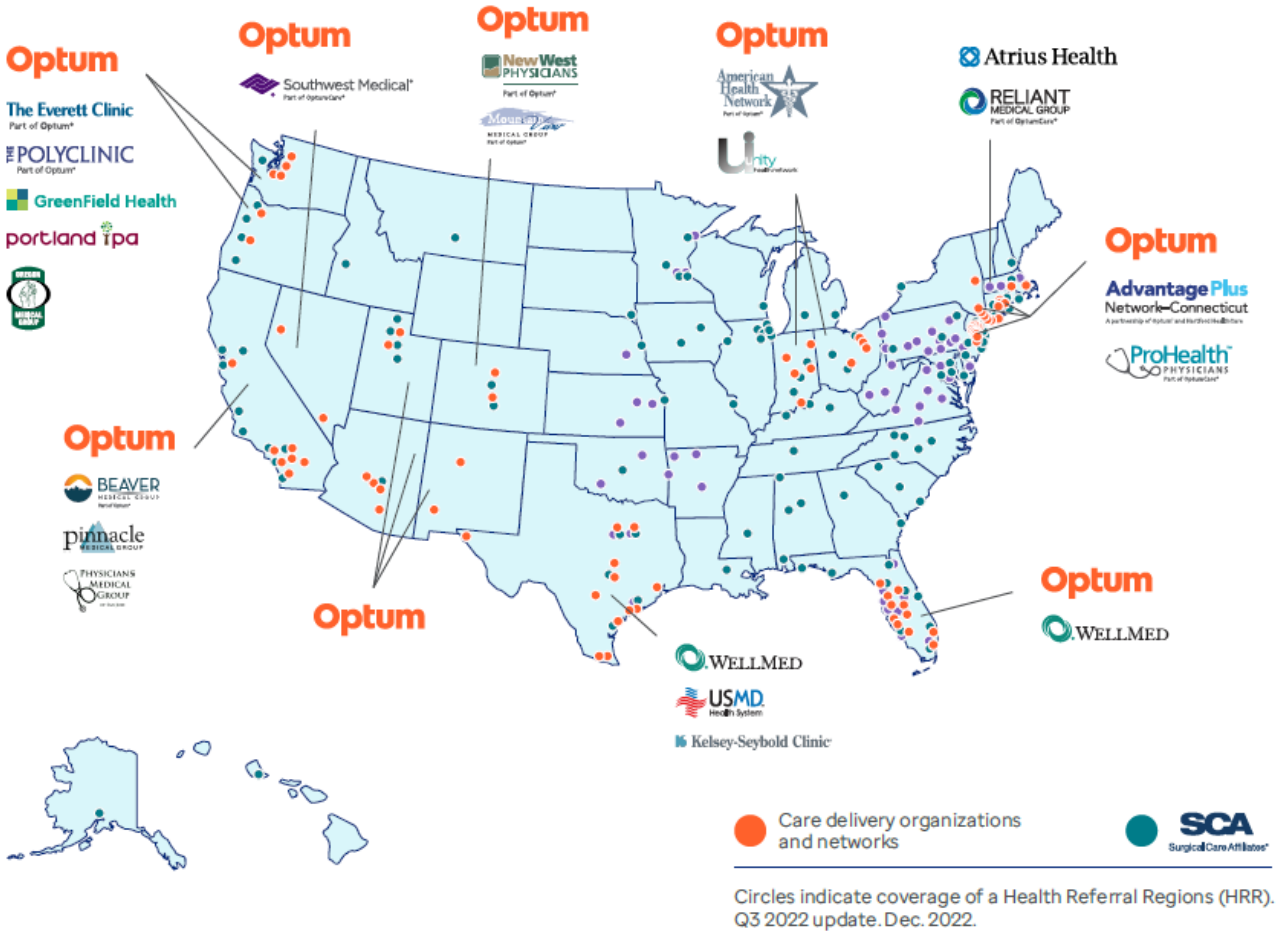
Optum Health Education™

The Leadership Institute: Optimal Care

Evidence-driven
Better outcomes
Lower cost

Ken Cohen, MD, FACP
Executive Director Translational Research
Optum Health
May, 2025

The Optum Health challenge



Optum Health fast facts for integrated care

23 million	Patients in Optum Health
~ 5 million	Patients served under fully accountable value-based arrangements
~ 85K	Employed or aligned physicians
> 2.2K	Sites of care
> 100	Optum Health payer partners
> 35,000	Advance practice clinicians

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The cost / quality scattergram

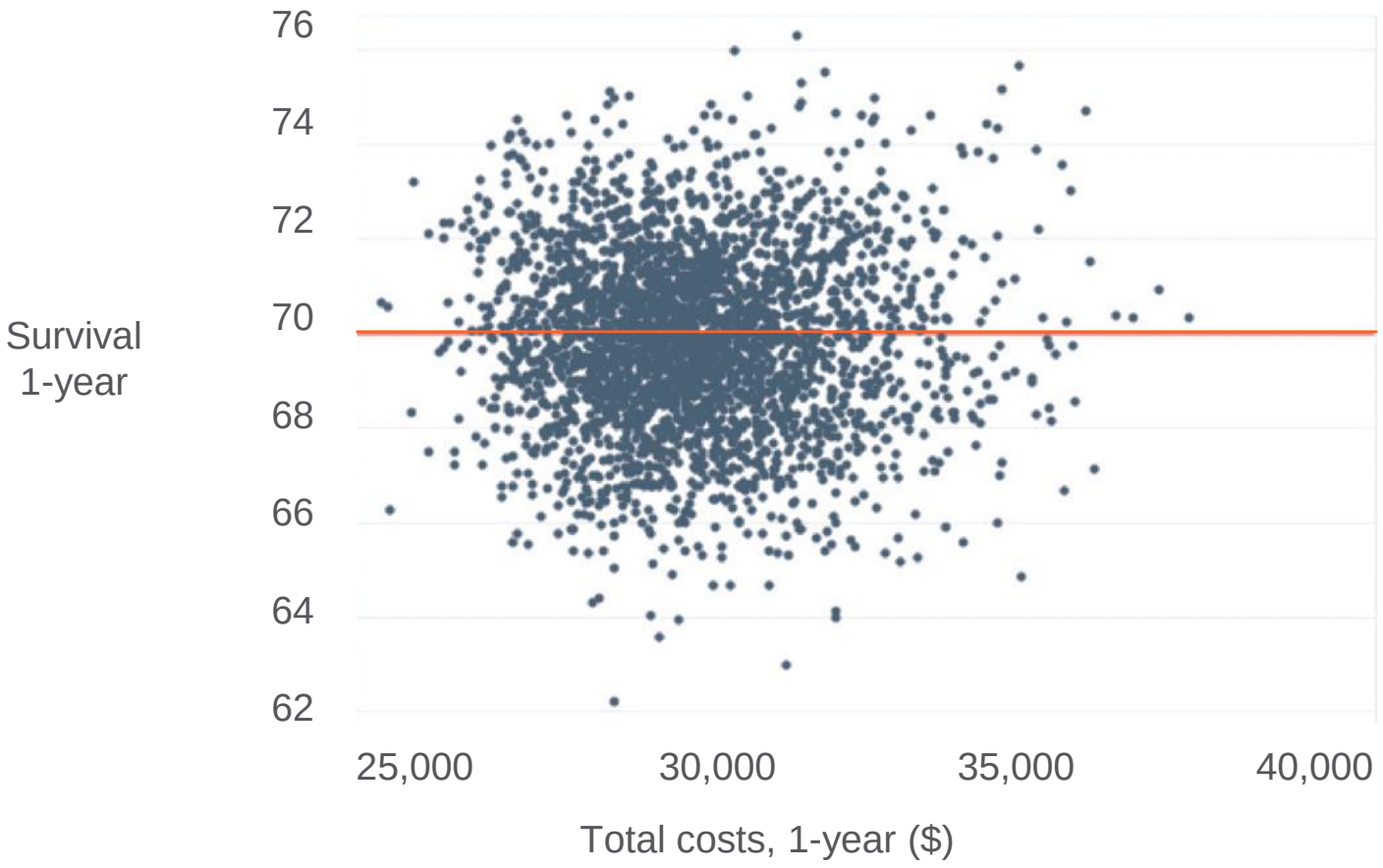

FIGURE 2-1 Relationship between 1-year survival rates and total inpatient costs for Medicare beneficiaries with three common conditions, 2003-2005

Figure taken from Yong, Saunders, Olsen, editors. The Healthcare Imperative…; IOM. (2010)

