Case Study: Sanford Health's AI-Powered Colorectal Cancer Screening Infrastructure

Sanford Health Increases Access to CRC Screening Through "Human-in-the-Loop" AI

Aligning screening modality with patient risk mitigates rural gastroenterology workforce shortage

Case Study Snapshot

SANFORD HEALTH

Footprint: Headquartered in Sioux Falls, SD; 58 hospitals and 250+ outpatient facilities across the upper Midwest

Timeframe: 2023-Present

Challenge: Below-target colorectal cancer (CRC) screening rates due to barriers including limited gastroenterologist (GI) capacity to perform colonoscopies and primary care (PC) teams' unfamiliarity with stool-based tests (SBTs). 2023 data showed that monthly colonoscopy rates (3,000 per month) would need to be more than doubled to reach programmatic goals of 8,000 per month.

Solution: Centralized, enterprise-wide CRC outreach and screening infrastructure that triages screening modality (colonoscopy vs. SBT) and associated outreach by patient risk. An AI-powered tool embedded in the electronic medical record (EMR) stratifies patient risk according to 85 nontraditional risk factors (e.g., employment status, psychiatric conditions).

Key Stakeholders:

- Chief Medical Officer
- GI Service Line
- PC Service Line
- Sanford Enterprise Data & Analytics (EDA)
- Quality
- Population Health
- Marketing/Communications
- Clinical Informatics Ops
- External Screening Kit Vendors (Cologuard, Exact Sciences/Abbott, Polymedco)

Challenges Addressed

Keeping Care Close to Home

Reduces typical rural barriers to CRC screening via colonoscopy (e.g., travel time, inability to take time off work) for average-risk patients while maintaining their access to preventive care via SBT kits

Addressing SDOH in Rural-Specific Contexts

Incorporates tools and practices developed by Sanford and screening kit partners that mitigate SDOH barriers to CRC screening, including transportation and economic status (e.g., financial assistance policies specifically for colonoscopy)

Key Outcomes *(as of 2025)*

74% enterprise CRC screening rate by the end of 2025, an increase from **69%** in 2023 pre-campaign

11k+ stool-based test kits returned, out of 50k+ test kits mailed to average-risk patients who were overdue for screening

734 patients had precancerous polyps removed through the initial screening campaign

> *"If all you offer is colonoscopy, you can expect to screen at most 60% of your patient population because **many patients face barriers to equitable care**—they can't take time off from work or don't have childcare or don't have transportation after anesthesia."*
>
> *– Jennifer Weiss, Senior Quality Strategist, Sanford Health*

CRC: Colorectal Cancer; AI: Augmented Intelligence/Artificial Intelligence; EMR: Electronic MedicalRecord; SDOH: Social Drivers of Health; EDA: Sanford Enterprise Data & Analytics Team; SBT: Stool-Based Testing; GI: Gastroenterologist; PC: Primary Care

Sources: [1] THMA research and analysis. [2] American Hospital Association, 2026,"Economic impact of disparities in health outcomes resource guide."

Idea to Action: Operationalizing an Enterprise-Wide CRC Screening Infrastructure

Key Milestones

Pre-Campaign Launch *(1-1.5 years)*

- Established system-wide Steering Committee with operational, clinical, and administrative leadership representation
- Initiated enterprise-wide communication and socialization campaign
- Developed methodology for AI-powered CRC risk score beyond traditional risk factors
- Continuously refined CRC risk score methodology with feedback from clinical leaders before deployment

Initial Launch *(2 years)*

- Deployed AI-powered CRC risk score at the enterprise level with ongoing refinement based on PC feedback
- Mailed letters and SBT kits to average-risk patients in batches that were never screened, overdue for screening, and/or on the colonoscopy wait list
- Developed a dashboard tracking key process metrics, e.g., return rates, positivity rates
- Manually tracked key clinical outcome data, e.g., precancerous polyps, number of cancer diagnoses

Scaling & Sustainment *(Ongoing)*

- Continue mailing campaign in waves on an annual basis, with bulk of outreach from March to June and a campaign in the Fall
- Automate previously resource-intensive, manual functions to facilitate scalability and incorporate expanded patient populations

Key Facilitators of Success

Pre-Campaign Launch

- ✓ Data-driven case for change
- ✓ GI-led PC education
- ✓ CMO-led socialization & buy-in campaign
- ✓ External partner support

Initial Launch

- ✓ Data-driven & transparent PC engagement
- ✓ Steering Committee representation
- ✓ Centralized workflows and staffing
- ✓ Opt-out distribution model
- ✓ SDOH burden mitigation

Scaling & Sustainment

- ✓ Continuous EDA collaboration
- ✓ Outreach aligned with GI capacity
- ✓ Payer collaboration

GI: Gastroenterologists; PC: Primary Care; CMO: Chief Medical Officer; CRC : Colorectal Cancer; AI: Artificial Intelligence/Augmented Intelligence; SBT: Stool-Based Testing; SDOH: Social Drivers of Health ; EDA: Sanford Enterprise Data & Analytics Team

Sources: [1] THMA research and analysis.

