One Team, One Goal:

How Centralization and Automation Optimize Infection Prevention

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THE HEALTHCARE SYSTEM OF APPALACHIA

Speakers

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System Director of Infection Prevention
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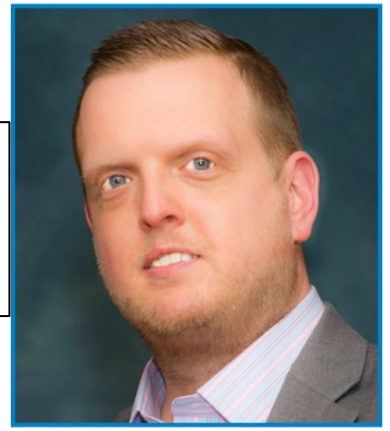

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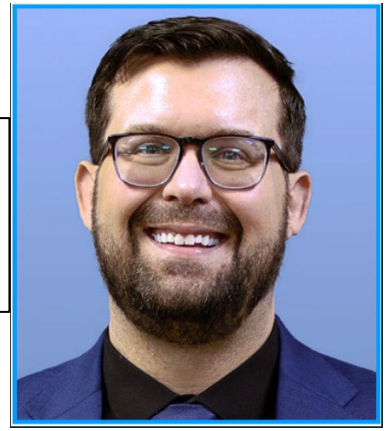

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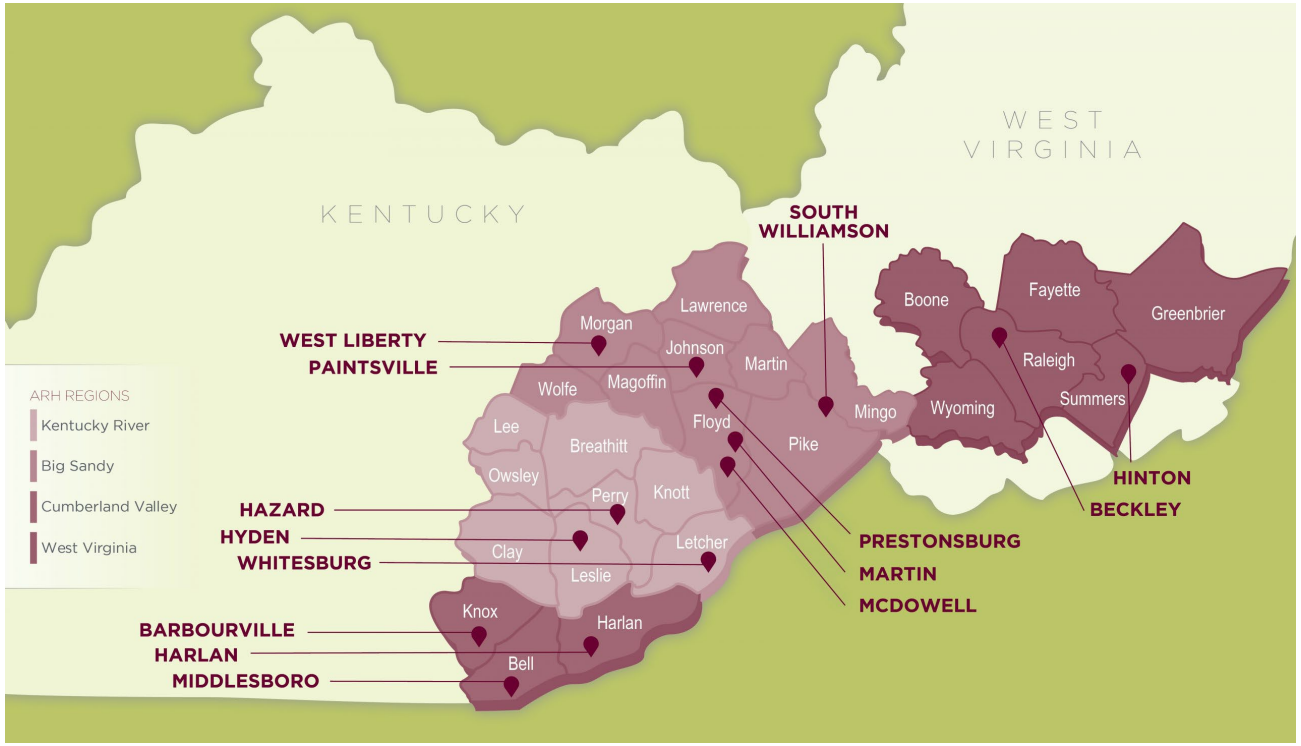
One Team, One Goal

ARH Mission

To improve health and promote well-being of all people in Central Appalachia in partnership with our communities.

ARH Vision

ARH will be the premier destination for quality care, a driver of advancement and development, and a leader in health for the communities we serve.



Impact of the Pandemic Healthcare Environment

- Broad increase in the burden of infection
- Magnified staffing issues
- Increase in work volume
- Change in nature of work
- Exposed inefficiency

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Program Assessment

- Process evaluation
- Root cause analysis and structure
- Reported concerns from both Infection Prevention and Nursing
- Workflow hardships, time investments for duties
- Alignment with new system structure and quality efforts

Initial Results

- Inconsistent reporting structure
- Varying levels of integration of IPs in facility leadership.
- "Jack of all trades" approach
- Mixed knowledge of NHSN guidelines
- Limited processes for coverage
- Need for increased accountability

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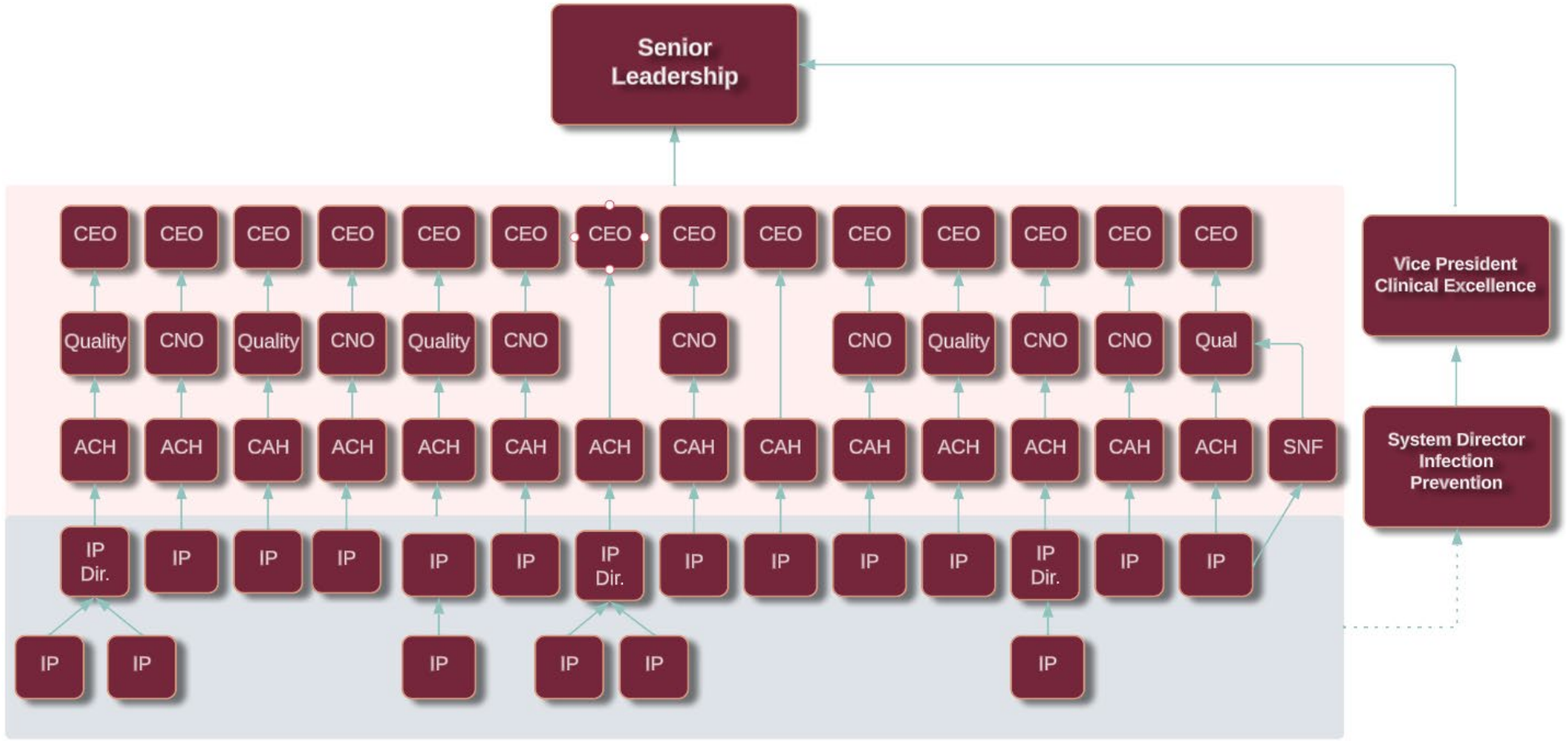
Goals

