



Innovation in every moment

Rady Children's Digital Transformation: Reimagine the Future

Today's Agenda

- ◇ Background & level setting
 - ◇ Context – Reimagining Care
 - ◇ The Hype Cycle
- ◇ Emerging technologies
 - ◇ Why it matters
 - ◇ Where we are
 - ◇ What we need
- ◇ Coming full circle – our direction
 - ◇ Nimbleness, flexibility and adaptability
 - ◇ Within the constraints of recovery
 - ◇ Employee and Family Focused

About Rady Children's



Fast Facts FY2020

Beds:	524
Revenue:	\$1.2B
Capitated Lives:	250,000+
Employees:	5,200+
Physicians:	800+ affiliated 400+ subspecialists
Nurses:	1,500+
Admissions:	18,000+
Surgeries:	18,000+
ED and UC Visits:	135,000+
Outpatient Specialty Visits:	261,000+
Outpatient PCP Visits:	460,000+
Telemedicine Visits:	51,000+

Region's provider of choice and safety net

Rady Children's Digital Transformation: Reimagine the Future



Reimagine Care:
Care Redesign



Reimagine Work:
Workforce Innovation

Innovation in every moment

Reimagine the Future Guiding Principles

- ◇ **Nimbleness, flexibility and adaptability**
- ◇ Focus on innovation
- ◇ Strategic plan alignment
- ◇ Delivering whole child care to the patient
- ◇ **Within the constraints of recovery**
- ◇ Sustainable
- ◇ Alignment to culture and mission
- ◇ **Employee and Family Focused**

What does the future of healthcare look like 5-10 years from now?

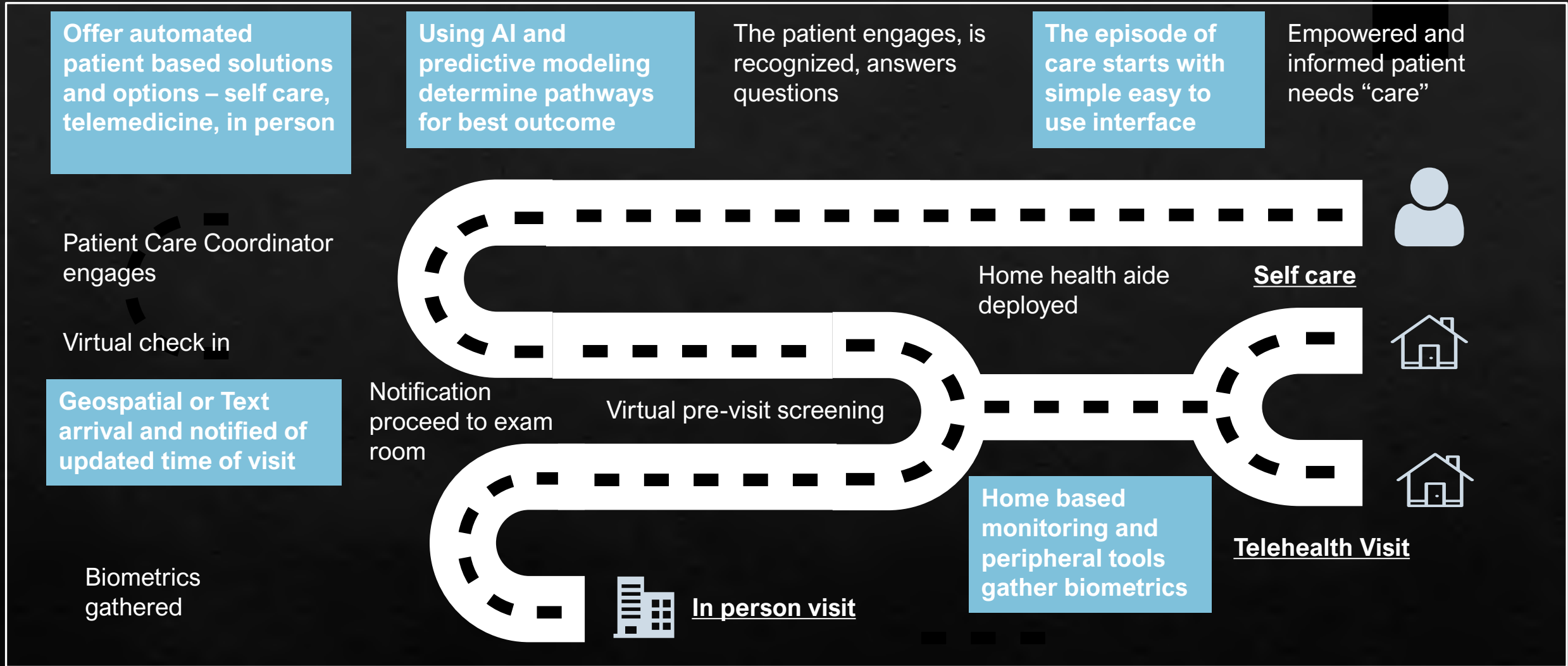
- ◆ The global telemedicine market size was USD 41.63 billion in 2019. ... The market is projected to grow from USD 79.79 billion in 2020 to USD 396.76 billion in 2027 at a CAGR of 25.5%¹
- ◆ The global healthcare artificial intelligence (AI) market is expected to grow at a CAGR of 41.4% from 2020 to 2027 to reach \$51.3 billion by 2027²
- ◆ The global “Internet of Medical Things (IoMT)” Market is anticipated to reach USD 142.45 billion by 2026, with a CAGR of 28.9%³