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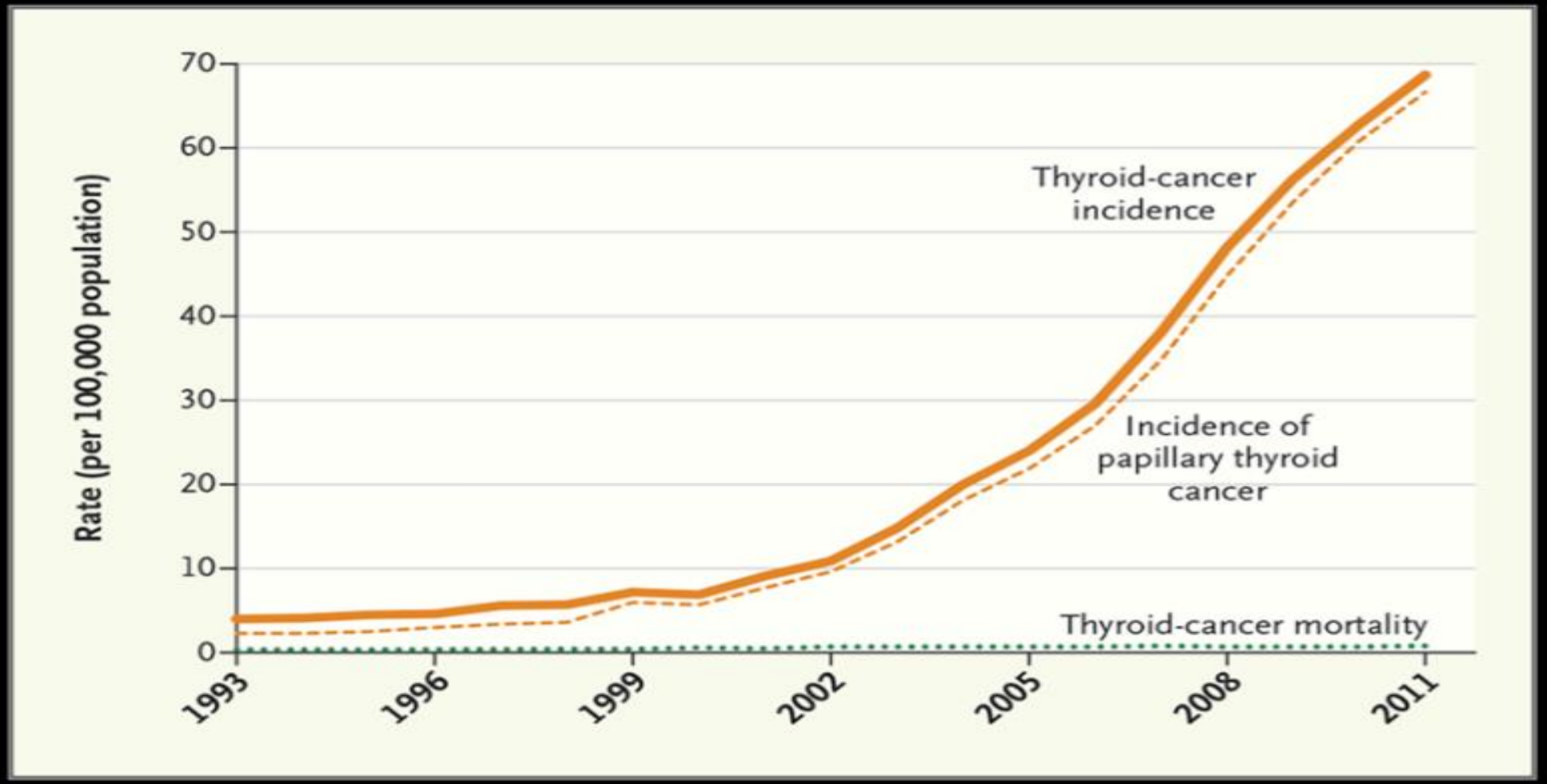
Thyroid-Cancer Incidence and Related Mortality in South Korea, 1993–2011.



Ahn HS et al. N Engl J Med 2014;371:1765-1767.

The NEW ENGLAND JOURNAL of MEDICINE

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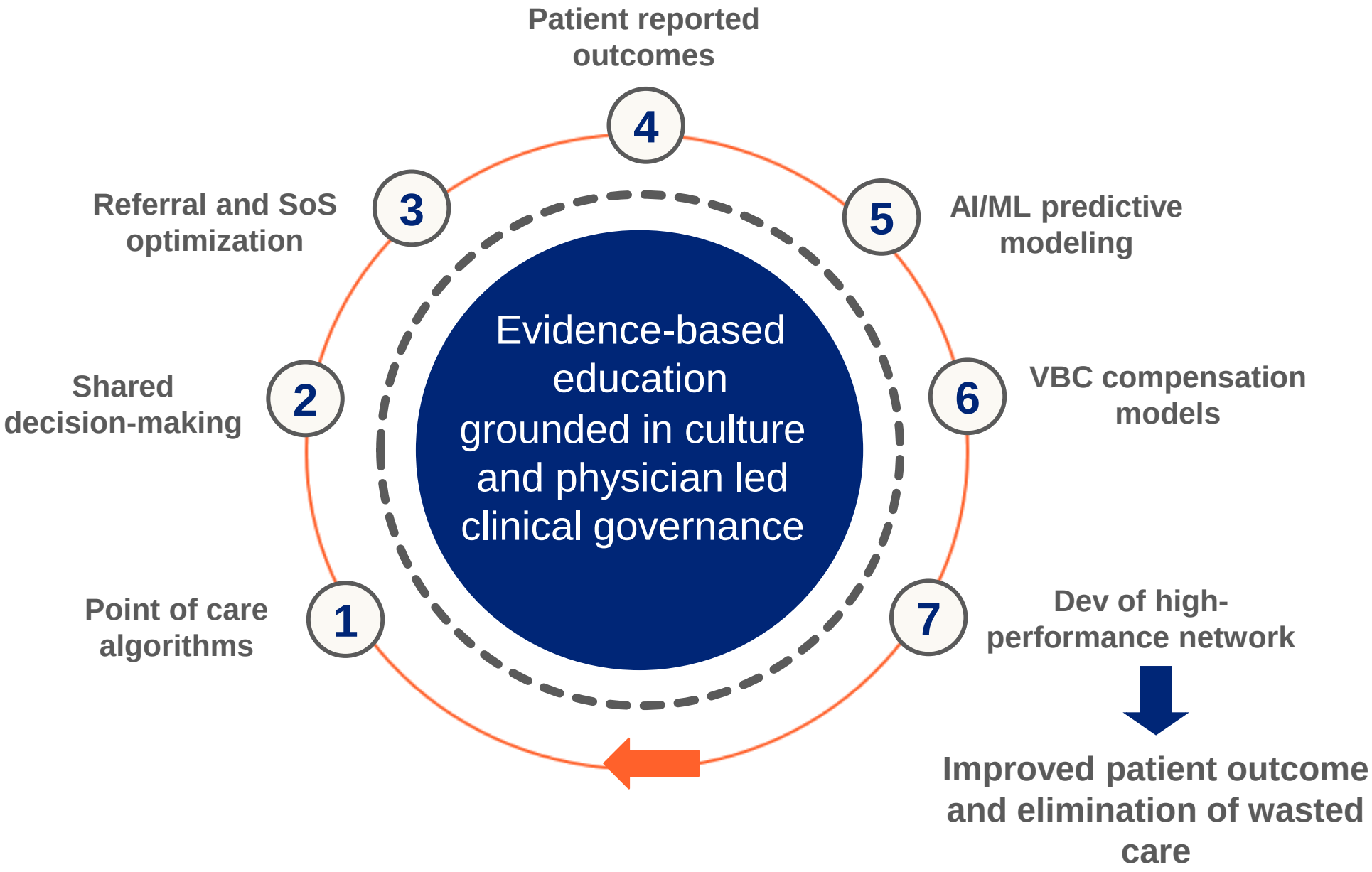

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Algorithms at the point of care: Cardiology

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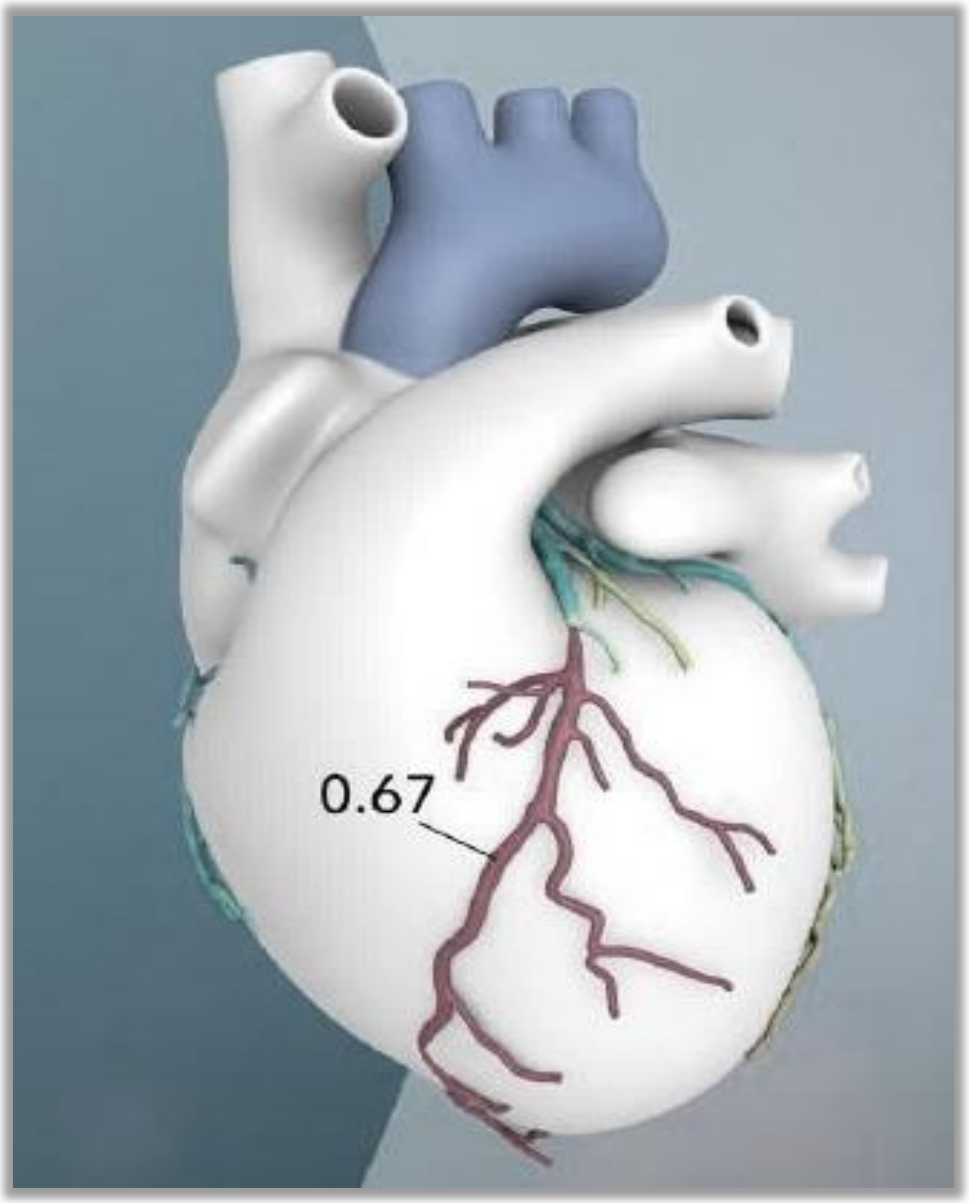
Think CCTA first



