Creating a healthier future with technology

2019 at Bear Institute

Children's National ™

Bear Institute for
Health Innovation

Part of the Children's National Health System

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Leadership message

Dear Reader,

The year 2019 has been a busy and exciting one for the Bear Institute – we are particularly excited to celebrate the six-year renewal of the Bear Institute contract at Children's National. We look forward to continuing our collaboration and quest to improve the quality and safety of care for children through the use of health information technology.

We experienced some transitions in leadership that set us up for success in the coming years. Matt MacVey, former site lead of the Bear Institute, took over as vice president and CIO of Children's National. Gulshan Mehta, former Director and Strategic Value Executive, moved into the Bear Institute Senior Director position. We look forward to these new roles in a collaborative manner to be the best advocates for our patients and families and further the successes of the Bear Institute and Children's National collectively.

Children's National maintained its high level of achievement as a nationally ranked pediatric hospital and was ranked number six by *U.S. News & World Report*. This recognition is a testament to the hard work and dedication of Bear Institute and Children's National staff. In addition, U.S. News & World Report also ranked Children's National number one in the neonatology specialty. We aim to provide the best level of care possible for patients and their families.

A primary goal for the Bear Institute team in 2019 was to continue to optimize and make current workflows more efficient to enhance patients' safety and improve provider well-being. We are pleased to share our successes and look forward to continued success in 2020 as we keep the health of kids at the forefront of our minds and as the main driver of our efforts.

Best Regards,

Matt MacVey and Gulshan Mehta

Matt MacVey
Vice President and Chief Information Officer
Children's National

Gulshan Mehta
Senior Director
The Bear Institute for Health Innovation

2019 Timeline

January
- OR and Cath Lab went live with Bridge Specimen Collection, enhancing the safety and accuracy of processes at the bedside using barcode scanning technology and clinical system integration
- Bear Time and Attendance System (Kronos) upgraded to version 8.1 to optimize workflow with a new interface and new tools to help managers, timekeepers and schedulers make decisions faster when it comes to managing their workforce

February
- Enabled the Nursing Essential Data Set to significantly cut down on documentation time on intake forms

March
- Upgraded wireless communication platform to *CareAware Connect™* 3.0, along with a rollout of Zebra TC51 Android phones, adding greater stability and reliability
- Patient Self-Scheduling feature for MyChildrensNationalPortal piloted for the Cardiology department

April
- Go live of the Patient Self-Scheduling feature for the Dermatology, Hematology, Nephrology, Neurology, Rheumatology and Surgery departments

May
- Go live of NicView cameras in the NICU, which promotes quality care by enhancing the experience for families of patients
- Bear Institute was awarded the 2019 Partners in Care Award by Children's National Nursing for collaboration on the *CareAware Connect* initiative

June
- Go live of *HealtheCare^SM*, a new *PowerChart®* component for Ambulatory Case Management which incorporates customized algorithms designed specifically to identify our population's most at-risk patients
- Phase 2 rollout of *CareAware Connect* 3.0
- Children's National ranked #6 in the 2019 *U.S. News and World Report* rankings for pediatric hospitals and #1 in Neonatology

July
- Go live of the new electronic depart summary in PACU and Ambulatory Surgery Center in Montgomery County, which leads to more accurate visit summaries and supports patient safety
- Go live of TrackCore, a web-based application designed to improve efficiency by eliminating double documentation in the OR

August
- Go live of *MPages®* 6.12 upgrade that includes a more consistent style that adapts *MPages* to best fit end user's screen resolution and lays the foundation for future innovation

September
- Children's National and Cerner renew the Bear Institute contract for an additional six years

October
- Phase 1 of the upgrade from Windows 7 to Windows 10 began – Windows 10 has a faster operating speed, less interruptions, better patch deployment with more options for IT to deploy patches in a safe way with minimal disruption, is more secure and has better device connectivity
- Go live of BearBOOST which optimizes workflows and is tailored to specialty-specific provider and resident workflows in the NICU, PICU, CICU, Hospitalist service and Neurology

November
- Go live of "Cerner Support" that allows staff to submit an issue or change directly from the TRACKS *Millennium* application without calling the Help Desk

December
- Phase 3 rollout of *CareAware Connect* 3.0 for ED, OR, Nursing, PACU, Hospitalists and Residents
- Go live of the Zoom Web Conferencing Platform at Children's National
- Began rollout of Duo Multi-Factor Authentication to access Children's VPN
- A demo for VDI 30/10 took place allowing staff to observe the future user desktop and experience the 30-second logon, with pilots and go lives scheduled to begin April 2020