¹ <https://www.fortunebusinessinsights.com/industry-reports/telemedicine-market-101067>

² <https://www.businesswire.com/news/home/20210118005340/en/Healthcare-Artificial-Intelligence-Market-2027---Market-is-Expected-to-Grow-at-a-CAGR-of-41.4---ResearchAndMarkets.com>

³ [https://www.marketwatch.com/press-release/internet-of-medical-things-iomt-market-size-2021-in-depth-analysis-market-dynamics-with-top-players-impact-of-covid-19-case-study-analysis-industry-impact-and-global-forecast-till-2026-2021-03-15#:~:text=Mar%202015%2C%202021%20\(The%20Expresswire,increasing%20prevalence%20of%20chronic%20diseases.](https://www.marketwatch.com/press-release/internet-of-medical-things-iomt-market-size-2021-in-depth-analysis-market-dynamics-with-top-players-impact-of-covid-19-case-study-analysis-industry-impact-and-global-forecast-till-2026-2021-03-15#:~:text=Mar%202015%2C%202021%20(The%20Expresswire,increasing%20prevalence%20of%20chronic%20diseases.)

What Care Redesign means to the patient on the Ambulatory Clinical Path

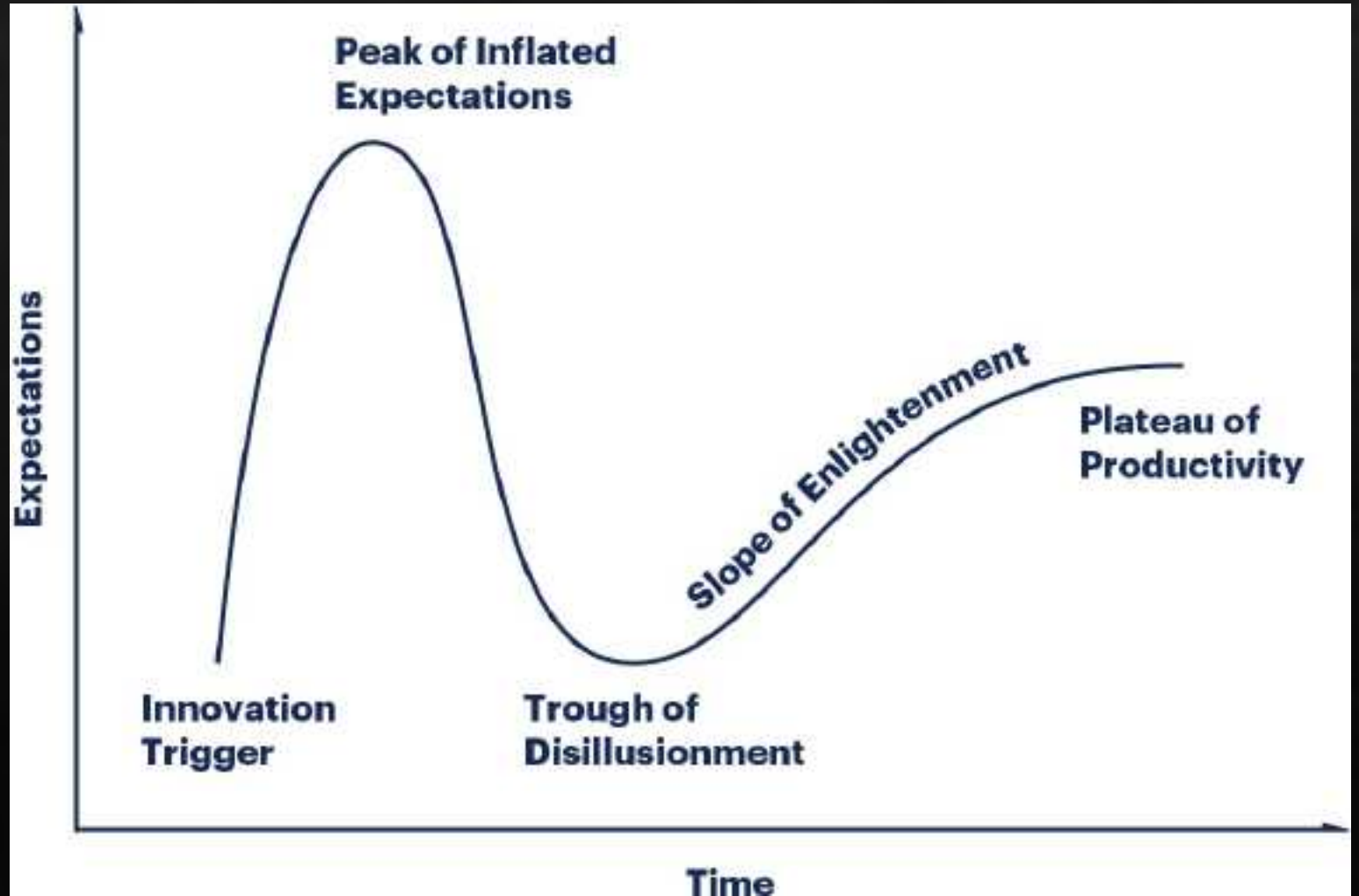


Throughout the episode:

- Constant data gathering
- Predictive modeling
- AI to determine patient based best outcome
- Seamless transitions
- Patient engagement and feedback
- Automated actions-based events, triggers and analytics