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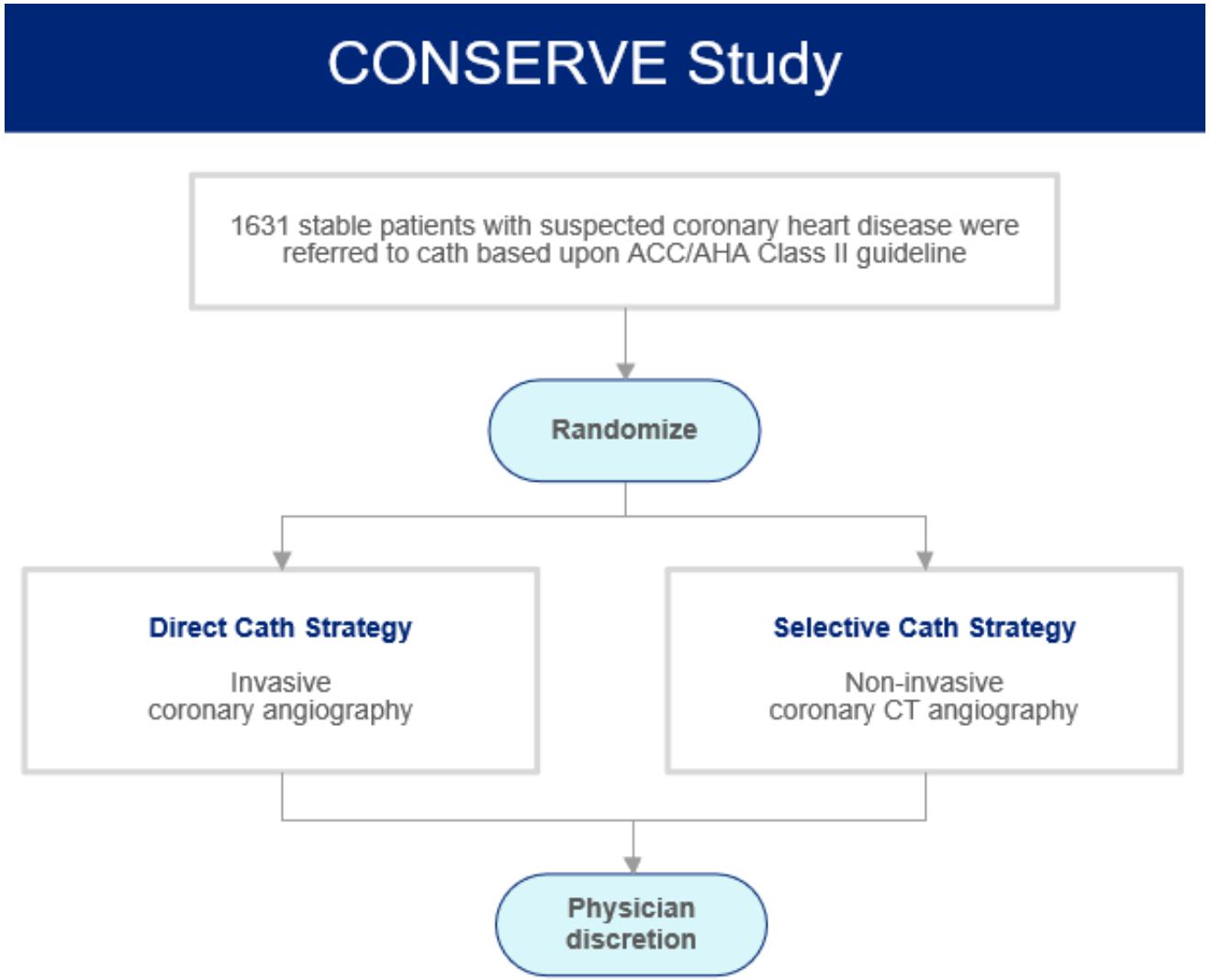
Can CTA serve as cost-effective gatekeeper?



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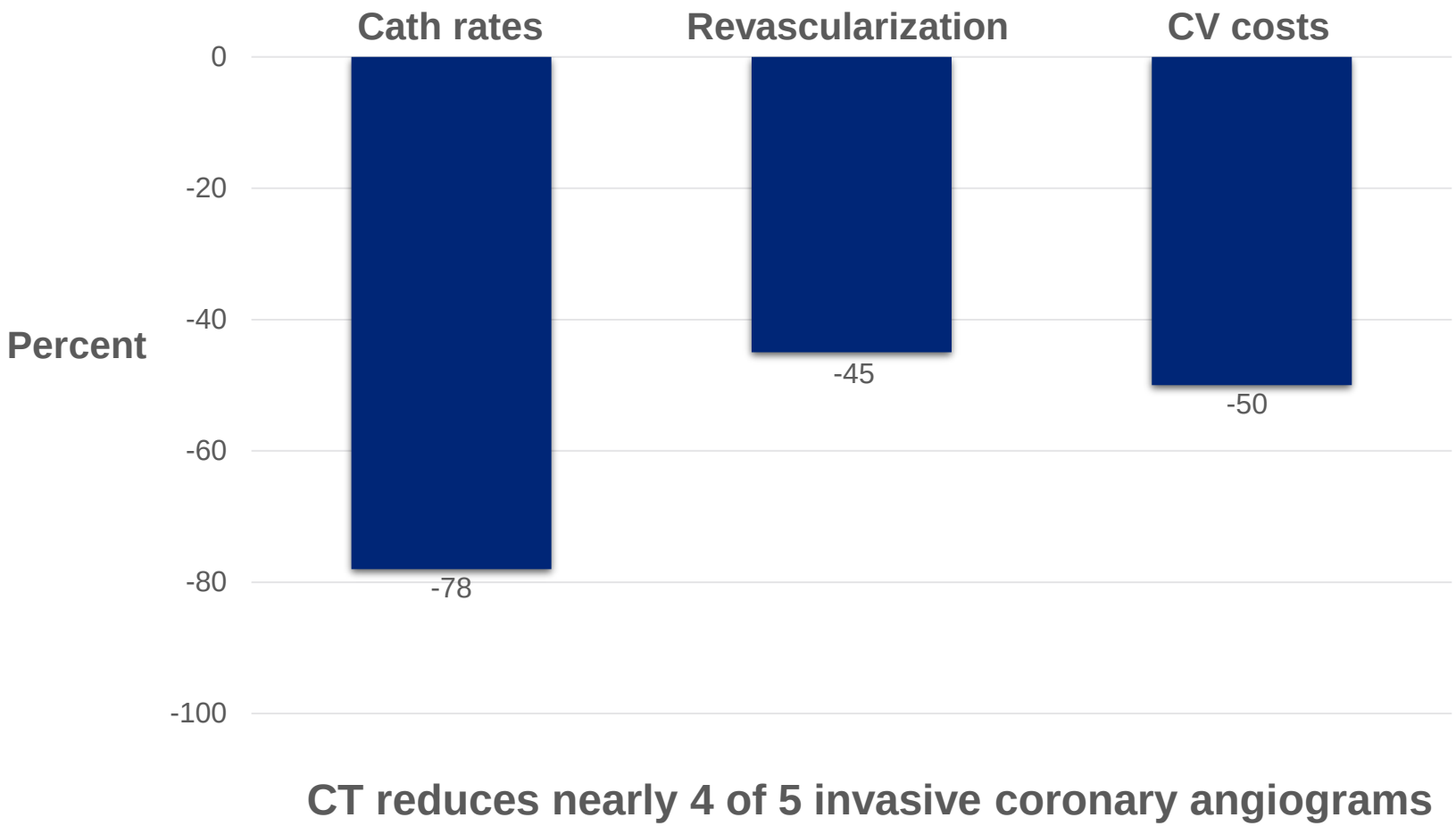
CONSERVE study results



CT reduces nearly 4 of 5 invasive coronary angiograms

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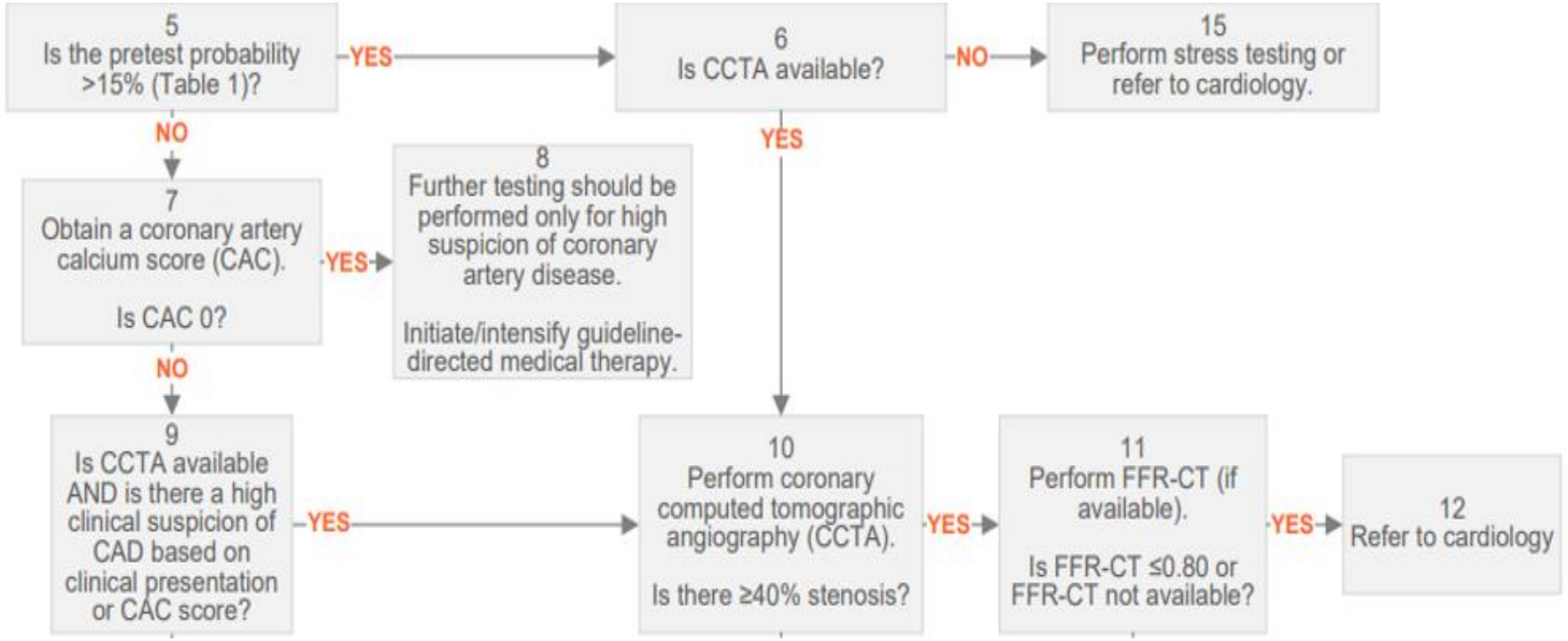
Stable chest pain with no known CAD