- Simplify the reporting structure
- Focus on HAI reduction
- Increase efficiency
- Return Infection Preventionists to the bedside
- IP integration into facility leadership
- Broad increase in accountability

Approach

- Systemizing & regionalizing reporting structure
- Creation of a centralized surveillance program.
- Program standardization
- Transitioning to digital auditing processes
- Automated data analysis & delivery
- Formal collaboration with Risk Management & Quality

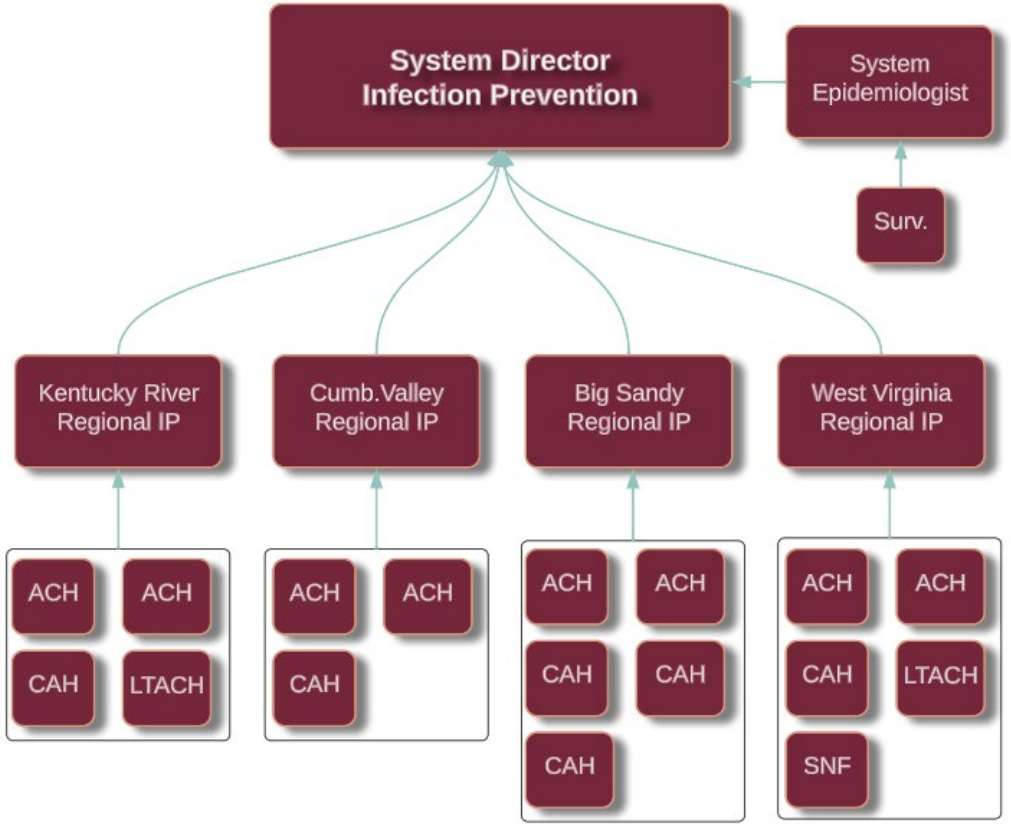
Initial Program Layout



System & Regional Structure

System Reporting

- Clearly defined structure.
- Increased Transparency
- Improved Efficiency
- Uniformity of Mission.



Regional Reporting

- Mentorship Approach
- Weekly Meetings
- Standardized Onboarding
- Coverage for Time Off
- Regional Outbreak Response

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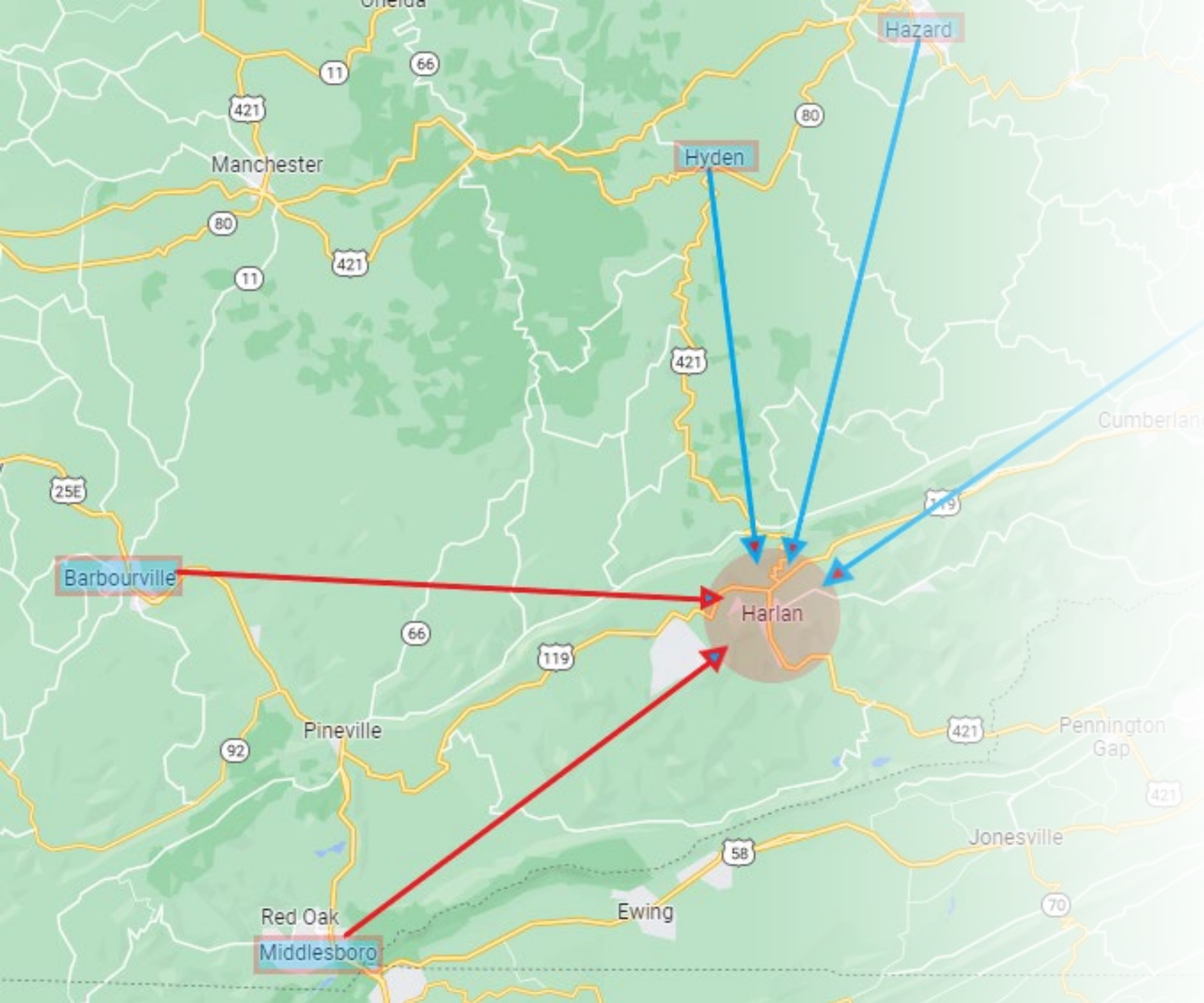


Regional Response Model

Allows for greater ease and effectiveness in rapidly responding to outbreaks, providing the surge in IP support to identify the cause and break the chain of infection via targeted interventions.

