

# Benefits Achieved by the Epic Community

Healthcare organizations in the Epic community have used our software to achieve significant benefits in patient safety and clinical outcomes, population health management, operational efficiency and patient flow, cost savings, and revenue cycle performance.

As part of our implementation methodology, the Epic team helps you identify key areas of initial savings, align key performance indicators to monitor your progress, and supply dashboards and reports for your KPIs. After the install, your Epic team will supply ongoing support to continually optimize and add new programs to improve your organization's performance.

Examples of benefits reported by the Epic community are provided below.

## Improved clinical outcomes

### Adverse drug events (ADEs) & medication administration error reductions

- **\$7.2 million in savings from reduced medication errors** over five years based on a conservative estimate of \$2,505 per ADE with an increase in LOS of 2.2 days (University of Iowa Hospitals and Clinics, Iowa City, IA).<sup>1</sup>
- **88,500 potential medication administration errors avoided** due to BCMA alerts (\$2.9 million in savings) (Sentara Healthcare, Norfolk, VA).<sup>2</sup>
- **16% of allergy-related prescribing alerts in Epic resulted in a change in prescription**, avoiding at least **850 significant reactions each year**, saving at least **2,450 bed days** and **£0.98 million (\$1.2 million) annually** in adverse drug events after going live with Epic (Cambridge University Hospitals NHS Foundation Trust, UK).<sup>3</sup>

### Reduction in length of stay

- **24-hour decrease in average length of stay and a 3-hour decrease in discharge-order-to-discharge time** by using Epic Monitor at the bedside (WakeMed Health and Hospitals, Raleigh, NC).<sup>4</sup>
- **1.39-day decrease in length of stay and 194-minute decrease in ED bed planning turnaround time** after creating a centralized bed planning role (Corewell Health West, Grand Rapids, MI).<sup>5</sup>

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<sup>1</sup> HIMSS Davies Enterprise Award summary.

<sup>2</sup> HIMSS Davies Enterprise Award summary.

<sup>3</sup> Dr. Afzal Chaudhry, former CIO, Cambridge University Hospitals NHS.

<sup>4</sup> Chad Sickie, BSN, RN, "Epic Monitor," presented at Epic's 2023 Expert Group Meetings.

<sup>5</sup> Sue Proctor, MBA, BSN, NE-BC, Aaron Ziegler, MD, and Beth Makowski, MD, "No Discharge Is an Island," presented at Epic's 2023 Users Group Meeting.

- **5% reduction in length of stay**, resulting in an annual savings of **€1.8 million (\$1.9 million)**—now, at 4.3 days' average length of stay, they are the lowest of all the top clinical hospitals in the Netherlands (OLVG, Netherlands).<sup>6</sup>

## Reduction in duplicate procedures

- **46% decrease in inappropriate gastrointestinal testing** by implementing clinical decision support tools in the Epic EHR, which translates to a **potential savings of \$168,000** in unnecessary test costs (Nebraska Medicine, Omaha, NE).<sup>7</sup>
- **40% reduction in duplicate tests** by showing clinicians laboratory results when new tests are being ordered, so clinicians can more easily evaluate whether the test they are ordering is necessary (Yale New Haven Health System, New Haven, CT).<sup>8</sup>
- **560 duplicate diagnostic procedures avoided** within six months using Care Everywhere in just 1.46% of ED encounters (Allina Health System, Minneapolis, MN).<sup>9</sup>

## Improved quality measures

### Catheter associated urinary tract infections (CAUTI)

- **51.7% reduction in PICU CAUTI**, from 7 per 1000 days in 2010 to 3.38 in 2012 and **8.6% reduction in adult CAUTI** (3.71 per 1000 days in 2010 to 3.39 in 2012) led to **saving \$4000/infection** and a **2.3% mortality reduction/ prevented infection** (UC Davis Health, Sacramento, CA)<sup>10</sup>
- **64% reduction in CAUTI rate** after using Epic to replace urethral catheter insertion orders with SmartGroup panels that link placement and discontinuation orders and using documentation flowsheets to record nurses' catheter evaluations (Providence St. Joseph Health, Renton, WA).<sup>11</sup>
- **Reduced hospital-acquired infection rates by more than half** in less than two years using Epic to identify and intervene when patients are at higher risk of infection. From 2016 to 2018, infection rates **decreased by 65% for CAUTI** (Piedmont, Atlanta, GA).<sup>12</sup>

<sup>6</sup> SLAZ Business Case and Ernst & Young Logistieke Barometer Gezondheidszorg.

<sup>7</sup> Jackie Drees, "EHR programming reduced unnecessary GI testing by 46%, study finds," Becker's Health IT & CIO Report, April 2019.

<sup>8</sup> "Clinical Redesign Team Reduces Duplicate Lab Testing in ED." The Bulletin, December 10, 2015.

<sup>9</sup> "Allina Health study shows health information sharing between health systems reduces diagnostic tests and procedures," Allina Health, [http://ww5.allinahealth.org/ahs/news.nsf/newspage/Care\\_Everywhere\\_study](http://ww5.allinahealth.org/ahs/news.nsf/newspage/Care_Everywhere_study).

<sup>10</sup> HIMSS Davies Enterprise Award summary.

<sup>11</sup> "Reducing Catheter-Associated UTIs (CAUTI)," Epic Clinical Program, 2012.

<sup>12</sup> Julie Champion and Aimee Savage, "The Legend of the Patient Safety Check," presented at Epic's 2019 Expert Group Meetings.

