Stanford Children’s CMIO Update

February 23, 2021
Agenda

• IS Strategic Planning
• Provider Experience Optimization and Innovation
• Pediatric Patient Engagement & Data Sharing
• Telehealth Optimization
IS Leadership Team

Ed Kopetsky
CIO

Lisa Grisim
VP & Assoc. CIO

Anshul Pande
VP & CTO

Natalie Pageler, MD
VP & CMIO

Bill Wilson
Executive Director

Brendan Watkins
Enterprise Analytics

Garima Srivastava
Enterprise Business Systems

Chad Wilson
Information Security

Sumesh Jain
Finance & Resource Management

Alexandra Wong
Office Manager
Clinical Informatics Providers

Arash Anoshiravani MD E&M / Documentation

Safwan Halabi MD Radiology

Amit Singh MD GetWell/ Patient Experience

Keith Morse MD AI / ML / Analytics

Jen Carlson MD MyChart

Jon Palma MD, MS Johnson Center

Lindsay Stevens MD Provider Training

Richard Ash MD PCHA Primary Care

Rachel Goldstein MD Adolescent Workflows

Priya Prahalad MD Population Health/ Digital Health

Fritz Tan MD Bass Center

Jennifer Kaufman MD PCHA Primary Care

Jin Hahn MD Physician Builder

Charitha Reddy MD Heart Center

Ellen Wang MD Perioperative Workflow

Olga Libovy CNM PCHA OB
American Board of Medical Specialties (ABMS) approved “Clinical Informatics” as a board-eligible subspecialty in 2011.

American College of Graduate Medical Education (ACGME) Fellowship in Clinical Informatics at Stanford Medicine
- First ACGME accredited fellowship in the nation
- Stanford Children’s Health is primary training site
- [http://CIfellowship.stanford.edu](http://CIfellowship.stanford.edu)
IS Strategic Planning
Vision 2025: Strategic Planning Framework

**STRATEGIC GOAL**

The Preeminent Pediatric and Obstetric Health System

**ENTERPRISE STRATEGIC PILLARS**

1. Advancing Academic & Clinical Excellence
   - Elevate our leadership position as an academic, pediatric, and obstetric care provider by enhancing select existing and new preeminent clinical programs driven by our core strengths in research and clinical care innovations.

2. Expanding Our Reach
   - Focus our expanding clinical and academic on and off-campus to develop a stronger regional market position to become the undisputed leader in the Bay Area and Northern California, as well as pursue strategic investments across the US and globally.

3. Creating a Value-Based System
   - Demonstrate our value by improving our system’s quality, safety, and outcomes while meeting the demand for service, cost and access of our patients and families.
Annual IS Strategic Planning Process

Intake from 60-70 clinical and business leaders

Strategic team presentations, then ranking “High” priority projects by all participants

IS Executive Committee Review

FY22 Budget
## In-Flight Strategic Initiatives

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Area</th>
<th>FY21</th>
<th>FY22</th>
<th>FY23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology PACS Upgrade (Syngo Dynamics)</td>
<td>Treatment Center</td>
<td>Dec-Feb</td>
<td>Mar-May</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>iMorgon-US Viewer and Reporting</td>
<td>Treatment Center</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Willow Ambulatory (Retail Pharmacy)</td>
<td>Inpatient</td>
<td>Dec-Feb</td>
<td>Mar-May</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Kronos Time and Attendance</td>
<td>Business/Web</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Powerscribe Upgrade</td>
<td>Treatment Center</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>iRCoder Interface w/ Cupid</td>
<td>Treatment Center</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Human Milk/Formula Tracking System</td>
<td>Inpatient</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>MRN Merge Interface between SCH and SHC</td>
<td>Business/Web</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Rover for Med/Lab</td>
<td>Inpatient</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>End User/Network Hardware Refresh</td>
<td>Infrastructure/Security</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>ARC Helios (RFID Inventory Mgmt)</td>
<td>Business/Web</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Fertility Embryology Lab Interface</td>
<td>Ambulatory</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Perfusion Interface w/Epic</td>
<td>Treatment Center</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Central Repository for Provider Information</td>
<td>Business/Web</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>SHC Beaker Anatomic Pathology</td>
<td>Inpatient</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Digital Oncology Roadmaps</td>
<td>Inpatient</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
<tr>
<td>Digital Experience Platform</td>
<td>Business/Web</td>
<td>Mar-May</td>
<td>Jun-Aug</td>
<td>Sep-Nov</td>
</tr>
</tbody>
</table>
Stanford Children’s
Digital Transformation