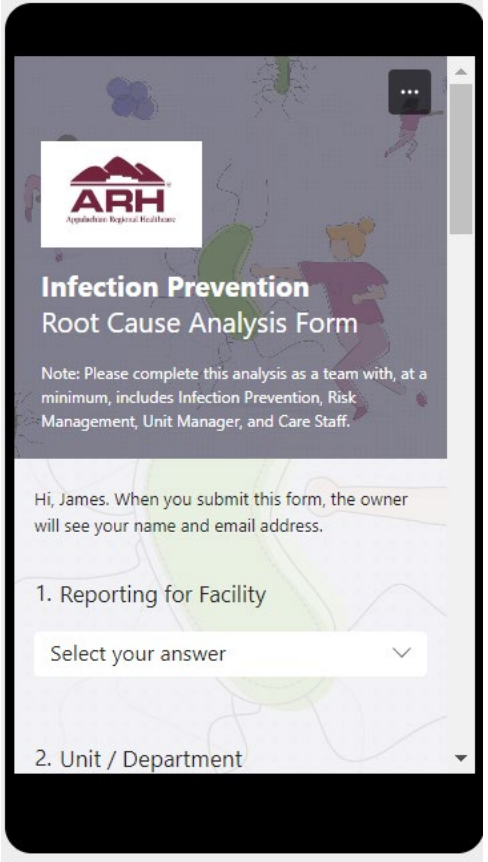
Collaboration with Quality & Risk

Development of Infection Specific Root Cause Analysis Forms

- All reportable infections
- Ensures uniformity in investigation
- Requires approved action plan to address root cause of the issue
- Takes local lessons and systemizes the improvement

System RCA Committee

- Increase accountability
- Requires the unit manager to present
- Encourages front line staff involvement



Centralized Surveillance

Goals

- Develop centralized surveillance policy outlining the program and standardizing surveillance terms and types of surveillance performed
- Implement Infection Prevention Software
- Centralize culture review
- Centralize data reporting (reportable diseases, NHSN reportable data)
- Perform ongoing audits to ensure validity and interrater reliability
- Identify trends and lapses in Infection Prevention and notify Local and Regional IPs for initiation of action
- Improve timing of flagging of charts, initiation of isolation precautions
- Provide robust training to a dedicated team of IPs
- Reduce HAIs

Culture Volume

Hospital Name	180 Day Volume	% of Volume
Hazard	3204	16.4%
Beckley	2276	11.6%
Highlands	1821	9.3%
Harlan	1628	8.3%
Whitesburg	1626	8.3%
Tug Valley	1612	8.2%
Barbourville	1280	6.5%
Our Lady of the Way	1189	6.1%
Middlesboro	1084	5.5%
Paintsville	1059	5.4%
McDowell	967	4.9%
Morgan County	769	3.9%
Mary Breckenridge	620	3.2%
Summers County	462	2.4%
Total	**19597**	**100%**

Region Name	180 Day Culture Volume	% of Volume
Big Sandy	5805	29.6%
KY River	5450	27.8%
West Virginia	4350	22.2%
Cumberland Valley	3992	20.4%
Total	**19597**	**100%**

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Centralized Surveillance Policy

- Centralized Surveillance policy based on the needs of the IP Program, current guidance available
- Outlines purpose, surveillance activities, methods for data collected, reporting, and communication, auditing process, and program evaluation
- House-wide surveillance for low volume facilities and targeted surveillance for high volume facilities
- All reportable diseases are reported

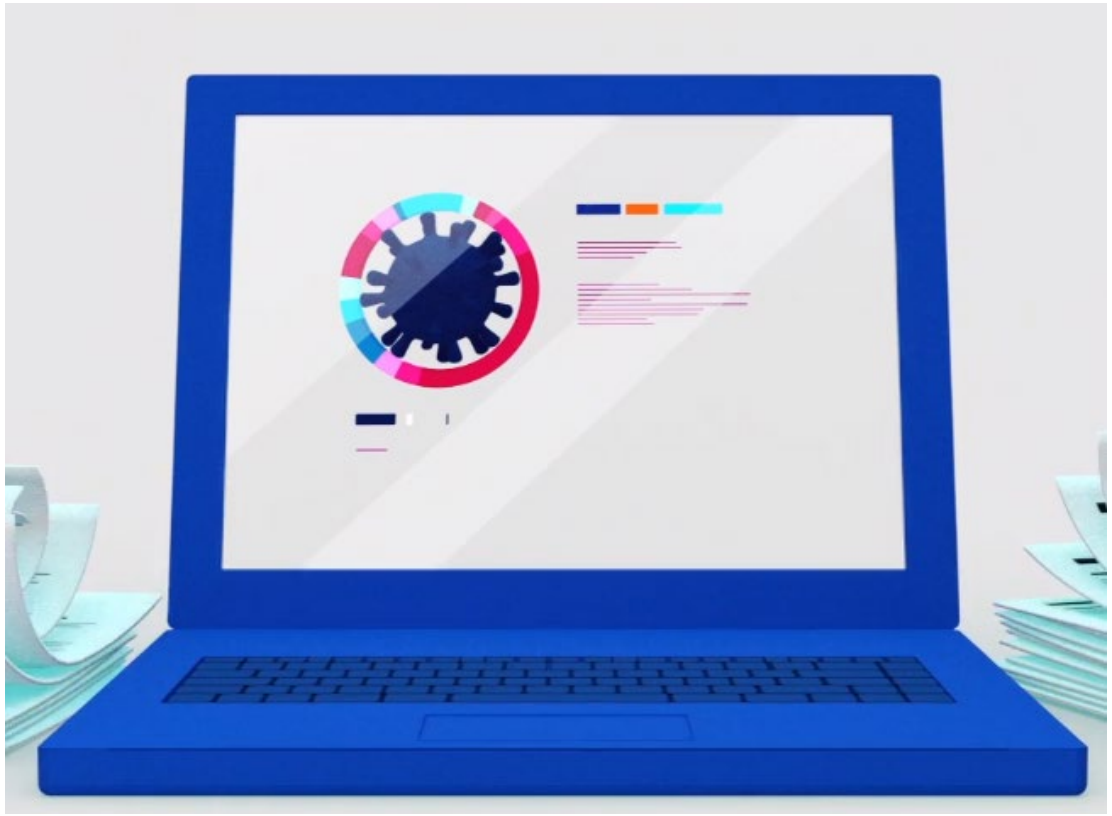
FACILITY TYPE	SURVEILLANCE TYPE
ACUTE CARE	TARGETED
LONG TERM ACUTE CARE	HOUSE-WIDE
CRITICAL ACCESS	HOUSE-WIDE
SKILLED NURSING	TARGETED

Targeted Surveillance:

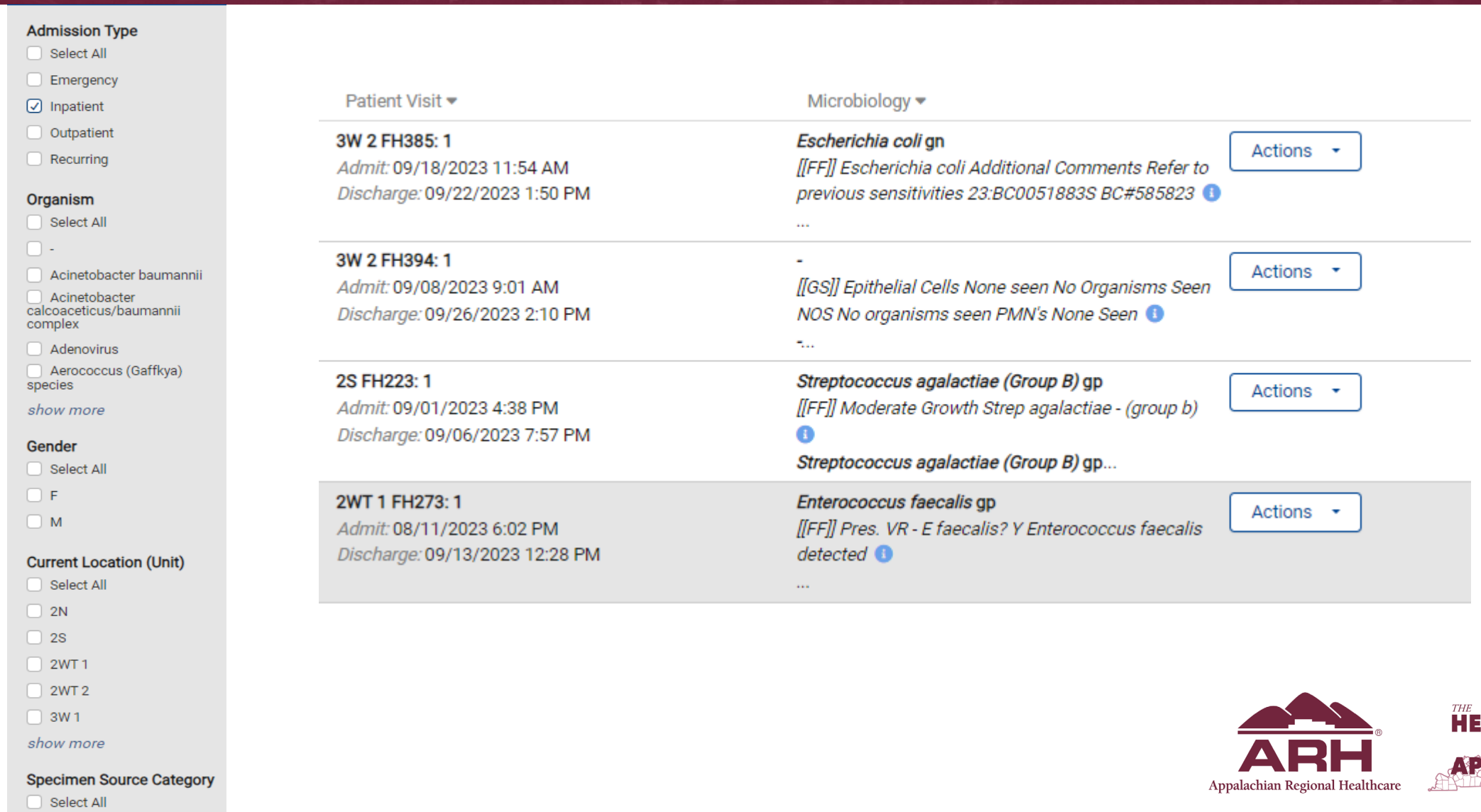
- All device-associated cultures (CLABSI, CAUTI, VAP)
- MRSA Bacteremia
- C.Difficile acute infections
- Critical pathogen MDROs
- SSIs (Inpatient COLO, TAH)

Implementation of Infection Prevention Software

- Digital lab results
- Alerts
- Customizable reports
- CDA Generation
- HAI Dashboards
- NIM Scorecard
- Pattern Recognition



Implementation of Infection Prevention Software



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Training

- Each member of the Centralized Surveillance team receives robust training on reportable diseases, HAI identification, and all NHSN guidelines
  - -Reportable Disease regulations for West Virginia and Kentucky
  - -NHSN Patient Safety Component Manual
  - -Example NHSN case scenarios to complete
  - -Annual NHSN training
- 6-month review by Team Leader of all cultures reviewed (baseline and 6-month competency rate recorded)
- Must achieve 95% competency rate before review process ends
- After initial review process, all HAIs identified will continue to be reviewed by Team Leader

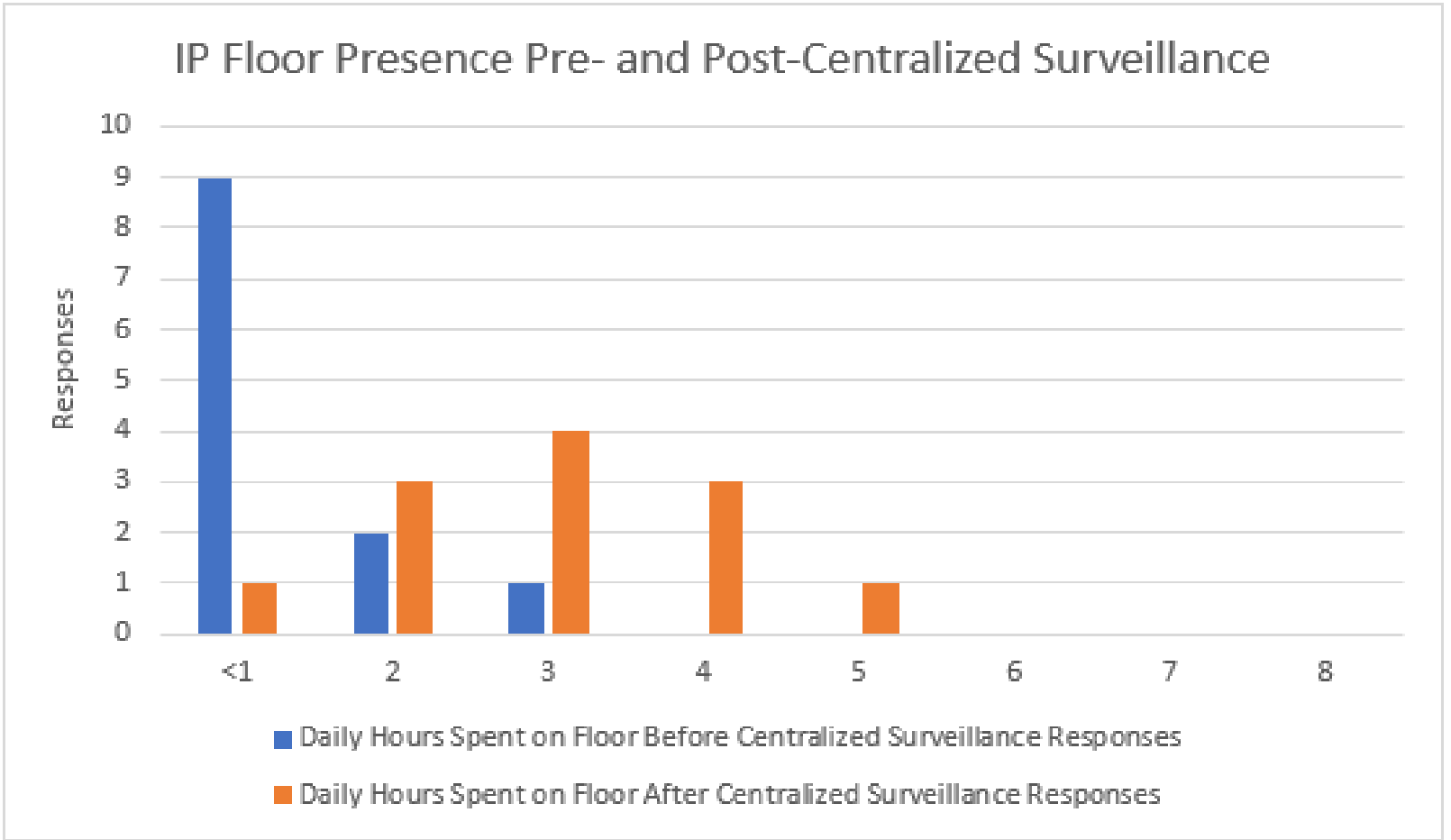
Challenges

- No real guidance or plan templates available on creating a Centralized Surveillance program for a large system of hospitals, especially with a variety of mixed acuity facilities
- Inconsistency of Monthly Reporting Plans (MRPs)
- Issues identified with the Infection Prevention Software
- Getting IPs on board with giving up their culture review/reporting responsibilities
- Addressing the variance in interpretation and application of NHSN guidelines

Where We Are Now

- All facilities onboarded in the Centralized Surveillance program (onboarded one region at a time over a 3-month period)
- Initial 6-month training period has been completed
- Data integrity has been achieved
- Refined and improved standardized surveillance methods
- All facilities performing Active Surveillance Screening for MDROs
- Increased communication of HAIs, findings, trends
- Continuity of culture review, reporting due to staffing adjustments
- Earned trust and respect of local IPs
- IPs have increased floor presence
- Achieved reduction in HAIs