## Central line associated bloodstream infection (CLABSI)

- **73.9% reduction in PICU CLABSI** (from 8.44 per 1,000 days to 2.20) and **44.4% reduction in adult ICU CLABSI rate** (from 3.04 per 1,000 days to 1.69) led to saving **\$21,400/infection** and a **12% mortality reduction/prevented infection** (UC Davis Health)<sup>13</sup>
- **85% reduction in CLABSI rate** after moving from a paper to an electronic checklist in their ICU (Mount Sinai Health System, New York, NY).<sup>14</sup>

## Sepsis

- **32% reduction in order-to-antibiotic turnaround time and a 16% reduction in sepsis mortality index—saving 30 lives in one year—**after implementing the Early Detection of Sepsis cognitive computing model in Epic. These efforts have also improved the bottom line: **CMS bundle compliance for sepsis increased by 48%** (Saint Luke's Health System, Kansas City, MO).<sup>15</sup>

## Falls

- **More than \$1 million in savings** due to a **34% reduction in fall rate** (Texas Health Resources, Arlington, TX).<sup>16</sup>
- **11.6% reduction in fall rate and 24% drop in falls with injury** (Corewell Health, Grand Rapids, MI).<sup>17</sup>

## Ventilator associated pneumonia (VAP)

- **82% reduction in PICU VAP** (8.79 per 1,000 days to 1.58) and **4.1% reduction in adult VAP** (8.34 per 1,000 days to 8.0) led to saving **\$23,000/infection** and a **14.4% mortality reduction/prevented infection** (UC Davis Health)<sup>18</sup>
- **2-3 avoidable ventilator-related deaths prevented annually** by routine review of best practice algorithms/reports in Epic for intensive care ventilator tidal volumes (Cambridge University Hospitals NHS Foundation Trust).<sup>19</sup>

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<sup>13</sup> HIMSS Davies Enterprise Award summary.

<sup>14</sup> "Improving ICU Patient Outcomes with an Electronic Daily Goals Checklist," Epic Clinical Program, 2017.

<sup>15</sup> <https://www.epicshare.org/perspectives/streamlining-sepsis-prevention-and-care>.

<sup>16</sup> HIMSS Davies Enterprise Award summary.

<sup>17</sup> HIMSS Davies Enterprise Award 2014 summary.

<sup>18</sup> HIMSS Davies Enterprise Award summary.

<sup>19</sup> Dr. Afzal Chaudhry, Consultant Nephrologist, Chief Clinical Information Officer, and Associate Lecturer, Cambridge University Hospitals NHS.

## Behavioral health

- By introducing virtual visits, moving to centralized scheduling, and overhauling referrals to direct patients to the right service faster, Geisinger saw the following benefits:<sup>20</sup>
  - **Behavioral health referral backlog decreased 84%.**
  - **Behavioral health schedule utilization increased 42%.**
- Expanded depression, anxiety, and substance use screening to all children over 12. Within six months, they **increased psychiatry consults by 132% and connected an additional 35 children at risk of suicide with appropriate support** (MaineHealth, Portland, ME).<sup>21</sup>
- Initiated the Perfect Depression Care program and **reduced suicide deaths by 80%** (Henry Ford Health System, Detroit, MI).<sup>22</sup>
- Community members have also published many Clinical Programs in this area:
  - **Suicide Prevention in Primary Care Settings.** After developing a program for identifying and monitoring patients at risk of suicide, the Institute for Family Health (New York, NY) increased their depression screening rate to nearly 90%—one of the highest in the nation.
  - **Monitor Patients' Mental Health Trends with a PHQ-9 Questionnaire Series.** Using Epic, Kaiser Permanente doubled the number of patients who significantly improved their PHQ-9 score within four months.
  - **Ordering a 90-Day Supply of ADHD Medications More Efficiently.** After developing an order panel allowing providers to “daisy chain” Schedule II medications in a single set, MetroHealth saved their clinicians an estimated 101,849 clicks per year over 11,765 orders—an average of nine fewer clicks each time a physician orders a three-month supply of ADHD medications.
  - **Screening for Postpartum Depression.** Children’s Hospital Colorado (Denver, CO) implemented alerts in Epic that dramatically increased the screening for and subsequent detection and treatment of postpartum depression.
  - **Delirium Prevention.** A collaboration of Aurora Health Care (Downers Grove, IL), Hartford Healthcare (Hartford, CT), MemorialCare (Long Beach, CA), Norton Healthcare (Louisville, KY), Partners HealthCare (Boston, MA), and Stanford Health Care (Palo Alto, CA) worked together to develop a set of best practices for evaluating patients for delirium, intervening when patients are diagnosed, and monitoring outcomes for the patient population overall.
  - **Identifying and Treating Substance Abuse.** Through a combination of decision support advisories, documentation flowsheets, and SmartSets, the Institute for Family Health and the New York City Department of Health and Mental Hygiene reduced healthcare costs, decreased the severity of drug and alcohol use, and lessened the risk of trauma at a soup

<sup>20</sup> <https://www.epicshare.org/share-and-learn/geisinger-behavioral-health>.

<sup>21</sup> <https://www.epicshare.org/share-and-learn/aiming-for-zero-providing-support-to-children-at-risk-of-suicide>.

<sup>22</sup> <http://www.preventsuicidewi.org/zero-suicide-in-wisconsin>.

kitchen for the homeless by implementing SBIRT (Screening, Brief Intervention, and Referral to Treatment).

- **Restraints Management.** The result of a collaboration of 15 Epic organizations, this program outlines a set of best practices for assessing and managing restrained patients.

