

# DHIN – Innovative Solutions That Make Health Data Useful



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# FY20 Goals

## FINANCIAL

1. Develop a board-approved 3-year sustainability and business plan for the HCCD

## CUSTOMER

2. Provide public access to at least five reports generated from HCCD Data
3. Join a national network

## PROCESS

4. Achieve HITRUST Recertification
5. Develop a dashboard with at least three measures for each DHIN service for presentation at the Jul 2020 BOD meeting (update in April)

## LEARNING

6. 70% of DHIN managers will progress to ITIL Expert level (or v4 equivalent) by end of year
7. Formulate a 3-year technology roadmap that addresses:
  - Refresh of current technology
  - Implementation of new tools
  - Adoption of ONC interoperability standards
  - Includes cost estimates

## 1. Develop a board-approved 3-year sustainability and business plan for the HCCD

- \$2M one-time State appropriation; ~45% has been expended
- Working with DMMA on IAPD for enhanced federal financial participation at a mix of 90/10 and 75/25 federal/state match
- IAPD was approved by CMS in late May through FFY21; can be renewed repeatedly, but must be re-applied and re-justified
- DHIN-DMMA MOU was fully executed in late Dec; remainder of State appropriation should cover us for ~ 2 more years
- By Year 3, we should need ongoing 25% of operational expenses through a State appropriation in order to secure ongoing 75% federal match
- We will also plan for some paying customers
- Plan to submit formal sustainability plan at next board meeting

2. Provide public access to at least five reports generated from HCCD Data
3. Join a national network

2

- More than five reports already created, and more are under development
- New work is developing a solution for **making them publicly available**
- Awaiting pricing proposal from MedicaSoft

3

- Joining eHealth Exchange as a CRISP Participant at much reduced cost and time
  - Phase 1: Respond to queries from other eHE Participants
  - Phase 2: Initiate queries by DHIN end users from within the CHR
  - Phase 3: Join Carequality
  - Phases 1 & 2 to be completed in FY 20

PROCESS

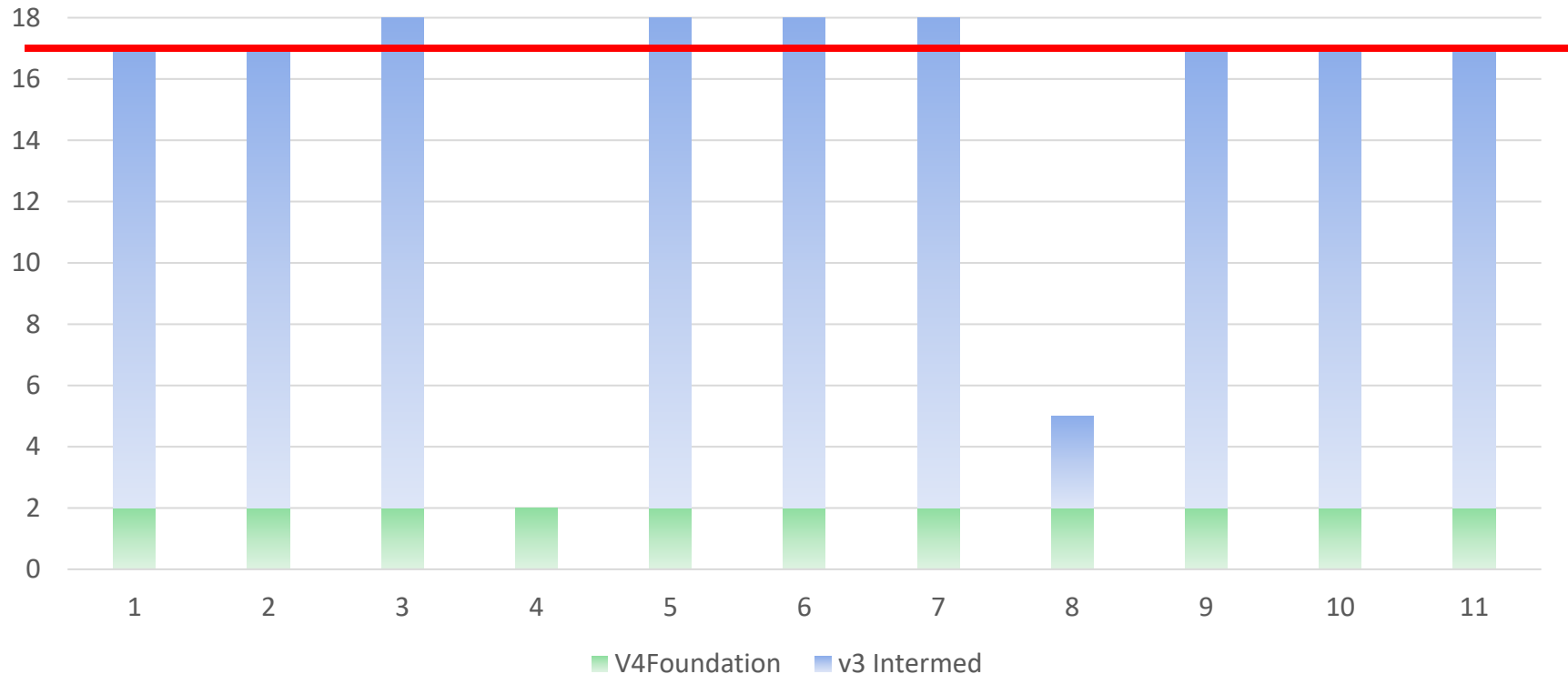
4. Achieve HITRUST Recertification
5. Develop a dashboard with at least three measures for each DHIN service for presentation at the Jul 2020 BOD meeting (update in Apr)

- 4 • HITRUST pre-assessment tasks complete
  - Documentation upload is under way
  - Assessment should be complete by end of March; could be end of FY before we receive results

- 5 • Will be displaying dashboard within Board Effect app
  - Selecting appropriate measures per service to display
  - Process/technology decisions under development to keep dashboard current
  - Preview at next board meeting

6. 70% of DHIN managers will progress to ITIL Expert level (or v4 equivalent) by end of year

17 credits are pre-requisite to ITIL Managing Professional Transition course – sched Mar 2-6



## 7. Formulate a 3-year technology roadmap that addresses:

- Refresh of current technology
- Implementation of new tools
- Adoption of ONC interoperability standards
- Includes cost estimates

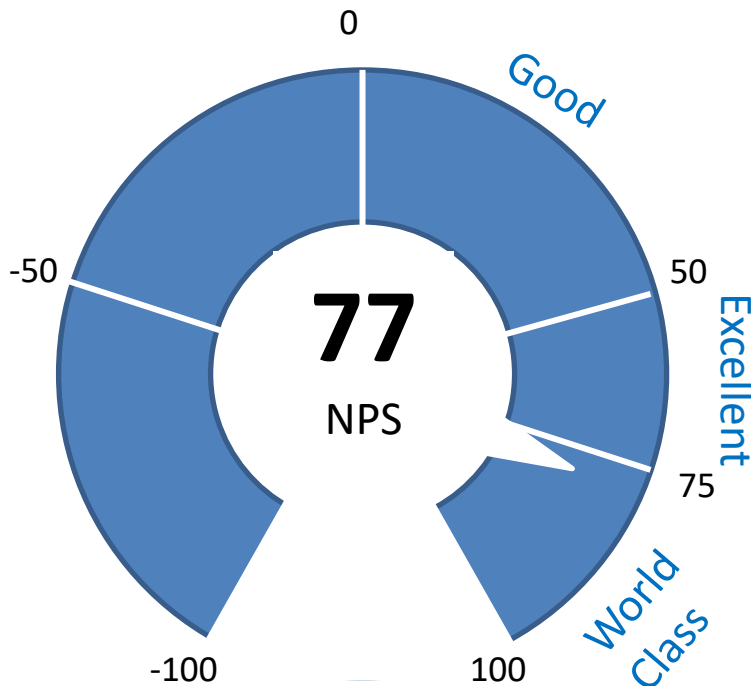
- Rolling 3-year Roadmap:

- Looking at termination dates of current contracts
- Looking at supported lifespan of current tools (Mirth Results)
- Looking at **capacity planning** estimates of future needs
- Looking at emerging needs of DHIN
  - Automation opportunities
  - Other?

# Customer Satisfaction: Oct - Dec 2019



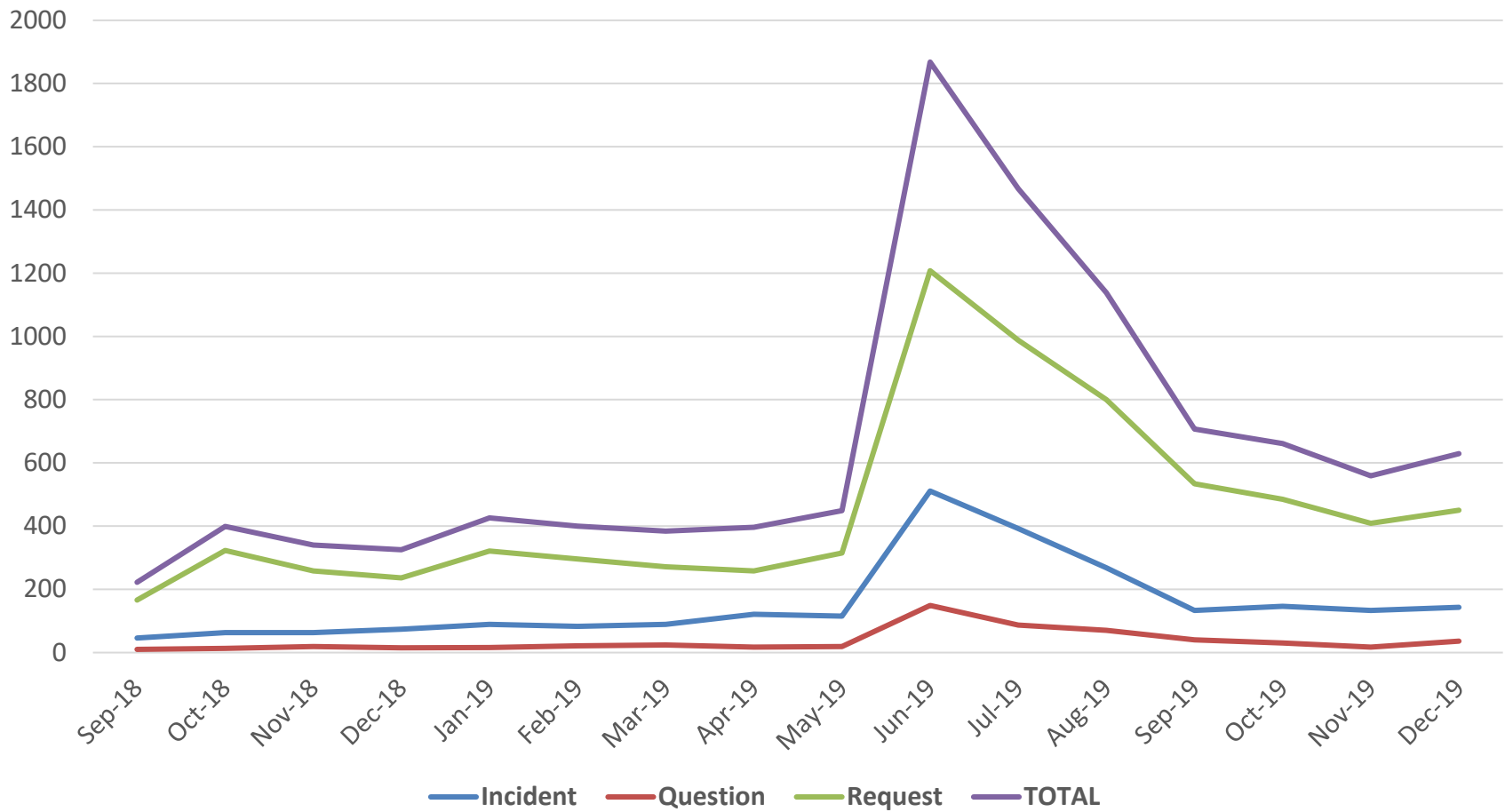
## DHIN Overall NPS



- 1,675 surveys sent; 43 responses
- 81% Very Sat; 14% Sat
- Each service desk staff given by-name kudos
- Comments:
  - Always get my issue solved with very little wait
  - Quick turnaround, great service
  - Everything was clearly explained. The representative was really nice & helpful