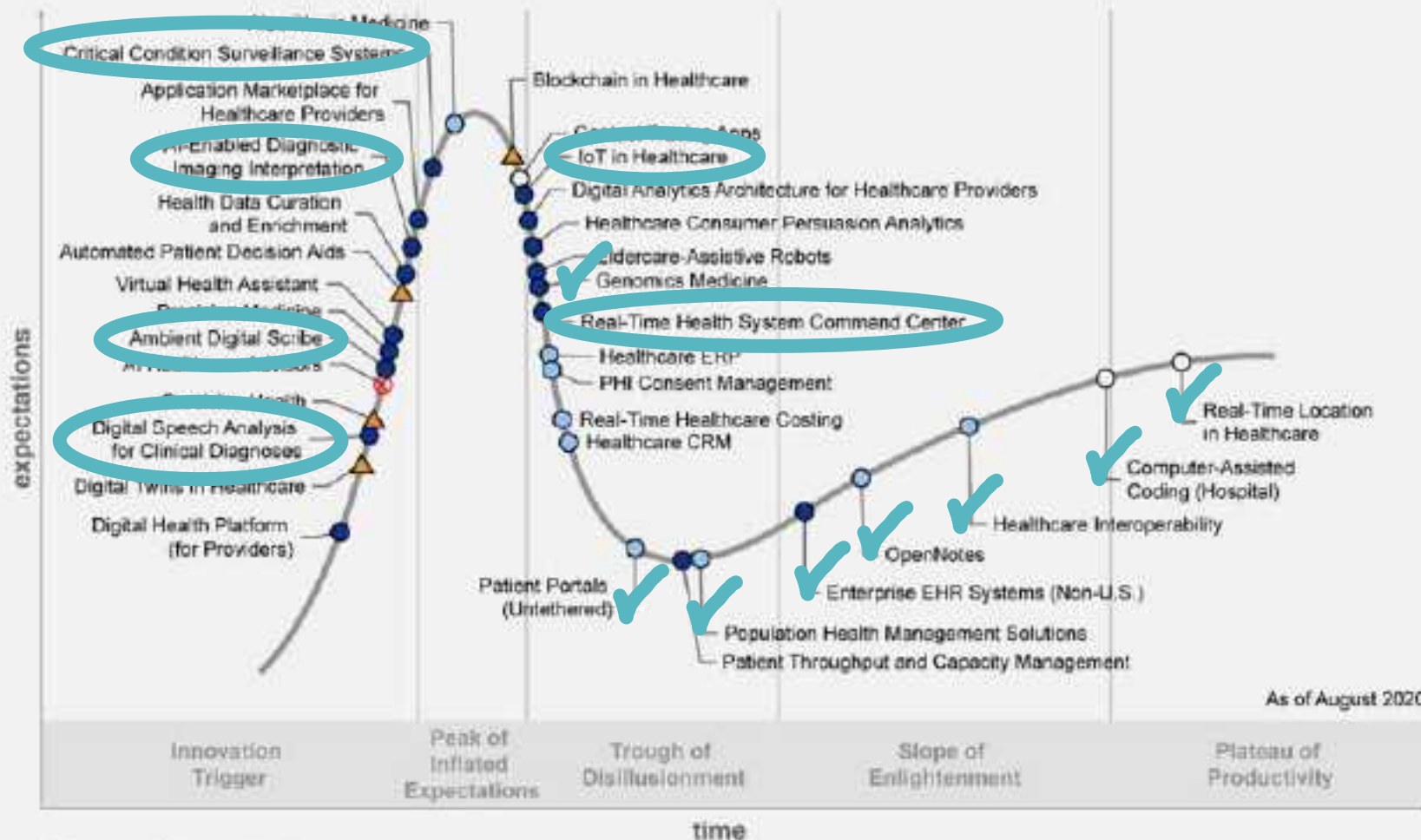
The Hype Cycle

The hype cycle is a branded graphical presentation developed and used by the American research, advisory and information technology firm Gartner to represent the maturity, adoption, and social application of specific technologies. The hype cycle claims to provide a graphical and conceptual presentation of the maturity of emerging technologies through five phases.



Healthcare Specific Hype Cycle

Figure 1. Hype Cycle for Healthcare Providers, 2020



As of August 2020

Plateau will be reached:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Source: Gartner
ID: 448168

Rady
Children's



Telemedicine



Why it matters

No longer “leading edge”, now a “must have”