## Population health management

- Using a MyChart Care Companion hypertension care plan, Baptist Healthcare System (Louisville, KY) saw the following benefits across their patient population:<sup>23</sup>
  - **Lowered systolic blood pressure by 10mmHg.**
  - **Lowered diastolic blood pressure by 3mmHg.**
- Virtua Health used Epic's Cheers – Campaigns features to close gaps in preventive care:<sup>24</sup>
  - They sent a **colon cancer screening campaign to 3,500 patients**. They **closed care gaps for 900 patients** who said they had done their screening elsewhere. **2,000 patients took Cologuard tests; 300 had a positive result.**
  - They sent a **campaign to 10,000 people with diabetes who needed an eye exam**. A few thousand came in for the exam, and **140 people received results indicating diabetic retinopathy.**
- **43% reduction in the 30-day readmission rate over 20 months and a reduction of 54% in emergency room visits** over the same period by using Epic tools as part of a preventable admission program (Mount Sinai).<sup>25</sup>
- Henry Ford Health System put more than 30% of its revenue at risk to take part in a Next Generation ACO. With Epic, they achieved the following results:<sup>26</sup>
  - **Beating their target benchmark of \$249 million by 2%, HFHS realized net shared savings of \$3.9 million**, or \$16.48 per member per month.
  - **Reduced length of stays by about 10%** for the top 5 percent of patients in prospective risk, specialty referrals, and readmissions from skilled nursing facilities.
  - **Reduced hospital admissions by 7%.**
  - **Realized about a 25% reduction in per member per month cost.**

<sup>23</sup> [https://www.paducahsun.com/news/baptist-health-implements-initiative-to-improve-blood-pressure-control-for-patients/article\\_063887ec-3aba-5624-8eea-a626a187513c.html](https://www.paducahsun.com/news/baptist-health-implements-initiative-to-improve-blood-pressure-control-for-patients/article_063887ec-3aba-5624-8eea-a626a187513c.html).

<sup>24</sup> <https://www.epicshare.org/perspectives/closing-care-gaps-with-digital-outreach>.

<sup>25</sup> 2012 HIMSS Davies Enterprise Award application case study.

<sup>26</sup> "How Henry Ford Physician Network made the numbers work in the Next Generation ACO," by Susan Morse. Healthcare Finance. March 2018.

- **12% decrease in hospitalizations** for CCM-enrolled patients. Developed a risk score in Epic to predict a patient's likelihood of visiting the ED or being admitted to the hospital. The top 10% of at-risk patients were referred to their chronic care management program. Doubled the number of patients enrolled in CCM and saw improved clinical quality measures for patients with chronic kidney disease, cardiovascular disease, and diabetes (Hattiesburg Clinic, Hattiesburg, MS).<sup>27</sup>
- **Reduced IP days by 58.6% and ED visits by 32.5%** for kids with medical complexity by using a patient registry and complexity-scoring model that includes both social and medical factors. This resulted in **\$9,184,169 in savings in direct costs per enrolled patient** (Children's Hospital Colorado).<sup>28</sup>
- **8-14% of their population's care gaps are automatically completed with external data**, which improves efficiencies in care management (UNC Health Care, Chapel Hill, NC).<sup>29</sup>
- Care teams **improved completion rates in all 12 of the quality measures**, with the greatest improvements in colorectal cancer screening (Nebraska Medicine). As a result of these improvements:<sup>30</sup>
  - 9,534 patients under or avoided duplicate colon cancer screening.
  - 4,570 patients received or avoided duplicate pneumonia vaccination.
  - 2,900 women underwent or avoided duplicate breast cancer screening.
  - 9,000 000 additional mammograms were completed, 18 women saved from dying of breast cancer.
  - 11,400 additional pneumonia vaccines, 11 cases of pneumonia prevented, 5 cases of invasive pneumococcal disease prevented.
  - 31,200 additional colon cancer screenings documented, 39 lives at less risk from colon cancer deaths.

The five-year estimated ROI for each of these efforts:

- \$27.2M – MACRA
- \$26.5M – Colon Cancer
- \$17.5M – T1 MSSP
- \$17.3M – Employee plans
- \$7.7M – Breast Cancer

<sup>27</sup> "Identifying patients for Chronic Care Management Using Predictive Analytics" Clinical Program.

<sup>28</sup> Children's Hospital Colorado's HIMSS Davies Award case studies are available online at:

<https://www.himss.org/library/childrens-hospital-colorado-davies-enterprise-award>.

<sup>29</sup> Based on Epic query of system data.

<sup>30</sup> HIMSS Davies Enterprise Award 2017 Summary, HIMSS, <https://www.himss.org/library/nebraska-medicine-davies-enterprise-award>

- \$1.1M – Pneumonia
- **\$65 million in additional revenue** through improved capture of their patients' health through scoring indexes. Case Mix Index (CMI) increased by 6.27%. Severity of illness (SOI) increased by 9.5%. **Risk of mortality decreased by 11%. Major complications and co-morbidities increased by 6.7%** (Mercy Health).<sup>31</sup>

## Operational efficiencies

### Operating room wait time reductions

- **Released surgery time for patients an average of 19 days in advance** by using block scheduling in Epic, **up from 14 days** a few months prior (Reid Health, Richmond, IN).<sup>32</sup>
- **Increased primetime utilization by 6%, added 7 cases per room per month, and filled 49% of released blocks with cases** (Bassett Healthcare, Cooperstown, NY).<sup>33</sup>
- **Reduced backlog of unscheduled surgical cases by 22% and achieved OR utilization rates of 75%** by using analytics to allocate OR resources more efficiently (Nemours, Jacksonville, FL).<sup>34</sup>
- **Increased OR admission volumes by 25%** in four years (UC Davis Health).<sup>35</sup>
- **5% increase in OR volume** using Epic's block utilization dashboard and predictive analytics capabilities (The Ohio State University Wexner Medical Center, Columbus, OH).<sup>36</sup>
- **Increase of 10% efficiency** in the ORs; higher occupancy of all ORs due to integrated planning; saw **400 additional operation patients** because of improved resource management and on-time starts (Spaarne Gasthuis, Hoofddorp, North Holland, Netherlands).<sup>37</sup>
- **13% increase** in case volumes compared to the same period in the previous year within the first month after go-live (University College London Hospitals NHS Foundation Trust, London, England, UK).<sup>38</sup>

<sup>31</sup> Mercy's HIMSS Davies Award case studies are available online at: <http://www.himss.org/library/mercy-davies-enterprise-award>

<sup>32</sup> Reid Health IT Book 2023.

<sup>33</sup> Henry Knoop, PA-C and Deborah Cornell, "Gaining Efficiencies in OR Processes," presented at Epic's 2023 Users Group Meeting.