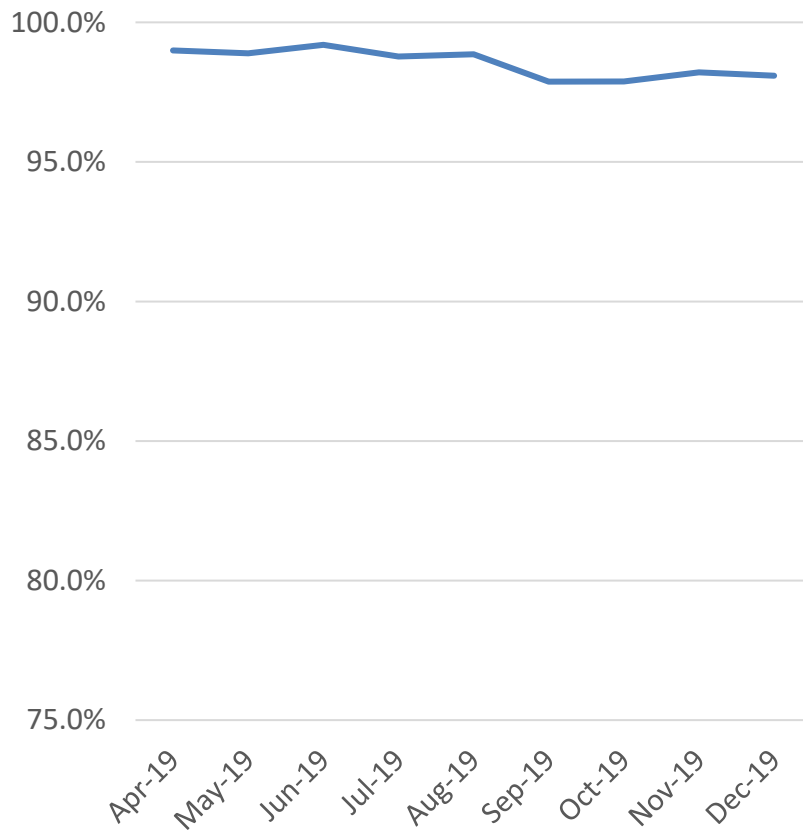


# Service Desk Ticket Trends

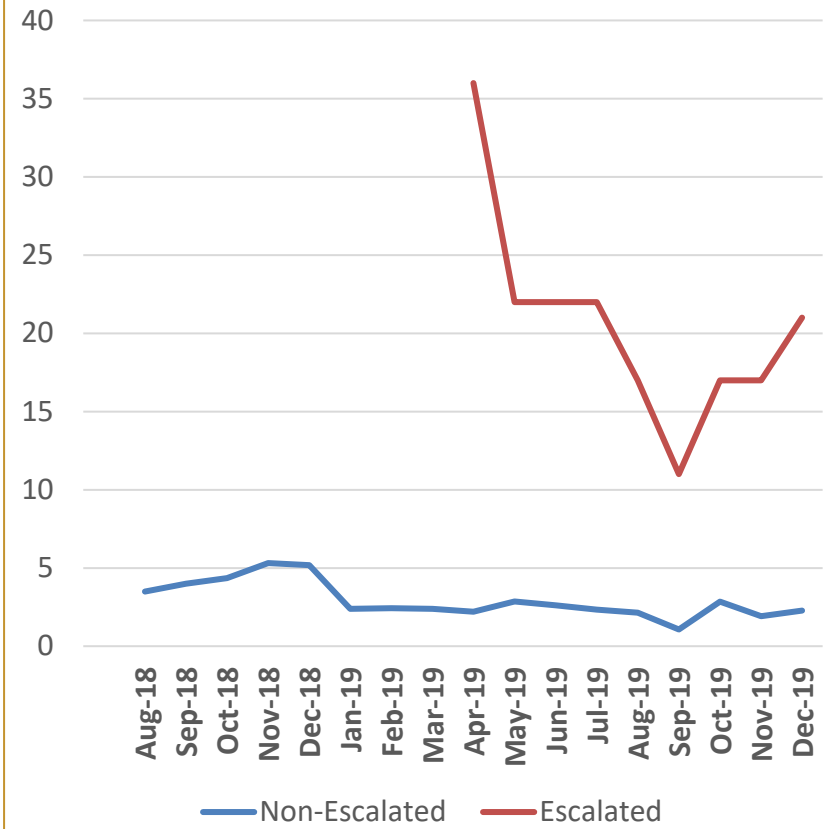


# Service Desk Ticket Handling

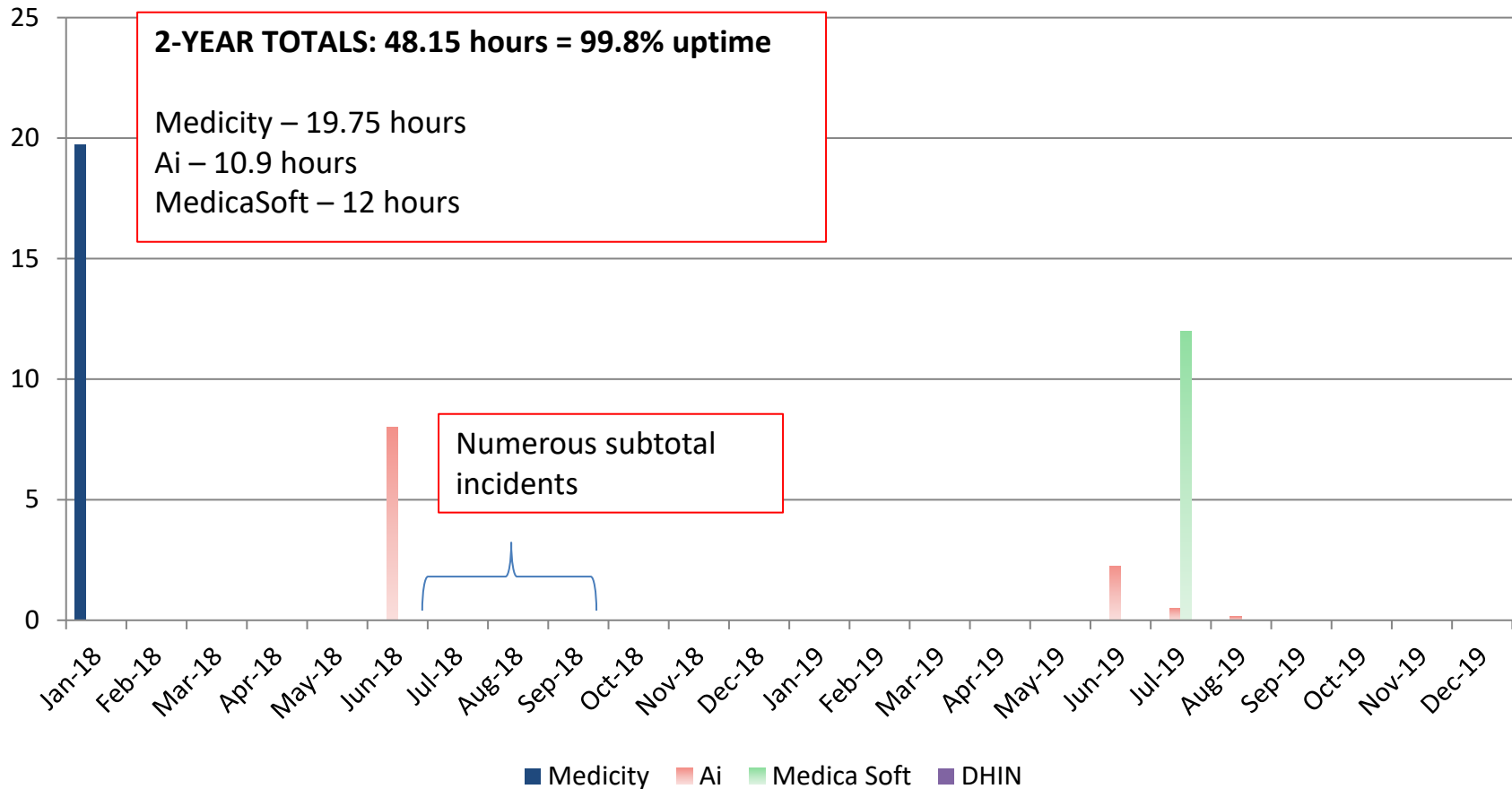
## First Contact Resolution



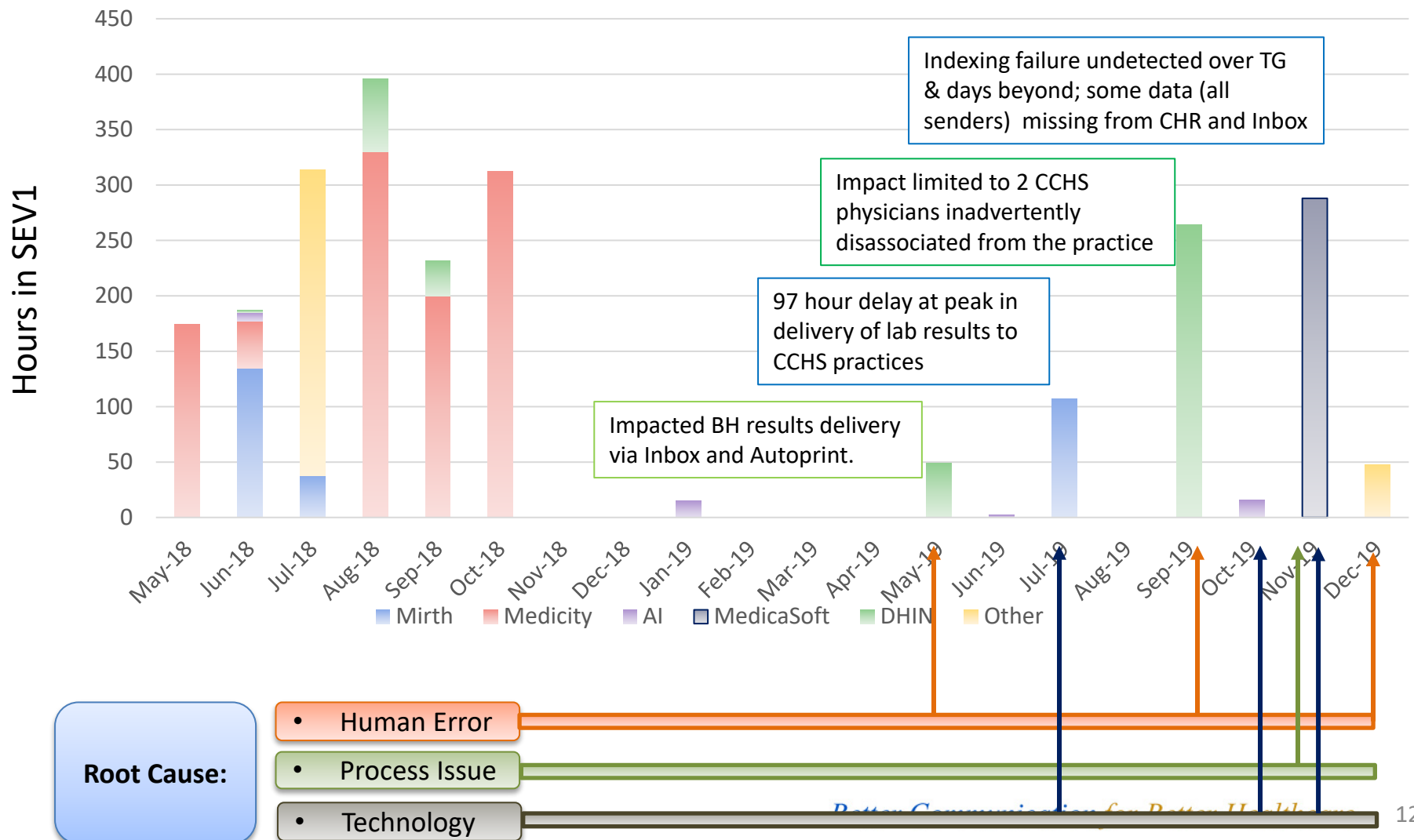
## Average Ticket Life (Days)



# Hours Unplanned Downtime

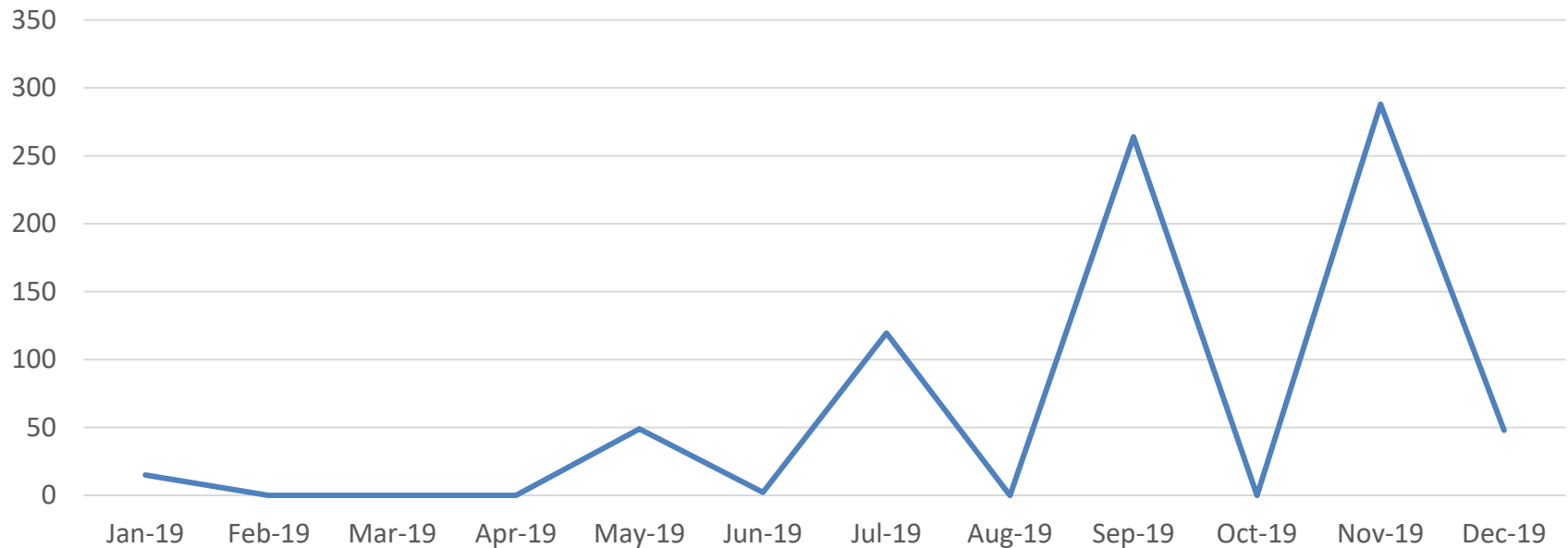


# Subtotal Service Disruptions



# Running 12-Month Total Hours in SEV1

785.75 Hours in SEV1  
9% Clock Hours



# Sunset Update



- Final report to JLOSC on Dec 30
- HCCD Annual Report to Governor, General Assembly, and JLOSC on Jan 7, 2020
- Worked with Task Force on recommended legislative actions for consideration by JLOSC
- Expect to see proposed legislation in Feb-Mar timeframe

Ongoing Board Education

# **DHIN SERVICES AND PLATFORM**

# DHIN Services

To be covered today

1. Results Delivery
  - a. EHR Integrations
  - b. Clinical Inbox
  - c. Autoprint
2. Public Health Reporting (DERRS)
3. Specialized Message Delivery (into a system other than an EHR)
4. Community Health Record (CHR)
  - a. Interstate data exchange
5. Single Sign-On
6. Event Notification Service (ENS)
  - a. Interstate data exchange
7. Clinical Gateway
  - a. Interstate data exchange
8. Personal Health Record (PHR) (Health Check Connect)
9. Patient alerting/fraud detection (Health Check Alert)
10. Medication History
11. Patient-directed records transmission to third parties
12. Image Sharing
13. Care Summary creation/download
14. Care Summary Exchange (ambulatory data into DHIN)
15. Direct Secure Messaging
16. Specimen Location for Research
17. Locate clinical trial candidates
18. Analytics/reporting service (clinical)
19. Health Care Claims Database (HCCD)
20. DMOST Registry (end-of-life medical orders)



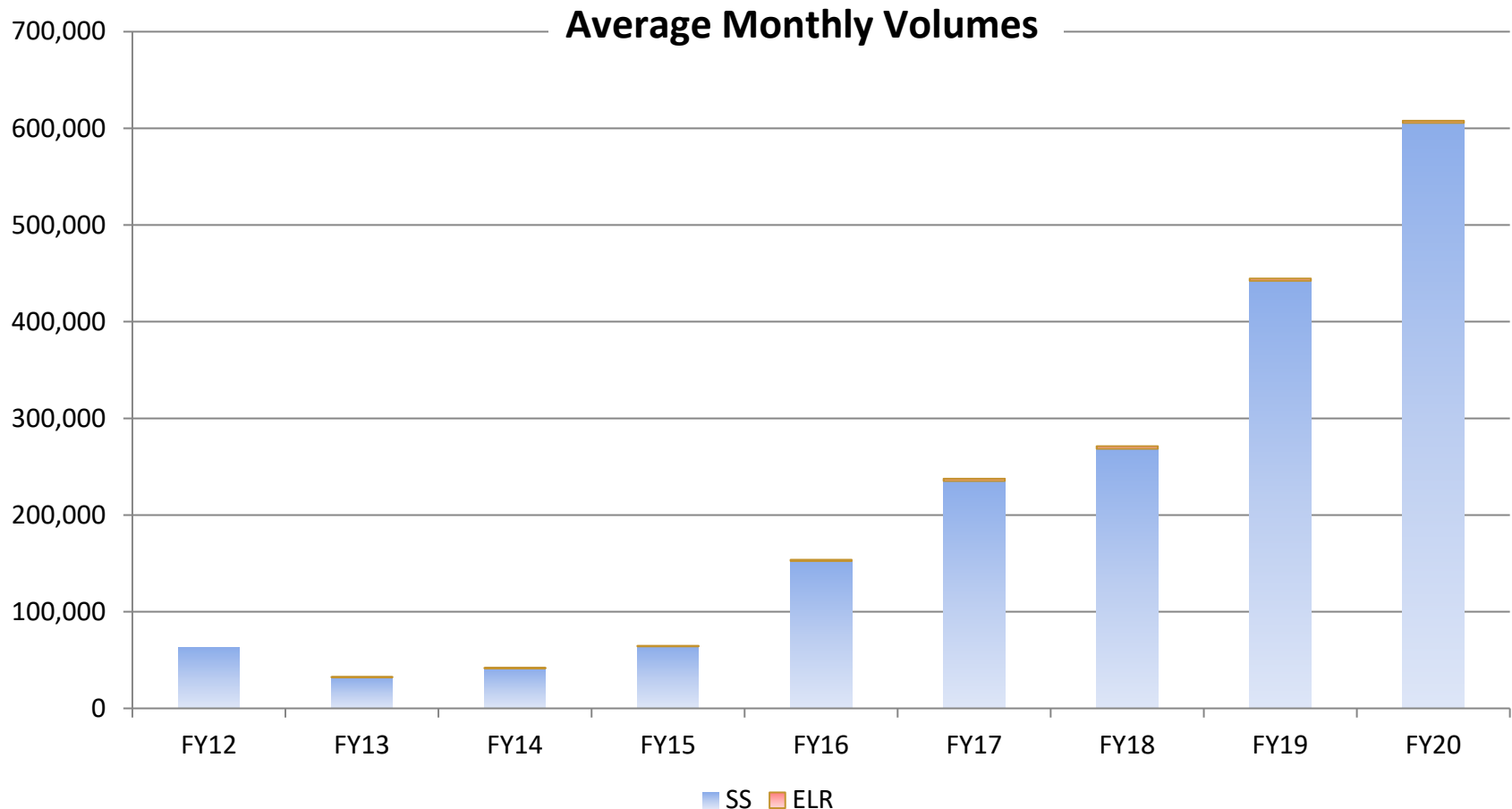
# DHIN Services: Today's Discussion

- Public Health Reporting
- Care Summary Exchange
- Direct Secure Messaging
- DMOST (End-of-Life Orders Registry)
- HCCD / Analytics Service

# Public Health Reporting

- **Syndromic Surveillance (SS)**
  - Hospitals / EDs are required to report certain conditions to Public Health
  - Based on ADT files (admit, discharge, transfer, update) and contents of DG1 (diagnosis) field
  - Nemours, Bayhealth, and Union submit in real-time
  - Other hospitals are currently sending batch files once a day; in testing for real-time
- **Electronic Lab Reporting (ELR)**
  - Labs indicative of reportable conditions are forwarded to Public Health