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Value Outcomes

Patient Experience

Nicview cameras were logged into by patients' families a total of **66,234** times from June 2019 to December 2019

For the 2019 calendar year, the Patient Portal had a **29%** invitation claim rate

Fostering Efficiency

Reduced mean documentation time on nursing intake forms from 13 minutes in December 2018 to 9 minutes in July 2019 by completing a cleanup of fields as part of enabling the Nursing Essential Data Set for admissions documentation

Safe Clinical Care Delivery

One month post-perioperative electronic depart go live, medication reconciliation for patients upon discharge increased from **17.6%** to **95.4%,** leading to more accurate records and increased patient safety

Security

In July's pre-deployment of the Report Phish button, only **37** suspicious emails were reported; post-deployment, the number of emails reported increased to **528** in August and **659** in September

Engagement

~20% increase in microalbumin screenings for patients on the diabetes registry

Percentage of asthma patients receiving the influenza vaccine more than doubled

Percentage of inflammatory bowel patients receiving bone density testing increased **11%**

Achievements Grounded in Technology

Patient-Centric Progress

Patient Self-Scheduling

The Patient Portal allows patients and their families to access medical records, view test results and message providers.

NEW in April, Patient Self-Scheduling allows families to:

- Schedule future appointments through MyChildrensNationalPortal
- Select a time and date that works best for their schedules
- Avoid wasting time on hold when calling to schedule appointments

This functionality is now available for Cardiology, Dermatology, Rheumatology, Hematology, Nephrology, Neurology and Surgery.

NicView Cameras

On May 28, the Neonatal Intensive Care Unit (NICU) at Children's National went live with NicView.

What is NicView?

NicView is a live streaming video system that allows parents, family and friends to view their infant in real-time, 24/7, through a secure online portal.

Benefits:

- NicView allows families to view their hospitalized infant from any internet-enabled device, such as a computer, laptop, tablet or smartphone.
- Helps ease anxiety by providing peace of mind to families and friends by providing access to check in on their infant even when they cannot physically be there.

Perioperative Electronic Depart

On July 23, the new electronic depart summary in PACU and Ambulatory Surgery Center in Montgomery County went live.

Perioperative electronic depart summary includes:

- Patient home medications
- Follow-up appointments
- Patient education
- Patient information

Benefits:

This new discharge process enhances patient safety and streamlines workflows by putting all vital information in one place that is accessible by all necessary parties.
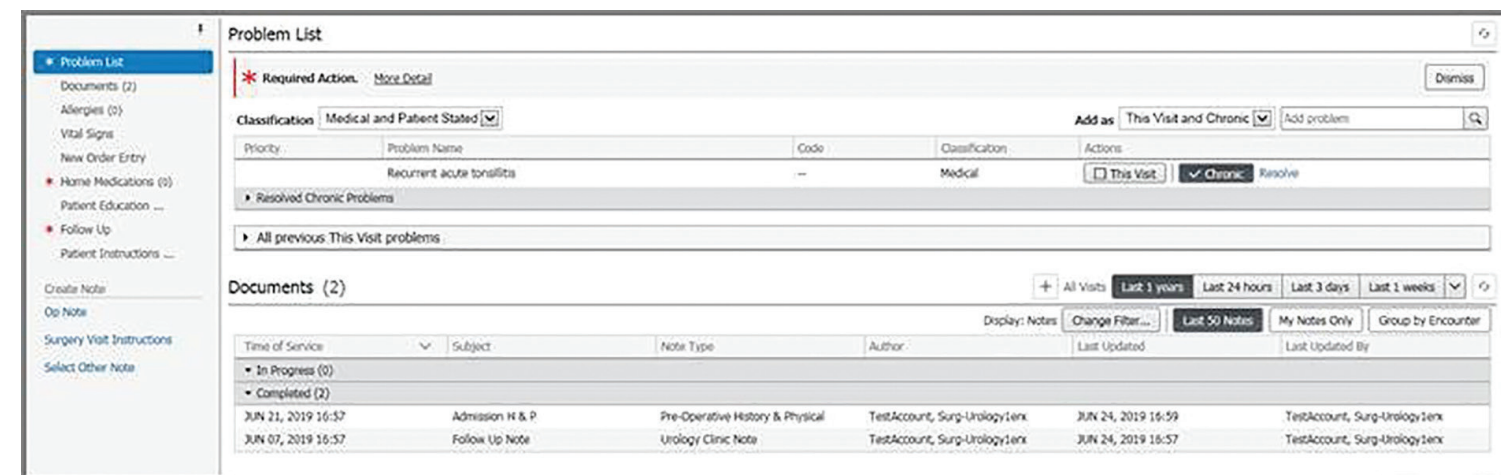
The new electronic depart summary contains all vital information that can easily be clicked through on the left-hand menu.