<sup>34</sup> <https://www.epicshare.org/share-and-learn/nemours-operating-room-analytics>.

<sup>35</sup> Christine Williams and Joshua Maisner, "Creating a Patient Flow Program: The Journey to Sustainability," Presented at Epic's 2023 Expert Group Meetings.

<sup>36</sup> Timothy Nelson and Jared Thompson, "Managing Block Schedules and OR Access Using Predictive Analytics," presented at Epic's 2018 Users Group Meeting.

<sup>37</sup> Theo Blote, Implementation Coordinator, Spaarne Gasthuis.

<sup>38</sup> "Case Volume since Go-live Report," Epic, June 2019.

- **Improved turnaround time by 1 month and recovered more than 300 cases/procedures** with automated OpTime reconciliation process (The Ohio State University Wexner Medical Center)<sup>39</sup>
- First case on-time starts **increased from 30% of first cases starting on time to nearly 70% of first cases starting on time** after using reporting tools to rank surgeons by how many minutes early or late on average their first cases started. They posted the top 10 and bottom 10 rankings in OR areas so surgeons could learn from their peers (Saint Francis Health System, Tulsa, OK).<sup>40</sup>
- **96% reduction in OR cases put on hold** due to PACU bed shortages by using a capacity management dashboard to show users projected census, current occupancy, and expected discharges. In addition, the increased capacity allowed PAS leadership to establish a third shift without adding FTEs (Hospital for Special Surgery, New York, NY).<sup>41</sup>

## Reduced no-shows and cancellations

- **No-show cancellation rate decreased from 20.3% in July 2022 to 15.7% in July 2023** (Ann & Robert H. Lurie Children's Hospital of Chicago).<sup>42</sup>
- **90% increase in appointments kept** (Texas Health Resources).<sup>43</sup>
- **Reduced overall no-show rates from 5.6% to 3.1%** using reminder SMS message and no-show policies (Spaarne Gasthuis).<sup>44</sup>
- **6% decrease in no-show rate** for targeted appointments, resulting in a relative 15% decrease; a 12-hour increase in cancel lead time, leading to a **17% increase in canceled slots filled with completed appointments**; and an absolute 8% increase in slot utilization for the targeted slots in schedules by using Epic's predictive analytics tools to find patients with a higher chance of not showing up for their appointments, and then targeting those patients with extra communication. They estimate that they **increase revenue by \$100** for each prevented no-show appointment. In seven months, they estimate that they have gained approximately \$525,000 with a 35% average call compliance for high-risk no-show appointments across most departments (Ochsner Health System, New Orleans, LA).<sup>45</sup>
- **1,842 appointments were scheduled in MyChart** using open scheduling in the year after implementing this feature, of which only 5% were no-shows. **Completing 95% of scheduled appointments** can lead to an increase in copay collection due to the large number of patients

<sup>39</sup> Jenni Crum, Laura Dornsife, Richard Smith, Automated OpTime Reconciliation for Professional Billing, presented at Epic's 2015 Users Group Meeting

<sup>40</sup> Epic Financial Program. "Improving First Case On Time Starts with Competitive Surgeon Reports."

<sup>41</sup> Davies Enterprise Award, HIMSS, 2018.

<sup>42</sup> Ravi Patel, MD, Marcus Ingram, MA, and CJ Lilly, MBA, "Patient Access University: Educating on Functionality to Meet Goals," presented at Epic's 2023 Users Group Meeting.

<sup>43</sup> HIMSS 2014 presentation titled, "Learning from Early ACO Adopters."

<sup>44</sup> Customer-reported benefit.

<sup>45</sup> Epic Financial Program. "Increase Slot Utilization and Reduce No-Shows with Predicted No-Show Data."



arriving at the clinic. Novant discovered **one-year cost savings of \$444,866**, largely due to the smaller number of patients who called clinics to schedule or update appointments, allowing Novant to reduce the number of staff members dedicated to scheduling tasks (Novant Health, Winston-Salem, NC).<sup>46</sup>

## Increased throughput

- **Filled 4,611 wait list slots** (18% acceptance rate) through Fast Pass, **allowing patients to be seen 31 days sooner on average**, maximizing provider schedules and **reducing wait times by 25%** (Reid Health, Richmond, IN).<sup>47</sup>
- 1,833 patients were seen faster using On My Way, **reducing Urgent Care wait times by 40%** (Reid Health, Richmond, IN).<sup>48</sup>
- Three months after launching a full-scale capacity command center equipped with Epic's patient flow tools, UCSF Health saw the following benefits:<sup>49</sup>
  - **Lowered ED boarding time by 12%.**
  - **Lowered bed assignment time by 32%.**
  - **Lowered median length of stay by 0.3 day.**
  - **Increased discharges before 2 PM by 2%.**
- **4,200 appointments were filled using Fast Pass, leading to \$521,000 in increased revenue** (Ann & Robert H. Lurie Children's Hospital of Chicago).<sup>50</sup>
- **Increased discharges by noon by 8% and discharges by 2 PM by 15%** (Advocate Aurora Health, Downers Grove, IL).<sup>51</sup>
- **Reduced discharge-order-to-discharge time from 3.22 hours to 2.62 hours** for a total of 55 hours of increased bed availability per day (UC Davis Health).<sup>52</sup>
- After creating a centralized patient flow team using Grand Central and capacity management analytics, Essentia Health (Duluth, MN) realized the following benefits:<sup>53</sup>
  - **Generated more than 3,000 bed days in rural hospitals.**

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<sup>46</sup> Epic Financial Program. "Increasing Patient Engagement and Saving Money with Open Scheduling."

<sup>47</sup> Reid Health IT Book 2023.

<sup>48</sup> Reid Health IT Book 2023.

<sup>49</sup> Toni Braden and Jill Reynolds, "In a Golden State of Mind: Building the Patient Navigation Bridge," presented at Epic's 2023 Users Group Meeting.