Patient convenience

Lower cost care

Extends geographic expansion

Extends MD career options

Our Foundation

Zoom-Epic integration

51,000 visits in FY20

130,000 visits in FYTD

What we need

Peripheral device integration

Multi-State licensure

Continued payment parity

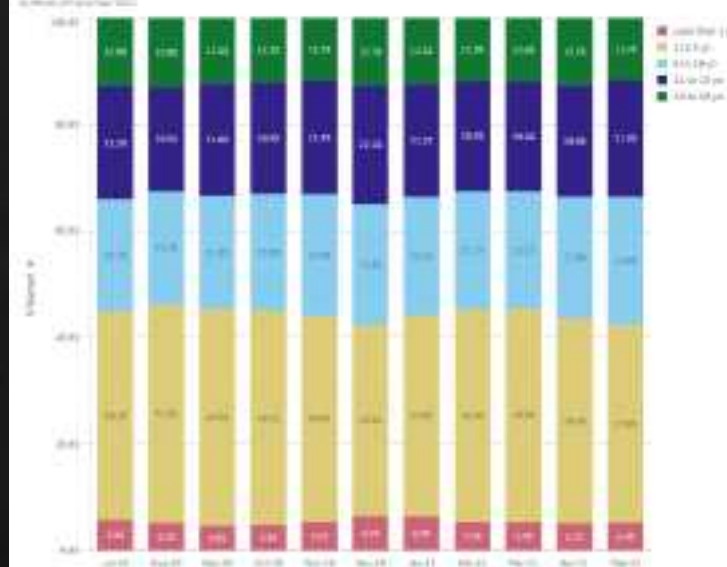