# Syndromic Surveillance and Electronic Lab Reported to Public Health (Data “push”)

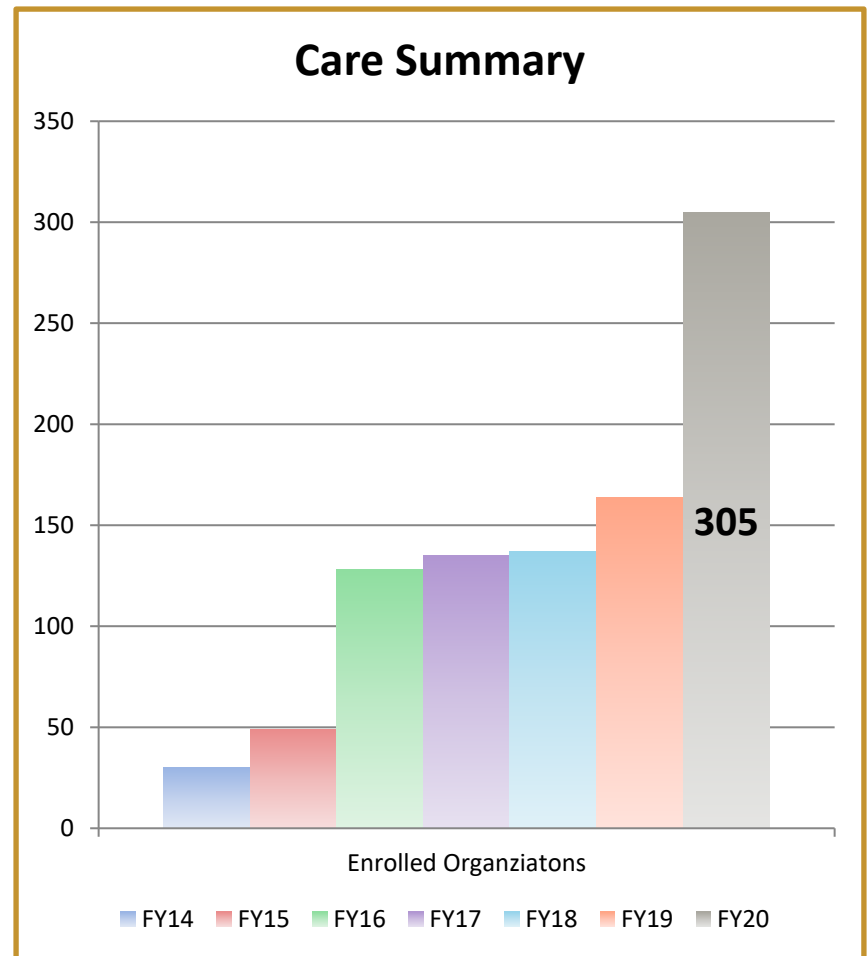


# Care Summary Exchange

- “Certified EHR Technology” (CEHRT) must be able to produce summaries conforming to the Consolidated Clinical Document Architecture (C-CDA) standard
- This is a content standard, not a transport standard
- Care summaries can be transported via a number of alternate channels; DHIN needs to support them all
- **Value Proposition:**
  - Continuity of documentation across the care continuum
    - Our only source for office-based lab results
    - Our only source for data from the urgent care setting
    - Our only source for data from SNFs and other post-acute settings
  - Important data source for future analytics
  - Desired by Payers as part of Clinical Gateway service; supports their HEDIS reporting and quality assessments

# Care Summary Exchange

- Large growth in FY20:
  - Many out-of-state sources added through CRISP
  - Expect more out-of-state sources through national network
  - Still validating numbers; could change based on eliminating duplicates
- Still working to determine how many providers (vs orgs) are represented
- Typically receive over 100K CCDs per month; send ~18K

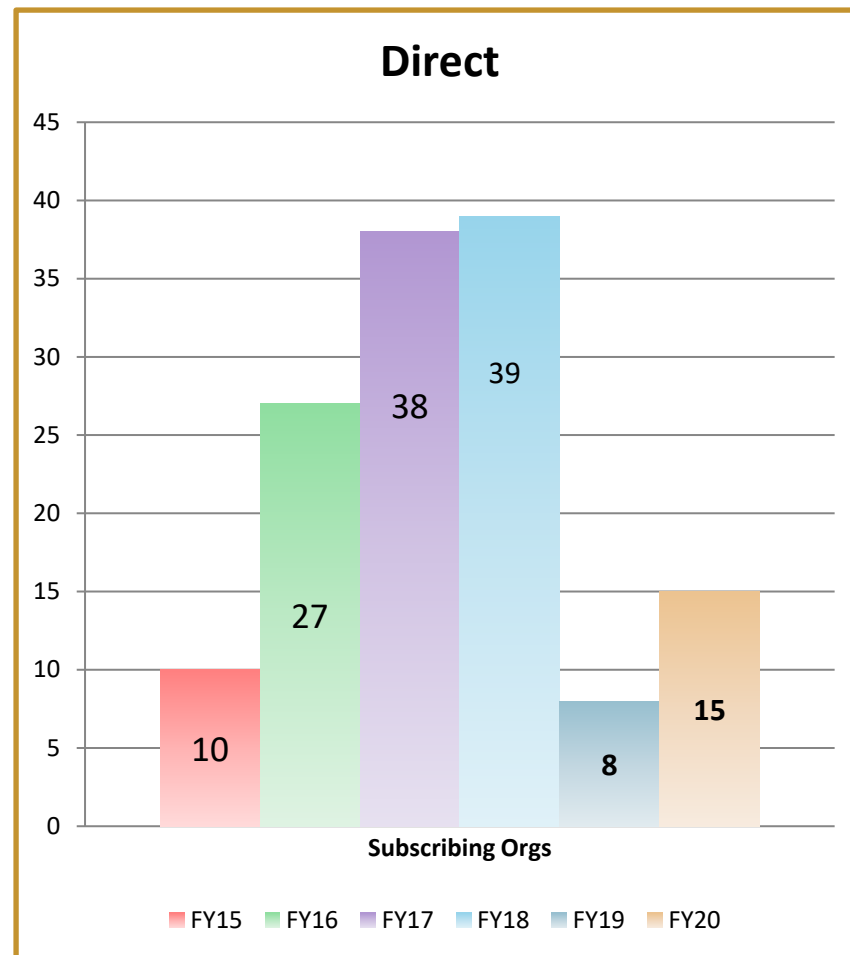


# Direct Secure Messaging (DSM, or “Direct”)

- This is the standard that ONC endorses for “secure email”
- DSM is a transport standard, not a content standard
- DSM is provisioned by a “Health Information Service Provider” (HISP – a term of art)
- All CEHRT must be able to support DSM; some vendors establish their own HISP, others allow their customers to work with external HISPs
- “Direct Trust” is the organization that has become the de facto trust broker between HISPs

# Direct Secure Messaging

- DHIN needs a Direct address in order to receive care summaries from some organizations
- We offer Direct as a service to organizations not using an EHR or not using a certified EHR or those whose EHR vendor charges more than us for HISP services
- Very sparse uptake, but valuable to the few users
- Average 1 service desk ticket per month regarding this service



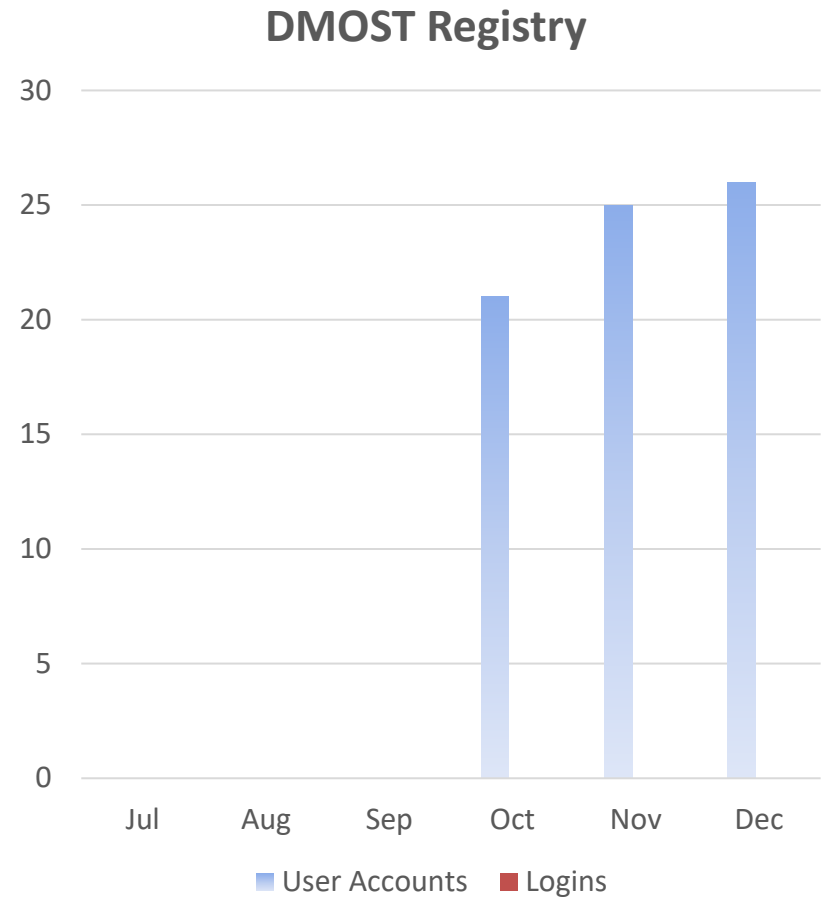
# DMOST (End-of-Life Orders Registry)

- “Delaware Medical Orders for Scope of Treatment” (DMOST) Act in FY15
- Establishes a form for a patient’s wishes regarding end-of-life care to be captured in the form of a medical order which must be honored by all care-givers in all settings
- Applies in the setting of serious illness or frailty with < 1 year life expectancy
- Differs from advance directives, which are legal, not medical documents, and can be prepared at any time the patient desires
- § 2507A. The Delaware Health Information Network (DHIN) is authorized to create an electronic registry to maintain and store executed DMOST



# DMOST

- Registry technology acquired through mix of grant and hospital funding
- Fully implemented; working with DMOST working group to drive adoption/utilization
- Thus far, we have minimal adoption and zero utilization
- Average 7 service desk tickets per month
- Technology contract expires 6/9/2022



# HCCD / Analytics Service

- Permitted uses of clinical and claims data are governed by separate statutory subchapters and separate contractual agreements
- Analytics is the *raison d'être* for HCCD; acknowledged in statute and payer agreements
- “Powers and Duties” section of Title 16 Ch 103 suggest analytics
  - Create the ability to monitor **community health status**
  - Provide reliable information to health care consumers and purchasers regarding the **quality** and **cost-effectiveness** of health care, health plans and health care providers
  - ... providing immediate and current outcome, treatment and cost data and related information so that patients, providers and payers can make informed and timely decisions about health care;
- BUT also says... “The DHIN shall by rule or regulation ensure that patient specific health information be disclosed only in accordance with the patient's consent or best interest to those having a need to know.”

# HCCD / Analytics Service

- De-identified data may legally be used for research/analytics if permitted by the data sender
- Master Agreements between DHIN and newer data senders include analytics as a permitted use of the clinical data
- Master Agreements with earlier data senders are either silent on this use case (most hospitals) or explicitly disallow it (LabCorp and Quest)
- Currently working with JLOSC on possible clarifying updates of statutory language
- Each data sender agreement must be amended one by one
- DHIN uses and disclosures of data must accommodate both patient consent and data sender consent

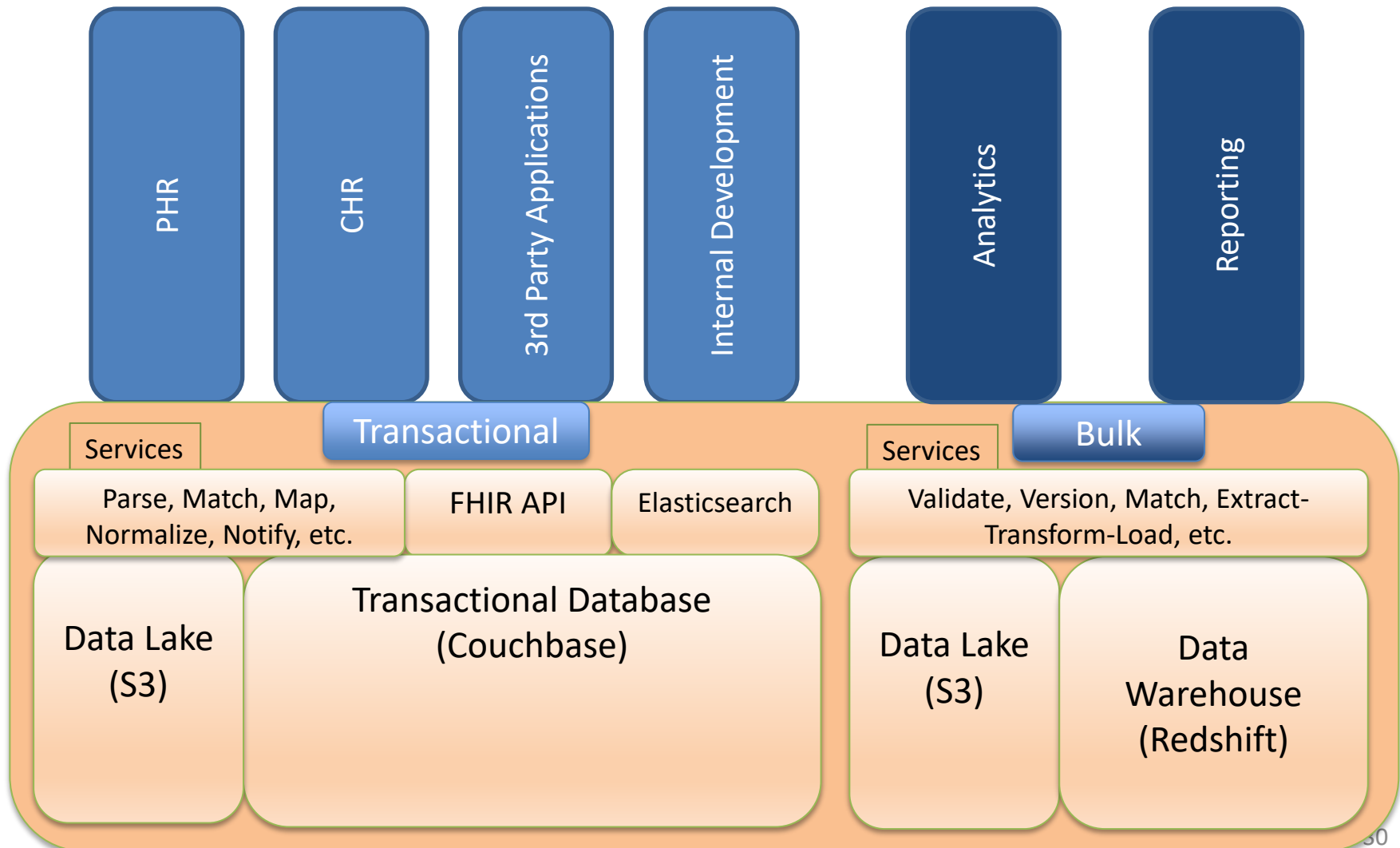
# HCCD / Analytics Service

- The potential analytic value of the combined clinical and claims data sets is enormous
- “Data is more valuable in the presence of other data.” -- RP Gaboriault
- No other organization has this breadth and depth of aggregated and curated data; DHIN is the obvious choice for sourcing analytic studies in support of:
  - Cost and utilization
  - Quality
  - Coverage and access
  - Population and public health
  - Overall health system performance
- We have the HCCD Administrative Committee to adjudicate requests for access to claims data; we may need an analogous Privacy Board to adjudicate request for analytics of clinical data

# Additional Information



# DHIN's Current Platform



# Clinical Results Delivery

- Three delivery channels
  - EHR integrations – a single interface from DHIN to the practice EHR carries all result types from all data senders (configured according to practice preference)
  - Clinical Inbox – a web-based “email-like” application – results specific to a given provider are routed here for easy viewing and action
  - Auto-fax – for the 7% of practices that are still using paper record
- All end users select their preferred delivery channel, and all have at least one other back-up channel
- Nearly all providers making clinical orders receive their results exclusively through DHIN (they are “signed off”)