Medication Reconciliation rate upon discharge

Looking at data from a month post-go live, medication reconciliation for patients upon discharge increased from 17.6% to 95.4%. This dramatic increase leads to more accurate records and ensures patient safety.
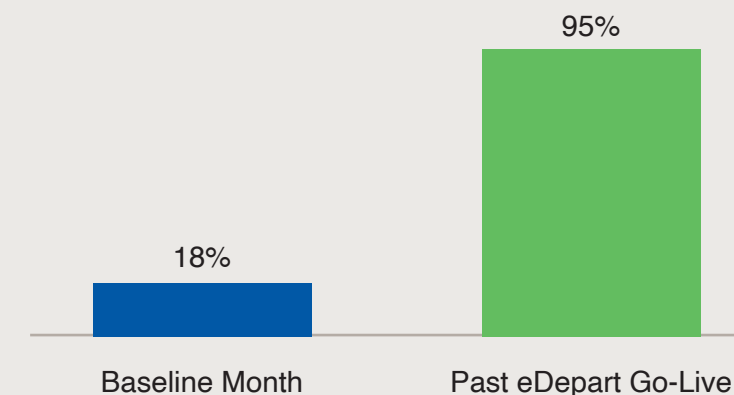
Suicide Screening Initiative

The Suicide Screening initiative at Children's National was part of a larger nationwide initiative propelled by The Joint Commission on reducing the risk for suicide.

Children's National implemented suicide screenings for patients admitted for behavioral reasons. If a suicide screen identifies a positive suicide risk, a follow-up assessment documentation is conducted as well as interventions to reduce the risk.

Children's National administered the Columbia-Suicide Severity Rating Scale (C-SSRS) as the organizational standardized suicide risk screening tool. In the first week of implementation alone, 41 patients were identified as at-risk for committing suicide. This initiative interjects help for at-risk patients.

Virtual Bed Project

The PACU Virtual Unit was designed to alleviate the challenges in the PACU Same Day Surgery location (SDS) and the negative impacts on downstream systems and services.

Patients in the SDS location were not tied to a location that all internal services and systems could see. As such, any active orders on that patient in the SDS location would be lost once they were placed into an Inpatient Status. This posed grim safety issues and a substantial increase on manual workarounds for the surgical and PACU teams as well as receiving floor units.

The solution was to build an Inpatient Virtual Unit in the PACU that mirrors the STAR system, so when a patient is placed in this location, they are visible to all downstream systems as any other inpatient would be. This also anchors any orders to the encounter type which allows the orders to "follow" the patient as they transfer to a new location on the floor when a bed is ready.

Focusing on Security

Report Phish Button

As part of a large email security push, a "Report Phish" button was added to the email toolbar, allowing staff to quickly and easily report suspicious emails. This notifies the security team so any pressing threats can be identified quickly to protect Children's National.

Suspicous Emails Reported

	Jul-19	Aug-19	Sep-19

(Bar chart showing y-axis from 0 to 700 in increments of 100. Jul-19 ≈ 37, Aug-19 ≈ 528, Sep-19 ≈ 659)