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Optimal spine care

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Much of the care for CLBP lacks an evidence base of support

Evidence to Practice
Management of Chronic Low Back Pain

Kenneth R. Cohen, MD

JAMA Internal Medicine February 2022 Volume 182, Number 2

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NSAID’s and duloxetine have evidence-base of support

Opioids	No evidence of improved outcomes – tramadol should be thought of as a narcotic!
Gabapentin	No evidence of improved outcomes, 50% experience dizziness, cognitive difficulty, or malaise
Oral glucocorticoids	No evidence of improved outcomes
Muscle relaxants	No evidence of improved outcomes - 30 million Rx’s in 2016, on the Beer’s high risk medication list
TCA/Benzo’s	No evidence of improved outcomes, amitriptyline is on Beer’s high-risk medication list

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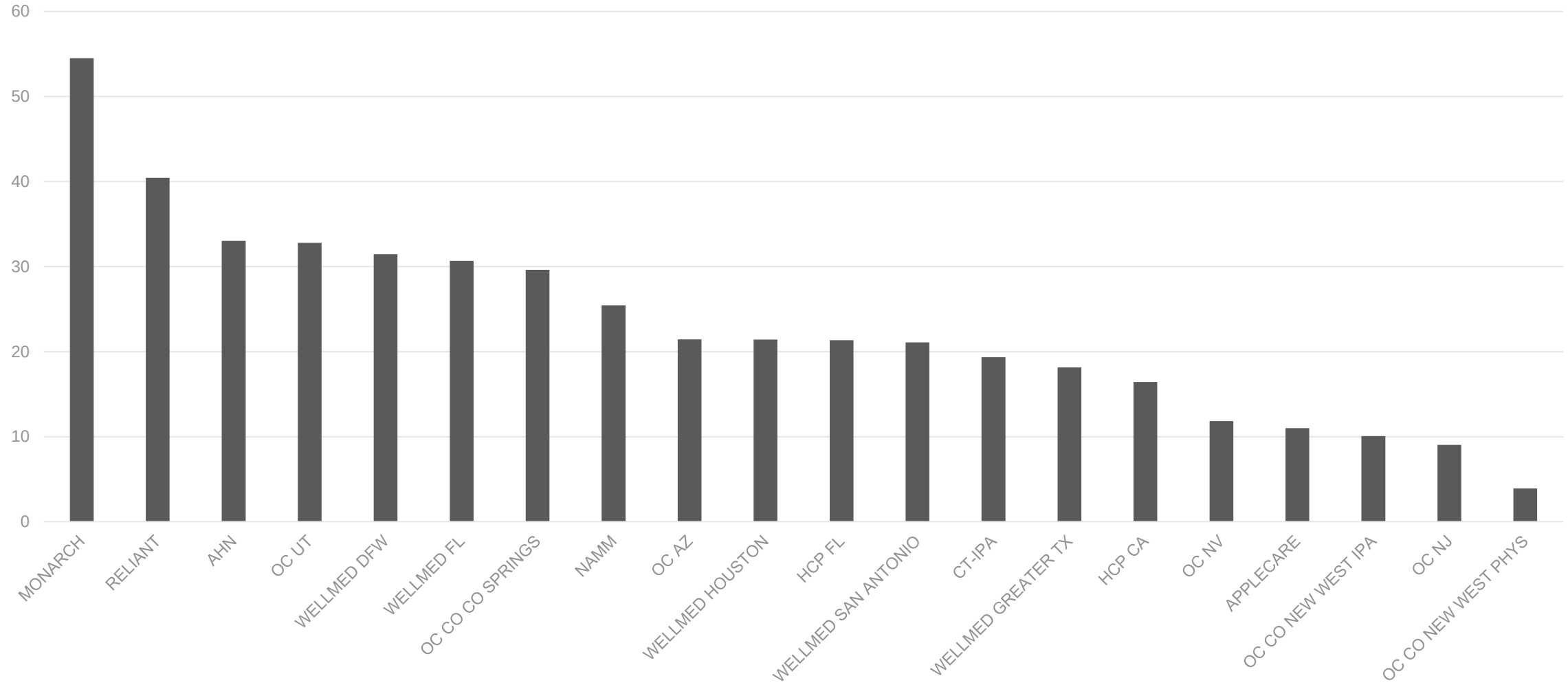
Epidural Per K by CDO for FY2021



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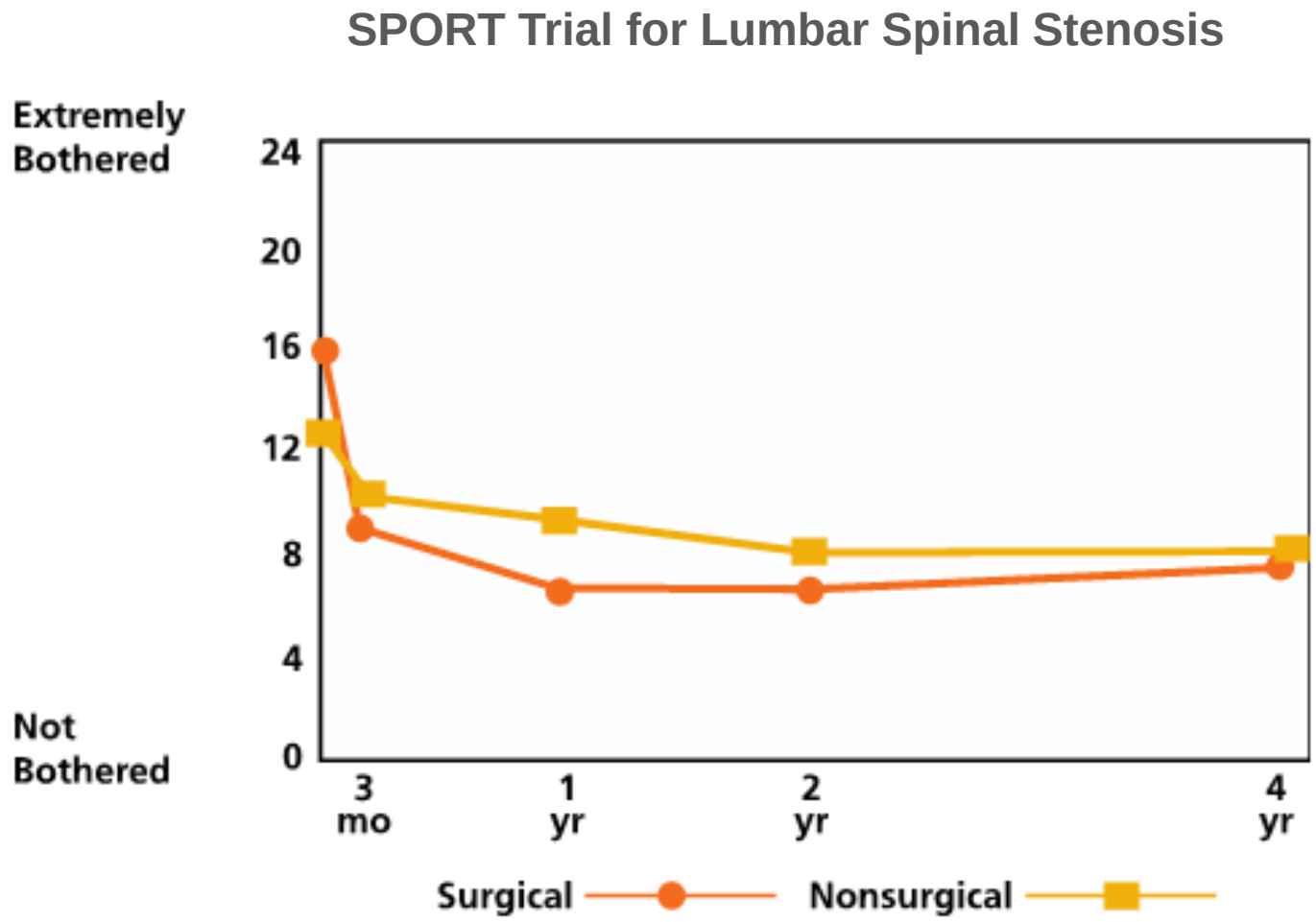
Surgery for spinal stenosis – Does it work?



