What Has Been Measured, and What Has Not

Companion to The Standard, Article 21. The evidence behind each claim, separated by what was actually measured. Accuracy is not an outcome. Efficiency is not a cost reduction. Use this to test a vendor claim against the category of evidence supporting it.

1. Randomized evidence of improved patient outcomes

Three applications clear this bar. Each one changes what happens next in the pathway.

APPLICATION	WHAT WAS TESTED	WHAT WAS FOUND
Autonomous retinopathy screening	ACCESS randomized trial, 164 youth with diabetes. 47 percent Medicaid, 35 percent non-Hispanic Black.	Eye examination completion 100 percent against 22 percent. Follow-through to an eye care provider 64 percent against 22 percent. Mechanism: the referral handoff was removed.
Nursing documentation deterioration model	CONCERN cluster randomized trial.	In-hospital mortality hazard ratio 0.64. Length of stay reduced. But unanticipated transfers to intensive care rose 25 percent. Report both.
Genotype-guided dosing	GIFT and PREPARE randomized trials.	Composite of bleeding and clotting events reduced from 14.7 percent to 10.8 percent. Note that this is pharmacogenomics, not artificial intelligence.

2. Accuracy or efficiency evidence only

Each of these works as described. None has been shown to change a patient outcome.

APPLICATION	WHAT WAS MEASURED	WHAT IS MISSING
Clinical decision support	122 randomized trials, 1,203,053 patients. Process of care improved 5.8 percentage points.	Clinical endpoints improved a median of 0.3 percent. A separate review of more than 37,000 patients found no mortality effect.
Medication alerting	Override rate 73.3 percent, of which about 60 percent of overrides were clinically appropriate.	Renal-based substitution alerts are overridden inappropriately 97.8 percent of the time. The alert that most needs attention is the one most often dismissed in error.
Mammography reading support	Randomized trial, 105,934 women. Sensitivity 80.5 percent against 73.8. Reading workload reduced 44 percent.	Interval cancer proportion ratio 0.88, p equals 0.41. Non-inferior, not a significant reduction. No mortality endpoint. The reported 12 percent reduction was not statistically significant.
Colonoscopy detection support	21 randomized trials. Adenoma detection 44.0 percent against 35.9.	Advanced neoplasia 34.8 percent against 34.6 in a 3,213-patient trial. No difference. More non-neoplastic polyps removed per procedure.

APPLICATION	WHAT WAS MEASURED	WHAT IS MISSING
Ambient documentation	Multisite study. 16 fewer minutes per day on documentation, 13 fewer minutes of total record time, 0.5 additional visits per week, 167 dollars per clinician per month.	After-hours record time unchanged. No study measuring effect on clinical quality or patient outcomes exists. This is the most adopted clinical application in American healthcare.
Proprietary sepsis prediction	Vendor-reported area under the curve 0.76 to 0.83.	External validation found 0.63. At the recommended threshold, sensitivity 33 percent. Missed 67 percent of sepsis patients while alerting on 18 percent of all hospitalizations. Deployed widely before independent validation.

3. The imaging cascade, in measured dollars and events

Detection generates workup. These are the measured downstream consequences. Budget them alongside the license fee.

WHAT WAS STUDIED	THE INDEX EVENT	WHAT FOLLOWED
Low-value imaging for uncomplicated low back pain	Commercial population. Index magnetic resonance study averaged 952 dollars.	Twelve-month cascade spending averaged 4,391 dollars per patient, about four and a half times the scan. Injections 8.9 percent against 0.6. Surgery 9.1 percent against 3.6.
Kidney imaging and nephrectomy, Medicare 2010 to 2014	Imaging an additional 1,000 beneficiaries.	About four additional kidney removals, extrapolating to roughly 25,000. Mortality 2.1 percent at 30 days, 4.3 percent at 90. Benign masses surgically removed rose about 82 percent across a decade while kidney cancer mortality stayed flat.
Lung cancer screening in real practice	9,266 patients screened across five United States health systems.	31.9 percent received downstream imaging. 2.8 percent underwent an invasive procedure. Complications 30.6 percent against 17.7 in the original trial. Major complications 20.6 percent against 9.4. Roughly double, on both measures.
Opportunistic coronary calcium notification	Randomized trial. Flagging calcium found incidentally on prior chest imaging.	Statin initiation at six months 51.2 percent against 6.9. Downstream cardiac testing 15.1 percent against 2.3, a more than sixfold increase. Investigators state that whether events are reduced remains unknown.
Follow-up navigation program	Health system artificial intelligence program to close imaging follow-up gaps.	Recommendations 95.7 percent against 75.4. Completion 50.7 percent against 29.6. Volume rose from about 6,000 to about 19,000 examinations a year. Share of followed findings that were clinically significant: 35.3 percent against 33.3. Unchanged. The program's own description states the added imaging covers its staffing cost.

4. What each payment architecture rewards

The technology is nearly identical across lines of business. The incentive is not.

LINE OF BUSINESS	WHAT IT REWARDS	WHO BEARS THE COST	WHO CAPTURES THE SAVING
Medicare fee for service	Volume and documented intensity. Price is administered and cannot be raised.	Trust funds and Part B enrollees.	The provider, until the next repricing. Then Medicare, through the 2.5 percent efficiency adjustment finalized for 2026.
Medicare Advantage	Diagnosis capture. Projected 2026 gap of about 76 billion dollars, roughly 22 billion of it residual coding intensity. 99.3 percent of chart reviews add diagnoses.	Trust funds and all Part B enrollees.	The plan, narrowing. The 2027 rate announcement excludes unlinked chart review diagnoses and all eligible contracts are now audited.
ACA marketplace	Out-coding rivals inside the same state and market. Transfers are budget neutral, so the contest is zero-sum.	Enrollees, through premiums and deductibles.	Only the issuer that out-codes its neighbors, and only until they match it.
Self-funded commercial	Provider revenue capture against the sponsor's claims spend. 71 percent of covered workers are in these plans.	The plan sponsor and the employee.	The provider. The administrator is largely indifferent.
Medicaid	Disenrollment, under statutory contraction of roughly 911 billion dollars across 2025 to 2034.	Enrollees and providers absorbing uncompensated care.	The federal government, then states.

How to use this

Ask which column a vendor claim belongs in before asking how large the effect is. A claim supported only by column two evidence should be priced as an efficiency purchase, not a cost reduction, and should carry the cascade estimate from column three next to it.

Two cautions on the literature itself. Of 1,879 radiology artificial intelligence studies published between 2010 and 2024, roughly one percent quantified any economic outcome. And there is no peer-reviewed causal estimate, in any line of business, of artificial intelligence's net effect on health spending.

SOURCES

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Cascade evidence: Ganguli and colleagues, Journal of General Internal Medicine, 2023. Davenport, American Journal of Roentgenology, 2023. Rendle and colleagues, Annals of Internal Medicine, 2024. Sandhu and colleagues, Circulation, 2022, the NOTIFY-1 trial. Zaki-Metias and colleagues, Journal of Digital Imaging, 2023. Molwitz and colleagues, Radiology: Artificial Intelligence, 2025.

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