<sup>50</sup> Ravi Patel, MD, Marcus Ingram, MA, and CJ Lilly, MBA, "Patient Access University: Educating on Functionality to Meet Goals," presented at Epic's 2023 Users Group Meeting.

<sup>51</sup> Cori Garner, MHA, BSN, RNC-OB, NE-BC, "Discharge Readiness Playbook," presented at Epic's 2023 Users Group Meeting.

<sup>52</sup> Christine Williams and Joshua Maisner, "Creating a Patient Flow Program: The Journey to Sustainability," Presented at Epic's 2023 Expert Group Meetings.

<sup>53</sup> <https://www.epicshare.org/share-and-learn/essentia-rural-capacity-management>.

- **Served 540 additional patients.**
- **Increased revenue by \$2.7 million in fiscal year 2022.**
- **Freed up 4,500 appointments** in virtual fracture clinic, **saving £200,000 (\$250,000) annually** (Cambridge University Hospitals NHS)<sup>54</sup>
- **Shaved 45 minutes off per visit for 6,600 cases per year** by improving patient flow and using clinical decision support (Texas Children's Hospital)<sup>55</sup>
- **28% increase in appointments scheduled** (Texas Health Resources)<sup>56</sup>
- **Increased outpatient revenue by \$4.4 million**, resulting in increased outpatient procedures (totaling \$9.4 million) (Sentara Healthcare)<sup>57</sup>
- **Increased available slots for obstetrical visits by 30%** by using MyChart integrated with third-party devices to minimize the number of prenatal visits during low-risk pregnancies. Patients entered their urine protein readings in MyChart and integrated third-party blood pressure device and digital scale readings into Epic via Apple's Health app, allowing clinicians to monitor these patients without office visits (Ochsner Health System).<sup>58</sup>
- **20% of offered slots were accepted** by patients with 0 extra work required by schedulers or physicians and with 0 marketing to patients by using Fast Pass as a way to keep schedules full while easing the burden on front desk staff in the first 4 months of their program. **878 patients scheduled improved appointments and got in an average of 27 days sooner** with their accepted offers in the first year of using Fast Pass (Johns Hopkins Medicine, Baltimore, MD).<sup>59</sup>
- **Increased gross revenue by \$1 million per month and completed 61,939 additional consults and 18,936 additional procedures** in one year by using reports to drive referral follow-ups and help complete referrals (MetroHealth, Cleveland, OH).<sup>60</sup>

## Medical record access speed increase

- **\$1 million per year in clinician time savings** from having real-time access to imaging within the EHR (radiology image search time went from 16 minutes to 2 minutes, **saving approximately 21.5 clinician years**) (UC Davis Health, Sacramento, CA).<sup>61</sup>

<sup>54</sup> Dr. Afzal Chaudhry, Consultant Nephrologist, Chief Clinical Information Officer, and Associate Lecturer, Cambridge University Hospitals NHS.

<sup>55</sup> HIMSS 2014 presentation titled, "Blending Clinical and Financial Data to Drive the Value Equation."

<sup>56</sup> HIMSS 2014 presentation titled, "Learning from Early ACO Adopters."

<sup>57</sup> HIMSS Davies Enterprise Award summary.

<sup>58</sup> HIMSS Davies Enterprise Award 2018 Summary.

<sup>59</sup> Epic Financial Program. "Keep Provider Schedules Full and Reduce Front Desk Workload with Fast Pass."

<sup>60</sup> Epic Users Group Meeting 2013.

<sup>61</sup> HIMSS Davies Enterprise Award summary.

## Cost savings and increased revenue

### Clinical cost savings

- **More than \$2 million in savings** from 2012-2017 and **more than \$28.7 million in avoided costs** by targeting unnecessary transfusions to reduce waste using order sets and decision support in Epic to recommend fewer units and require an appropriate indication for ordering blood products (Sparrow Health System, Lansing, MI).<sup>62</sup>
- **An estimated \$2 million in savings** in 2017 by using 572 fewer vials of 12 common, high-value drugs after implementing automated dose rounding for select medications in Epic. Since 2017, UCSF has implemented automated rounding for an additional 22 drugs (UCSF Health, San Francisco, CA).<sup>63</sup>
- **Reduced transfusion costs from \$86,000 annually to \$800 in orthopaedics** by testing patients for anemia and standardizing care before scheduling them for surgery (TriHealth, Cincinnati, OH).<sup>64</sup>
- **Saved more than \$280,000** on supplies at one hospital in the first five months of their program, which uses cost data in Epic to involve everyone on the OR team in proactively updating preference cards to control disposable supply costs. They achieved **cost reductions in 60% of their procedures** (Centura, Englewood, CO).<sup>65</sup>
- **15% reduction in lab tests, saving more than 3.8 million NOK (\$500,000) per year** (Sint Lucas Andreas Ziekenhuis, now part of OLVG, Amsterdam, North Holland, Netherlands).<sup>66</sup>
- **Approximately \$1 million saved annually** in decreased unnecessary testing and unnecessary admissions using Care Everywhere (MetroHealth, Cleveland, OH).<sup>67</sup>

### Mailed letters and test results cost reduction

- **\$126,660 saved, more than \$1 per patient**, through paperless billing and payment plans in MyChart (Reid Health, Richmond, IN).<sup>68</sup>
- **\$9.7 million in estimated savings** by optimizing patient access workflows (orders, letters, appointments) in MyChart (Kaiser Permanente – S Cal).<sup>69</sup>

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<sup>62</sup> HIMSS Davies Enterprise Award 2018 Summary.

<sup>63</sup> "Automated Dose Rounding Gets a Round of Applause," Epic Outcomes, Epic.com, November 12, 2018.

<sup>64</sup> Success at Seven Newsletter: "Better Blood Management."

<sup>65</sup> Fred Seale, MD, "Setting a Course Toward Preference Card Cost Reduction," presented at Epic's 2018 Users Group Meeting.