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Lumbar fusion vs. Decompression without Fusion

Comparative Effectiveness of Microdecompression Alone vs Decompression Plus Instrumented Fusion in Lumbar Degenerative Spondylolisthesis

Austevoll, et al, JAMA 9-2020

Laminectomy plus Fusion versus Laminectomy Alone for Lumbar Spondylolisthesis

Ghogawala Z., Dziura J., Butler W.E., et al. | N Engl J Med 2016; 374:1424-1434

A Randomized, Controlled Trial of Fusion Surgery for Lumbar Spinal Stenosis

Försth P., Ólafsson G., Carlsson T., et al. | N Engl J Med 2016; 374:1413-1423

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Leveraging big data to improve quality and cost of care

Long-Term Differences in Use of Opioids, Non-Pharmacologic Pain Interventions, and Total Costs of Spinal Cord Stimulators Compared to Conventional Medical Therapy for Chronic Pain

Sanket Dhruva MD, MHS, Ken Cohen MD, FACP, et.al.
JAMA Neurology 2022

No change in ER or hospital use

No change in opioid use

No change in epidural injection or surgery use

18% serious complication rate

$40,000 higher cost

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Evolution of the Optimal Care spine model

Current model

- Reliance on non-evidence-based drugs and procedures
- Reliance on surgery with limited benefit – cost of lumbar fusion ~$>100,000

Optimal Care model

- Initial management via PCP, PT, chiropractic
- Physiatry/pain management engaged when needed
  - Optimal use of rehab, pain psychology, EBM pharmacotherapies
  - Limited use of ESI, RF ablation, etc.
- Referral to surgery is initiated by physiatry/management
  - Shared decision-making
  - Decision on decompression versus fusion, choice of surgeon, site of service

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Clinical Decision Support

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Gaps in Best Practice Care Drive Worse Clinical Outcomes and Higher Costs

Percentage of patients not on guideline-directed medical therapy

92%
Heart failure

55%
Hypertension

64%
COPD

36%
Diabetes

Heart failure is a complex condition (3% prevalence) and the leading cause for hospital admissions in the Medicare population

For patients on guideline-directed therapy:

38%
fewer admissions

21%
fewer costs

$1,900
annual savings in total cost of care

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Clinical Assistant: Clinical Conditions

Presents evidence-based recommendations for high-value conditions

Type 2 diabetes mellitus

Hypertension

Chronic obstructive pulmonary disease (COPD)

Congestive heart failure (CHF)

Hyperlipidemia

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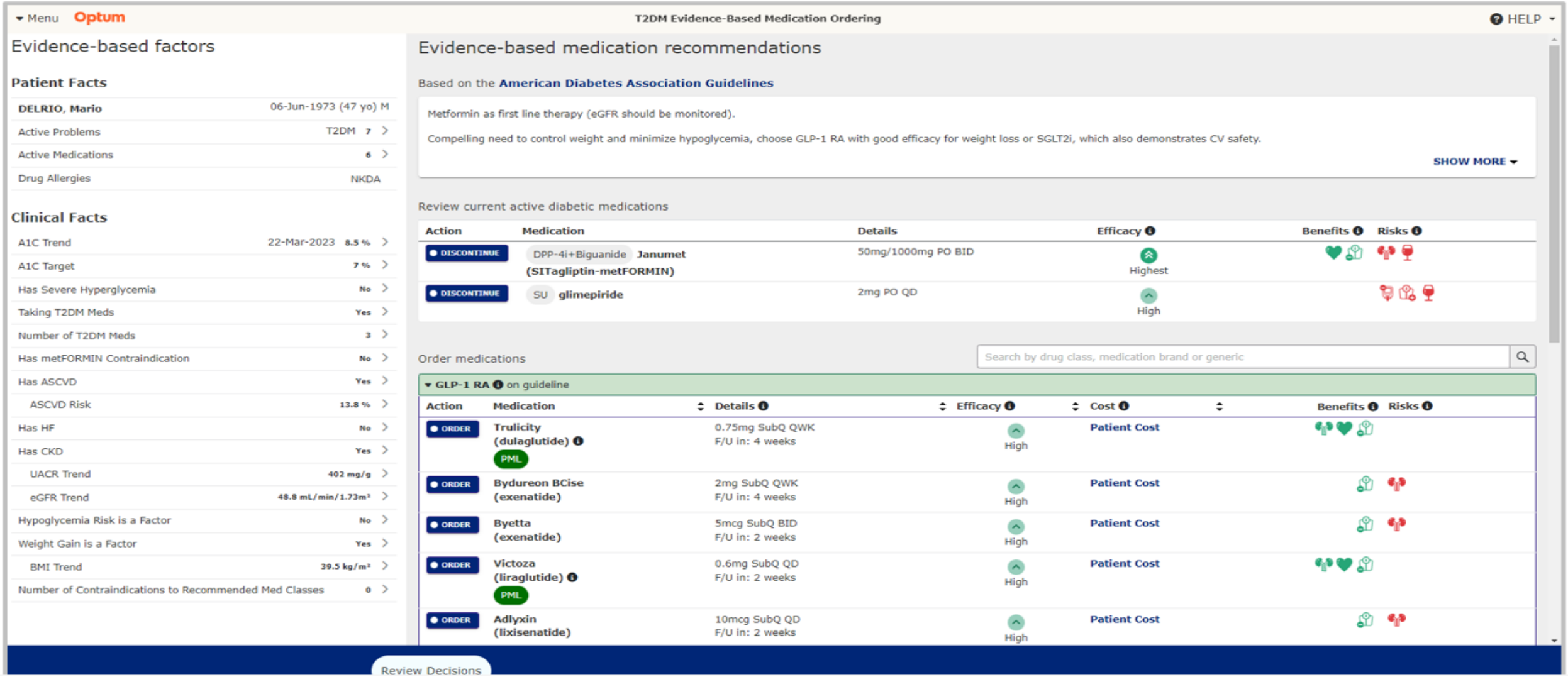
CDS in practice – Type 2 diabetes example



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Optum Health GDMT dashboard – PCP/patient level detail

Hf Pillar Beta Blockers	Hf Pillar Mra	Hf Pillar Sglt 2
(All)	(All)	(All)

HF Severity	Hf Pillar Arni Arbs Aces	Hf Pillar Beta Blockers	Hf Pillar Mra	Hf Pillar Sglt 2
5	Null	Beta Blockers	MRA	SGLT-2
3	ARNI/ARBS/ACES	Beta Blockers	Null	Null
5	ARNI/ARBS/ACES	Beta Blockers	Null	Null
5	ARNI/ARBS/ACES	Beta Blockers	Null	Null
5	Null	Null	Null	Null
5	Null	Null	Null	Null

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Pharmacoeconomic tools to support Optimal Care

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Semaglutide and cardiovascular outcomes in obesity without diabetes

SELECT Trial Design: Randomized, Double-blind, Placebo-controlled, Multicentered, 34 months

- 20% reduction in MACE with semaglutide over 34 months
- Absolute risk reduction was 1.5%, NNT = 67 (in overweight and obese patients **with established CVD**)

Patients:

- **Included:** ≥ 45yo, BMI ≥ 27kg, established CVD (i.e., h/o MI, CVA, or PAD)
- **Excluded h/o:** T1 or T2DM, A1C ≥6.5, HF (NYHA, class IV), ESRD, medullary thyroid cancer

Intervention: Semaglutide titrated to 2.4mg weekly; n=8803

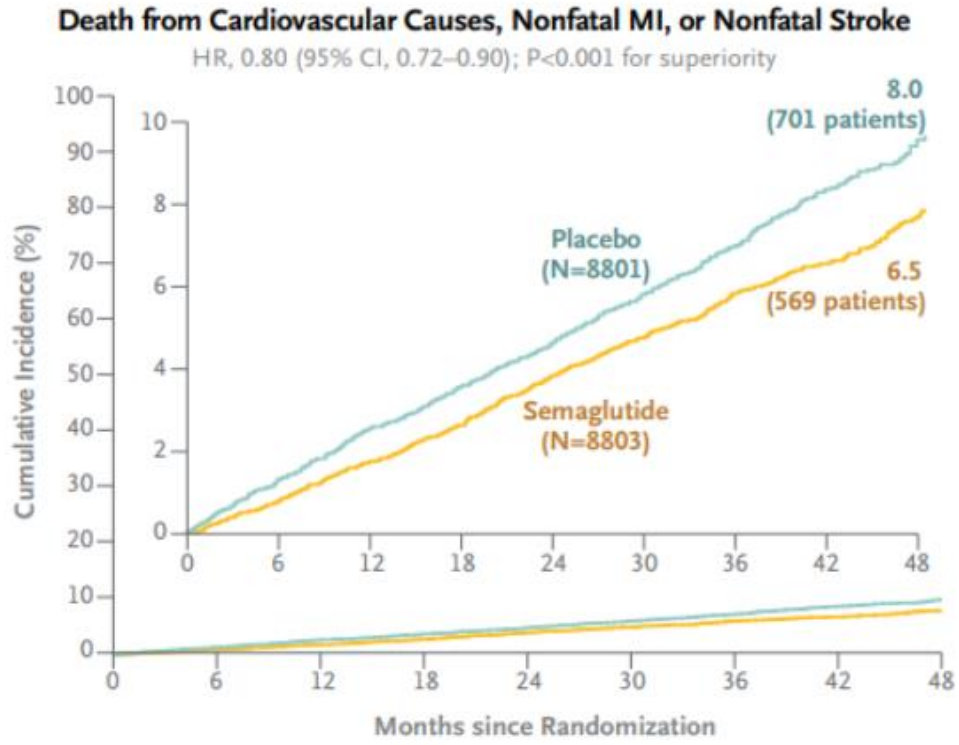
Comparator/Control: Placebo weekly; n=8801

Outcome: Composite of first occurrence of CV death, nonfatal MI, nonfatal stroke

Baseline, CV risk was balanced between treatments
% of patients taking these treatments for CVD

- 90% taking lipid lowering drugs
- 87% on platelet aggregation inhibitors
- 70% on betablockers
- 74% on an ACEi or ARB

Mean Baseline characteristic	
Age	62 yo
Sex	72% male
BMI	33
Obese	72%
Prediabetic (A1C 5.7%-6.4%)	66%
Prior MI	75%
Chronic HF	25%



Lincoff AM, et. al.; SELECT Trial Investigators. Semaglutide and Cardiovascular Outcomes in Obesity without Diabetes. N Engl J Med. 2023 Dec 14;389(24):2221-2232. doi: 10.1056/NEJMoa2307563. Epub 2023 Nov 11. PMID: 37952131.

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Back of the napkin pharmacoeconomics – semaglutide for CV event reduction

Is the mortality difference cost effective?

