,556,691	\$183,519
Cost per patient	\$74	\$287	\$51



Cost-Effectiveness: Volume

Cost-effectiveness = Cost per additional colonoscopy



Results: Cost-Effectiveness (1)

Effectiveness = Colonoscopy Volume

	<u>Hospital A</u>	<u>Hospital B</u>	<u>Hospital C</u>
Monthly average cost	\$9,685	\$31,134	\$8,739
Additional colonoscopies/month	44	48	67
Cost per additional colonoscopy	\$220	\$708	\$199



Cost-Effectiveness: Completion

Cost-effectiveness = Cost per additional colonoscopy completed



Results: Cost-Effectiveness (2)

Effectiveness = Colonoscopy Completion Rate

	<u>Hospital A</u>	<u>Hospital B</u>	<u>Hospital C</u>
Average cost per patient	\$74	\$287	\$51
Increased probability of completion	0.2	0.2	0.2
Cost per additional colonoscopy completed	\$369	\$1,434	\$254



Cost-Benefit Analysis (1)

$$\text{NFB} = \text{AR} - \text{AC} - \text{PC}$$



NFB = net financial benefit per colonoscopy

AR = average reimbursement per colonoscopy
AC = average procedure cost per colonoscopy } net revenue

PC = average program cost per additional colonoscopy



Cost-Benefit Analysis (2)

$$\frac{\text{benefit}}{\text{cost}} = \frac{(\text{AR} - \text{AC})}{\text{PC}}$$

Benefit:cost ratio

AR = average reimbursement per colonoscopy

AC = average procedure cost per colonoscopy

PC = average program cost per additional colonoscopy



Results: Net Financial Benefit

	<u>Hospital A</u>	<u>Hospital B</u>	<u>Hospital C</u>
Program cost per additional colonoscopy	\$220	\$708	\$199
Net revenue per additional colonoscopy	\$236	\$243	\$243
Net benefit per additional colonoscopy	\$16	\$(464)	\$45
Benefit:cost ratio	1.1	0.3	1.2



Conclusions

- Program costs may vary widely
- Net financial benefit of a patient navigator program depends on three key factors:
 - Program cost
 - Procedure cost
 - Reimbursement
- Cost-effectiveness of navigator program similar to other interventions aimed at increasing rates of screening colonoscopy



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Economic Impact Calculator

- Tool for calculating economic impact of patient navigator program
- Input provider-specific values to determine net financial benefit of implementing program
- Site-specific inputs:
 - Borough, practice setting, payer mix, percent of patients to be navigated, percent of patients by indication for colonoscopy, personnel salaries
- Default inputs provided



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Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results

Borough

Select your borough Brooklyn

Practice Setting

Select your practice setting Hospital

Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results

Payer Mix

Medicare	37	%
Medicaid	15	%
Commercial	39	%
Self-Pay	9	%

Total 100%

HHC Facility Default Private/Non-Profit Facility Default

Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results

FTE colonoscopy navigators

Expected number of patients to be navigated annually 1,000

	Total FTE	Annual Salary
Navigators	1.0	\$ 40,000

Medical personnel for navigator program

	Total FTE	Annual Salary
Medical	0.15	\$ 150,000

Other personnel for navigator program

	Total FTE	Annual Salary
Nursing	0.10	\$ 65,000
Administrative	0.10	\$ 30,000

Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results

Percent of patients to be navigated

90 %

Percent of patients by indication of colonoscopy

Screening colonoscopy without biopsy or polypectomy	26 %
Diagnostic colonoscopy without biopsy or polypectomy	31 %
Colonoscopy with one or more tissue biopsies	22 %
Colonoscopy with polypectomy (removals of polyp(s), tumor(s), or other lesion(s))	21 %
Total	100%

Use default values

Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results


Cost of colonoscopy

Based on published estimates, the calculator assumes an average cost per colonoscopy of \$473. You may use this average cost, adjust this value by a certain percentage, or enter a different value. Please select your choice below.

Use average cost: \$473

or adjust cost by: 0 %

or use different value: \$ 473



Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Results

Colonoscopy reimbursement


Average colonoscopy reimbursement, based on your payer mix, is estimated at \$678 for your facility. You may use this estimated value, adjust this value by a certain percentage, or enter a different value. Please select your choice below.

Use estimated reimbursement: \$678

or adjust estimate by: 0 %

or use a different value: \$ 678

Check here to adjust reimbursement by individual payer type.



Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Payer Mix Adjustments Results

Average colonoscopy reimbursement for each payer at your facility is estimated below. You may use the estimated value, adjust the value by a certain percentage, or enter a different value. Please select your choice for each payer below.

Medicare

Use estimated reimbursement: \$666.75

or adjust estimate by: 0 %

or use a different value: \$ 0

Medicaid

Use estimated reimbursement: \$533.40

or adjust estimate by: 0 %

or use a different value: \$ 0

Commercial

Use estimated reimbursement: \$866.78

or adjust estimate by: 0 %

or use a different value: \$ 0

Self-Pay

Use estimated reimbursement: \$150

or adjust estimate by: 0 %

or use a different value: \$ 0

Colonoscopy Patient Navigator Economic Impact Calculator

File Navigate Help

Facility Payer Mix Personnel Patients Adjustments Payer Mix Adjustments Results

Additional colonoscopies associated with navigator program

Additional colonoscopies per month 55

Costs associated with navigator program

Cost per month \$8,505

Cost per additional colonoscopy \$156

Revenue associated with additional colonoscopies

Reimbursement per colonoscopy \$678

Cost per colonoscopy \$473

Net revenue per colonoscopy \$205

Net financial benefit of navigator program

Net benefit per additional colonoscopy \$50

Net benefit per month \$2,708

Net benefit per year \$32,494

Thank you