<sup>66</sup> SLAZ Business case; Ernst & Young Logistieke Barometer Gezondheidszorg, 2012.

<sup>67</sup> David Kaelber, CMIO, MetroHealth.

<sup>68</sup> Reid Health IT Book 2023.

<sup>69</sup> Saival Davé, MD, Nitin Dhamija, MD, Patrick Springog, MD, and Paul Lee, MD, "Patient Self-triage/E-visit," presented at Epic's 2023 Users Group Meeting.

- **\$7.5 million saved** by releasing results electronically (Novant Health, Winston-Salem, NC)<sup>70</sup>
- In one of their eight regions, a **\$1.4 million decrease** in printing expenses of annual outpatient forms (Kaiser Permanente, Oakland, CA).<sup>71</sup>
- **Saved approximately \$1,100 per clinician** and eliminated the cost of mailing results (\$3.00 per letter) (Northwestern Memorial Healthcare, Chicago, IL).<sup>72</sup>
- **44% reduction in annual printing expenses** (from \$85,000 in 2003 to approximately \$47,000 in 2004) (Cleveland Clinic, Cleveland, OH).<sup>73</sup>
- Reduction in paper usage of **\$8.8 million over five years** using Epic integrated with third-party fax serving technologies (University of Iowa Hospitals and Clinics).<sup>74</sup>

## Charging

- **Improved discharge not final billed metric by 30%** by updating the system to use flexible minimum days for billing based on departments' charge timeliness (Children's Health, Dallas, TX).<sup>75</sup>
- **Saved \$808,000 with HB Revenue Guardian and \$1.2 million with PB Revenue Guardian** (Reid Health, Richmond, IN).<sup>76</sup>
- **Overall 3.7% increase in charge capture** (Children's Healthcare of Atlanta, Atlanta, GA).<sup>77</sup>
- **\$10.5 million increase in revenue capture** in respiratory therapy, anesthesia, cardiology (EKGs, Echo), ED, and bedside procedures (Children's Medical Center Dallas, Dallas, TX).<sup>78</sup>
- **A \$262,687 increase in revenue from improved physician coding** in the first three years of their project (Lakeland Healthcare, St. Joseph, MI).<sup>79</sup>
- **\$6.42 increase in charges per visit**, as a result of automatic charge creation from backroom procedures (e.g., lesion removals) that otherwise might have been forgotten, or improved linking of orders to encounter records (MetroHealth, Cleveland, OH).<sup>80</sup>
- **More than 3,500 charges per month on average** flow to Epic's billing system based on nurse activities, compared to about 1,000 before the change, by using automated revenue generation

<sup>70</sup> Success at Seven: More MyChart, More Benefits.

<sup>71</sup> HIMSS Davies Enterprise Award summary.

<sup>72</sup> Epic Users Group Meeting 2007.

<sup>73</sup> Epic Users Group Meeting 2008.

<sup>74</sup> Douglas J. Van Daele, MD, FACS, Vice Dean for Clinical Affairs, University of Iowa Hospitals and Clinics.

<sup>75</sup> <https://www.epicshare.org/perspectives/revenue-cycle-optimization-and-success>.

<sup>76</sup> Reid Health IT Book 2023.

<sup>77</sup> Customer-reported benefit.

<sup>78</sup> Pamela Aurora, Katherine Lusk, "Realizing a Positive Return on Your EMR Investment," presented at Epic's 2011 Users Group Meeting.

<sup>79</sup> Lakeland's 2015 HIMSS Davies Award application.

<sup>80</sup> Customer-reported benefit.

in Epic for bedside services such as line placements and blood draws. **Gross revenue increased by about \$1 million per month** across Mercy's health system (Mercy, Cincinnati, OH).<sup>81</sup>

- **Realized \$25.7 million in revenue capture** in the first year of having Epic. The trend continued and it has now seen **aggregate savings of \$167 million** (Henry Ford Health, Detroit, MI).<sup>82</sup>
- **Captured \$7.6 million in charges that otherwise would have been lost** in the first 13 months of using Resolute Hospital Billing's Revenue Guardian feature (Grady Health System, Atlanta, GA).<sup>83</sup>

## Self-pay collection

- In the first year after switching to MyChart, **collected an average of \$10.5 million for hospital billing and \$6 million for professional billing** from self-pay patients per month, 21% and 15% increases, respectively, from the past four years' average (Henry Ford Health, Detroit, MI).<sup>84</sup>

## 340B administration

- **Decreased wholesale acquisition cost (WAC) by 26%** by using Willow Inventory to manage 340B-eligible surgical medications. This change led to savings of \$395,296.43 over a four-month period, for a **projected annual savings of more than \$1,185,000** (Asante Health System, Medford, OR).<sup>85</sup>
- By switching Epic's 340B accumulator tools, **spent 40% less on WAC** in the first quarter of 2023 compared to the first quarter of 2022, leading to a **projected annual savings of \$2,131,217** (Valleywise Health, Phoenix, AZ).<sup>86</sup>

## AR day reduction

- **Cut aged AR days 90+% in half, down to 15%**, since 2017 by using a combination of workqueue restructuring based on type of follow-up and payer mix, and workqueue scoring to prioritize which accounts should be touched (Children's Health, Dallas, TX).<sup>87</sup>
- **An almost 20% reduction in AR days and an over 60% reduction in candidate for billing (CFB) days** correlated with implementing workqueue monitoring reports in Reporting Workbench and Radar to identify workqueues that weren't being worked productively by staff along other revenue cycle initiatives correlated with (The University of Iowa Hospitals and Clinics, Iowa City, IA).<sup>88</sup>

<sup>81</sup> HIMSS Davies Award 2018 Summary.

<sup>82</sup> <https://healthsystemcio.com/2018/03/13/a-playbook-for-transformation/>.

<sup>83</sup> "A Safety Net's Safety Net: Capturing Otherwise Lost Revenue with Revenue Guardian," Epic Revenue Cycle Program, 2016.