# Clinical Results Delivery: The Value Proposition <sup>(1/2)</sup>

## Reduction of point-to-point interfaces for both data senders and receiving practices

- Average cost of \$5K - \$15K per interface, + ~20% annual maintenance fees
- Typical EHR would integrate to, at minimum, one hospital and one reference lab (total initial cost of \$10K - \$30K and \$2K - \$6K annually)
- Single interface to DHIN provides more data at a lower cost
- Data senders save 10s of thousands of dollars in reduced delivery end-points to manage

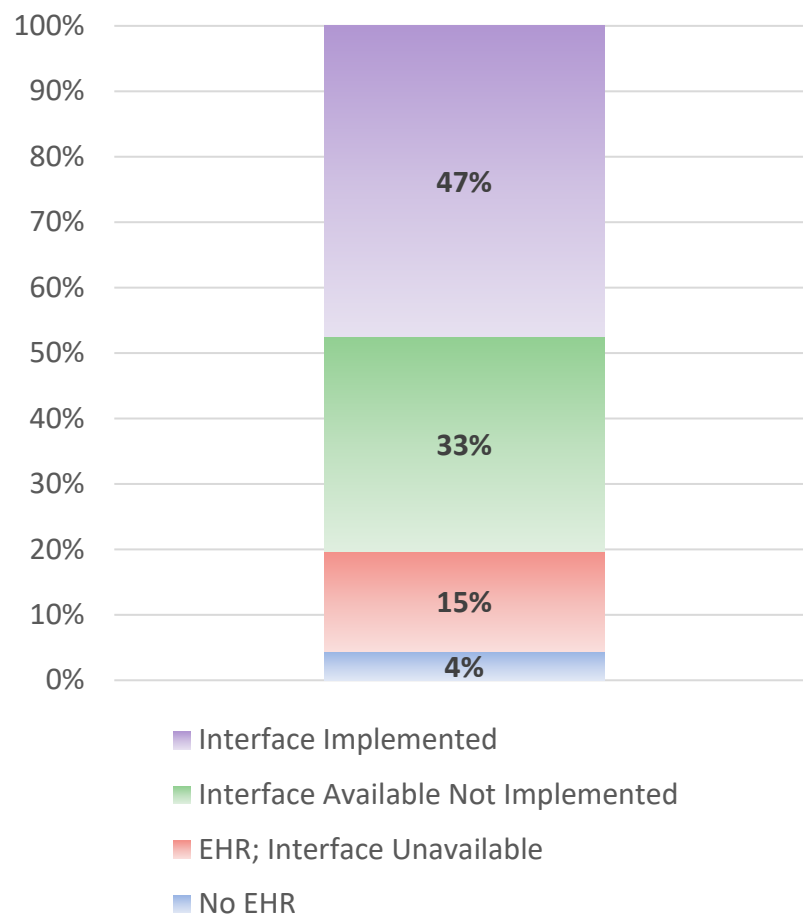
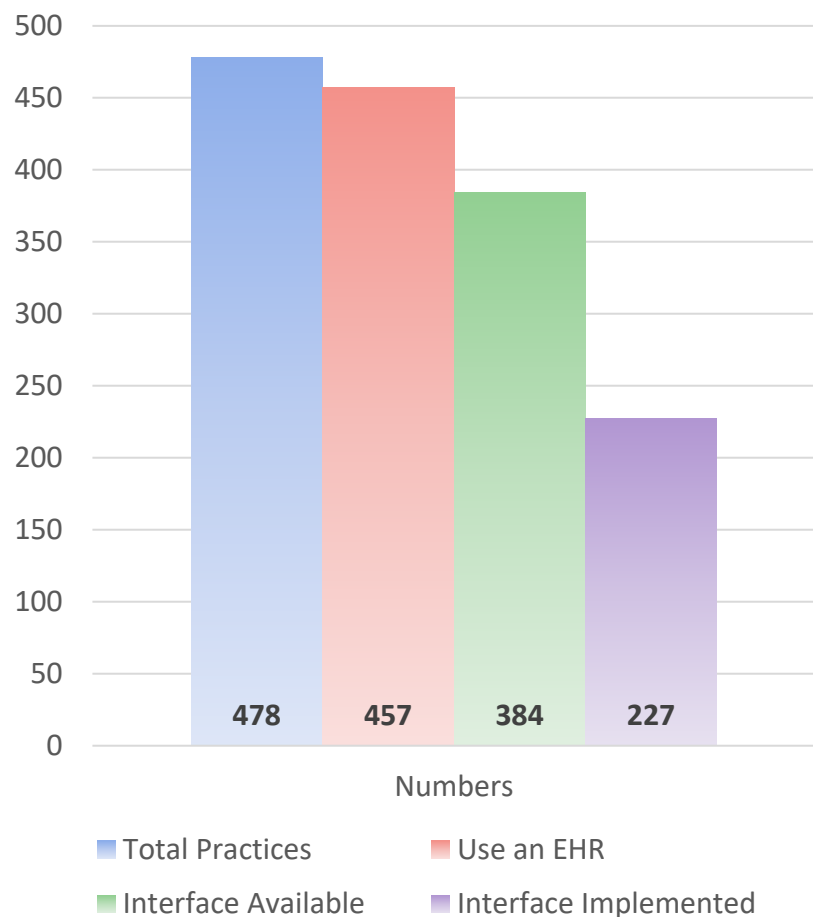


# Clinical Results Delivery: The Value Proposition <sup>(2/2)</sup>

DHIN's participation fee to data senders is based on the volume of results they send to us annually and thus the volume we deliver on their behalf

- Roughly half of DHIN's annual revenue derives from data senders
- DHIN is a "Business Associate" to the data senders as "Covered Entities"
- The service DHIN provides on behalf of the CEs that allows us to receive PHI from them is delivery of clinical results on their behalf
- The data senders retain business ownership of the data and ultimate accountability for data integrity and uses of the data

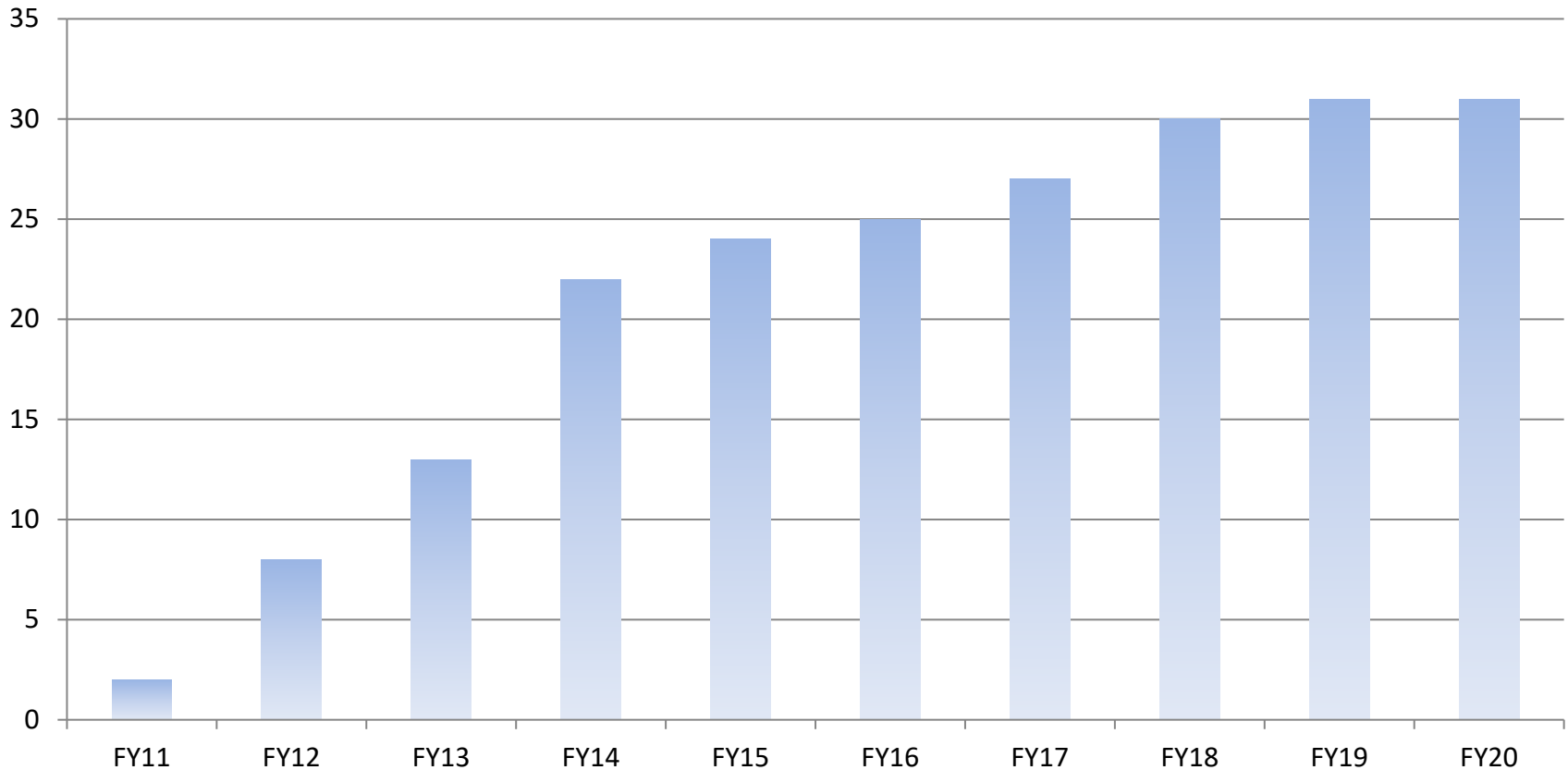
# Status of DHIN-EHR Interfaces (as of Dec 2019)



# Number of EHRs with Certified Results Delivery Interface Available



**Number of EHRs with Results-Delivery Integration Available**



# The Community Health Record

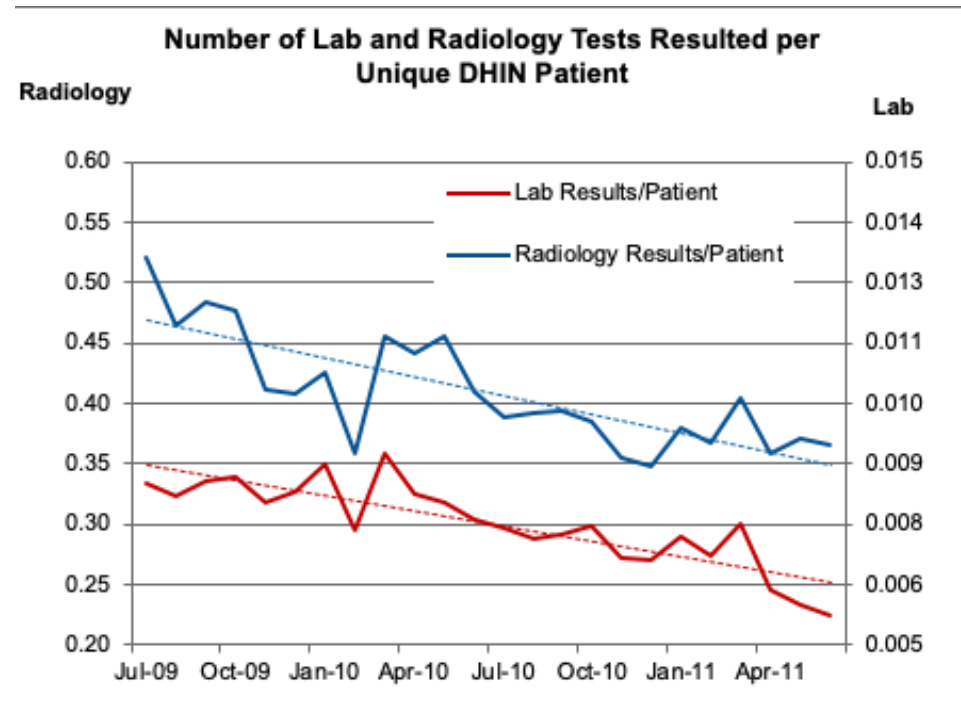
- Data received from the data senders is delivered to ordering providers, but also stored in a data repository
- The CHR is a web-based provider portal, providing patient-centric views of the data
- An authorized user can search for a patient and/or search for clinical data they didn't personally order
- Data is accessed one patient at a time

# Community Health Record: The Value Proposition (1/2)

- Data about a patient is aggregated across time, geography, and care settings
- Past history is available with a single look-up, saving providers significant time in running down important historical data
- Saving time sometimes also means saving lives
- The CHR has been used by a physician whose office was burnt down as his backup patient records
- The value of the CHR is greatest if all relevant data about a patient may be found there

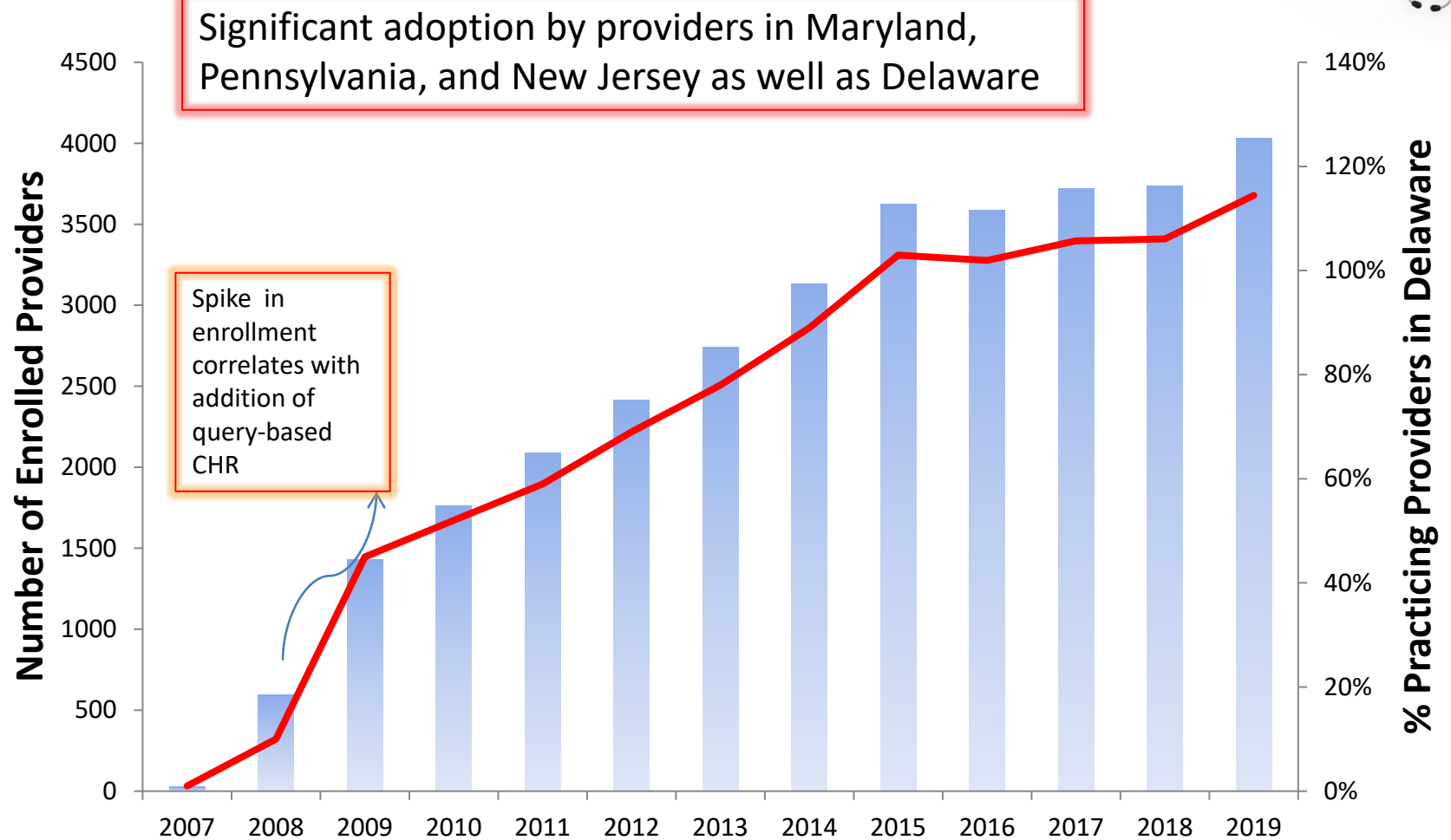
# Community Health Record: The Value Proposition (2/2)