IP Efficiency Pre- and Post-Implementation



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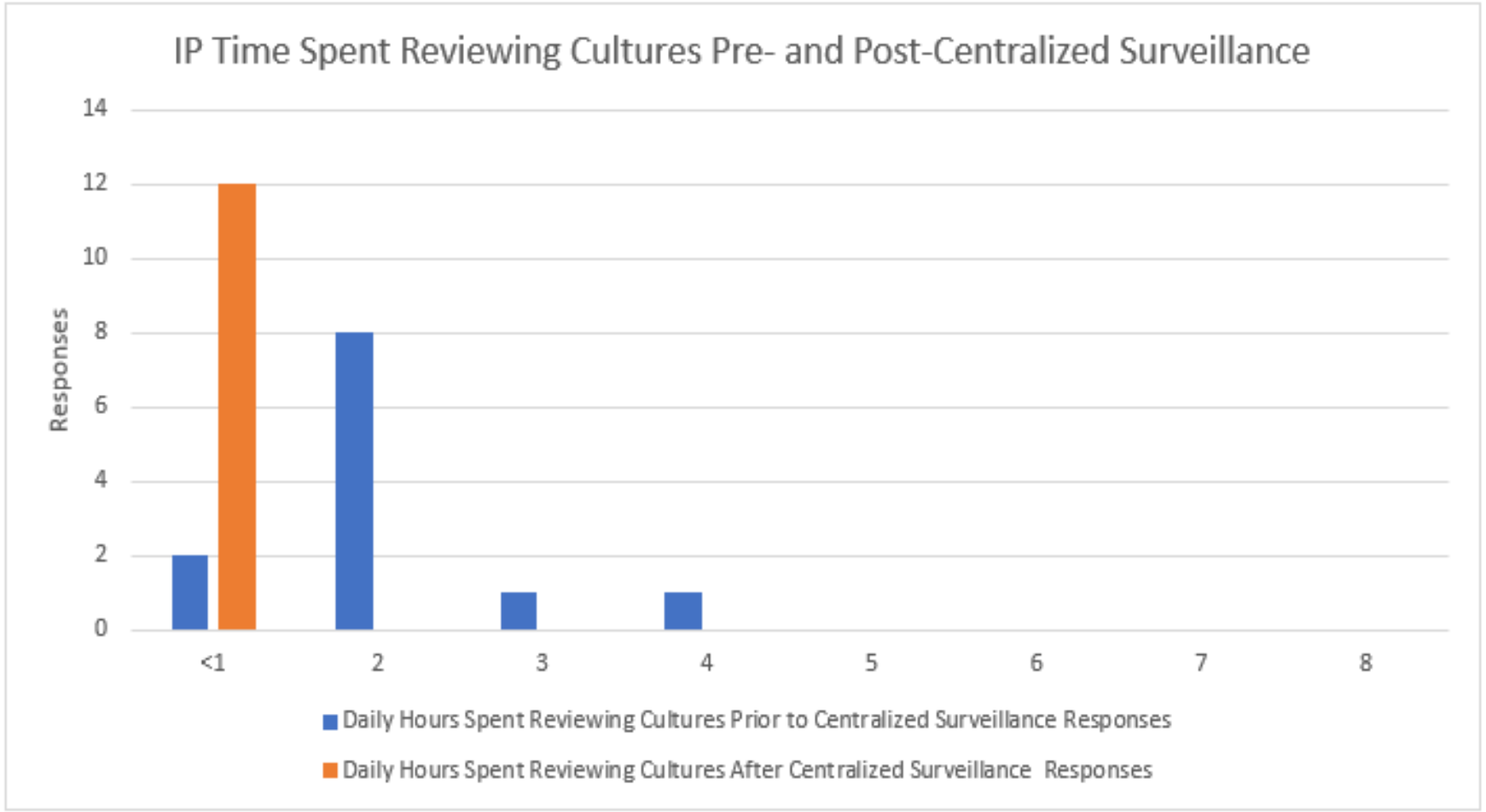
IP Efficiency Pre- and Post-Implementation



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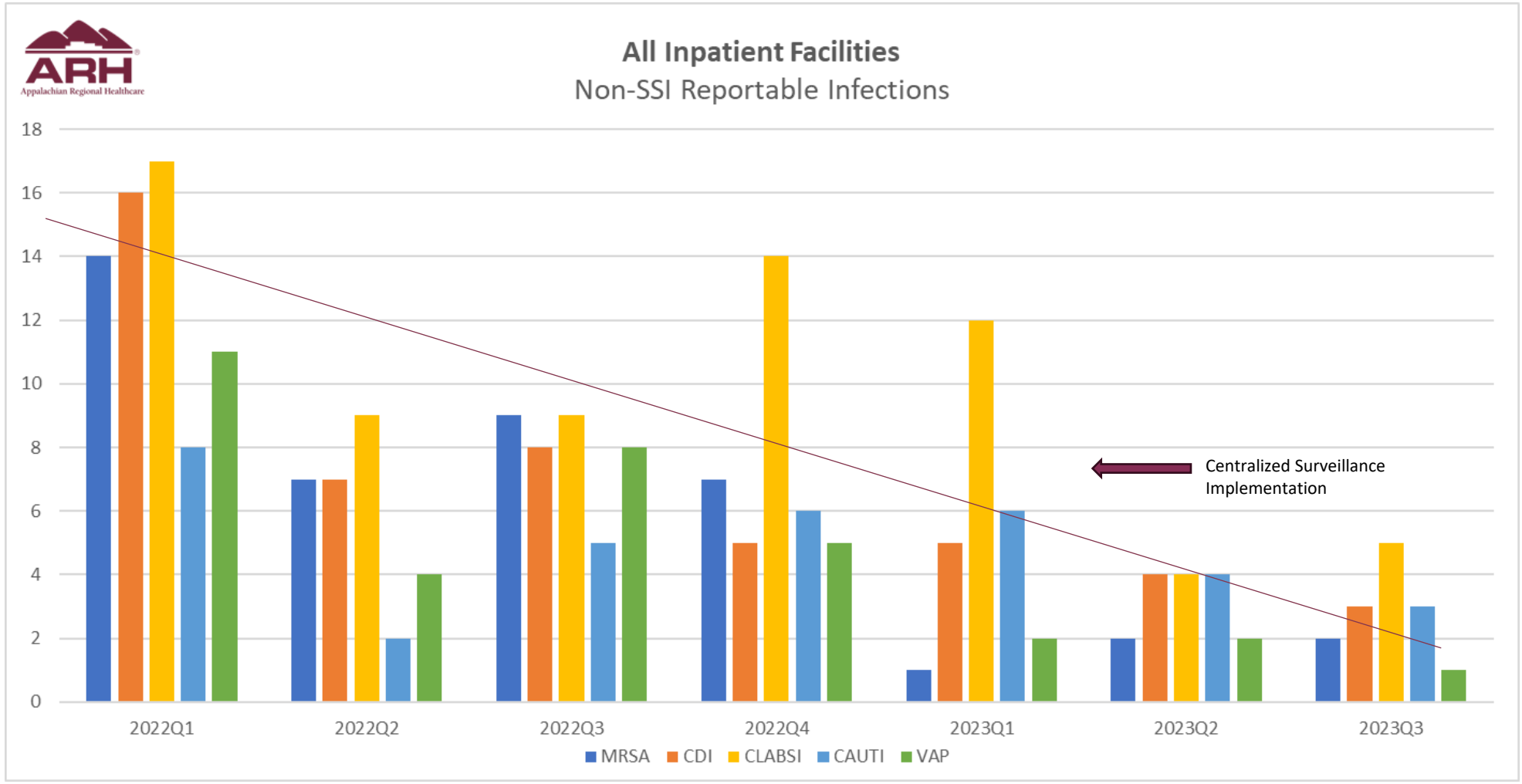
IP Efficiency Pre- and Post-Implementation

Question	Hours	Change
How many hours per day do you spend reviewing cultures before Centralized Surveillance?	2	
How many hours per day do you spend reviewing cultures after Centralized Surveillance?	45 mins	63% Decrease in time spent reviewing cultures.
How many hours did you spend daily on the floor prior to Centralized Surveillance?	1	
How many hours do you spend daily on the floor after Centralized Surveillance?	3	200% Increase in floor presence
How many hours did you spend reporting reportable diseases each day prior to Centralized Surveillance?	2	
How may hours do you spend daily reporting reportable diseases after Centralized Surveillance?	30 mins	75% Decrease in time spent on reportable diseases
How many hours did you spend monthly reporting data to NHSN prior to Centralized Surveillance?	3.5	
How many hours do you spend monthly reporting data to NHSN after Centralized Surveillance?	45 mins	78% Decrease in time spent on NHSN
Overall Impact		
200% Increase in Floor Presence		
73% Reduction in Paperwork / Data Entry		