<sup>84</sup> <https://www.epicshare.org/share-and-learn/henry-ford-mychart-billing>.

<sup>85</sup> Customer-reported benefit.

<sup>86</sup> Customer-reported benefit.

<sup>87</sup> <https://www.epicshare.org/perspectives/revenue-cycle-optimization-and-success>.

<sup>88</sup> Epic Financial Program. "Improving Revenue Cycle Efficiency with Workqueue Monitoring Reports."

- **Accelerated cash by \$4.2 million** in their first month post-implementation of Epic's electronic claims capabilities. These capabilities contributed to a **21% reduction in AR days over 1.5 years** (Northwestern Medicine, Chicago, IL).<sup>89</sup>
- **Reduced average AR days for professional and hospital billing by 5.4 days and saved 83 cents in costs per claim** after implementing registration quality metrics in Epic that resulted in cleaner registrations (Ochsner Health System, New Orleans, LA).<sup>90</sup>

## Staffing efficiencies and user productivity

### Increased clinician productivity

- In 11 months, **AI drafted a response for more than 3.9 million patient messages**. Early work found that a **nurse saves an average of 30 seconds per message** by using a draft response, and nurses choose to start from a draft half of the time. Across the organization, **using AI could save around 1,500 hours each month** (Mayo Clinic).<sup>91</sup>
- **Nearly 7 minutes saved per visit** by having physicians use ambient voice technology in Epic. As a result, physicians are able to see an additional 3 patients per day (RUSH University System for Health, Chicago, IL).<sup>92</sup>
- **96% reduction in the time physicians spend writing summary notes** (from 7 minutes to less than 16 seconds, on average) by using generative AI in Epic (Universitair Medisch Centrum Groningen – Groningen, Netherlands and Elisabeth-TweeSteden Ziekenhuis – Tilberg, Netherlands).<sup>93</sup>
- **Saved 1,700 hours of clinician time** with refill protocols (Reid Health, Richmond, IN).<sup>94</sup>
- **Saved providers on average 2.2 minutes per note** using customizable templates and SmartForms in Bones, going from an average of 3.5 minutes per note to 1.3 minutes and giving doctors more time to focus on their patients (Reid Health, Richmond, IN).<sup>95</sup>
- **233% increase in prior authorization productivity** using electronic prior authorization (MultiCare Health System, Tacoma, WA).<sup>96</sup>

<sup>89</sup> Brad Cox and Kathryn Nott, "Accelerate Cash and Reduce AR Days with a Robust 276/277 Implementation," presented at Epic's 2018 Users Group Meeting.

<sup>90</sup> "Improving Registration Quality with User Scorecard Metrics," Clinical Program, 2019.

<sup>91</sup> <https://www.epicshare.org/share-and-learn/mayo-ai-message-responses>.

<sup>92</sup> Customer-reported benefit.

<sup>93</sup> Rosanne Schoonbeek, Jessica Workum, "[Completeness, Correctness and Conciseness of Physician-Written Language Versus Large Language Model Generated Patient Summaries Integrated in Electronic Health Records](#)," The Lancet, 24 May 2024.

<sup>94</sup> Reid Health IT Book 2023.

<sup>95</sup> Reid Health IT Book 2023.

<sup>96</sup> Deb Cooledge, Tyler Graham, and Jenn Mykland, "The Network Effect: Payer-Provider Partnerships for eMPA Success," presented at Epic's 2023 Users Group Meeting.

- **Saved 993 hours and 10 minutes of nursing time in one month** with MyChart Bedside Patient Education (Henry Ford Health, Detroit, MI).<sup>97</sup>
- **Saved 912 nursing hours per year** by replacing phone calls and manual capacity reporting with automated Epic reports (UC Davis Health).<sup>98</sup>
- **Letter turnaround time in outpatient clinics is now less than 7 days. Order panels are saving some staff in orthopaedic clinics as much as 50 seconds** (Manchester University NHS Foundation Trust).<sup>99</sup>
- **Gained more than 730 hours of productivity per year** (Tampa General Hospital, Tampa, FL).<sup>100</sup>
- **Percentage of new patient visits grew from 1-2% of total visits to 4-5%**, leading to increased clinic revenues and economics—the cause appeared to be a **reduction in the number of repeated visits** because clinicians could better address patients' needs in the initial visit (Geisinger System Services, Danville, PA).<sup>101</sup>
- Recovered the costs of the system within one year, and **have since seen a \$20,000 per-clinician return each year** (UW Health, Madison, WI).<sup>102</sup>
- **40 hours per week** decrease in the amount of time needed to post logs after surgery by using Epic to post logs automatically and use rules to catch logs that need special review (Children's Health System of Texas, Dallas, TX).<sup>103</sup>
- **25% reduction in the amount of time nurses spend** on IV medication administration by streamlining IV administrations, reducing a manual 17-step process to administer IV medications using an infusion pump to a simpler 7-step process (Lancaster General Hospital, Lancaster, PA).<sup>104</sup>
- **Savings of 2 hours per week in time communicating** between pharmacy and nurses and **almost 3 hours per week for the pharmacy in end-of-day processing** by integrating the pharmacy

<sup>97</sup> Donna Summers, "A Cry for Help: Using Bedside Mobile to Connect Patients and Nurses," presented at Epic's 2023 Users Group Meeting.

<sup>98</sup> Christine Williams and Joshua Maisner, "Creating a Patient Flow Program: The Journey to Sustainability," Presented at Epic's 2023 Expert Group Meetings.

<sup>99</sup> Customer-reported benefit.

<sup>100</sup> Epic Nursing Advisory Council 2014.

<sup>101</sup> Douglas Thompson et al, "The Value of Vendor-Reported Ambulatory EHR Benefits Data," *Healthcare Financial Management: Journal of the Healthcare Financial Management Association*, [http://www.researchgate.net/publication/51391554\\_The\\_value\\_of\\_vendor-reported\\_ambulatory\\_EHR\\_benefits\\_data](http://www.researchgate.net/publication/51391554_The_value_of_vendor-reported_ambulatory_EHR_benefits_data).