- Use of the CHR has led to measurable reduction in redundant ordering of high-cost tests
- This savings is primarily felt by payers
- The CHR is one of the bundled services charged to payers
- Began charging providers a modest fee in FY19



# Provider Enrollment (CHR)

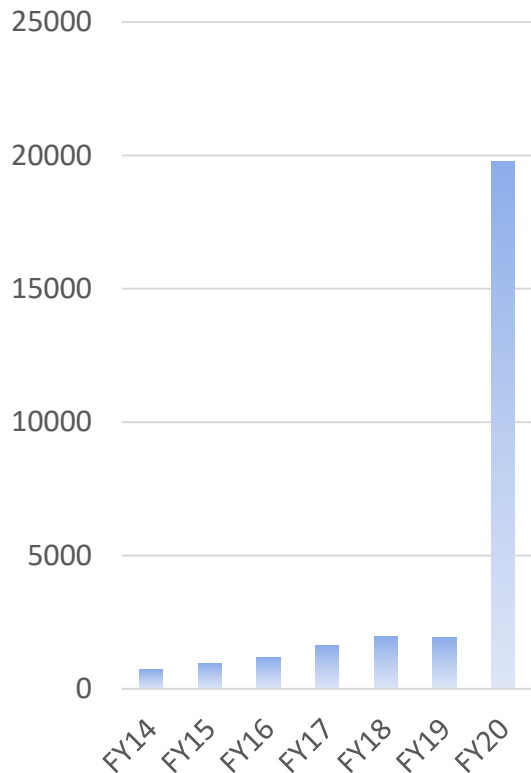
(as of Dec 2019)



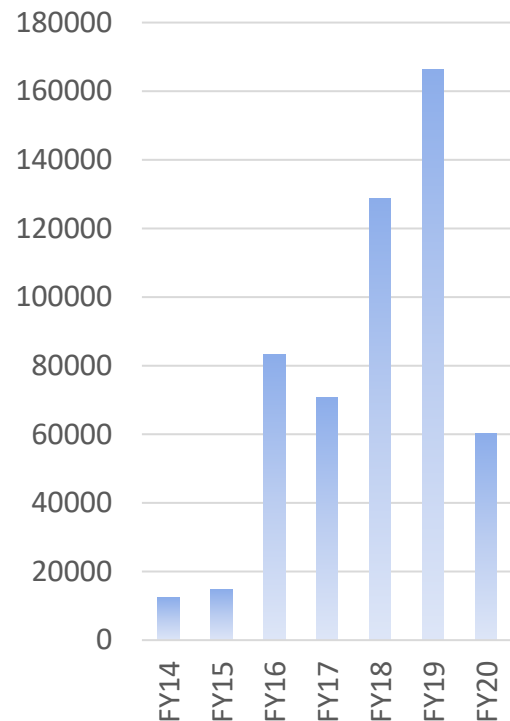
# CHR Document Views



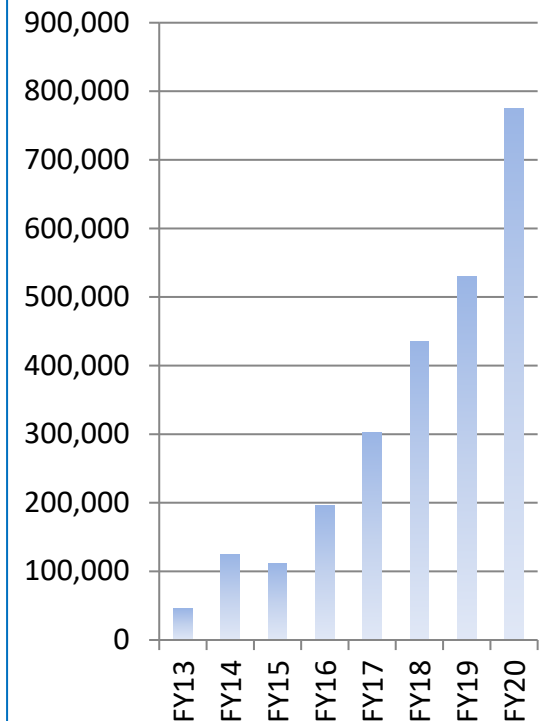
**Avg Monthly CHR Views in ED Setting**



**Avg Monthly CHR Views in Inpatient Setting**



**Avg Monthly CHR Views by Ambulatory Entities**



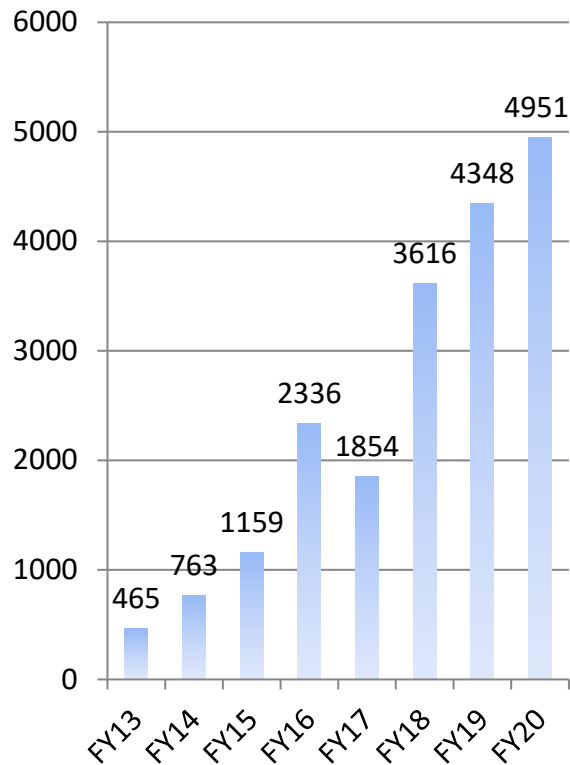
NOTE: Suspect misclassification of ED/Inpatient prior to FY20



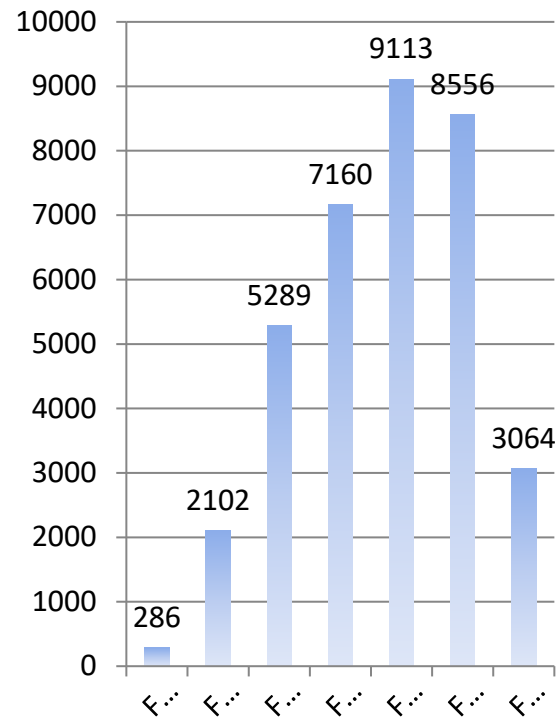
# CHR Chart Views: Special Constituencies



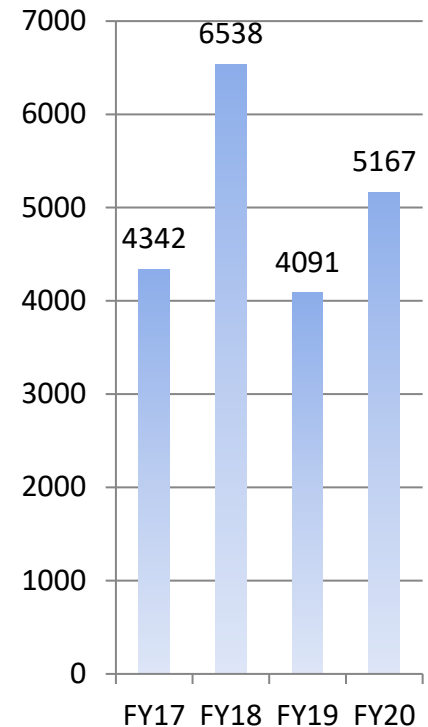
**SNF Avg CHR Chart Views per Month**



**Behavioral Health Avg CHR Chart Views per Month**

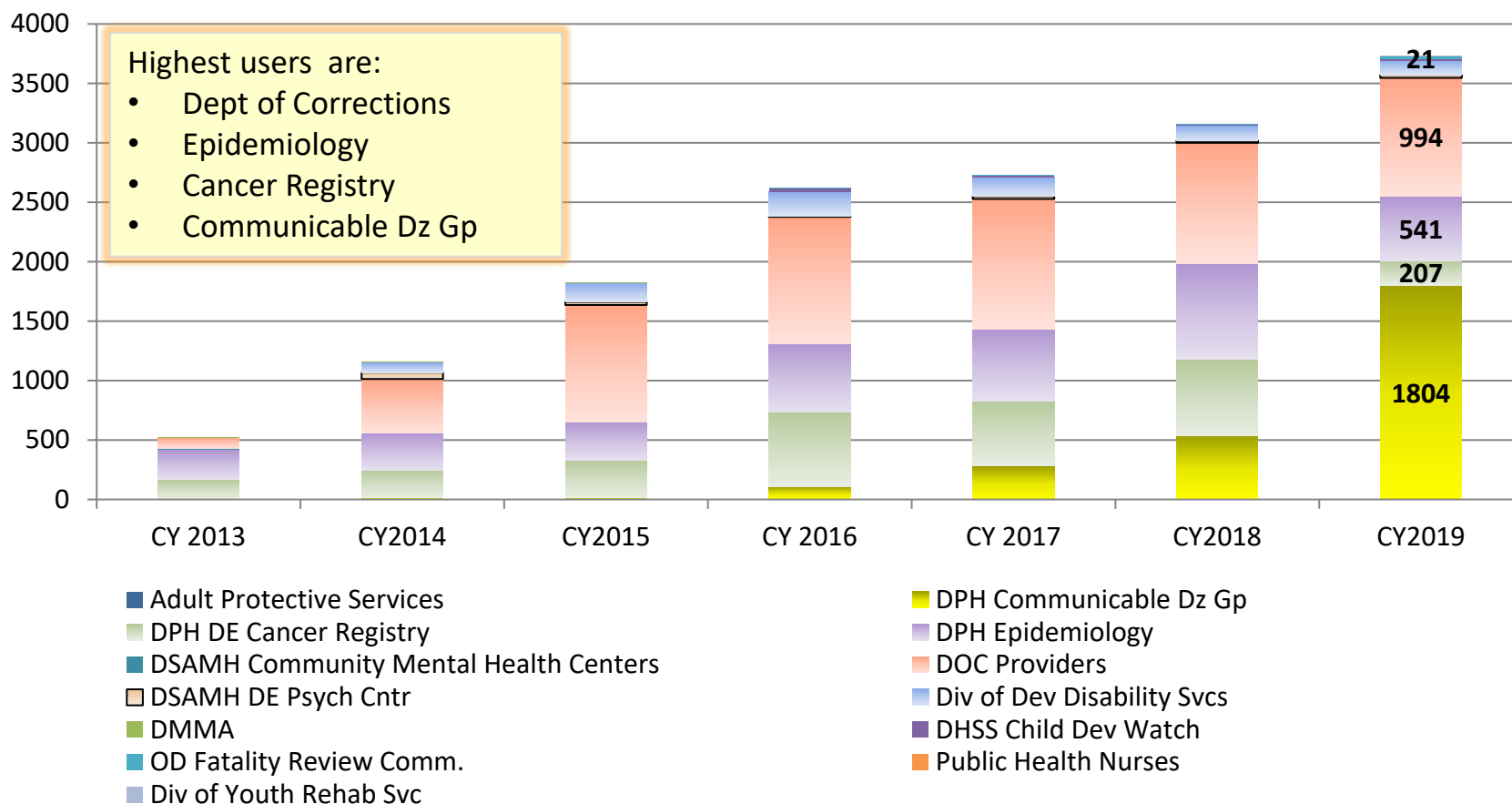


**Urgent Care Avg CHR Chart Views per Month**



# Utilization of Community Health Record by State Agencies (Data “pull”)

## Avg Patient Charts Viewed per Month



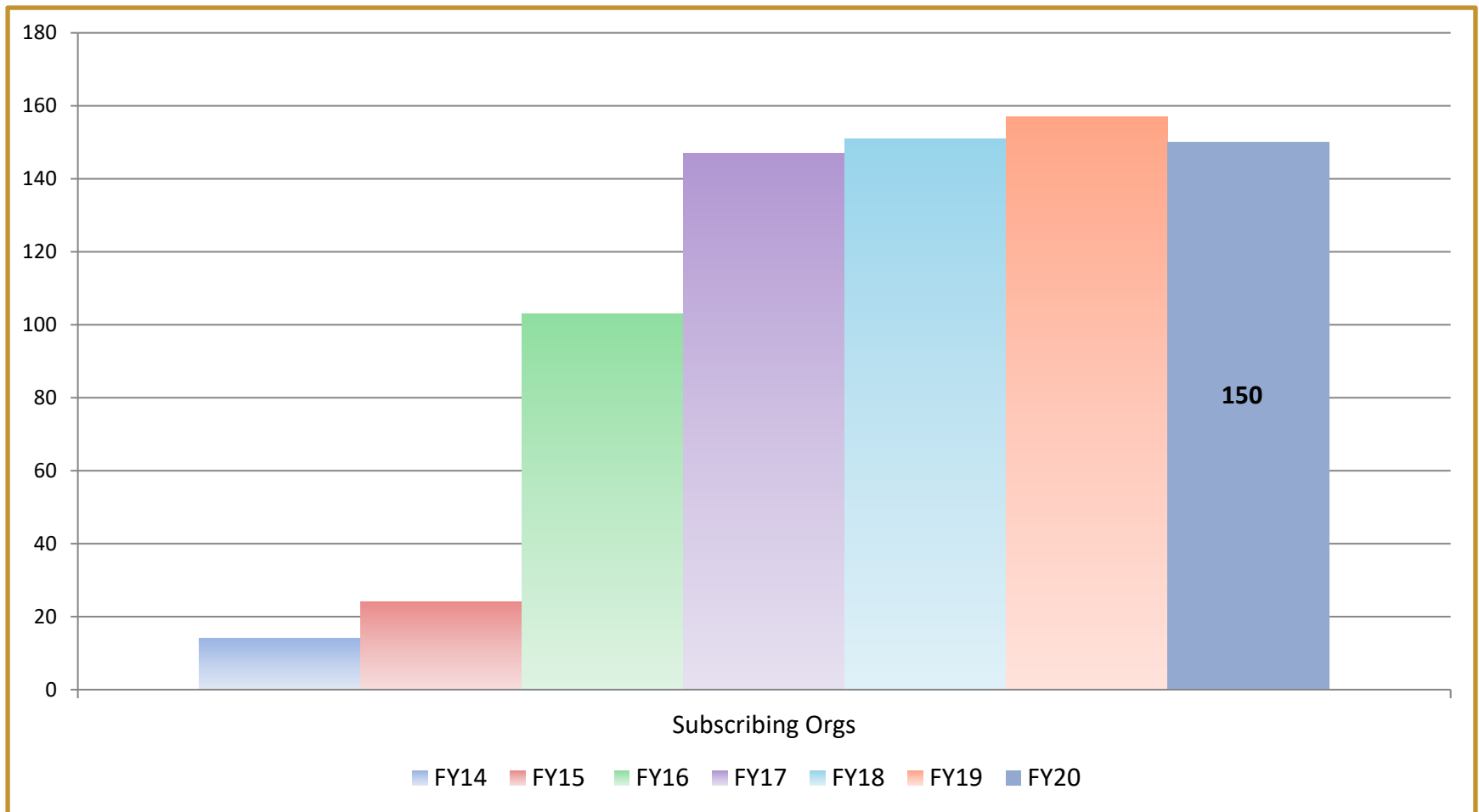
# Event Notification Service

- Incoming ADT messages are matched against a watch list provided by a payer, practice, or other entity
- When there is a match, the subscribing entity is notified of the “event”
- Currently reportable “events” include hospital or ED admission and/or discharge, and visits to participating Urgent Care Clinics (7), SNFs (6), and telehealth providers (2)
- Data exchange agreements with neighboring states allows us to notify of “events” across a 6-state region