Patient & Family: Video Visits, Remote Monitoring, Self Scheduling, Fast Pass Waitlists, Disease-specific Digital Navigator, Patient Estimates

Provider: Login Optimization, EHR optimization, Speech Recognition/Virtual Scribes, Decision Support (Artificial Intelligence in Medicine & Imaging)


Growth: Digital Second Opinion, eConsults, eVisits
Digital Transformation for Providers
Improving Experience for Providers

- New Provider SWAT Team
- Ongoing Epic optimization + bi-annual Epic upgrades
- Voice recognition - Dragon
- In-basket efficiency program cycles
- CMS E/M coding updates & notes optimization
- Stanford Medicine – IT Collaborative Committees – wifi, document storage, unified email directory
- Dedicated provider training
- Innovative clinical decision support tools
- Support for clinical research
Provider Informatics Training Team

- We now have a dedicated provider training squad to help with Epic efficiency and smoother onboarding.
- Team offers 4 types of training sessions with a flexible schedule
  - Offered in 1–2-hour sessions, Individual/Group
- A new-and-improved website is under construction and will allow for quick training requests. It will be live in March.
  - Go to [epic.stanfordchildrens.org](http://epic.stanfordchildrens.org) for more info
- If you have any questions or issues, please contact Epicprovidertraining@stanfordchildrens.org or team leader, Rohita Kandula (rkandula@stanfordchildrens.org)
Innovative Decision Support Tools

This site contains a library of tools created here at Stanford Children’s Health and shared with the greater medical community. These tools are designed to be EMR agnostic, meaning they can be easily integrated into any Electronic Medical Record.

- **GluVue**: A real-time clinical support tool for interpreting blood glucose data.
- **SMaRT Transfusion**: An interactive guide to blood transfusions.
- **BiliRecs**: A tool for treatment of indirect hyperbilirubinemia in newborns.
- **Premie BiliRecs**: A tool for treatment of indirect hyperbilirubinemia in pre-term neonates.
- **Hyperisk**: Childhood hypertension risk assessment and management.
- **CycleCalc**: Parenteral nutrition cycle calculator.
Premie BiliRecs (PBR)
EMR-Integrated Clinical Decision Support Tool

- Significant improvement in adherence to recommendations (less “unnecessary” phototherapy)
- EHR-integration facilitates workflow and adoption
- Collaborating with Epic to aid in broad adoption of the tool
Artificial Intelligence in Clinical Decision Support

Performance of a Deep-Learning Neural Network Model in Assessing Skeletal Maturity on

Model Development

Clinical Integration

Randomized, Controlled Clinical Trial

Stanford AIMI Center
Puffin
EHR-Integrated Fetal and Pregnancy Health Web Application

- Custom, EHR-integrated web application for clinical care and operations
- Pertinent to ~10 high acuity Fetal Centers in the US
- *Differentiator for one of Stanford Children’s most important intake mechanisms*
Clinical Research Informatics

- Navigating analytics requests
- Chart review options for research
- Epic research module training
- Research billing
- Collaboration with SOM to get data to STARR
- IS estimates for grant preparation

** sithomas@stanfordchildrens.org
Digital Transformation for Patients & Families
Digital Transformation for Patients & Families

Rolling 12 months To Date YoY Variance

<table>
<thead>
<tr>
<th></th>
<th>Current Period</th>
<th>Previous Period</th>
<th>% Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Visits</td>
<td>470,609</td>
<td>544,216</td>
<td>-13.53%</td>
</tr>
<tr>
<td>Telehealth</td>
<td>143,573</td>
<td>3,579</td>
<td>3911.54%</td>
</tr>
</tbody>
</table>

Weekly Visit Trend

- In-person
- Telehealth
- Phone Visits
Remote Patient Monitoring – Care Companion

• Pilot: Pediatric Heart Failure, Pre-transplant phase
  – Educational Materials
  – Questionnaires
  – Home Monitoring
Pediatric Data Sharing – Why does it matter?