Continued training / optimization



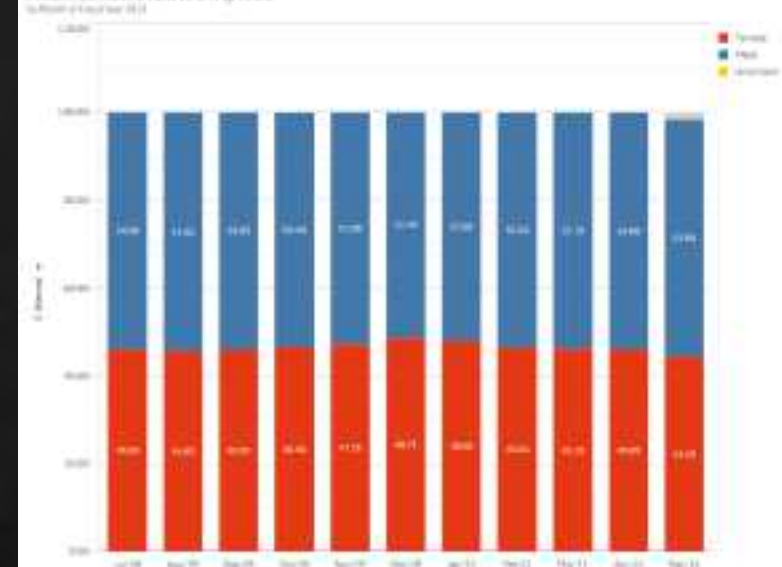
Summary - All Outpatient Telemedicine



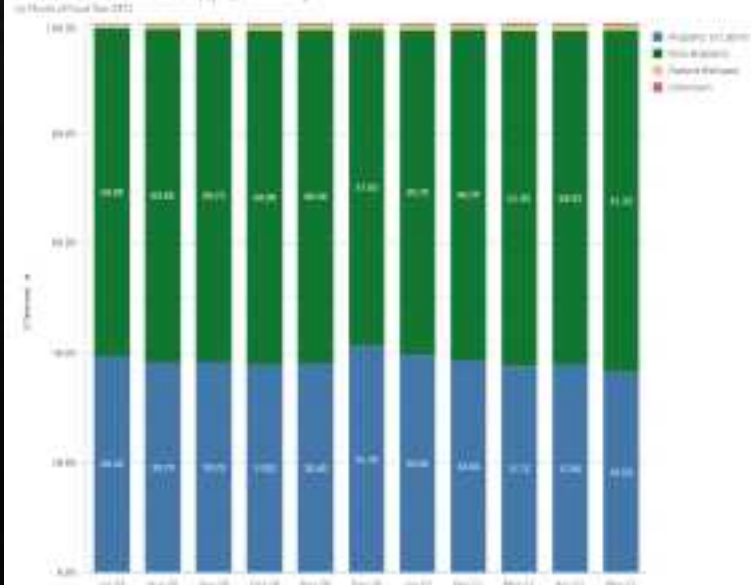
Percent Telemedicine Visits Followed by Patient Age Group



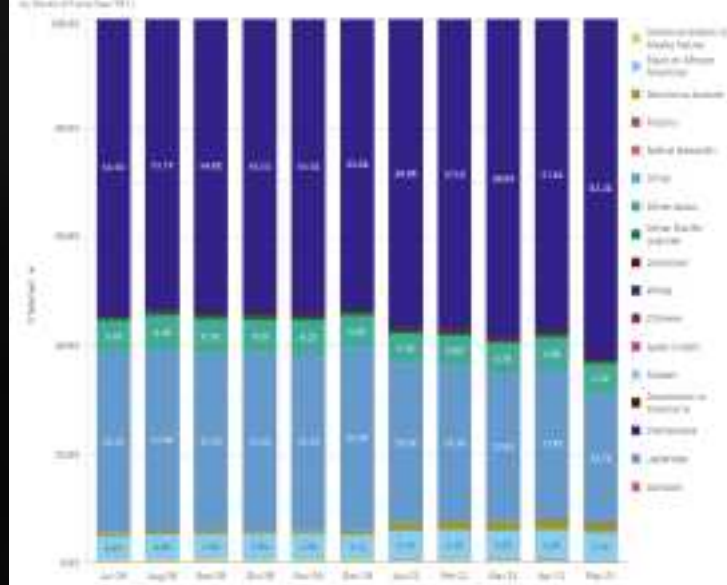
Percent Telemedicine Visits Followed by Gender