In July's pre-deployment of the Report Phish button, only 37 suspicious emails were reported. During post-deployment, the number of emails reported skyrocketed with 528 in August and 659 in September.
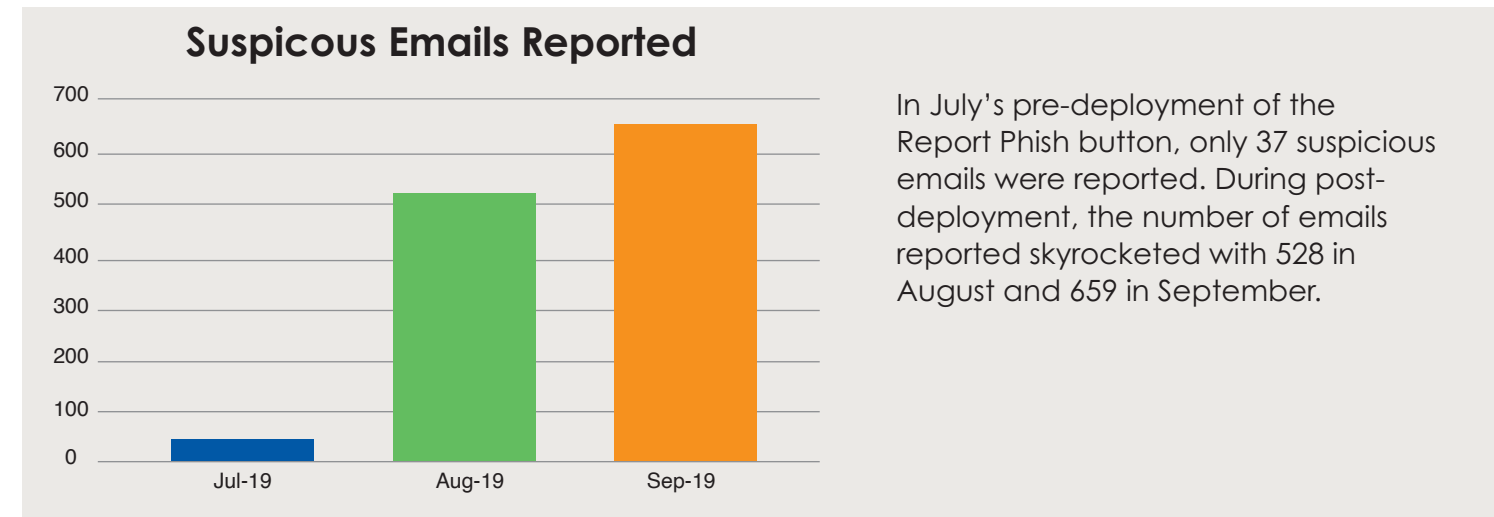
Duo Multi-Factor Authentication

At the end of 2019 and moving into 2020, we prepared to roll out Duo Multi-Factor Authentication (MFA) to access the Children's network via Cisco AnyConnect VPN.

Duo protects Children's National data by requiring a second factor of authentication when accessing Duo-protected applications to ensure your identity.

In addition to providing a password, staff will confirm their identity via a call, text or push notification.

Duo enhances security at Children's National, making it more difficult for outside threats to hack into applications. In the future, more applications will require Duo.

Operational Success

BearBOOST (Bundled Optimization of Systems and Training)

On Oct. 28, 2019, BearBOOST went live for clinicians in the CICU, NICU, PICU, Hospitalists, Residents/Fellows and Neurology. BearBOOST enhances provider efficiency and experience with optimized workflows tailored for their specialties. It also improves the timeliness and completeness of documentation benefiting patient care and revenue and hardens a foundation that advances our ability to innovate.

New features of BearBOOST include:

- *Dynamic Documentation™* (Dyn Doc), an efficient physician documentation platform that allows for simultaneous chart review and note writing
- Streamlined chart review with specialty-specific **Workflow Views and Quick Order pages** that make chart navigation and ordering easier and more efficient
- A new **Problem List Tool** with interfaces between inpatient and ambulatory settings to help transition the most complicated patients between settings
- Enhanced **Discharge Process** that is integrated in the workflow and automatic forwarding of summaries to primary care providers at discharge
- The ability to dictate from your mobile device directly into your note with **Dragon PowerMic Mobile**
- Mobile access for *PowerChart* on your iPhone/iPad via *PowerChart Touch™*

CareAware Connect 3.0

On March 27, wireless telephones were upgraded to the new *CareAware Connect* 3.0 platform.

New platform features:

- Improved call quality
- Better platform stability
- Improved performance with voice calling, texting, monitor and bed-call alarms

This initiative has helped improve patient safety with more consistent and reliable communication throughout the hospital.