- 17,604 patients randomized 1:1 semaglutide 2.4 mg vs. placebo – 3 yrs – 6.5% vs. 8%
- NNT for 3 years to prevent one event = 66
- Yearly cost to prevent one event = $3 million

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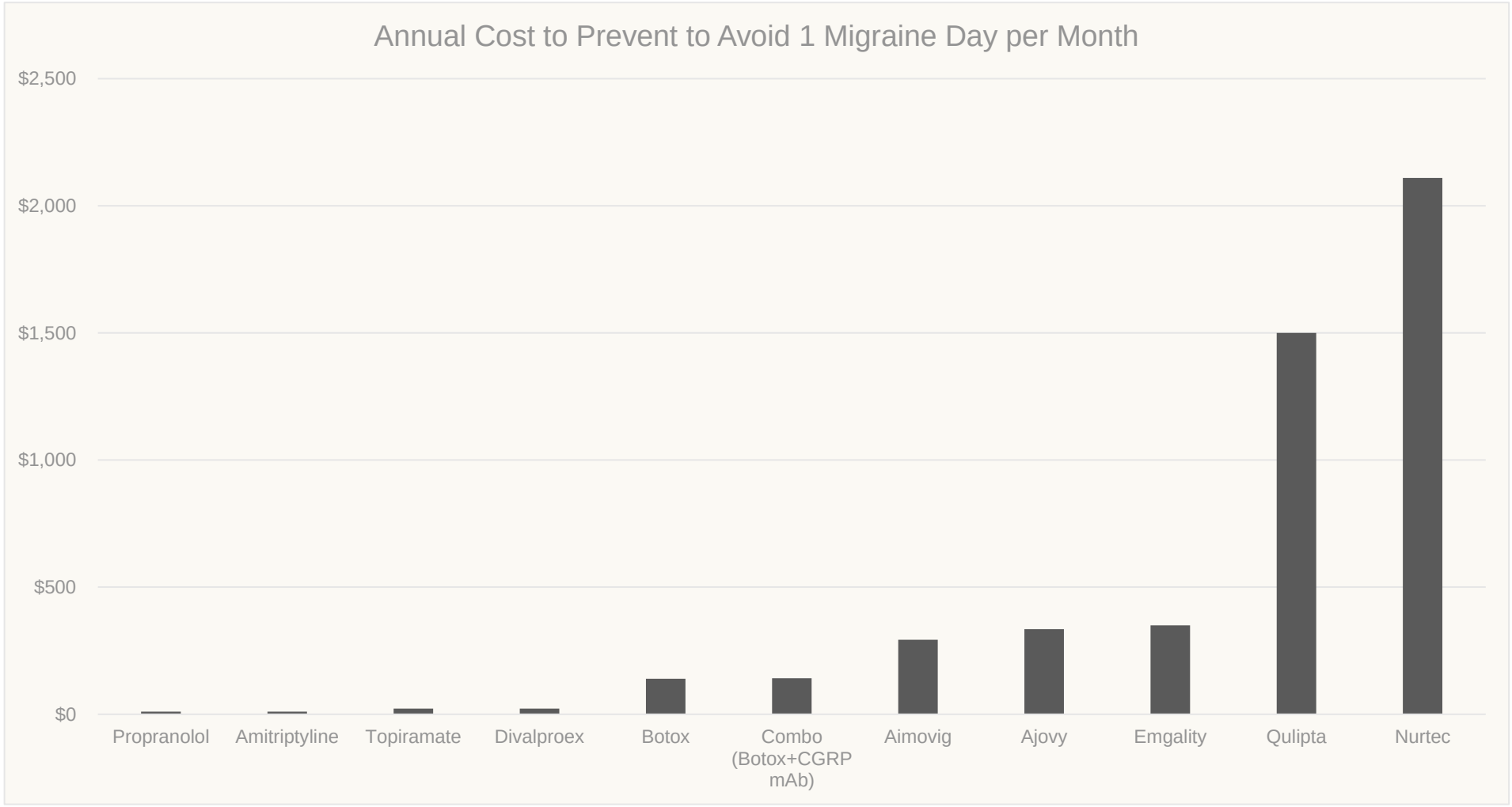
Pharmaco-economics for optimal drug selection



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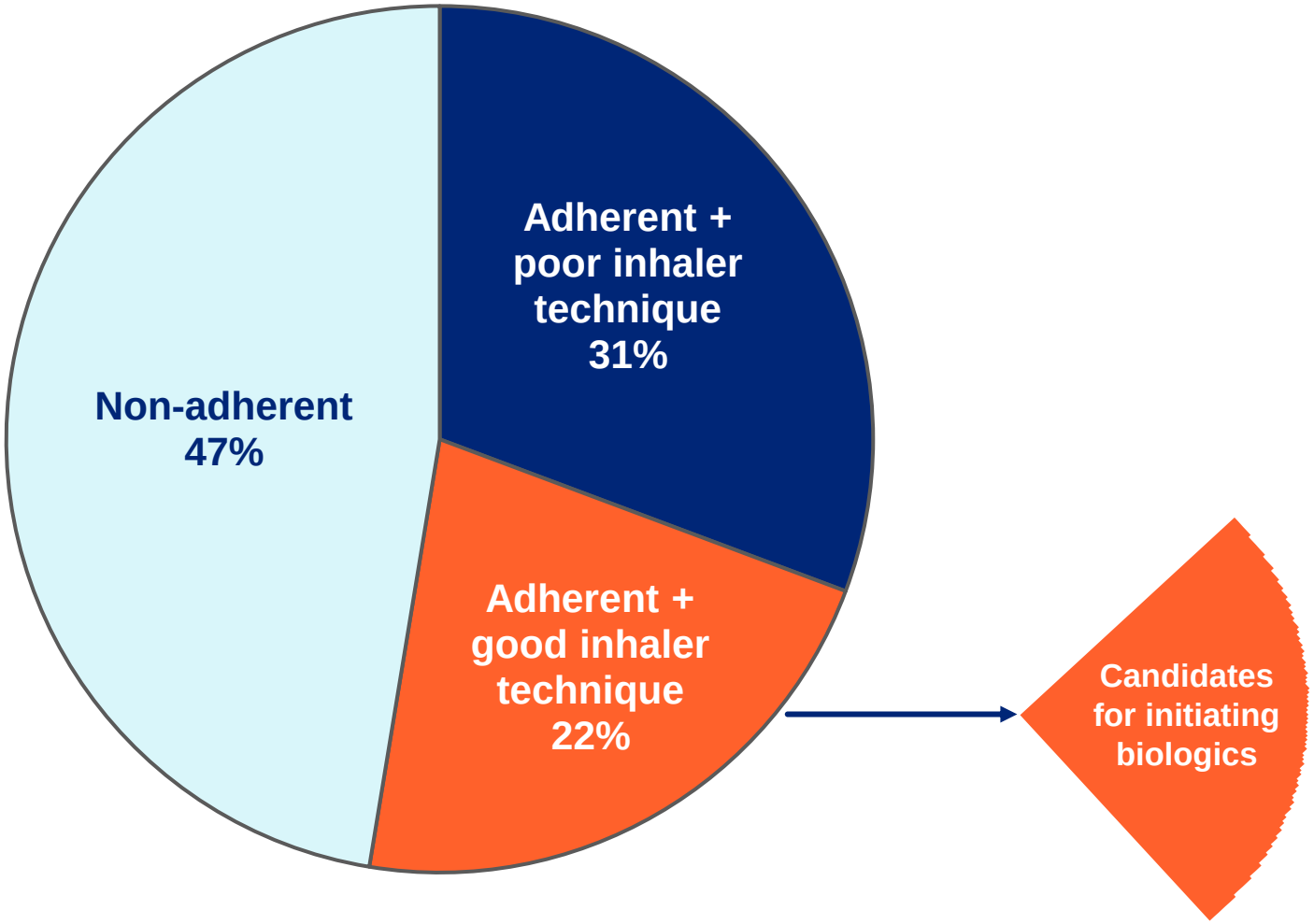
ICS non-adherence and/or poor inhaler technique is common in poorly controlled asthmatics



Biologic therapy for asthma should not be prescribed to patients with high OCS use without thorough verification that inhaled ICS therapy is being used in an adequate and appropriate manner!

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Dupilumab for COPD – cost effective analysis

severe events not separately reported in the results/discussion of the study

Source	Parameter	placebo	Dupilumab	ARR	NNT	NNT round-up (a)	Cost of preventing one moderate or severe exacerbation (b)	Plain language summary
BOREAS (c)	N	471	468					Cost to prevent severe exacerbation is significantly higher than cost to prevent moderate exacerbations, i.e., $3M over $286k.
	Total number of moderate or severe events	422	296	0.26	3.80	4	$ 228,634	
	Number of severe events	**37**	**28**	**0.02**	**53.40**	**54**	**$ 3,086,552**	
	Number of moderate events	**385**	**268**	**0.24**	**4.09**	**5**	$ 285,792	
	Treated with systemic corticosteroid medications only, n	130	84	0.10	10.36	11	$ 628,742	
	Rate ratio vs. placebo (95% CI)*		0.631					
	Treated with systemic antibiotics (with or without corticosteroids), n	255	184	0.15	6.75	7	$ 400,109	
	Rate ratio vs. placebo (95% CI)*		0.722					
NOTUS (c)	n	465	470					Cost to prevent severe exacerbation is significantly higher than cost to prevent moderate exacerbations, i.e., $2M over $343k.
	Total number of moderate or severe events	352	263	0.20	5.07	6	$ 342,950	
	Number of severe events	**39**	**26**	**0.03**	**35.02**	**36**	**$ 2,057,702**	
	Number of moderate events	**313**	**237**	**0.17**	**5.92**	**6**	$ 342,950	
	Treated with systemic corticosteroid medications only, no.	107	70	0.08	12.32	13	$ 743,059	
	Rate ratio vs. placebo (95% CI)*		0.59					
	Treated with systemic antibiotics (with corticosteroids),	150	127	0.05	19.10	20	$ 1,143,168	
	Rate ratio vs. placebo (95% CI)*		0.74					
	Treated with systemic antibiotics (without corticosteroids), no.	56	40	0.04	28.31	29	$ 1,657,593	
	Rate ratio vs. placebo (95% CI)*		0.69					

Formulas: Absolute risk reduction = Comparator event rate - Experimental event rate; NNT=1/ARR; *Post-hoc analysis.; (a) NNT is annualized since reported outcomes are annualized and trial duration is 52 wks; (b) Annual drug cost is Dupixent+Triple therapy; (c) Source of information: BOREAS - appendix, Table s5. summary of occurrence of moderate or severe COPD exacerbations and NOTUS - appendix, Table s10. summary of occurrence of moderate or severe COPD exacerbations during the 52-week trial period.