Key Facilitators of Success Underlie Increase in CRC Screening Rates

1 *To build a strong foundation and garner buy-in from physician leaders prior to launch:*	2 *To sustain key stakeholders' trust and strengthen proof-of-concept:*	3 *To disseminate lessons learned and ensure continuous quality improvement:*

Pre-Campaign Launch

- **Data-Driven Case for Change:** Anchor the "why" in priorities familiar to key stakeholders, defining how the status quo approach is untenable with gap closure of enterprise population health goals
- **CMO-Led Socialization & Buy-In Campaign:** Continuous, direct communication from senior executive explains the "why" behind novel population health model; project team initiates feedback loop to build confidence in validity of AI-powered CRC risk score, tapping into existing governance bodies (e.g., service line physician councils)
- **GI-Led PC Education:** Address lack of PC familiarity with SBT screening modality through GI-led "Grand Rounds" with PC clinics, building trust and enhancing best practices adherence
- **External Partner Support:** Consult screening kit partners who have experience with similar deployments to learn from other organizations, access existing resources, and ultimately reduce ramp-up time (e.g., workflows or templates, risk score filters)

Initial Launch

- **Steering Committee Representation:** Ensure diverse expertise from administrative and physician leaders on the Committee to inform post-launch decision points, especially when new scenarios arise
- **Data-Driven & Transparent PC Engagement:** Sustain trust using dashboard and clinical outcomes data; vet decision-making around workflow changes in PCPs' on-the-ground knowledge & patient interactions
- **Centralized Workflows & Staffing:** Centralized model reduces variation and ensures scalable compliance when compared to a clinic-by-clinic approach; dedicated staff develop program-specific expertise
- **Opt-Out Distribution Model:** Rather than asking patients to opt in, project team sends communications and kits to eligible patients unless they specifically opt out, increasing return rates.
- **SDOH Burden Mitigation:** Address transportation or financial barriers by leveraging health system (e.g., referral distance calculator tool schedules colonoscopies based on patient distance and choice) and screening kit partner resources (e.g., Exact Sciences/Abbott partnership with UPS to pick up completed SBT kits)

Scaling & Sustainment

- **Continuous Sanford EDA Collaboration:** Once proof-of-concept is in place, facilitate scaling by automating previously manual or resource-intensive processes (e.g., tracking clinical outcomes) and applying project logic to expanded patient populations.
- **Outreach Aligned with GI Capacity:** Ongoing partnership with local GI teams to safeguard program sustainability; SBT outreach volumes are determined relative to GI teams' maximum capacity to conduct follow-up colonoscopies
- **Payer Collaboration:** Demonstrate value by applying proof-of-concept to payers' member rolls, increasing resource efficiency for payers and reducing patient confusion over duplicative outreach for SBT screening

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Sources: [1] THMA research and analysis.

Sanford Health's Enterprise-Wide CRC Screening Program: Lessons Learned for Health Systems

1

For rural systems operating in workforce shortage areas, human-in-the-loop AI risk stratification approaches can help redirect existing capacity and increase access to services for those who need it most.

- Rather than replacing or adding additional clinicians, Sanford deployed a human-in-the-loop AI model that augments provider expertise with over 85 non-traditional risk factors while embedding clinical oversight at every critical decision point.
- Triaging screening modalities by patient risk allowed Sanford to cull many average-risk patients from the long colonoscopy waiting list during the initial launch, reducing wait times by over 2 months and increasing access for high-risk patients.

2

Rural enterprise population health initiatives should strive to protect the trusted relationships between PCPs and their patients in designing project workflows.

- Relying on PCPs' on-the-ground knowledge to integrate project processes into existing clinical workflows ensured that the project would not unintentionally burden patients. For example, a decision to include nursing home patients in the patient population was reversed once PCPs shared that they visited monthly and could have a conversation about screening at the point of care.
- The project leverages PCPs' trusted relationships to follow up and close the loop with average-risk patients after 3 instances of unanswered outreach.

What's Next?

- Launch a collaborative, resource-based partnership model between Sanford, Tribal Nations, and a screening kit partner to address persistent CRC disparities among Tribal and Alaska Native populations
- Apply project logic to ensure screening for patients whose SBT kits are ordered in the clinic setting
- Plan to partner with newly acquired markets to ensure that screening infrastructure is scaled to Sanford's full footprint in the future

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Sources: [1] THMA research and analysis. [2] South Dakota Department of Health, 2024. "Sanford Health invests in colorectal cancer screening infrastructure to improve access."