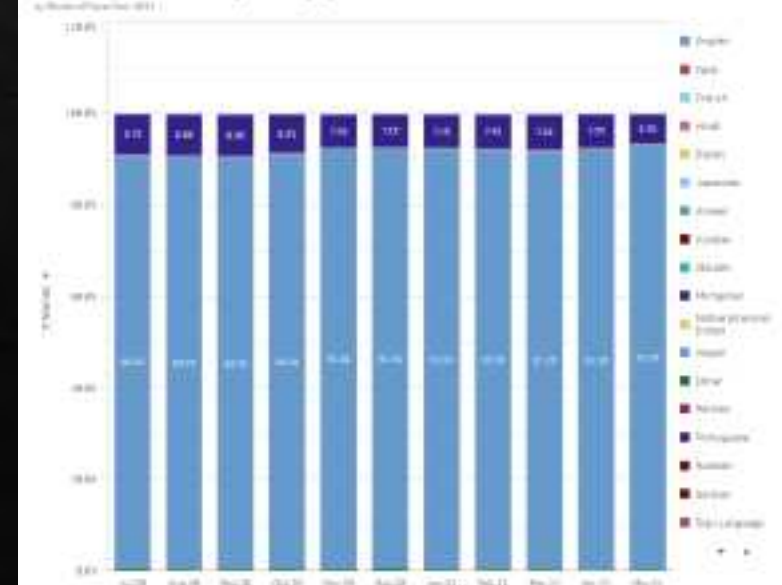
Percent Telemedicine Visits Followed by Patient Ethnicity



Percent Telemedicine Visits Followed by Patient Race



Percent Telemedicine Visits Followed by Patient Language



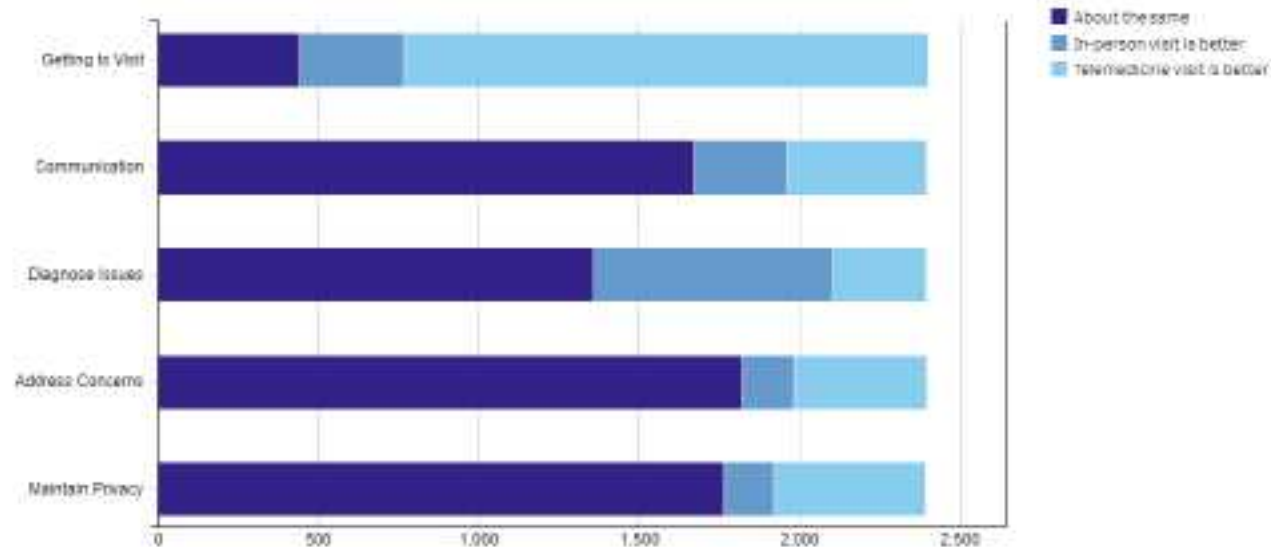
Telemed Survey

Total Surveys: **3,549**
 % Recommend Telemedicine: **88.5%**
 % With Technology Issues: **11.4%**
 % Additional Visit Needed: **19.6%**
 % Visits that Saved Time: **93.2%**
 Total Estimated Time Saved (days): **100.9**