Call Transaction Average and Volume
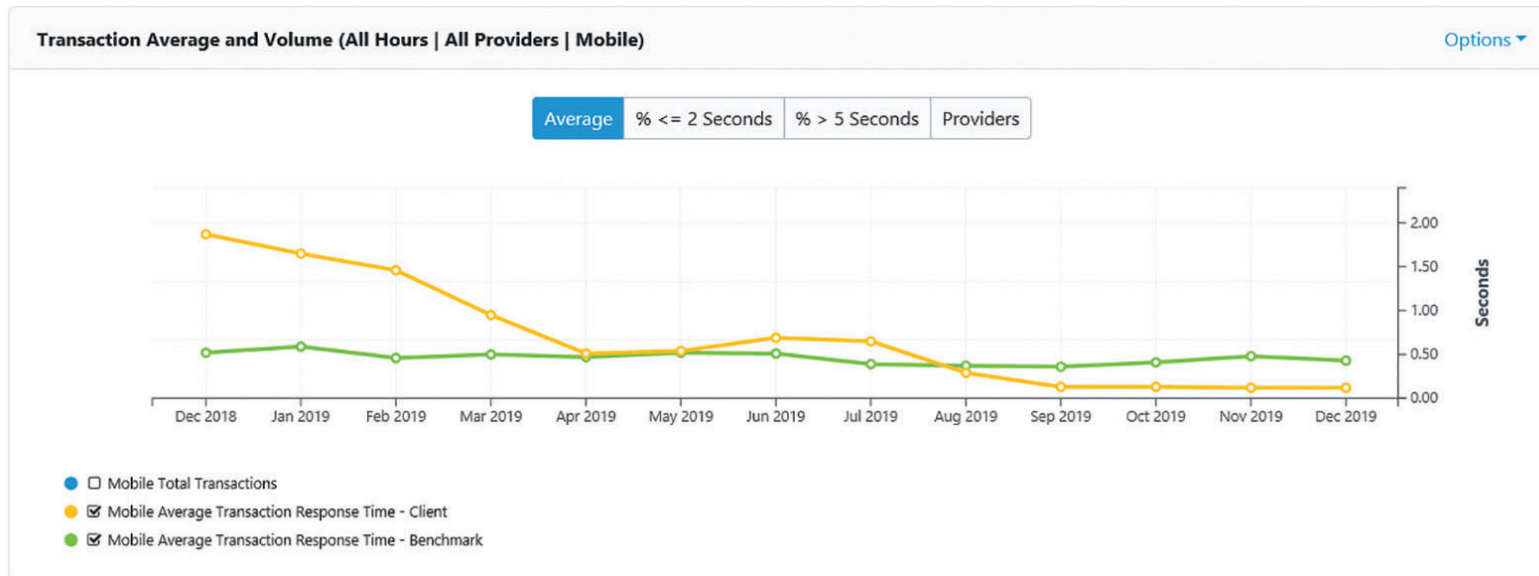
This graph represents the mobile average transaction response time for calls going through. During post-CareAware Connect go live, the time was reduced to under a half second.

Zoom Rollout

Children's National quickly and efficiently converted to the Zoom Web Conferencing platform in early December.

Benefits of the Zoom platform:

- Easy-to-use effective way to communicate with peers on a day-to-day basis
- Great video and audio quality
- Cross-platform and mobile support
- Communication software that combines video conferencing, online meetings, chat and mobile collaboration
- Meetings sync with your calendar system and deliver streamlined enterprise-grade video conferencing services using cloud computing

The Faces Behind Bear Institute's Vision

Steering Committee Leadership

Children's Leadership

Kurt Newman
MD, President and CEO

Kathy Gorman
M.S.N., R.N., F.A.A.N., EVP for Patient Care Services and COO and COO

Alec King
EVP and Chief Financial Officer

Matt MacVey
Vice President and CIO

Elizabeth Flury
M.A., EVP and Chief Strategy Officer

Dr. Cora-Bramble
M.D., MBA, EVP and Chief Medical Officer for Ambulatory and Community Health Services

Dr. David Wessel
M.D., EVP and Chief Medical Officer, Hospital and Specialty Services

Mark Batshaw
M.D., EVP, Physician-in-Chief and Chief Academic Officer

Linda Talley
M.S., B.S.N., R.N., NE-BC, VP of Nursing and Chief Nursing Officer

Artencia Hawkins-Bell
MPA, Chief Operating Officer, HealthCare Dynamics International

Cerner Leadership

Dick Flanigan
Senior Vice President, ITWorks

Don Bisbee
Senior Vice President, Clinical and Business Strategy

Eva Karp
DHA, MBA, RN-BC, FACHE, Senior Vice President, Chief Clinical and Patient Safety Officer

Adam Christmann
Vice President and General Manager, Analytics

Don Paulson
Vice President, Revenue Cycle Executive

Gulshan Mehta
Senior Director, The Bear Institute

Bear Institute Information Technology Steering Committee

The ITSC is responsible for the overall governance, project oversight, prioritization and approval of IT initiatives at Children's National in alignment of the vision, mission and strategic goals for the Bear Institute.