All Inpatient Facilities
Non-SSI Reportable Infections
18
16
14
12
10
8
6
4
2
0
2022Q1
2022Q2
2022Q3
2022Q4
2023Q1
2023Q2
2023Q3
MRSA
CDI
CLABSI
CAUTI
VAP
Centralized Surveillance Implementation

Centralized Surveillance and Automation

- Provides valuable information on patients with invasive devices
- Use of automated construction reports for epidemiological look-back
- RCA tracking and trending

Traditional Workday Task	Traditional Workday Barriers
Collecting data (Lines & Tubes, EOC, PPE)	Being interrupted with another issue or emergency
Calculating data (Grading, Spreadsheets, Measuring reductions)	Being pulled away delaying or forgetting to provide notifications
Building presentations with the data (Graphs, Tables, Slides)	Rushing, Other job duties, Educations, Meetings
Making notifications of non-compliant findings (Email, Verbally, Meetings)	

Unmasking the Daily Grind: Our Traditional Workday

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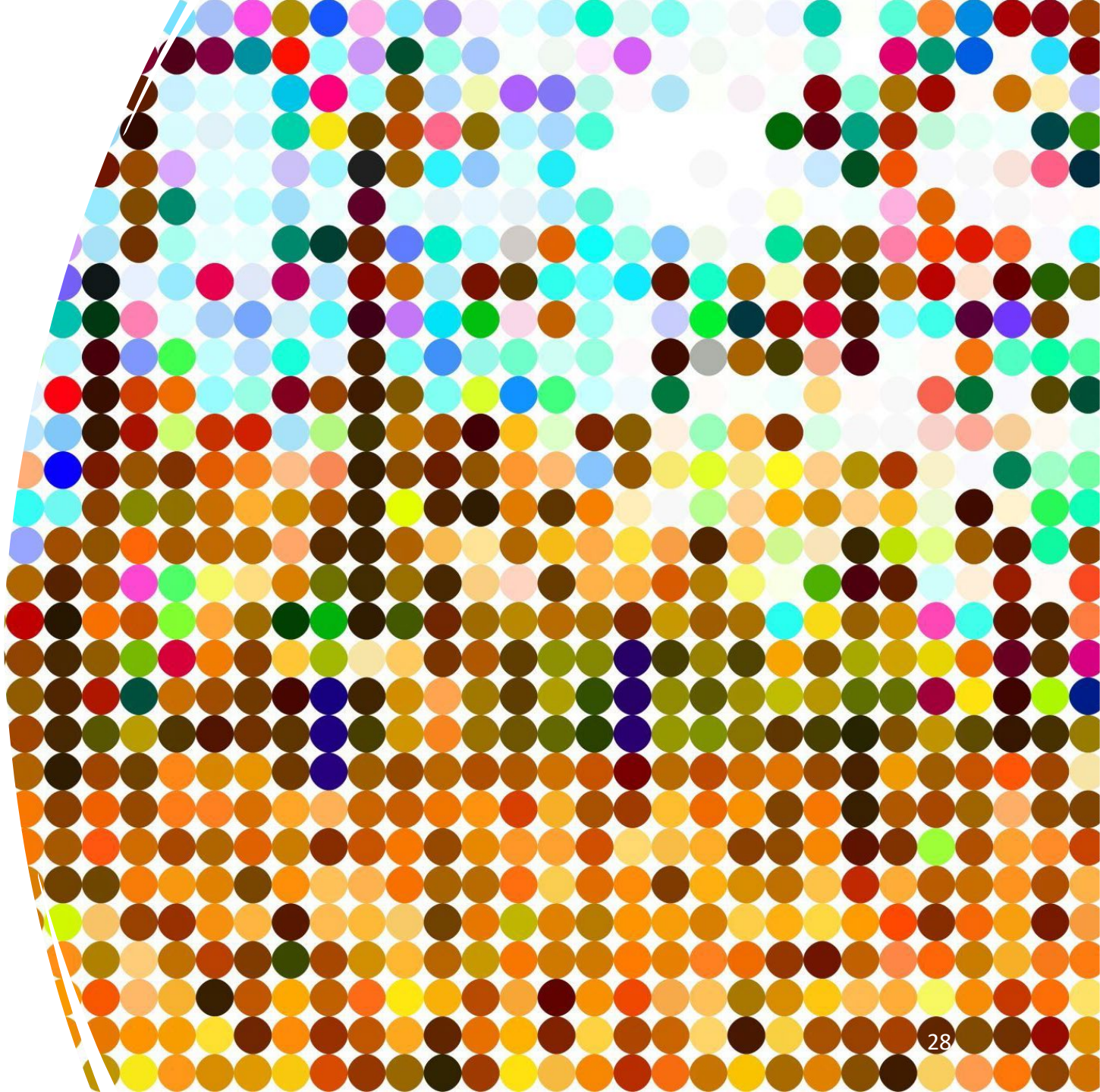
What is Automation?

Automation is defined as the application of technology, programs, robotics or processes to achieve outcomes with minimal human input.

There are several types of automation, the most common being:

- Basic automation
- Process automation
- Intelligent automation

There are also multiple ways to achieve the automation of a process today we will focus on the low code or no code options



Workday Task	Automation Type Applied
Collecting Data (Lines, EOC, PPE)	Basic Automation
Data Calculation (Spreadsheets, Trending)	Process Automation
Visualization of Data (Graphs, Tables, Dashboards)	Process Automation
Communication of Findings (Email, Verbally, In	Process Automation
Workday Barrier Removed	**Automation Type Responsible**
Interruption	Basic and Process Automation
Failed Communications	Process Automation
Education, Research	Basic and Process Automation

Simplify and Accelerate: IP Automation in Action

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Example	Type of Automation
Data Collection	Basic Automation
Data Processing	Process Automation
Data Transparency	Basic and Process Automation
Uniform Data Submission	Basic and Process Automation
Generating Graphics	Basic and Process Automation
Communication of Findings	Basic and Process Automation

Examples of Our Applied Automation Applications

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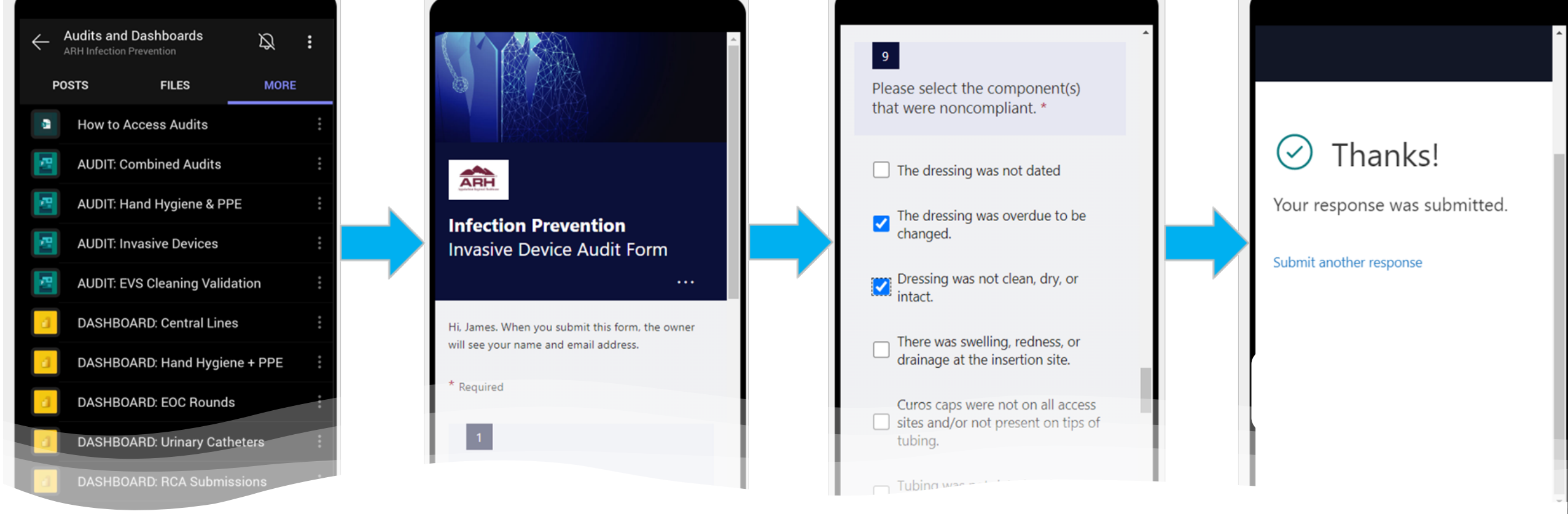