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Site of service and infusion costs

Infliximab site-of-care example

Place of service	Cost per unit	Units	Cost per claim	Claims per year	Annual cost
MD office or home infusion	70	50	3,500	7	24,500
HOPD (average)	111	50	5,500	7	38,850
HOPD (highest cost hospital)	360	50	18,000	7	126,000

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AI/ML Models to support Care Management

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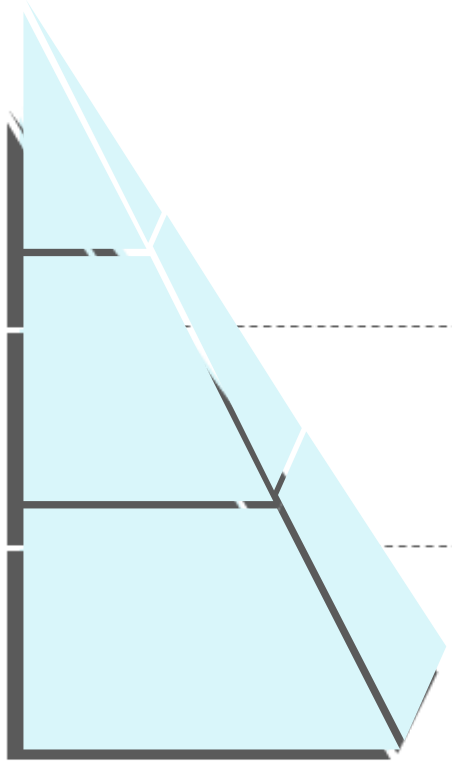
Machine Learning models accurately focus care management



	Optum Care	
High Risk **HCE Level 4 or 5**	• PMPM: $3,200 • Acute IP per K: 900 • OP ED per K: 820 • Deceased: 25%	**6%**
Moderate Risk **HCE Level 3**	• PMPM: $1,100 • Acute IP per K: 340 • OP ED per K: 380 • Deceased: 8%	**11%**
Lowest Risk **HCE Level 1 or 2**	• PMPM: $480 • Acute IP per K: 135 • OP ED per K: 220 • Deceased: 3%	**83%**

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Monthly Distribution

Patient Level Detail sent to each CDO for all patients with current enrollment

Standard Monthly Delivery

Machine Learning Predictive Models

- Acute IP
- Future Cost
- Mortality
- Frailty
- Fall Risk

Chronic Disease Severity / Staging models

- Heart Failure
- COPD
- Diabetes
- CKD

Standard Monthly Delivery (cont.)

Supplemental Data

- Behavioral Health Categories
- Chronic Pain and / or Chronic Opioid
- Area Deprivation and SDoH indicators

Pharmacy Categories

- Opioid use
- High Risk drug use
- Polypharmacy

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Use of analytics to drive Optimal Care

All data transparently shared

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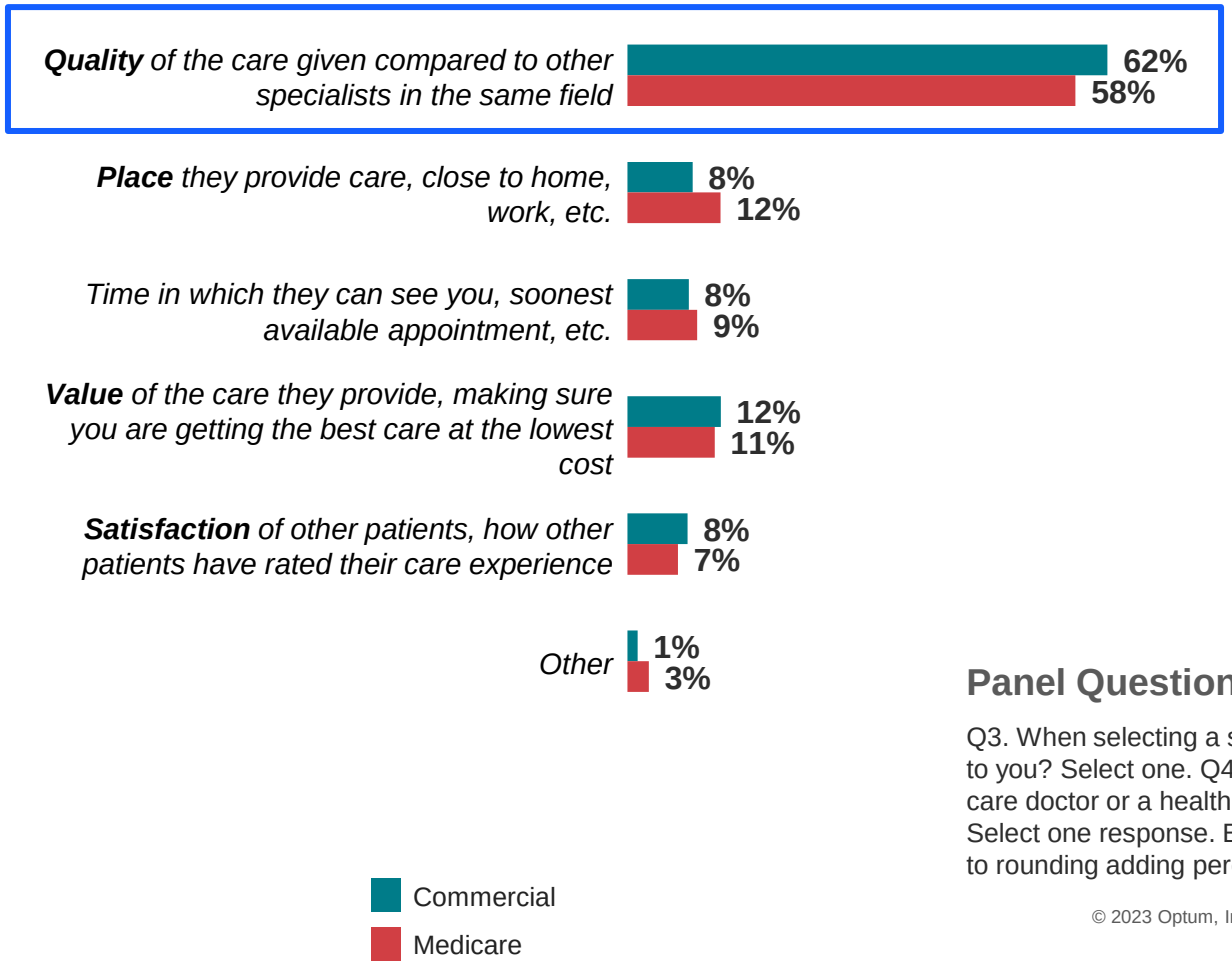
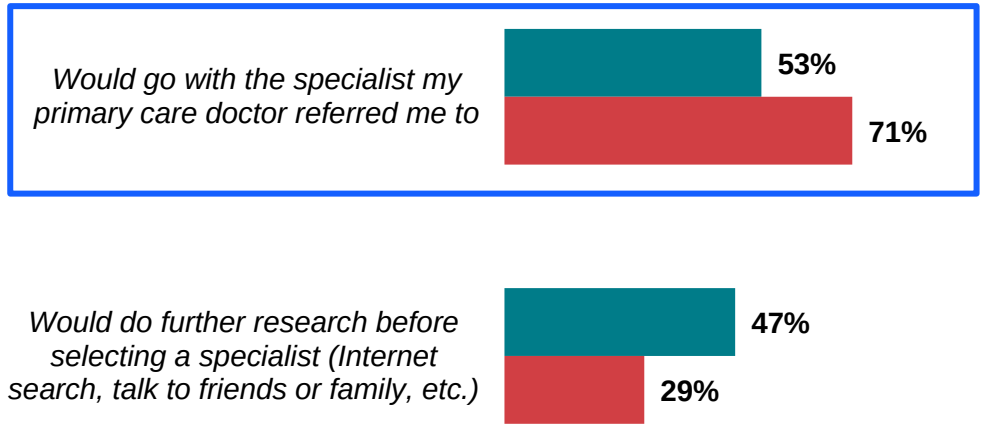
Patient Panel Results – Metric Driven Approach to Selecting Specialist

1,000 Patient Responses – Commercial and Medicare

Most Important Factor When Selecting A Specialist



Next Action Taken After Receiving Referral From PCP



Panel Question

Q3. When selecting a specialist, which of the following factors is most important to you? Select one. Q4. If you received a specialist referral from your primary care doctor or a health care professional, what action would you take next? Select one response. Base: Commercial (n=603), Medicare (n=397). Note: Due to rounding adding percentages may not total 100.