Innovations Committee

The Innovation Steering Committee is reconceived into a monthly working committee with representation from in-patient, ambulatory, nursing, IT, finance and research. This committee provides a comprehensive value assessment of new concepts being submitted by Children's National staff to the recently launched Bear Institute's Innovations Ideas Portal.
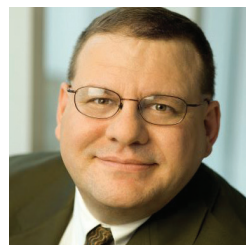
What is the Bear Institute to us?

Gulshan Mehta
Senior Director, Bear Institute Leader

"The Bear Institute combines the best of Cerner with the best of Children's National to improve health care delivery and outcomes through innovative use of technology. This transformational partnership is driven by a shared vision and mission and core values, and it is grounded by the belief that this collaboration has the power to significantly influence the advancements in health care delivery and improvement in outcomes for the kids being treated at Children's National. Personally, being a part of this community and with young kids, this relationship is especially meaningful for me and for my family – as we have witnessed the impact technology has on patient engagement, efficient care delivery and cost containment. I am humbled and proud to be leading this organization."

Brad Sitler
Director, Bear Institute Development Leader

"The Bear Institute for Health Innovation is a unique collaboration between Children's National and Cerner to help children through new health care technology innovation. This is not only a noble cause but a collaboration that has the vision, mission, thought leadership and technical competency to make a significant impact on the lives of children and their families around the globe. The Bear Institute for Health Innovation brings together globally recognized health researchers, nationally recognized clinicians and visionary technology leadership of a globally deployed health care technology company. We look forward to great work from this collaboration and the benefits for years to come. I am both excited and honored to be a part of this journey."

Darin Prill
Senior Director, Bear Institute Technology Leader

"The Bear Institute is a way for me and my team to contribute to a vital and critical undertaking: the caring for sick children. I know each day when I head to work, I am part of the delivery of the highest quality care to the most important patient population, and to me, there is no better mission. I have been fortunate enough to be part of the Virtual Santa event the past two years. Going around the hospital delivering joy and happiness puts into perspective why it is we all do what we do. Thanks for letting me be a part of this fulfilling and important mission."

Bear Institute Foundation

Our Mission

The Bear Institute will accelerate clinical excellence, innovation, research, the health of our communities and value-driven pediatric care.

Our Vision

A future where every child grows to their highest level of health and potential through the advancement of information, technology and innovation.

Our Guiding Values

- Collaboration: We work together to achieve organizational goals – being engaged, present and inclusive in all interactions.
- Innovation: We provide creative and expert solutions that fulfill business needs and deliver value.
- Commitment: Driven by the client's goals, we take ownership of our work to create positive change.
- Passion: We are excited to be part of an organization that contributes to improved health outcomes for pediatric patients.