- The 21st Century Cures Act has ignited national debate about how to share data with pediatric patients and their families.
- Stanford Children’s Health is leading national discussions of the right path forward.
- Robust health data sharing is essential for the next wave of digital health and patient engagement tools.
Quick Refresher

• 21st Century Cures Act requires organizations to release the following data to patients:
  - Allergies
  - Assessment & treatment plan
  - Care team
  - Clinical notes
  - Goals
  - Health concerns
  - Immunizations
  - Labs
  - Medication
  - Demographics
  - Problem list
  - Procedures
  - Provenance
  - Smoking status
  - Unique device identifiers for implants
  - Vitals / Pediatric vitals

• New compliance date – April 5, 2021
## CALIFORNIA MINOR CONSENT LAWS

<table>
<thead>
<tr>
<th>SERVICES YOUTH CAN RECEIVE WITHOUT PERMISSION FROM THEIR PARENT/GUARDIAN</th>
<th>CAN PROVIDER TELL YOUTH’S PARENT/GUARDIAN?</th>
</tr>
</thead>
</table>
| Birth Control  
Except Sterilization | Minors of any age  
No  
Parental notification allowed only with consent of minor |
| Pregnancy (Prev, Dx, Tx)  
Including inpatient care | Minors of any age  
No  
Parental notification allowed only with consent of minor |
| Abortion | Minors of any age  
No  
Parental notification allowed only with consent of minor |
| STIs, Contagious and Reportable Diseases (Dx & Tx) | Minors 12 yrs or older  
Yes  
In most cases, an attempt to notify parent/guardian must be made.¹² |
| HIV Testing | Minors 12 yrs or older and assessed as competent to give informed consent  
Yes  
In most cases, an attempt to notify parent/guardian must be made.¹² |
| Sexual Assault Care | Minors of any age  
No  
Parental notification allowed only with consent of minor |
| Alcohol/Drug Counseling by Federally Assisted Treatment Program  
Including inpatient care | Minors 12 yrs or older³⁴  
No  
Parental notification allowed only with consent of minor |
| Alcohol/Drug Counseling by Non-Federally Assisted Treatment Program | Minors 12 yrs or older³⁴  
Yes  
An attempt to notify parent/guardian must be made, except when provider believes it is inappropriate |
| Outpatient Mental Health Treatment | Minors 12 yrs or older⁵  
Yes  
An attempt to notify parent/guardian must be made, except when provider believes it is inappropriate |

Open Notes are AMAZING!! I wish all my son's specialists did this. It has allowed his primary care physician to understand his case better, allowed me to print out neurology reports for his school for IEP testing purposes, and to refer back to our previous care decisions (which change often with a medically complicated child). Honestly, my son’s disorder is so rare and complicated we are often the experts educating other doctors. And so having access to everything makes it far easier for me to provide the full context to each new physician we meet (and there are a lot of them). I really wish that more doctors used these OpenNotes.
Stanford Children’s Guiding Principles

For the purposes of these guiding principles, “sensitive” refers to adolescent sensitive health data that CA state law requires to be confidential from adolescent guardians, unless adolescent consent is provided.

1. Clinical information should be as available as possible through the patient portal while respecting legal limitations.
2. Parents/proxies should have access to non-sensitive health information of their child.
3. Adolescents should have access to their sensitive health information.
4. Adolescents, with their parent’s consent, should have access to their non-sensitive health information.
5. Until system functionality exists to allow differential release of sensitive information, that information should not be released at all through the patient portal. Rather, it should be released through other means to ensure confidentiality protection (e.g. HIM ROI with appropriate redaction).
Stanford Children’s Approach is Unique

Some sites are releasing all information directly to the adolescents
• Disempowers family
• High rate of compromised teen accounts

In other states, some organizations releasing all info to parents
• AAP, NASPAG, SAHM oppose this approach
• Illegal under CA state law

TEEN MYCHART ACCOUNTS (N= 1802)

- Flagged Account: 43%
- Presumed Adolescent Account: 57%
Dear Dr. Pediatrician,

My son JD has run out of his albuterol. Would you mind refilling it for us? Thanks,

Jane (JD’s mom)

Parents/Guardians should not be using their adolescent child’s MyChart account to message providers.