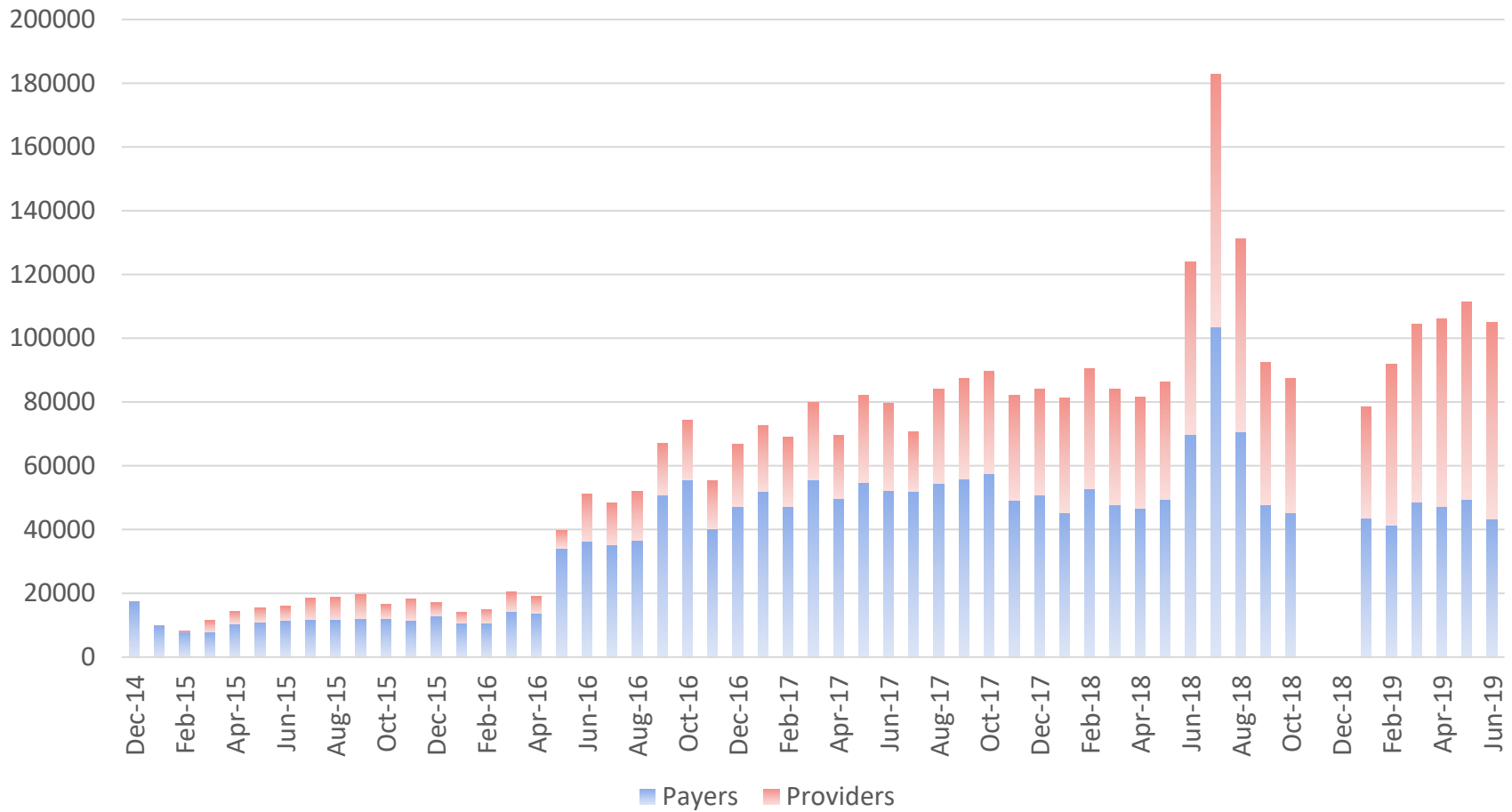
# Event Notification : The Value Proposition

- Early follow-up post hospital or ED discharge leads to better clinical outcomes
  - Better care plan compliance
  - Fewer readmissions
- There are Medicare billing codes for “transitional care management”
  - practices can actually make money if they use ENS to identify and reach out to recently discharged patients
- Under value-based payment models, it is imperative to know where your patients are
- MCOs and TPAs have some contractual care coordination and case management obligations which ENS can support

# ENS Adoption: Subscribing Organizations

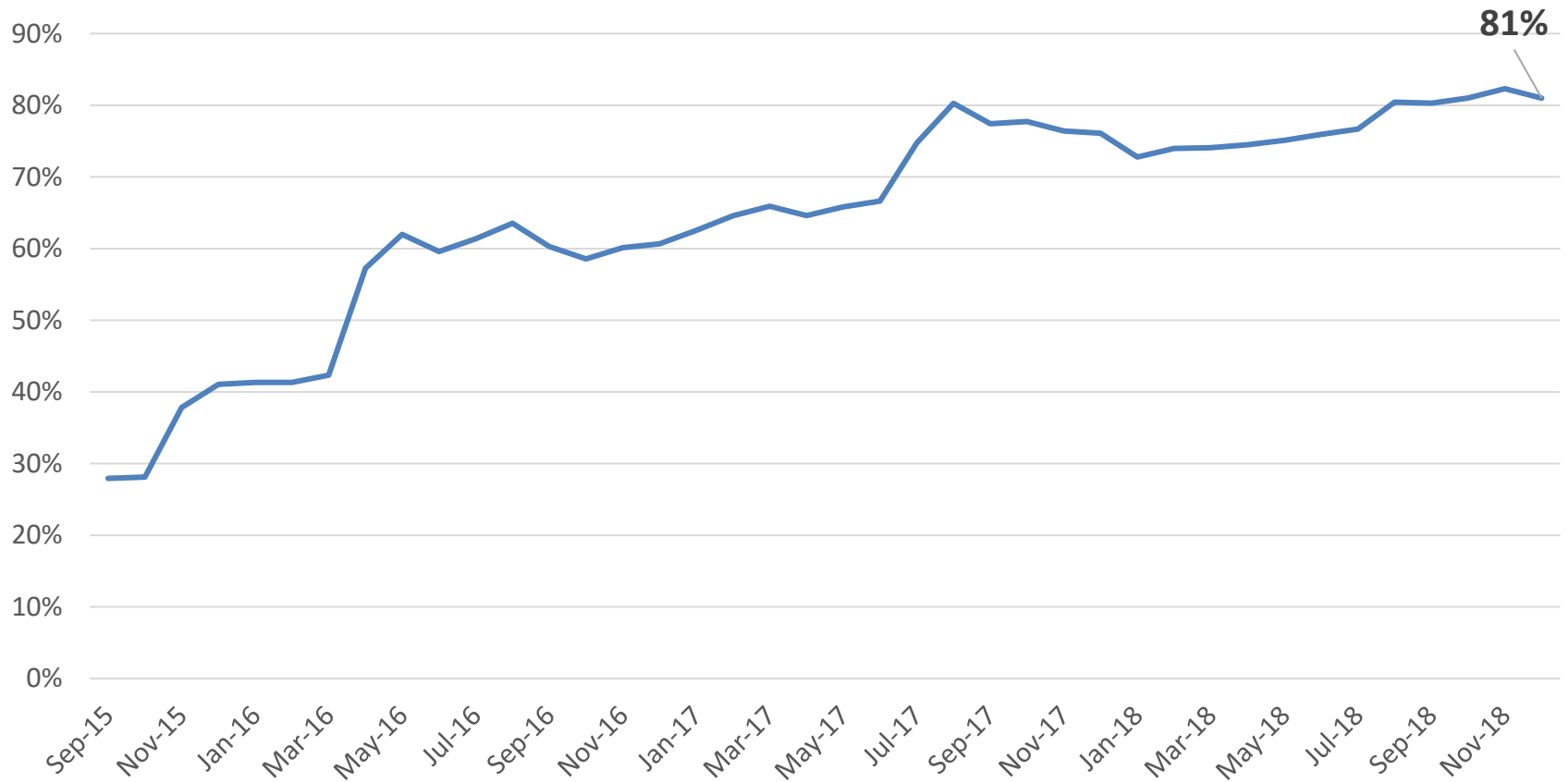


# ENS Utilization: Number of Notifications



# Event Notification

% DE Residents Covered by Notification Services

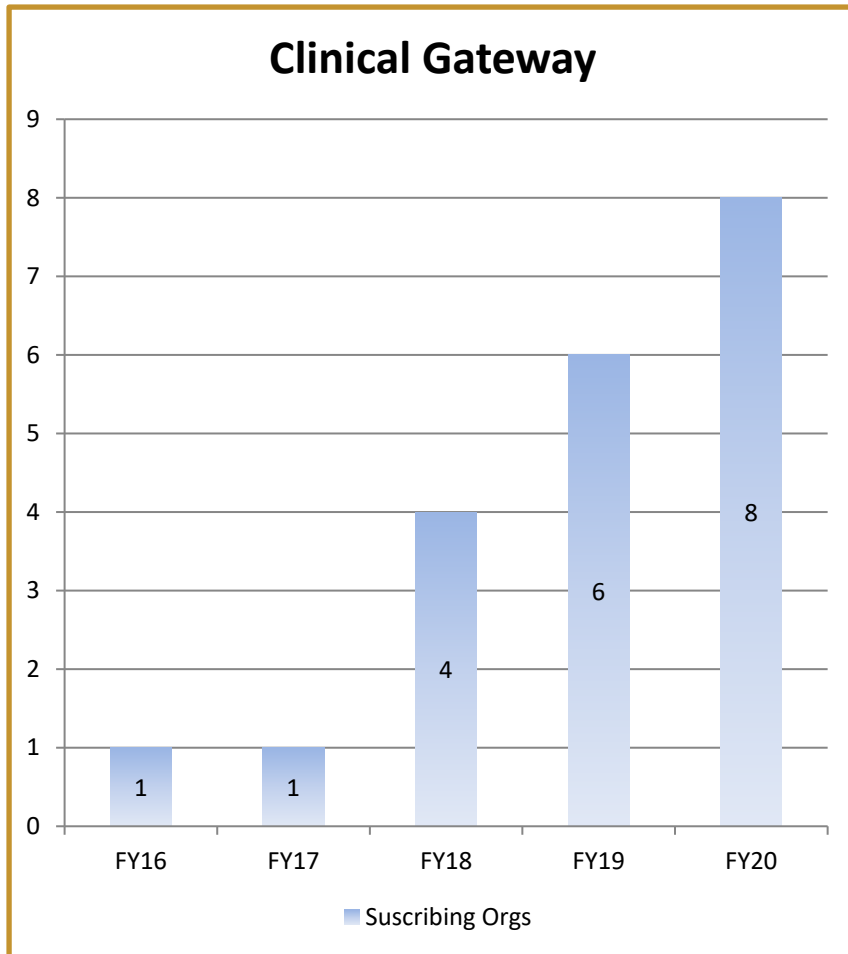


# Clinical Gateway

- Incoming clinical data is matched to a watch list supplied by a subscribing organization, and is transferred in bulk to an end point designated by recipient
- Used by health systems in support of population health initiatives
- Used by health plans to support HEDIS measures requiring clinical data

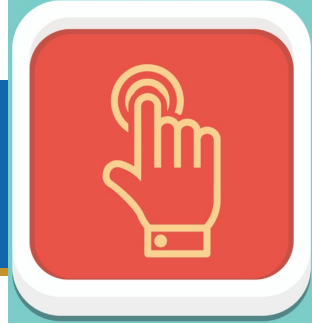


# Clinical Gateway Adoption



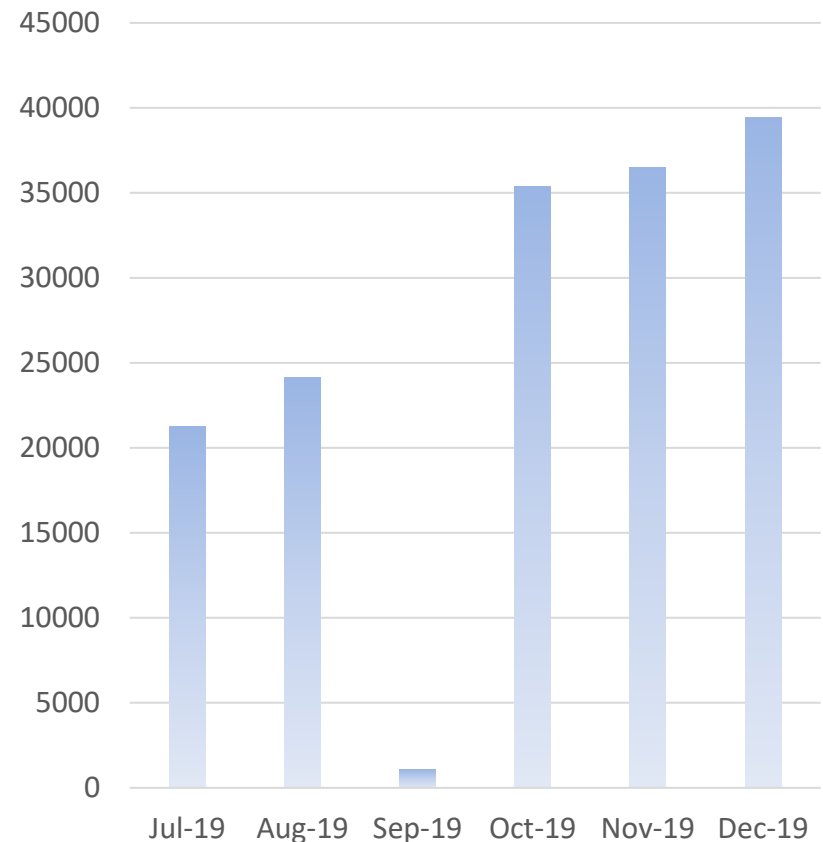
- CCHS Care Link Care Now
- Aledade
- Highmark
- Health Integrity
- Bayhealth
- AmeriHealth
- Atlantic General Hospital
- Cigna

# Single Sign-On



- Enables a user to log into the CHR from their own EHR and maintain patient context
- DHIN CHR opens as a window inside their EHR
- Currently available for Cerner users
  - Implemented by CCHS and NMH
  - In process of Implementation by BB
- Planning work with Epic users (BH, Nemours)
- Streamlines workflow for end user
- Theoretically possible from within any EHR if we have customers who want it and will bring their EHR vendor to the table