Bear Institute Strategic Plan

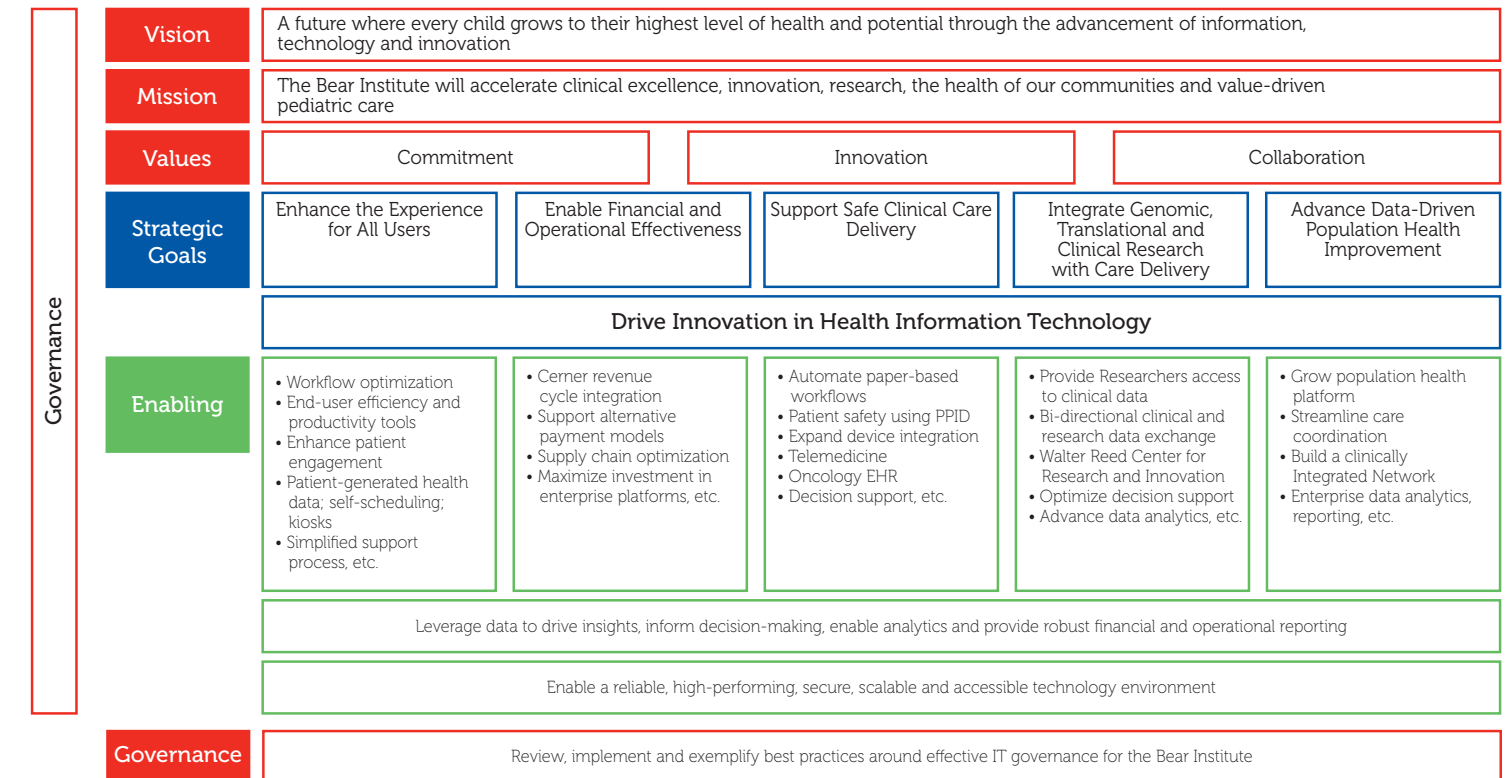|					
Vision	A future where every child grows to their highest level of health and potential through the advancement of information, technology and innovation				
Mission	The Bear Institute will accelerate clinical excellence, innovation, research, the health of our communities and value-driven pediatric care				
Values	Commitment		Innovation		Collaboration
Strategic Goals	Enhance the Experience for All Users	Enable Financial and Operational Effectiveness	Support Safe Clinical Care Delivery	Integrate Genomic, Translational and Clinical Research with Care Delivery	Advance Data-Driven Population Health Improvement
	Drive Innovation in Health Information Technology				
Enabling	• Workflow optimization • End-user efficiency and productivity tools • Enhance patient engagement • Patient-generated health data; self-scheduling; kiosks • Simplified support process, etc.	• Cerner revenue cycle integration • Support alternative payment models • Supply chain optimization • Maximize investment in enterprise platforms, etc.	• Automate paper-based workflows • Patient safety using PPID • Expand device integration • Telemedicine • Oncology EHR • Decision support, etc.	• Provide Researchers access to clinical data • Bi-directional clinical and research data exchange • Walter Reed Center for Research and Innovation • Optimize decision support • Advance data analytics, etc.	• Grow population health platform • Streamline care coordination • Build a clinically Integrated Network • Enterprise data analytics, reporting, etc.
	Leverage data to drive insights, inform decision-making, enable analytics and provide robust financial and operational reporting				
	Enable a reliable, high-performing, secure, scalable and accessible technology environment				
Governance	Review, implement and exemplify best practices around effective IT governance for the Bear Institute				

Governance (vertical label along left side)

Spreading the Impact

Innovations

"The Bear Institute for Health Innovation has an unprecedented opportunity to drive new innovation through collaborations forged with the *Sheikh Zayed Institute for Pediatric Surgical Innovation*, Clinical and Translational Science Institute, Children's National Hospital's clinical and research teams and the Cerner organization. These collaborations set the stage for bringing together world-class research, nationally recognized clinical leadership and technology leadership to drive children's digital health innovation."