First Visits and Visits w/ Tech Issues by Month Drill-Down



Surveys Telemedicine vs Inperson Responses



Telemedicine Visit Volume



Chatbots



Why it matters

Faster access / timely response

Personalization and timeliness leads to patient satisfaction

Lower costs



Our Foundation

Gastro transitions of care pilot from 2015



What we need

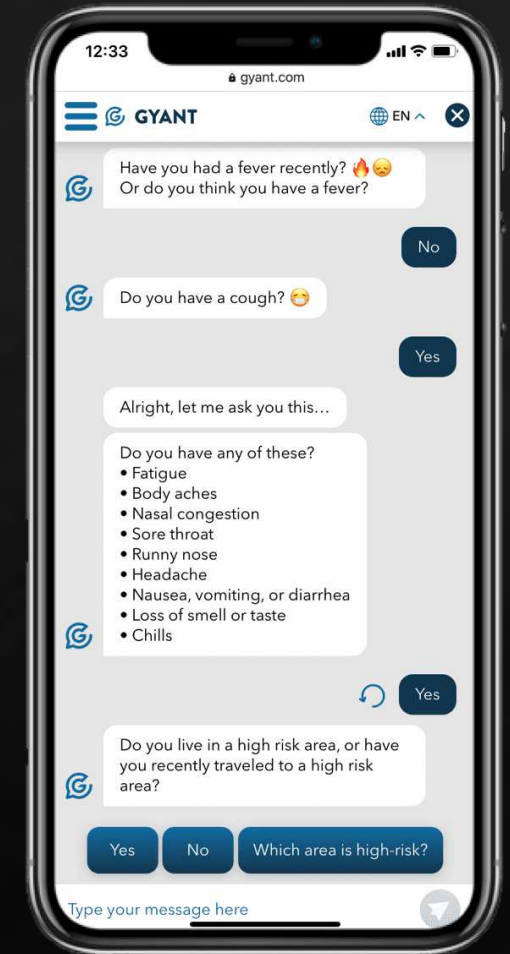
Clear use case(s)

Focused SME and IT resource(s)

Technology partner(s)

Governance

Funding



Other Robotic Process Automation (RPA)



Why it matters

Improved efficiency
(high volume, clear
inputs/outputs, well
defined/steady
processes)

Consistency (error
reduction)

Focus work on higher
cognitive tasks (job
satisfaction /
dissatisfaction?)



Our Foundation

Claim status checking
and Authorizations RPA
(RCHSD / R Systems)

Data and interface job
scheduling (RCHSD)

Genomics pipeline
(RCHSD/RCIGM)



What we need

Governance

Standard toolset

Operational
champion(s)

Prioritization

SME & IT resources

6 BENEFITS OF IMPLEMENTING RPA IN HEALTHCARE

- 1 PROCESSING COST REDUCTIONS**
Lower processing cost for RPA compared to manual processing. RPA can process large volumes of data quickly and accurately, reducing the need for manual intervention and associated costs.
- 2 STRONGER BILLING CYCLE**
RPA can automate the billing process, ensuring that claims are submitted accurately and on time. This reduces the risk of denied claims and speeds up the billing cycle.
- 3 HUMAN LABOUR COST REDUCTIONS**
RPA can take over repetitive tasks, freeing up human resources for more complex and high-value work. This leads to cost savings and improved productivity.
- 4 INCREASED EMPLOYEE SATISFACTION**
By automating mundane tasks, RPA allows employees to focus on more meaningful and engaging work. This leads to higher job satisfaction and reduced turnover.
- 5 APPOINTMENT TURNOUT OPTIMISATION**
RPA can automate appointment scheduling and reminders, ensuring that patients are notified in a timely manner. This leads to higher appointment turnout and better patient care.
- 6 SUPERIOR HEALTHCARE QUALITY**
RPA can ensure that data is entered accurately and consistently, reducing the risk of errors. This leads to better patient care and improved healthcare quality.

RESULTS

- MORE EFFECTIVE PATIENTS SCHEDULING**
RPA can automate the scheduling process, ensuring that appointments are made efficiently and accurately. This leads to better patient satisfaction and higher appointment turnout.
- IMPROVEMENT OF THE CARE CYCLE**
RPA can automate various tasks throughout the care cycle, from appointment scheduling to billing. This leads to a more efficient and streamlined care cycle.