What do I do if I spot an account like this? Call the IS Help Desk at (650) 498-7500 to flag the account. Parents/guardians will be directed to signup for a proxy account.
Adolescent Confidential Note

** ** ADOLESCENT CONFIDENTIAL NOTE ** **

This note should only be used to document confidential information related to reproductive health, substance use and mental health for adolescents (ages 12-17). This note may be shared with the adolescent patient but will not be shared with parents or guardians without the consent of the minor per California law.

** ** ADOLESCENT CONFIDENTIAL NOTE ** **

This note type is only used for adolescents ages 12-17. Delete this note and choose an appropriate note type. Any note type can be unshared and the attestation DoNotShare can be used to prevent sharing the note in MyChart based on the potential for physical harm or the patient’s request to maintain privacy. ** **
Where are we now?

Major Achievements
- Opennotes for children < 12 yo in subspecialty ambulatory clinics
- “Diminished capacity” workflow
- Release of all non-sensitive results to guardians!!
- “Clean” teen MyChart accounts
- Process for auditing teen MyChart accounts

Next Steps
- April 5 (Cures Act compliance date) - Opennotes for children < 12 in all ambulatory & inpatient areas and results released more quickly
- Summer 2021 – Demographics redesign
- Starting Summer 2021 - Release non-sensitive notes to teens and guardians
- TBD - Release sensitive information to teens
TH Improvement Areas

Improved support for clinic staff and providers

Consistent and clear patient communication

Proactive approach to addressing technical issues

Minimizing work queues and improving workflows
Telehealth learning plan

Completed
- Pre-optimization workgroup
- Clinic on-site observation
- Anecdotal review of Practice Managers

In Progress/Planning
- Access compacts – clinic and providers
- Usability and user experience research - patient

Long Term Strategy
- Telehealth perspectives in post-COVID environment qual research - patient and provider

Ongoing
- Press Ganey Scores – patient
- Post-TH visit survey - patient and provider
- TH Experience Survey - clinic staff and provider
- MyChart Helpdesk support issues - patient
- Office hours support and feedback – clinic staff and provider
- Clinic on-site observation (ad hoc as needed) – clinic staff and provider
TH Experience Survey Key Takeaways

• Overall, 97% of individuals confident utilizing Telehealth in their roles however satisfaction scores trail at 65% of responses being satisfied

• More than half of those surveyed don’t know where they should turn to for support to help address any telehealth issues or questions

• Overall there are not many technical issues happening with 38% of responses reported to have 0 technical issues per week, and 38% of responses to have 1-2 issues per week

• Biggest issues and areas to improve are around
  • Connectivity issues
  • Patient tech savviness / ease of patient connection
  • Clinic support
### Key takeaways

- Making positive progress across all attributes/drivers, even for areas that we are still not performing well.
- Some of the more notable jumps in scores are: video connect during visit (11.7%), ease of scheduling appointments (10.1%), audio connect during visit (9.4%), ease of contacting (9.4%), and ease of talking w CP over video (8.9%).
- Improvements to date have primarily been on clinic side but experience is still improving for patient.
- Potentially influenced by increased familiarity and comfort with video call modality.