–Brad Sitler
Director, Bear Institute Development Leader

Innovation Team Initiatives

- Instilled a disciplined innovation process and reinstated Steering Committee oversight
- Launched an innovation ideas portal for Children's National staff to submit ideas for process/workflow improvement or problems to be addressed
- Developed collaboration in-roads with Sheikh Zayed Institute for Pediatric Surgical Innovation, CNH-CTSI and Research
- Pursuing a new channel-to-market for innovation solutions, specifically the Burn Application as the first one to be assessed and negotiations started for out-licensing

Impactful Events

Cerner Events
Cerner Health Conference

The Cerner Health Conference was held Oct. 7-9, 2019, and brought together thousands of health care advocates. This conference is a wonderful opportunity to connect with like-minded individuals, learn about the latest health care trends and explore groundbreaking health care and technology innovations. With over 200 education sessions, there is something to peak a variety of interests.

Children's Events
The Children's Ball

The mission of this must-attend philanthropic event is to provide the best medical care, research and advocacy for all children. It is a black-tie event that brings together business leaders, government officials, policymakers and community leaders and features an evening of entertainment, gourmet food and dancing.

7th Annual Race for Every Child

There were 7,704 5k runners and 454 teams gathered on Oct. 19, 2019, to raise money and awareness for pediatric care. More than $1.37 million was raised to provide life-changing care to kids at Children's National. The event was the largest to date!

Where We Are and Where We're Going

Industry Recognition

Ranked #6 in *U.S. News and World Report* Top Children's Hospitals

Children's National was once again ranked as one of the nation's top pediatric hospitals in *U.S. News and World Report* for 2019-2020. This designation is representative of a collaborative effort grounded in research, innovations and technology. In addition, Children's National was ranked number one in neonatology for the third consecutive year. Children's National also ranked in the top ten for these additional specialties: Pediatric Neurology & Neurosurgery (#5); Pediatric Nephrology (#6); Pediatric Pulmonology and Lung Surgery (#9) and Pediatric Cancer (#9).

> "Holding this strong position is an important mark of success and an achievement we can all celebrate together. As we approach our 150th birthday next year, we do so knowing that together, we've built a strong foundation of quality and expertise that has served our community well."
>
> –Kurt Newman
> *President & CEO, Children's National Hospital*

2019 Best Nursing Partners in Care Award

The Bear Institute was unanimously awarded the Best Nursing Partners in Care Award for 2019. This award is in recognition of our team's work on the *CareAware Connect* initiative, which significantly improved the quality and safety of communication in the delivery of care to children.

Future Goals for Continued Improvement

Assisting with Children's National facility expansion projects

Children's National is currently working on several expansion projects that the Bear Institute team is heavily involved in to support any technology needs. The three main projects of focus are the Walter Reed Campus development, Sheikh Zayed Campus renewal and various ambulatory growth.

Go live with Cerner Revenue Cycle

Integrating our registration and billing processes with our current documentation system will help us improve efficiency and our speed of reimbursement.

Expanding population health registries

Enhance the health of children in the DC Metropolitan region using health registries, community engagement, policy and systems change to identify and act on opportunities for improvement.

Continuing to advance the EHR

By moving to the pediatric essential data set and updating the physician *mPages*, we expect to reduce the amount of time associated with documentation and searching for information.

Ambulatory transformation IT efforts

Expand BearBOOST to optimize workflows for providers in ambulatory, as well as improve upon the thoroughness and timeliness of documentation for enhanced patient care.

Focus on clinician experience

Enhance user experience with various focused projects. VDI 30/10 will enable faster log-on times and a new customizable virtual desktop. Children's National will also be implementing Microsoft Office 365, the leader in desktop and cloud-based services.

Millennium upgrade to 2018 code

In August 2020 we will be upgrading TRACKs to the latest 2018 code level. This will allow Children's National to meet regulatory requirements and position the organization to take advantage of the latest corrections, enhancements and innovations in the future. The following platforms will be upgraded as part of this initiative: *Millennium*, *mPages*, Bridge Medical, *CareAware* and Clairvia.

Develop a digital consumer engagement strategy

Identify a comprehensive digital strategy to effectively engage with our patients and families, through innovative use of technology. Drive workflow efficiencies for the ambulatory clinics through streamlined data capture and reconciliation through the use of the patient portal.