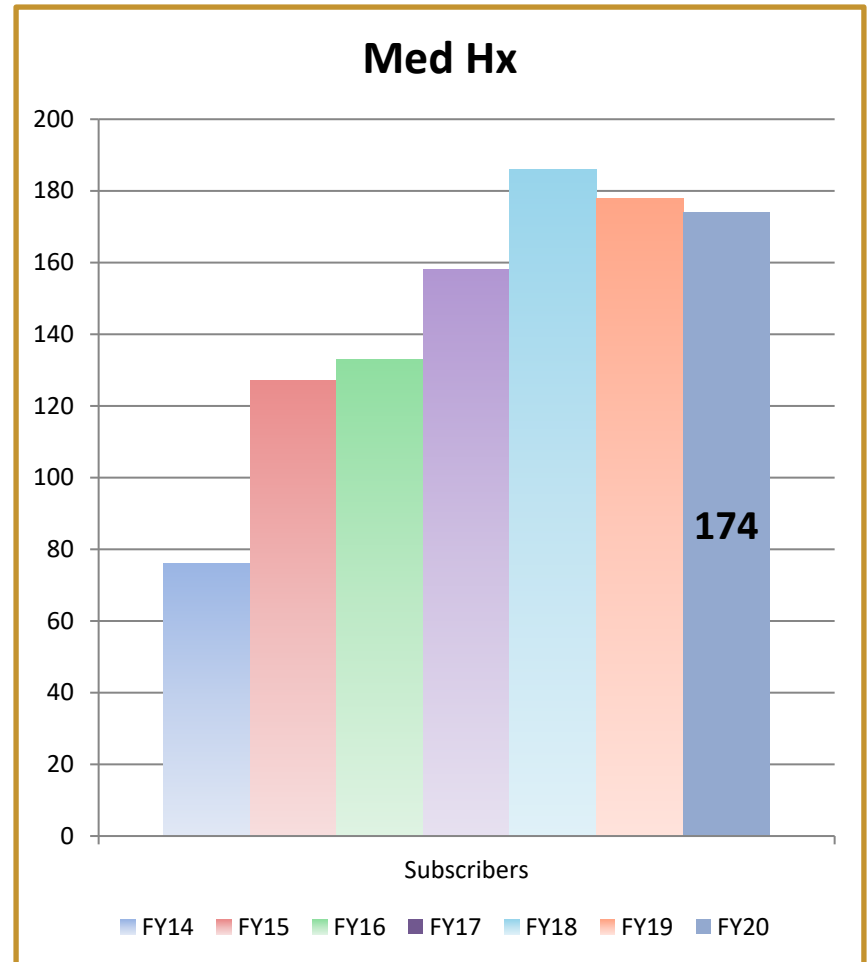
CHR Logins by SSO



# Medication History



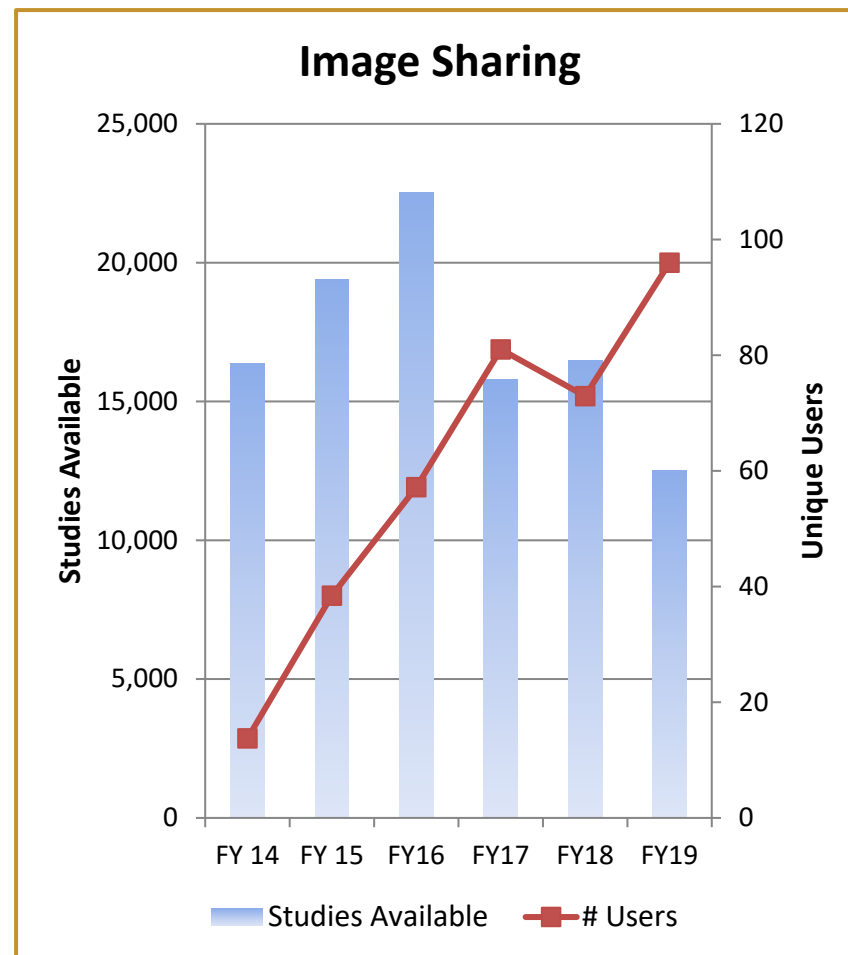
- Supplier is Surescripts (formerly HCS)
- Subscribers have access to a button in the CHR that let's them query for a 12-month nation-wide medication fill history
- Largest subscriber is Department of Corrections providers



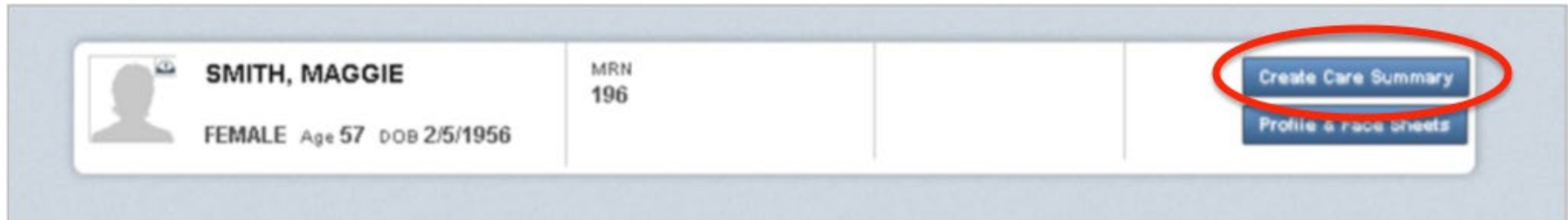
# Image Sharing



- Imaging groups are the paying customers
- A URL embedded in the radiology report in the CHR links to the actual image on a cache server maintained by the subscriber
- Two subscribers – St Francis and Nanticoke
- Mid Del Imaging withdrew due to low number of users
- Barriers to further adoption:
  - Confusing pricing model by supplier
  - Lack of integration with EHRs



# Care Summary Creation & Download



- “The poor man’s interface”
- From within a patient’s chart in the CHR, a user can create and download to their local environment a composite care summary
- This was a feature of Medicity CHR and a requirement which Ai has not yet met
- Enables a user to download a full history on a new patient

# Consumer Engagement: A Suite of Complementary Services



- Interactive consumer web site
- Powered by IBM Watson

DHIN24seven

- Notification for consumers --
- Who's looking?
- What's new?

Health Check  
Connect

Health Check  
Alert

- Full-featured PHR

# Patient Alerting and Fraud Detection

- Focus group reaction to DHIN's CHR:
  - “Great that my doctor has all my information”
  - “Scary that I don't know who else looks at it”
- When asked how often they might actually visit a PHR or patient portal:
  - “When I know there is new information there”
- DHIN sought to develop a consumer product that would let consumers know:
  - When we get new information about them (trigger them to go to the PHR to view)
  - When someone views their information (ability to provide notification of disclosures is required under HIPAA)

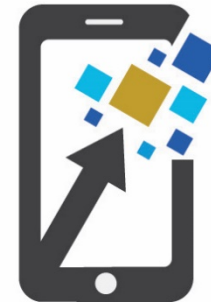
# Patient Alerting and Fraud Detection

- Presentation to DMMA to seek a pilot project with Medicaid members:
  - “Add one more feature, and it’s a fraud detection tool”
  - Let patients respond to a notification indicating they do or do not recognize the activity
- Suggests other target markets and a business model
  - Sell to payers as a fraud detection tool
  - Sell to healthcare organizations who have experienced a breach and need to provide ID theft monitoring



# Health Alert

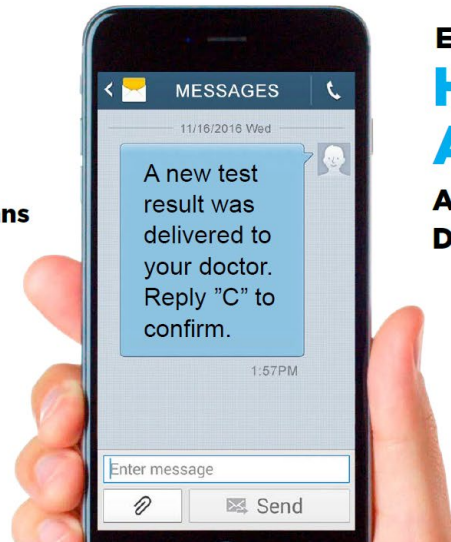
POWERED BY DHIN



**PROTECT YOUR HEALTHCARE & YOUR IDENTITY**

## Did You Know...

**Nearly 2.5 Million Americans  
Have Been The Victims of  
Healthcare Fraud\***



**Enroll Today In**

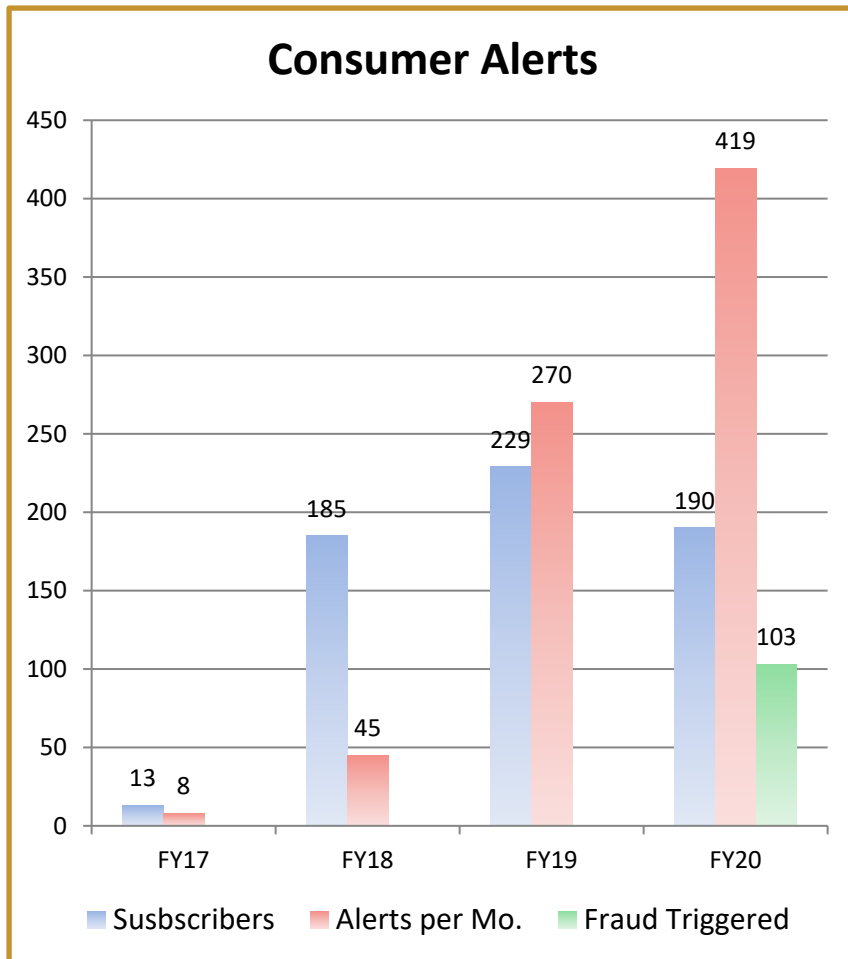
## **Health Check Alert**

**A FREE Service from  
Delaware Medicaid**

Health  Alert  
POWERED BY DHIN 

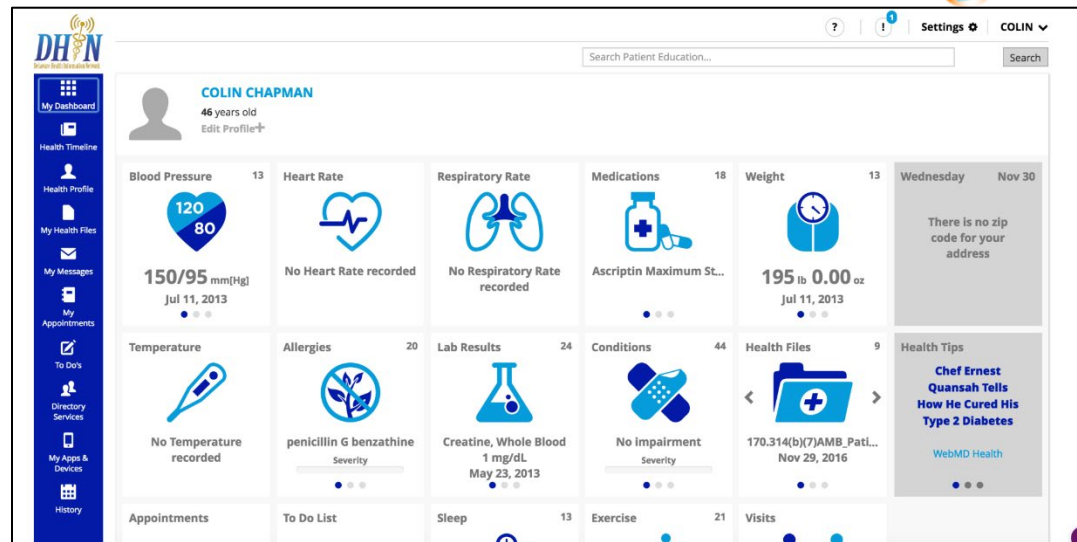
- Upon receipt of data, a SMS text message is sent to patient's mobile phone
- Patient can confirm they expected that data or not; "no" triggers payer notification
- No PHI is included

# Adoption & Utilization: Consumer Facing Services



- Contract executed with Legal Shield to add medical record alerts to their IDShield product
- One-time commission and monthly royalty to DHIN for all new accounts
- Expected to launch in CY20
- Expected to drive additional adoption of the DHIN PHR

# Personal Health Record

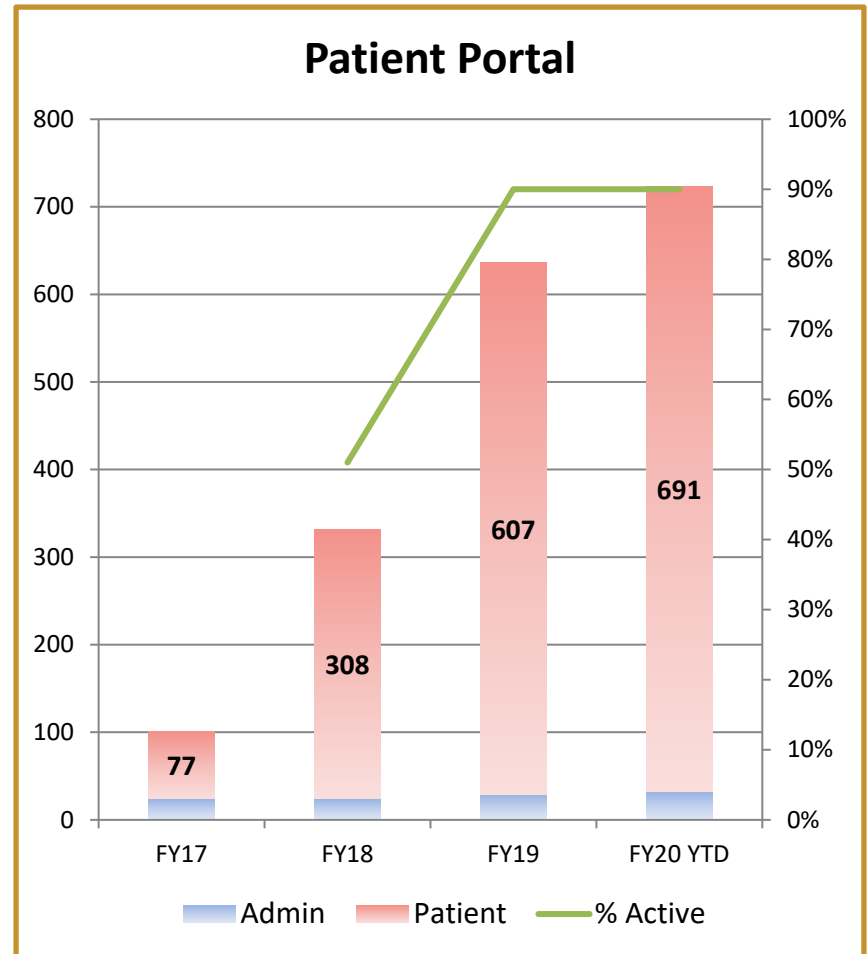


- Implemented in 2016 with grant funds
- Consumers see the same data their provider sees in the CHR, but through a layman-friendly user interface
- Consumers only need one login to see all their data