<table>
<thead>
<tr>
<th>Sum of Score</th>
<th>9/1/2020</th>
<th>10/1/2020</th>
<th>11/1/2020</th>
<th>12/1/2020</th>
<th>1/1/2021</th>
<th>FY21 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio connect during visit †</td>
<td>68.4%</td>
<td>71.0%</td>
<td>73.7%</td>
<td>74.9%</td>
<td>77.8%</td>
<td>73.6%</td>
</tr>
<tr>
<td>CP concern for questions/worries</td>
<td>81.2%</td>
<td>82.8%</td>
<td>85.1%</td>
<td>86.3%</td>
<td>86.2%</td>
<td>84.5%</td>
</tr>
<tr>
<td>CP discuss treatments</td>
<td>79.2%</td>
<td>79.6%</td>
<td>83.6%</td>
<td>87.7%</td>
<td>85.3%</td>
<td>83.2%</td>
</tr>
<tr>
<td>CP efforts to include in decisions</td>
<td>81.1%</td>
<td>82.1%</td>
<td>86.0%</td>
<td>87.0%</td>
<td>85.8%</td>
<td>84.5%</td>
</tr>
<tr>
<td>CP explanations of prob/condition</td>
<td>80.7%</td>
<td>81.1%</td>
<td>85.5%</td>
<td>87.5%</td>
<td>85.4%</td>
<td>84.1%</td>
</tr>
<tr>
<td>Ease of contacting</td>
<td>66.4%</td>
<td>65.8%</td>
<td>73.8%</td>
<td>75.1%</td>
<td>75.8%</td>
<td>71.5%</td>
</tr>
<tr>
<td>Ease of scheduling appointments</td>
<td>69.0%</td>
<td>70.0%</td>
<td>73.5%</td>
<td>78.4%</td>
<td>79.1%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Ease of talking w CP over video †</td>
<td>73.5%</td>
<td>76.2%</td>
<td>77.2%</td>
<td>82.0%</td>
<td>82.4%</td>
<td>78.7%</td>
</tr>
<tr>
<td>Likelihood of recommending</td>
<td>76.3%</td>
<td>73.9%</td>
<td>75.7%</td>
<td>81.5%</td>
<td>83.2%</td>
<td>78.2%</td>
</tr>
<tr>
<td>Staff worked together care for you</td>
<td>78.8%</td>
<td>79.7%</td>
<td>81.0%</td>
<td>85.6%</td>
<td>85.0%</td>
<td>82.2%</td>
</tr>
<tr>
<td>Video connect during visit †</td>
<td>68.4%</td>
<td>71.7%</td>
<td>75.0%</td>
<td>76.7%</td>
<td>80.1%</td>
<td>74.9%</td>
</tr>
</tbody>
</table>
Telehealth improvements

Completed

Printable one sheets of support and FAQ

Telehealth intranet page updated content with improved user experience
Telehealth improvements

Completed

Printable one sheets of support and FAQ

Telehealth intranet page updated content with improved user experience
Telehealth improvements

In Flight

Telehealth pre-visit standardized scripting and checklist

Clinic staff visibility into key patient TH preparedness indicators

Reengagement of TH Champions
Telehealth improvements

In Flight

Telehealth pre-visit standardized scripting and checklist

Clinic staff visibility into key patient TH preparedness indicators

Reengagement of TH Champions
Telehealth improvements

Up Next

Virtual centralized support
Improving wait times communication
eConsent work queues
Overall TH patient communication messaging revamp
Post-appointment AVS and scheduling workflows
Ticket scheduling

- A way to quickly create a specific appointment type for a specific existing patient within a specific date and time range based on provider(s) availability
- Different than open and direct scheduling
- Potential use cases include
  - Scheduling follow-up appointments at the end of Telehealth appointments (address follow-up work queue’s)
  - Gen Surg after clinic ad hoc Telehealth appointment check-ins with post surgery patients
Patient Message

To: Dr. John Doe

Regarding: Adolescent Ztest

Dates

Delay sending until

Necessary if not read by

Options

- Do not allow patient reply
- Send patient reply to me

Tasks & Attachments

- Add
- Attach
- Add
- Add
- Add

Checklist

No episodes to display
Ticket scheduling discussion

- Could you see this being done by providers? Front desk? Schedulers/PASC?
- What is the comfort level of schedules being open and available (but only to those specific patients)?
- Any other questions or concerns?
Haiku/Canto for Telehealth

- Ability to have a Telehealth appointment via phone or tablet
- What is your interest level?
- How/when would you like to utilize this capability?
- Any concerns or questions that this raises?
Questions / Comments / Ideas?

npageler@stanford.edu  eballard@stanfordchildrens.org