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National Specialist Tiering - Optimal Care Specialist VBC Metrics

Cardiology

- Clean Cath Rate
- Caths Relative to Patients
- Nuclear Stress Tests Relative to Patients
- Echocardiograms Relative to Patients
- AFIB Ablations Relative to Patients
- CHF Admissions Relative to CHF Patients
- Complications Following Cardiac Cath
- CCTA Rate

Ortho Spine

- Site of Service
- Lumbar fusion rate
- Spine surgery complication rate
- ESI utilization
- Patients operated on within 6 months of 1st visit
- SNF utilization
- Continued back pain post surgery
- Rate of revision surgery

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Cardiology VBC report – Metrics for VBC distribution

Panel Size Current	Afib Abl to Pnts Per K	Caths to Pnts Per K	Echos to Pnts Per K	Ischemia to Pnts Per K	CCTA %	CHF Admt %	Clean Cath %	Comps after Card Cath %
326,509	8.3	26.2	483.2	225.1	8.6%	23.8%	60.9%	3.6%
74,782	5.5	27.0	466.8	232.0	6.1%	22.6%	62.8%	2.7%
60,799	8.7	28.2	497.0	231.0	9.3%	27.0%	59.1%	3.1%
28,348	9.1	30.8	575.2	333.1	6.0%	31.9%	62.3%	3.1%
27,527	12.1	28.2	505.2	227.7	8.2%	23.0%	63.2%	5.1%
27,360	5.2	21.2	523.8	221.4	7.8%	23.2%	63.9%	3.5%
22,494	10.9	32.3	508.6	237.8	11.9%	18.1%	56.9%	4.3%
10,829	7.4	25.9	378.1	150.2	7.4%	26.9%	60.9%	5.4%
10,426	5.3	23.4	482.3	212.1	5.8%	16.7%	65.5%	2.8%
10,365	5.2	21.9	370.2	183.9	19.6%	11.4%	66.4%	3.4%
9,054	15.0	31.3	465.3	187.2	14.0%	25.9%	58.5%	4.3%
7,986	18.5	34.4	469.9	167.8	9.0%	12.4%	51.6%	4.2%
7,443	5.5	8.6	273.7	120.5	11.3%	23.0%	51.2%	10.3%
5,927	5.4	17.4	499.4	259.5	8.6%	33.5%	60.6%	3.9%
5,060	15.6	23.7	457.4	154.2	23.2%	14.2%	46.6%	6.6%
4,593	8.9	17.0	419.4	147.0	9.8%	31.1%	61.2%	9.3%

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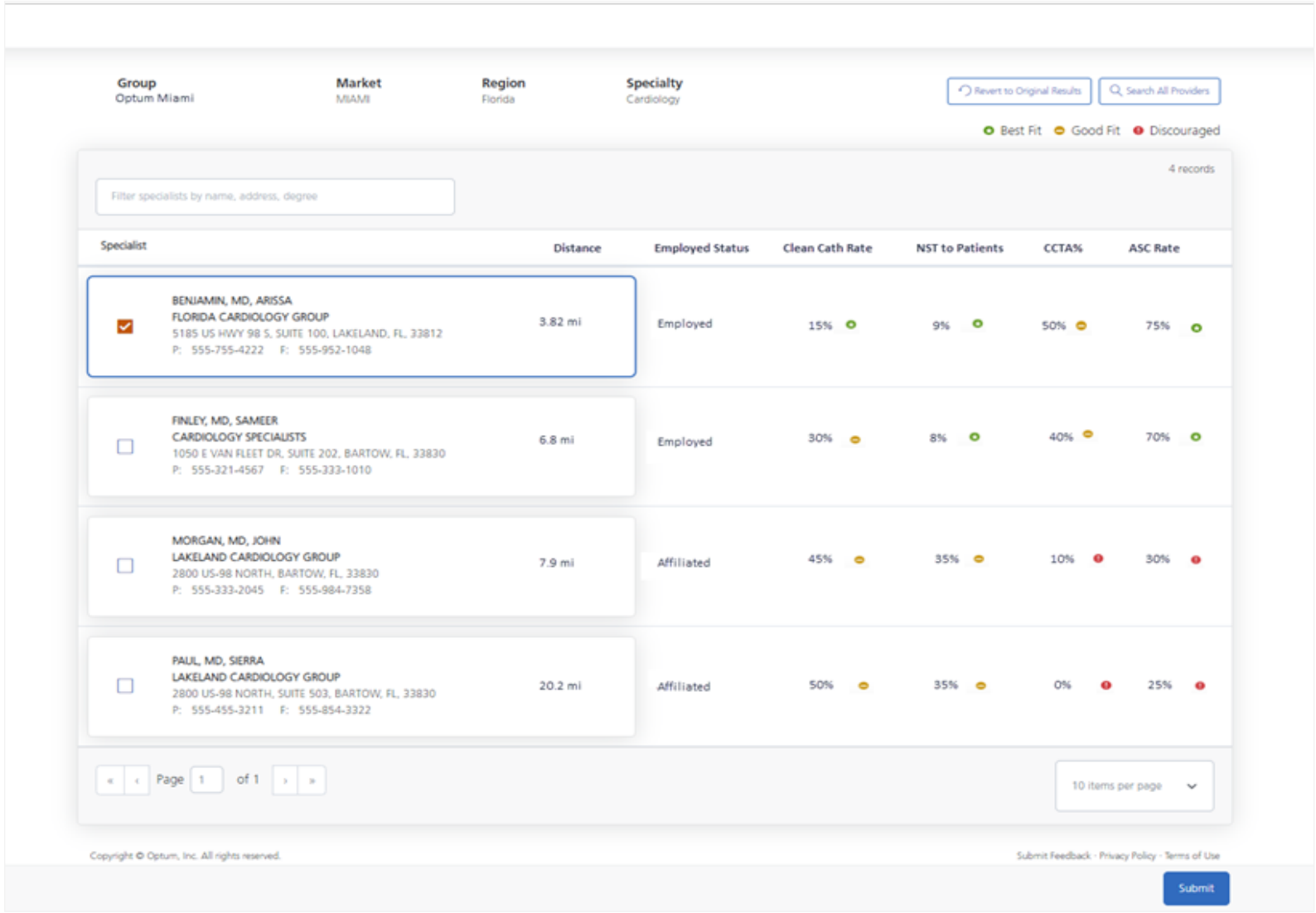
EHR referral management



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Orthopedic spine surgery: VBC quality and efficiency

Panel_Size	ESIs to Patients Per K	Repeat ESIs	Decompression Same Day Fusion	% Spine Procedures in ASC *	Eval to Surg. time less than 6 months	Spine Surg. discharged to SNF	One-Year Revision Rate	Two-Year Revision Rate	Complications after spine surgeries
47,209	188.0	30.8%	32.4%	41.2%	29.1%	10.9%	8.7%	4.7%	18.9%
911	237.6	34.1%	16.7%	11.9%	43.4%	10.5%	10.1%	2.9%	33.0%
9,239	131.0	31.2%	52.4%	64.5%	34.2%	12.9%	7.5%	4.8%	32.0%
1,220	124.3	35.4%	4.8%	7.8%	34.8%	8.9%	6.9%	3.7%	32.9%
4,840	164.5	37.9%	57.3%	54.4%	19.6%	18.5%	8.1%	4.9%	29.2%
5,812	132.3	52.5%	40.5%	66.7%	30.3%	11.3%	8.1%	3.6%	26.3%
3,997	291.9	37.6%	36.8%	44.4%	35.5%	8.3%	11.3%	4.4%	16.0%
1,958	261.4	23.1%	43.3%	44.8%	30.9%	10.2%	11.5%	5.7%	13.2%
2,346	174.8	17.8%	25.8%	51.0%	27.6%	11.9%	4.7%	1.9%	18.7%
154	298.1	13.2%	50.0%			12.5%			8.1%
1,263	198.8	14.6%	20.7%	35.2%		13.5%			19.3%
387	191.7	28.0%	7.1%	15.0%	50.0%	5.3%	4.4%	8.5%	20.0%
1,042	156.1	22.0%	9.5%	59.0%	36.5%	1.9%	6.9%		10.0%

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Funding of VBC incentive pool – Spine surgery example

- 20% reduction in HOPD utilization - $12k per case
- 60% reduction in ESI use - $500 per case
- 15% reduction in lumbar fusion rate - $20k per case
- 5% reduction in two-year repeat surgery rate - $36k per case
- 5% reduction in surgery complication/infection rate - $8k per case

- Spine surgery group currently performs 200 surgeries/year
- VBC pool contribution = $1,720,000

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Study Question 1

Is care under full risk Medicare Advantage associated with improved quality and health resource utilization compared to FFS Medicare Advantage when provided by the same physicians and physician groups?

Cohen KR, Vabson B, Podulka J, et al. Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. *JAMA Netw Open*. 2025;8(1):e2456074. Published 2025 Jan 2. doi:10.1001/jamanetworkopen.2024.56074

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Fee for service
=
Volume and fragmented

Value-based care
=
Quality-focused and coordinated

MA patients in full risk models had better outcomes in 18 of 20 measures, examples include:

Up to

22%

less likely to be admitted to the hospital for chronic conditions.

15%

less likely to use high-risk medications incorrectly

13%

less likely to be readmitted to a hospital within 30 days of previous discharge

8.7%

less likely to be admitted to the hospital overall

8.7%

less likely to visit hospital emergency departments

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Cohen KR, Vabson B, Podulka J, et al. Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. *JAMA Netw Open*. 2025;8(1):e2456074. Published 2025 Jan 2. doi:10.1001/jamanetworkopen.2024.56074

Study Question 2

Is care under full risk Medicare Advantage associated with better quality and health resource utilization compared to Traditional Medicare when provided by the same physicians and physician groups?

Cohen, KR, Vabson, B, et. al, Health Outcomes in Full Risk Medicare Advantage versus Traditional Medicare, AJMC in press

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In **16 of 20** measures, care provided in full risk MA was superior to that in Traditional Medicare when provided by the same physicians and physician groups.

Patients were:

20%

less likely to be admitted to the hospital overall

32-54%

Less likely to be admitted to hospital for their chronic conditions like heart failure, COPD, UTI, and bacterial pneumonia

11%

less likely to use emergency departments

38.8%

less likely to be readmitted to a hospital within 30 days of previous discharge

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Study Question 3

Does the higher care quality and efficiency provided in full-risk MA “spillover” to the FFS Medicare population?

Cohen, KR, Vabson, B, et. al, Potential spillover effects on Traditional Medicare when physicians bear Medicare Advantage risk, AJMC published online Feb 23, 2025

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In **22 of 26** measures, traditional Medicare beneficiaries cared for by physicians with risk experience saw better outcomes than the comparison group.

82%

More likely to have annual wellness visits with their physicians.

9-18%

Less likely to be admitted to hospital for their chronic conditions like heart failure, COPD, UTI, and bacterial pneumonia

Up to

21%

less likely to use emergency departments

9-13%

More likely to be adherent to their medications for hypertension, diabetes and high-cholesterol

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Thank you

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