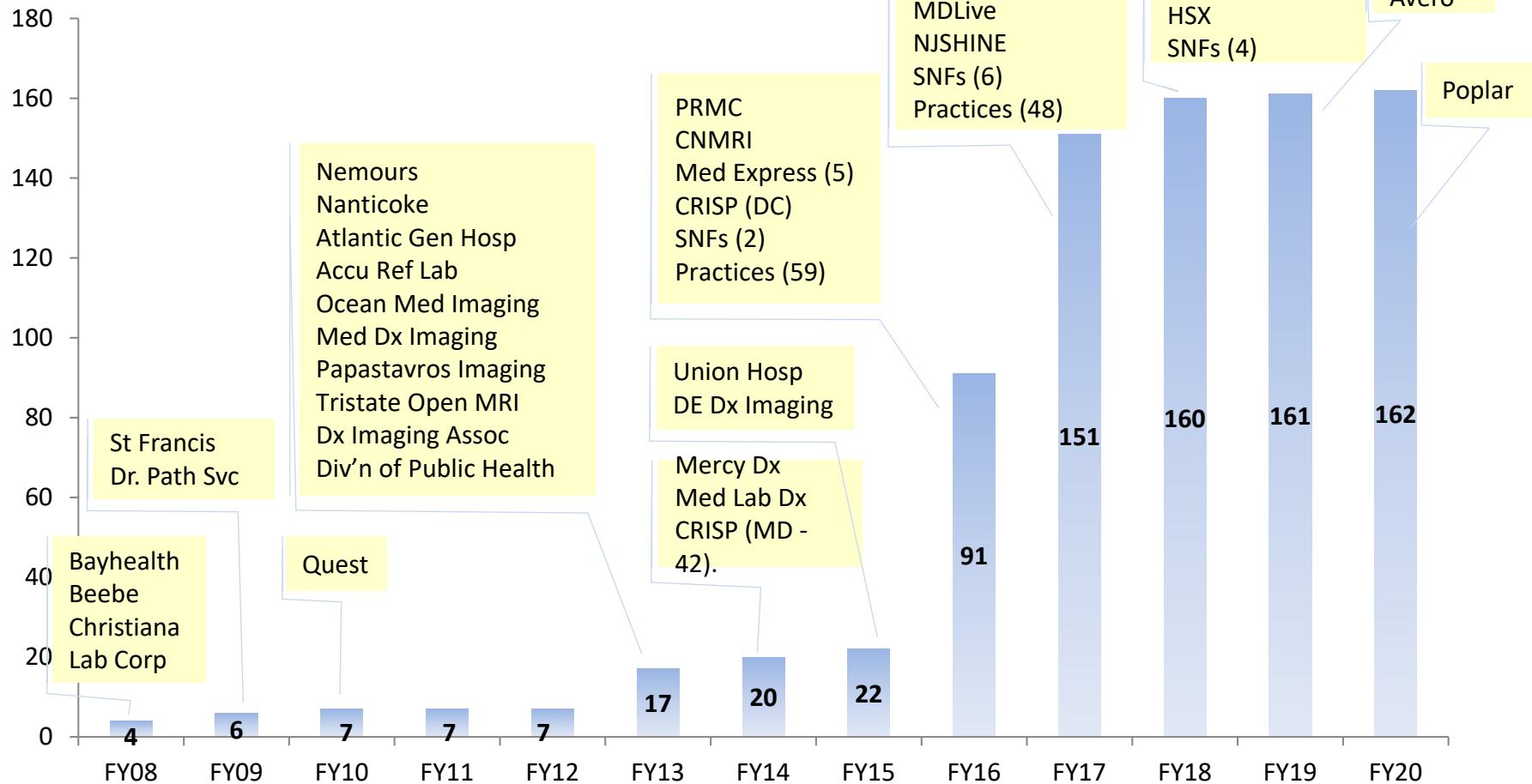
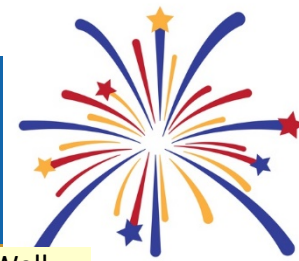
# Point of Decision: To Keep or Retire the PHR?



- Paying customers were expected to be small practices seeking to implement MU consumer engagement objective
- Several practices and 3 hospitals have expressed interest in adoption, but none have followed through
- Aggressive direct marketing to consumers has led to modest adoption, but no supporting business model
- Average 11-13 new accounts/month
- Ongoing operating costs are modest, but not zero



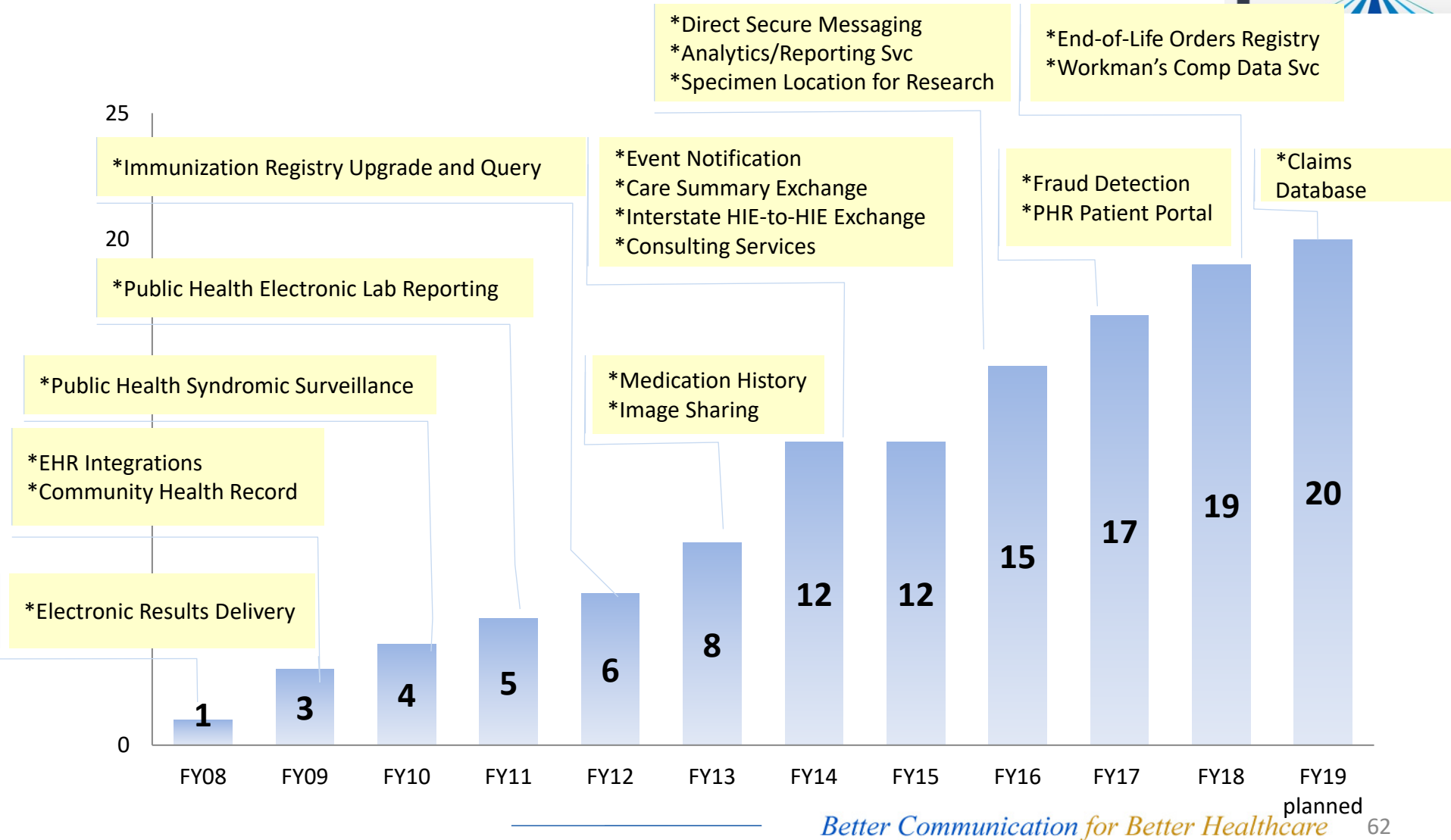
# Growth in Data Sources



# Growth in Services & Capabilities



Technology concept



# HIE Stages of Development

Advanced HIEs

## Stage 7: Innovating

- Sustainable and fully operational health information organization. Demonstration of expansion of organization to provide value-add services, such as advanced analytics, quality reporting, clinical decision support, PACs reporting, EMS services.

2014

## Stage 6: Sustaining

- Fully operational health information organization; transmitting data that is being used by healthcare stakeholders and have a sustainable business model.

2012

## Stage 5: Operating

- Fully operational health information organization; transmitting data that is being used by healthcare stakeholders.

2007

## Stage 4: Piloting

- Well under way with implementation—technical, financial and legal.

2005

## Stage 3: Planning

- Transferring vision, goals and objectives to tactics and business plan; defining your needs and requirements; securing funding.

## Stage 2: Organizing

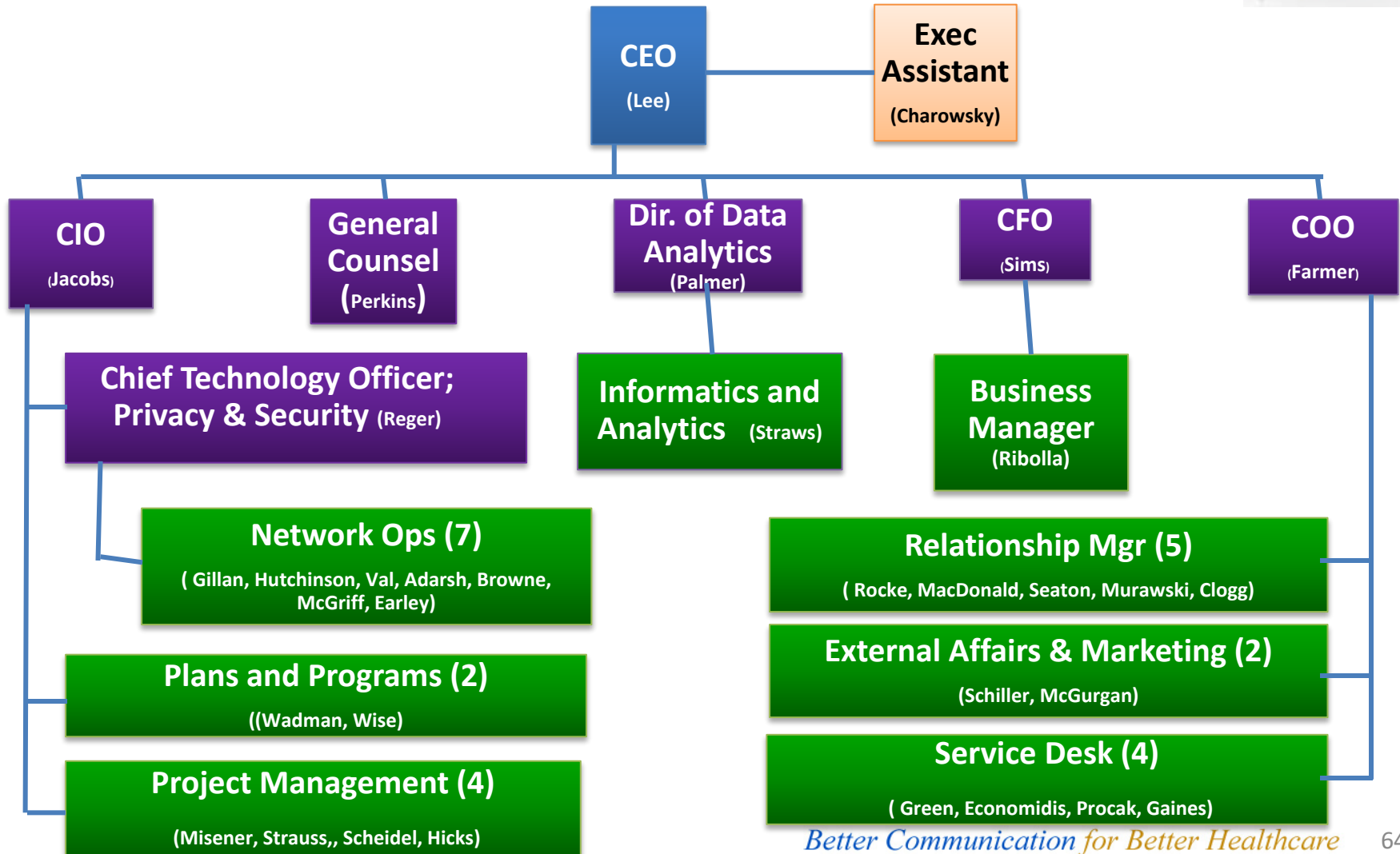
- Getting organized; defining shared vision, goals, and objectives; identifying funding sources, setting up legal and governance structures.

## Stage 1: Starting

- Recognition of the need for health information exchange among multiple stakeholders in your state, region or community.

1997

# DHIN Organizational Chart



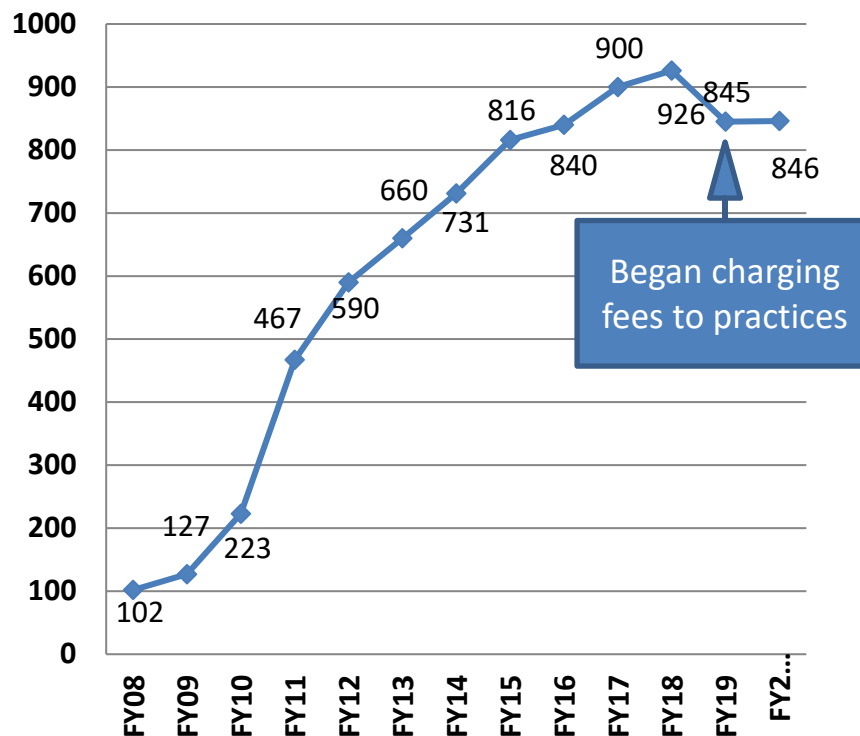


# Growth and Stabilization

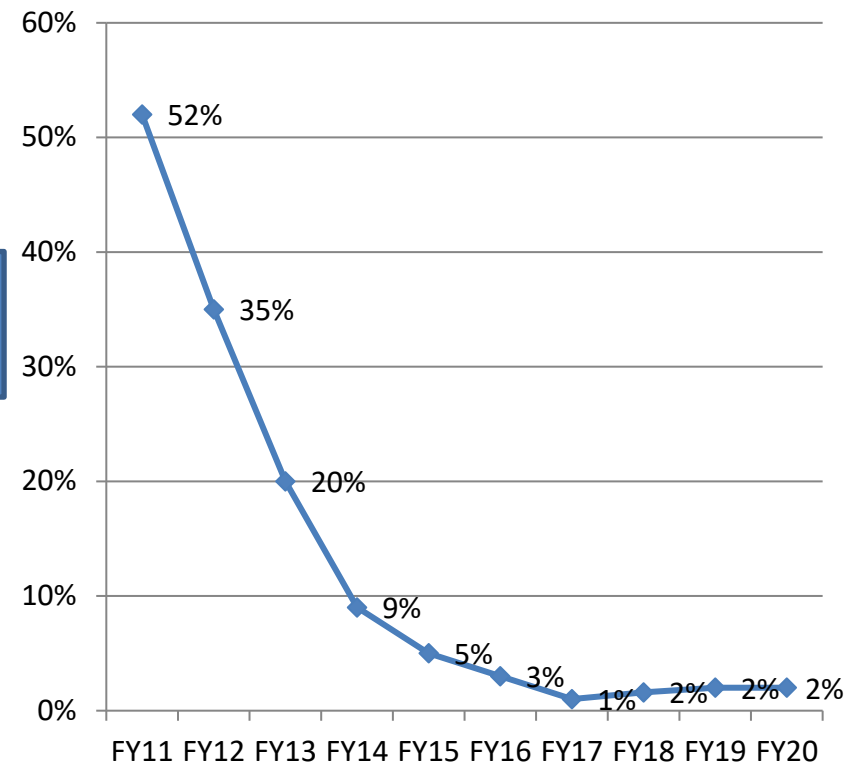
(Core Services)



## End-User Organization CHR Enrollment



## Percent Aged Practices (Live > 3 mo. Without Sign-off)



# A Health Information Ecosystem...



**... in which all participants both  
contribute and receive value**