Artificial Intelligence (AI) Predictive Modelling



Why it matters

Pattern recognition,
enables faster insights,
better care

Improved quality and
safety

Improved productivity /
focus on higher
cognitive tasks

Improved patient flow



Our Foundation

Sepsis algorithms

Genomics

IT infrastructure
management



What we need

Leadership

SME, data science, data
engineering and IT
capacity

Expert partners



Artificial Intelligence (AI) Image Analysis



Why it matters

Technology advances
Quality improvement
across disciplines
Efficiency gains for
highly specialized,
expensive SMEs



Our Foundation

Relationships with
UCSD Qualcomm
Institute
Merge/IBM
Siemens
3D Lab



What we need

Clinical Champions
Investment in platforms
Technical resource
bandwidth
Leadership to manage
change / disruption

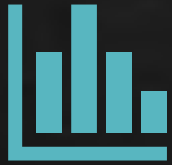


A man in a white lab coat with "Rady Children's" and "Justin Ryan, PhD" on it is sitting at a desk. He is wearing glasses and has his hands clasped. On the desk in front of him are several 3D printed heart models. In the background, there are computer monitors, one showing a 3D heart model, and a window with blinds. A mug with a heart illustration is on the desk to the left.

JUSTIN RYAN, PH.D
RESEARCH SCIENTIST, RADY CHILDREN'S HOSPITAL

for us to use 3D technologies

Artificial Intelligence (AI) Ambient Intelligence



Why it matters

Technology advances in speech recognition

Heightened Patient/Family expectations (pervasiveness of Alexa/Siri/Bixby/Cortana/Google Assistant/Google Home)

Focus back to the patient, not the keyboard



Our Foundation

Basic speech recognition
mModal/Nuance

Vendor space in consolidation



What we need

Keep eye on vendor space

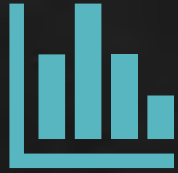
Learning/pilots

Technical resource bandwidth

Clinical champions

Investment in platforms & infrastructure (new campus)

Internet of Medical Things (IoMT)



Why it matters

Lower cost setting

Increasing quality of consumer devices

21st Century CURES

Our Foundation

Propeller Health (asthma)

Gluco Health (diabetes)

BardyDx, Cardionet,
ZioPatch/iRythm (heart)

What we need

Governance / Strategy / Priorities

Leadership

Champion SMEs

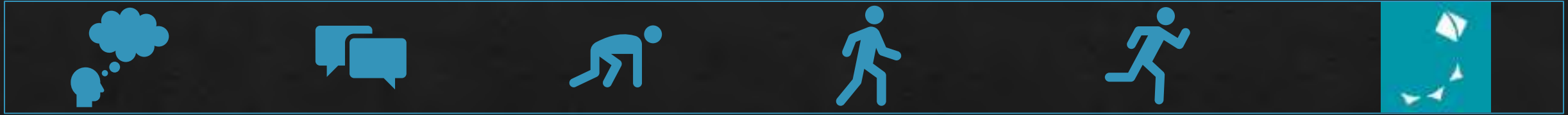
CIS / Data / Integration / IT
bandwidth



We're talking about it

Walking – In use in targeted areas

Flying – We're writing the book on how it's done



We're thinking about it

Crawling -- We're piloting it

Running – Optimizing, widespread use

ADVANCED TECHNOLOGY

- Telemedicine
- Chatbot
- RPA
- Predictive Modeling
- Image Analysis
- Ambient Intelligence
- IoMT

2021



2022



2023

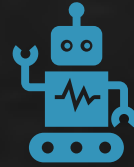


2024

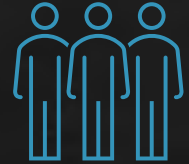




Automation



Offshoring



Staff Augmentation



Strategic Investments



Rady Team

Intelligent sourcing

Digital
Health



Digital
First?



Rady Childrens Hospital



Albert Oriol

CIO

Rady Children's Hospital San Diego

@RadyCIO

**Vielen
Dank!**

THANK YOU!

Innovation in every moment