Enterprise Audit Library Format

ICRA and Construction

Standardized

- ICRA Request Format
- ASHE ICRA 2.0 Form
- Precaution Based Construction Audits
- Communication and Expectation

ICRA Site Audit

Audit Type	Total Number of Submissions
Invasive Devices	11,233
ICRA Request / Construction Audits	2,115
Cleaning Validation	498
Hand Hygiene	15,426
Personal Protective Equipment	6,569

Enterprise Audit Library

Total Audit Submissions Included

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Real Time Communication

Audit Library Communication Functions

- Realtime Notification
- Realtime Audit Receipt's
- Engagement for All Involved Departments
- Verifiable Hands-off Approach
- Documentation of notification

TB Risk Assessment Functions

- Ease of use
- Auto File
- Employee Reminders

Influenza Submission Portal Functions

- NHSN Format for Uploading
- One Stop for Human Resources and Infection Prevention
- Auto File
- Human Resources Notification for Support or Request

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Uniform Data Presentation and Metrics

Standardization Requirements for Data Presentation and Measurement

- Centralized Location and Accessibility
- Easy to Navigate
- Clean Understandable Presentation
- Facility Specific Comparisons for ACH, CAH, LTACH
- Automation for Calculation of Collected Data
- Means for Data Transparency (IP Report Card)

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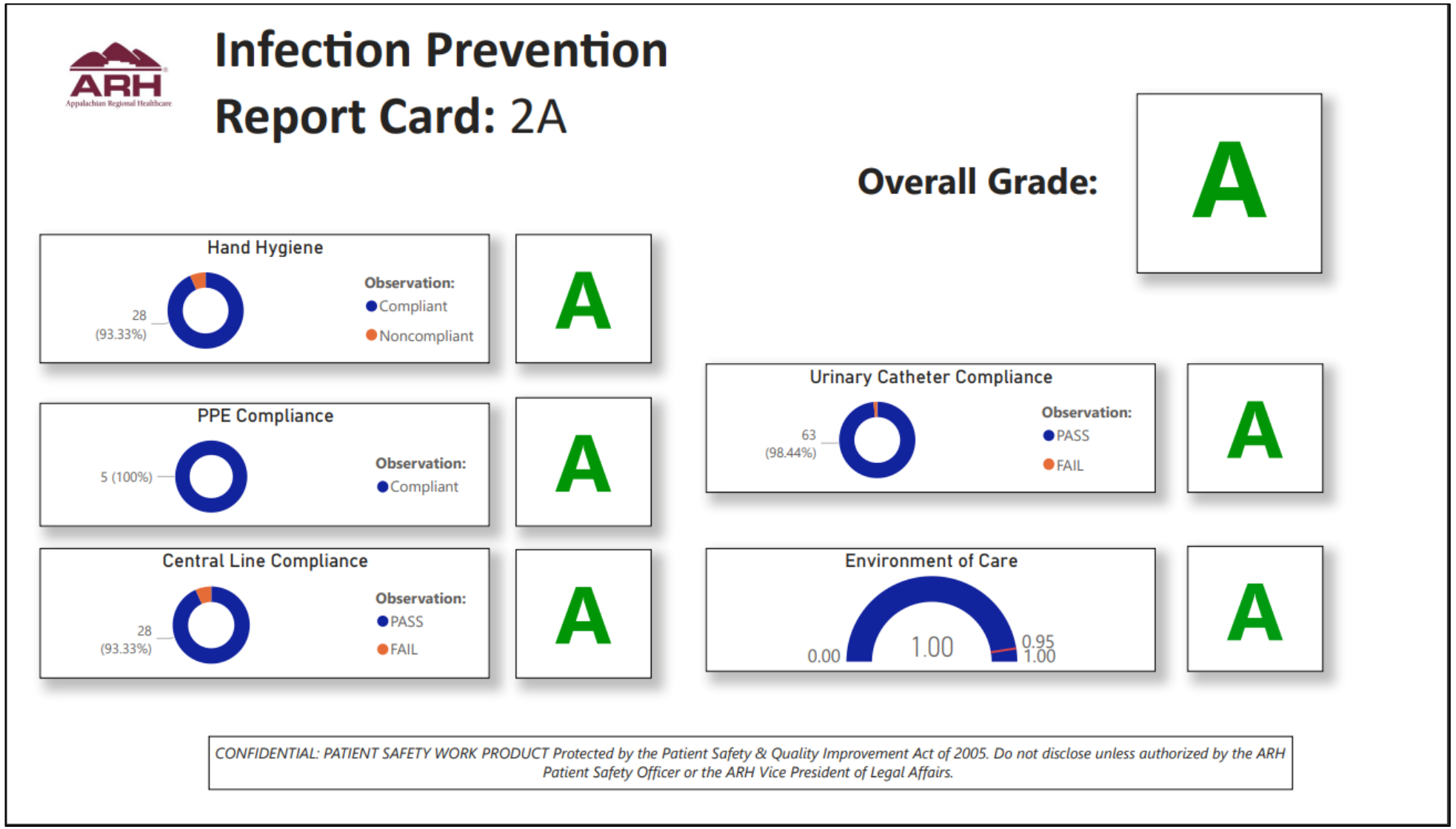
IP Report Card



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IP Report Card 2.0

Beckley ARH

Compliance Rates by Department

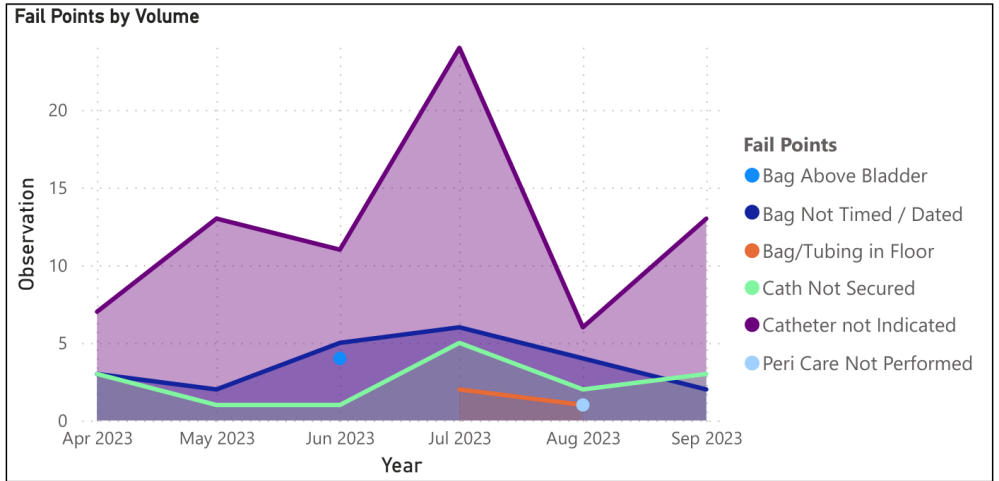
Merged Depts	FAIL	PASS
3RD	10.64%	89.36%
4TH	9.09%	90.91%
ICU/CCU	13.89%	86.11%
Total	**11.22%**	**88.78%**

1 Goal: ≥95% Compliance

Catheter Usage by Unit

Unit	Catheter Usage Ratio
ICU/CCU	44%
4TH	16%
3RD	7%
2ND	0%

CAUTI Prevention



Please select the component(s) that were non-compliant:	3RD	4TH	ICU/CCU	Total
Catheter did not meet current indications for continued use.	5	2	6	**13**
The catheter was not properly secured to the patient		3		**3**
Catheter bag was not timed and/or dated.			2	**2**
Total	**5**	**5**	**8**	**18**

Notes from IP: *0 CAUTI events for August. Catheter usage rate decreased to goal of 18%- down by 8% from July, with decreased usage noted in each unit. Audit compliance increased by 12% overall, but remains slightly below goal. Biggest fail point is no valid rationale for use- a repeat trend from July. IP recommends continued focus on decreasing use of indwelling urinary catheters, increasing compliance with nurse driven protocol (bladder scans and straight caths), education with floor staff and physicians on protocols and valid rationale for use. Also recommend increased rounding by managers and validation of proper need for use of catheter, collaborating with physicians when needed, and progressive action for non-compliant staff. 2/3 CAUTI goals met*

