

# Lifetime Impact of the Change in Modality as a Result of Eliminating Cost-sharing for Follow-up Colonoscopy After a Positive Stool Test for Colorectal Cancer Screening

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## Background

- Most commercial insurance plans in the US will be required to cover a follow-up colonoscopy after a positive stool test with no patient cost-sharing as of January 1, 2023.<sup>1</sup>
- In Oregon, a policy that eliminated patient cost-sharing significantly increased the overall uptake of CRC screening and shifted screening modalities from colonoscopy to non-invasive methods.<sup>2</sup>

## Study Objective

- To estimate the clinical and economic effects of increased CRC screening and shifted screening utilization that may stem from the policy eliminating patient cost-sharing for a follow-up colonoscopy after a positive stool test on a cohort of US average-risk individuals newly eligible for CRC screening.

## Methods

- CRC-AIM, a validated microsimulation model for CRC,<sup>3</sup> was used to simulate 2 million individuals undergoing CRC screening (colonoscopy every 10 years, annual fecal immunochemical test [FIT], triennial multi-target stool DNA [mt-sDNA]) from ages 45-75.
- The baseline (status quo) scenario represented the utilization of CRC screening (46% colonoscopy, 23% stool test, and 31% unscreened).<sup>4</sup>
- Scenarios 1-5 assumed 10% shift from colonoscopy to stool-test utilization with 1, 2, 5, 10, and 15% absolute increase in overall screening rate, respectively.
- Individuals who completed initial CRC screening were assumed to also complete follow-up colonoscopy.

### Abbreviations:

COL: colonoscopy; CRC: colorectal cancer; ICER: incremental cost-effectiveness ratio; LYG: life-years gained; QALY: quality-adjusted life year

**Table 1.** Estimated outcomes in baseline (status quo) scenario and scenarios 1-5 assuming 10% absolute reduction in screening colonoscopy utilization and increased overall screening rate.

Scenario†	% COLs	% Stool Tests	% Screened	LYG*	CRC Cases*	CRC Deaths*	Total COLs*	Stool Tests*	Total Costs†	Total QALYs†
Baseline (status quo)	46 <sup>4</sup>	23 <sup>4</sup>	69 <sup>4</sup>	246.4	36.9	15.6	2304.1	3440.1	\$6,825	16.8481
1) 10% shift from COL to stool-test and 1% increase in screening	36	34	70	245.2	37.8	15.8	2059.1	5077.9	\$6,631	16.8482
2) 10% shift from COL to stool-test and 2% increase in screening	36	35	71	248.5	37.2	15.5	2074.0	5226.8	\$6,633	16.8491
3) 10% shift from COL to stool-test and 5% increase in screening	36	38	74	258.3	35.6	14.7	2118.9	5673.5	\$6,637	16.8519
4) 10% shift from COL to stool-test and 10% increase in screening	36	43	79	274.7	32.9	13.3	2193.8	6418.0	\$6,645	16.8564
5) 10% shift from COL to stool-test and 15% increase in screening	36	48	84	291.1	30.3	12.0	2268.6	7162.5	\$6,653	16.8610

†Note that all scenarios assumed that individuals who tested positive on initial non-invasive CRC screening were completing the follow-up colonoscopy.

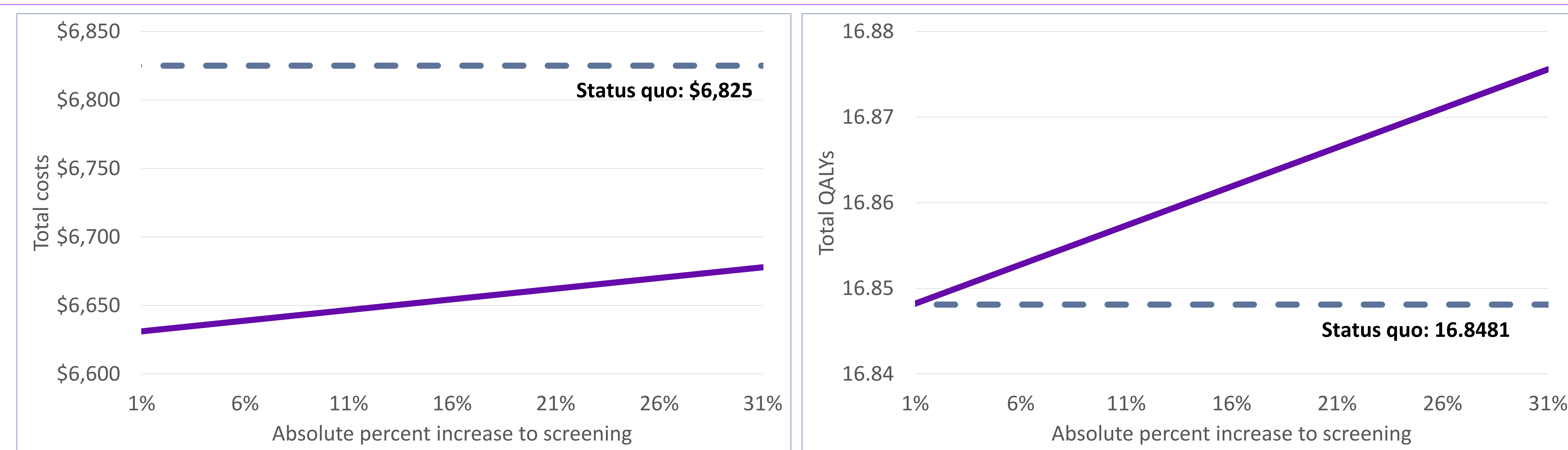
\* Outcomes were calculated per 1000 individuals.

† Total costs and total QALYs were calculated per person.

- When 10% shift from screening colonoscopy to stool-test utilization was modeled, an increase in overall screening as low as 1% compared to the baseline led to lower total costs and higher quality adjusted life years (QALYs).
- Life-years gained increased by at least 5% while  $\geq 1,200$  cases and  $\geq 900$  deaths were averted per 1 million individuals with a modest (5%) uptake in total screening.

## Conclusions:

**Policies that remove cost barriers to completing CRC screening can lead to shifts in test utilization patterns and increase overall participation rates. At 10% shift from screening colonoscopy to stool-test, an increase in overall screening as low as 2% led to higher life-years gained, lower total costs, and higher quality adjusted life years.**



**Figure 1.** Total costs per person (left) and total QALYs per person (right) by absolute percent increase to adherence as compared to the status quo. Screening rates were assumed to increase as a consequence of waiving patient cost-sharing leading to a shift from screening colonoscopy to non-invasive methods.

- Assuming all individuals who tested positive on initial non-invasive CRC screening were also completing the follow-up colonoscopy, all scenarios with 10% shift from screening colonoscopy to stool-test were less costly and more effective compared to the baseline, regardless of percent changes to total screening uptake.

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