<sup>102</sup> Epic Users Group Meeting 2002.

<sup>103</sup> "Post OR Changes Automatically," Epic Financial Program, 2015.

<sup>104</sup> "Reducing Errors with Smart Pumps," Epic Success at Seven Newsletter, 2014.



verification workflow with visual status indicators and notes on the patient schedule (Spartanburg Regional Healthcare System, Spartanburg, SC).<sup>105</sup>

- **Savings of 250 clinician hours a month** through PDMP-Epic integration. Henry Ford Health System started using Epic integration with the Michigan Automated Prescription System in 2018 to show providers a patient's previous opioid prescriptions when they order a Schedule II-V drug. The integration has reduced the time required for each Prescription Drug Monitoring Program check **from two minutes to 20 seconds or less** (Henry Ford Health System).<sup>106</sup>

## Reduced burden on non-clinical staff

- **Saved 6,000 hours in one year with revenue cycle automation.** Automated coding for 65,000 accounts, saving an estimated 3,300 hours. 15,000 patient estimates were automatically finalized (Reid Health, Richmond, IN).<sup>107</sup>
- **Saved more than 1,000 FTE hours by setting up automation to resolve low balances,** which has allowed staff to focus on higher-priority, higher-opportunity-to-collect accounts that generate most of their revenue. **Coders save 350 hours per week** through their use of Simple Visit Coding functionality to code certain accounts automatically. (Children's Health, Dallas, TX).<sup>108</sup>
- **Reduced staff who manage Medicare Advantage enrollment and premium billing from 7 FTEs and 3 temps to 6 FTEs** using Tapestry (Health Alliance, Urbana, IL).<sup>109</sup>
- **20% reduction in the number of unit coordinators** due to MDs using CPOE (Allina Health System)<sup>110</sup>
- **\$1.7 million in "soft savings" FTE costs** (saved 51.4 years of staff time) after converting to a paperless registration workflow that included the use of tablets by patients to finish prepopulated forms and sign up for MyChart (NYU Langone Health, New York, NY).<sup>111</sup>
- **\$3,745,353 savings from a 25% reduction in HIM full time employees** (199 to 149) (Texas Health Resources, Dallas, TX).<sup>112</sup>

<sup>105</sup> Tiffany Burns and Dan Hill, "Transforming the Schedule into a Work List for Pharmacy," presented at Epic's 2018 Expert Group Meetings.

<sup>106</sup> "Henry Ford's PDMP-Epic Integration Saves 250 Clinician Hours a Month," Epic.com, April 2019.

<sup>107</sup> Reid Health IT Book 2023.

<sup>108</sup> <https://www.epicshare.org/perspectives/revenue-cycle-optimization-and-success>.

<sup>109</sup> Kim Griffith, "Managing Medicare Advantage Enrollment in Tapestry," presented at Epic's 2023 Users Group Meeting.

<sup>110</sup> HIMSS Davies Enterprise Award summary.

<sup>111</sup> HIMSS Davies Enterprise Award 2017 Summary.

<sup>112</sup> HIMSS Davies Enterprise Award 2011 Summary.



- **Reduced utilization management staff by 25%** and reduced UM review time by more than 100 hours per month while **doubling referral automatic finalization rates** by optimizing their utilization management workflows in Epic. They automatically authorizing more referrals, use referral workqueues, and improved referral notifications (Group Health Cooperative – South Central Wisconsin, Madison, WI).<sup>113</sup>
- **Saved 416-520 hours per year in staff time** by bringing the service area in line with their One Revenue Cycle (ORC) model. This model helped them reduce their statement printing and postage costs, automate and standardize letters, consolidate payment plans, and simplify training for billing users, simultaneously improving billing processes and patient satisfaction (Providence Health and Services, Renton, WA).<sup>114</sup>
- With MyChart appointment scheduling, **call center volume reduced by 32%**, while MyChart **refill requests ease office workload by 27%** (Reid Health, Richmond, IN).<sup>115</sup>
- **60% drop in patient call volume** after implementing MyChart (Novant Health).<sup>116</sup>
- **14% reduction in unscheduled phone calls** after introducing MyHealthManager, a feature in MyChart where members can access their health information (Kaiser Permanente).<sup>117</sup>
- **\$105,586 reduction in nursing overtime costs** in the first three years after implementing Epic (Lakeland HealthCare).<sup>118</sup>
- **A 96 hour per week reduction in nursing time (or 2.4 nurses per year)** by automatically capturing 93% of vitals after connecting more than 2200 monitors, ventilators, blood gasses, maternal fetal monitors, stress nuclear medicine devices and anesthesia machines to Epic through a medical device integrator. Patient transit accounted for the majority of vitals not captured automatically (The Ohio State University Wexner Medical Center).<sup>119</sup>
- **\$9.4 million in savings** due to reduction in nursing overtime and purchased labor (Sentara Healthcare, Norfolk, VA).<sup>120</sup>

<sup>113</sup> "Optimizing Utilization Management with Referral Auto Status Assignment, Workqueues, and Notifications," Epic Financial Program, 2016.

<sup>114</sup> "Reducing the Cost of Doing Business with Single Billing Office," Epic Financial Program, 2017.

<sup>115</sup> Reid Health IT Book 2023.

<sup>116</sup> Success at Seven: More MyChart, More Benefits.

<sup>117</sup> Kate Gamble, "Kaiser's Care Model," *Healthcare Informatics*, <http://www.healthcare-informatics.com/article/kaisers-care-model>.

<sup>118</sup> 2015 HIMSS Davis Award application.

<sup>119</sup> HIMSS Davies Enterprise Award 2015 Summary.

<sup>120</sup> HIMSS Davies Enterprise Award summary.