CAUTI Prevention Goals

2/3

August 2023

2 Goal: 0 Events

0

CAUTI Events

3 Goal: ≤18%

18%

Catheter Usage Ratio

37

National Percentile

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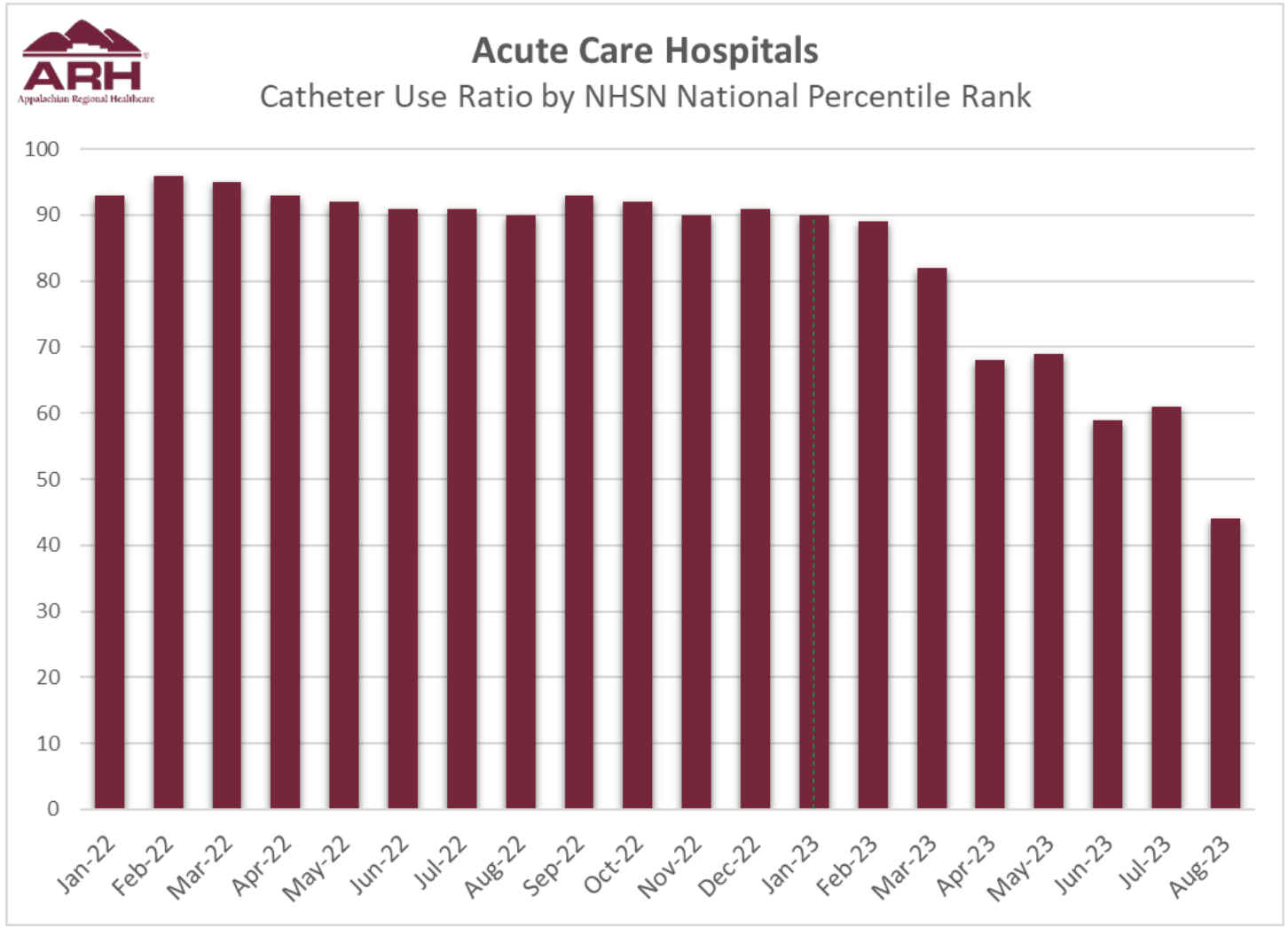
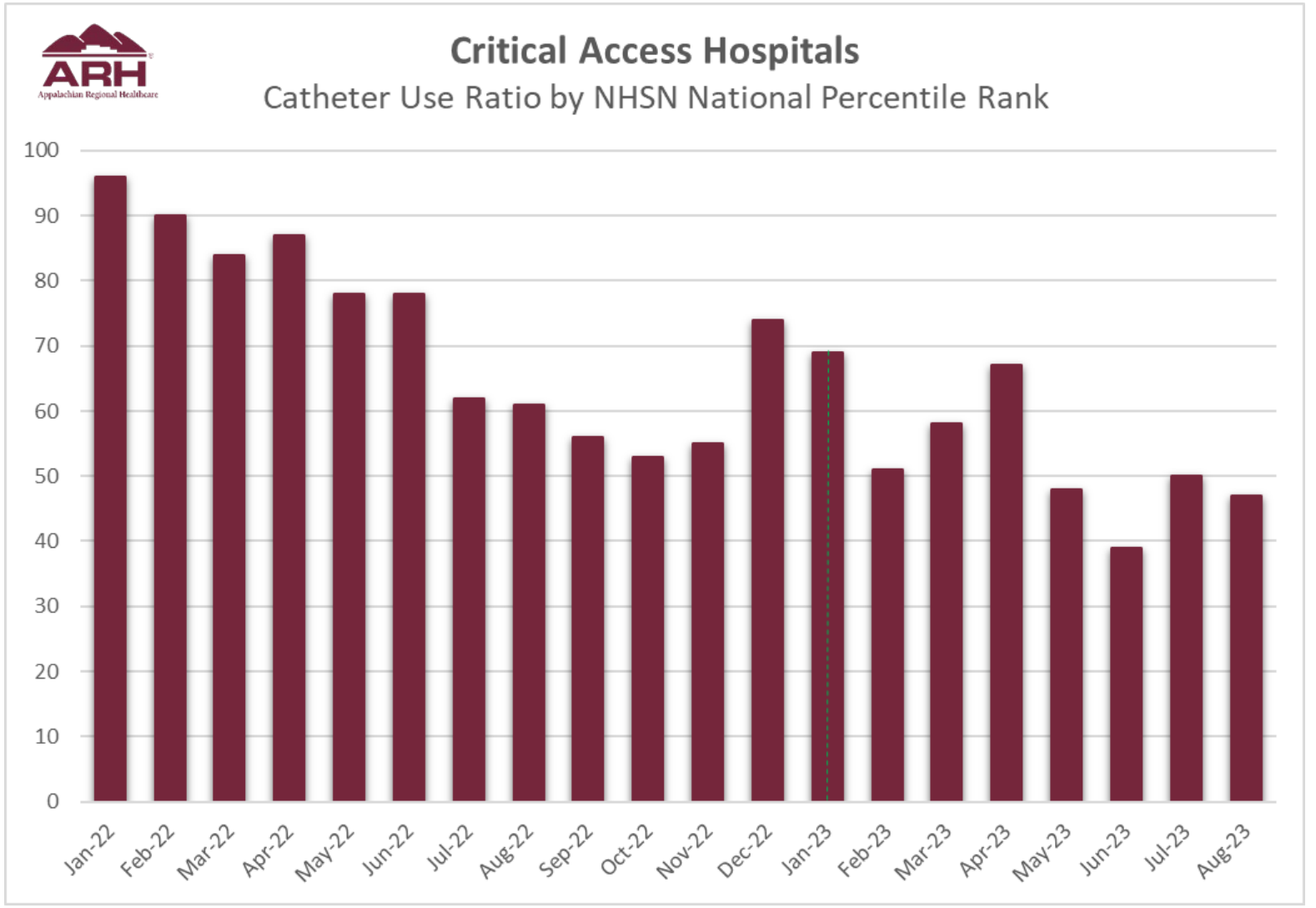

Acute Care Hospitals
Catheter Use Ratio by NHSN National Percentile Rank
100
90
80
70
60
50
40
30
20
10
0
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23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Critical Access Hospitals
Catheter Use Ratio by NHSN National Percentile Rank
100
90
80
70
60
50
40
30
20
10
0
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
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Apr-23
May-23
Jun-23
Jul-23
Aug-23

Questions?

Contact Info & Feedback Form

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