PA/NP Utilization Models: Creating Best Practices

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Disclosures

- None

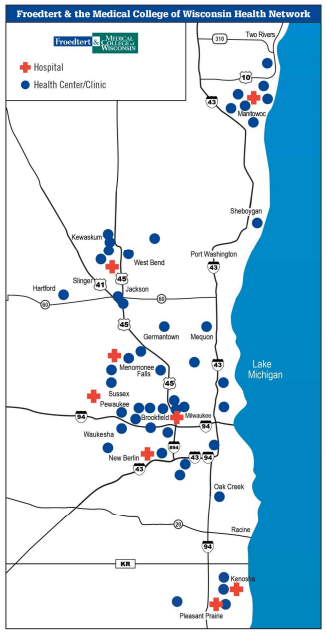
Objectives

Recognize importance of sponsorship and structure when evaluating and creating care team models.

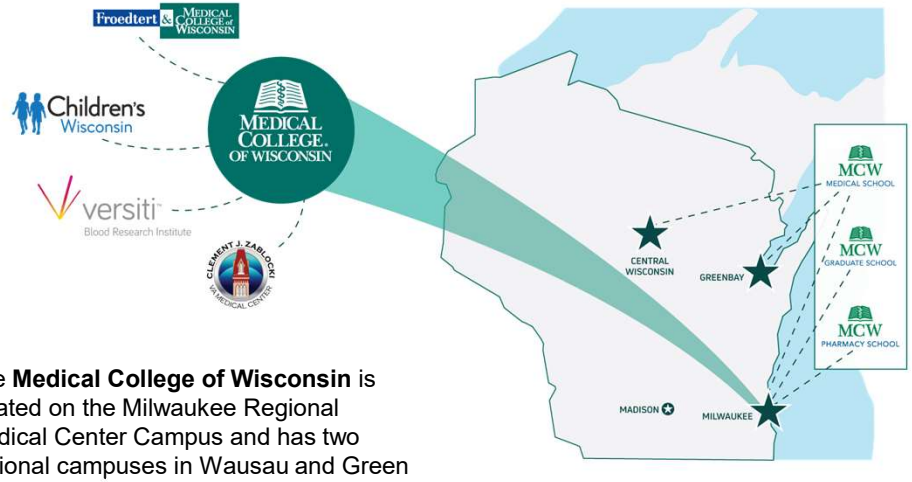
Describe APP leader's role in creating a reproducible assessment process of effective physician, PA & NP care team models assessments.

Identify common essential elements of care team models and environment drivers of workload and tools to evaluate care team model elements across diverse environments.

Who We Are



The **Froedtert & the Medical College of Wisconsin** health network provides care for patients at 8 hospitals and 45+ locations in Eastern Wisconsin



The **Medical College of Wisconsin** is located on the Milwaukee Regional Medical Center Campus and has two regional campuses in Wausau and Green

TOP 5%
NATIONALLY IN NUMBER OF RESIDENTS TRAINED >900 residents and fellows in training each year

3RD
LARGEST PRIVATE MEDICAL SCHOOL IN THE NATION
7TH LARGEST US MEDICAL SCHOOL

TOP 5%
worldwide in publishing new knowledge

1,650 PHYSICIANS
725 ADVANCED PRACTICE PROVIDERS

PHYSICIAN PRACTICE GROUP CONDUCTS
4.0 MILLION PATIENT VISITS ANNUALLY

MCW PRACTICING PHYSICIANS ACCOUNT FOR **67%** OF SE WISCONSIN DOCTORS LISTED IN *BEST DOCTORS IN AMERICA®*

Advanced Practice Providers

- Certified Anesthesia Assistant (CAA)
- Certified Nurse Midwife (CNM)
- Certified Registered Nurse Anesthetist (CRNA)
- Clinical Nurse Specialist (CNS)
- Nurse Practitioner (NP)
- Physician Assistants (PA)

APP Workforce & Organizational Structure

Advanced Practice Providers (APPs)

APRN & PAs

- Employed in the adult specialty practices
- Hired & managed in clinical Departments
- Formal and informal APP Department leaders

CRNAs and CNSs employed by the hospital

Centralized Office of Advanced Practice

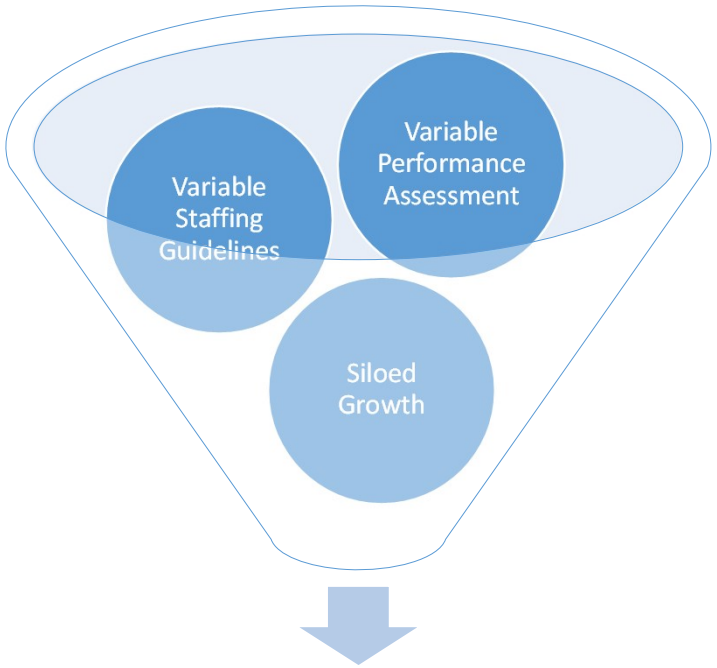
Advanced Practice Director

3 Advanced Practice Associate Directors

Medical Education Coordinator

Why we started this journey?

Problem



Variable Workforce Planning Approvals

Aim

Achieve consensus on the components of APP staffing models to describe APP/Physician critical and acute care teams.

Goal

Develop and adopt a standard model to assess and forecast APP/physician critical care and acute care team composition for workforce planning in consideration of our cultural context.

Why is this Important?

APP Metrics

- wRVU not accurate metric for productivity or staffing benchmarks
- Metrics for team outcomes

APP Role & Visibility of Workload Contributions

- Essential Role in Team Approach

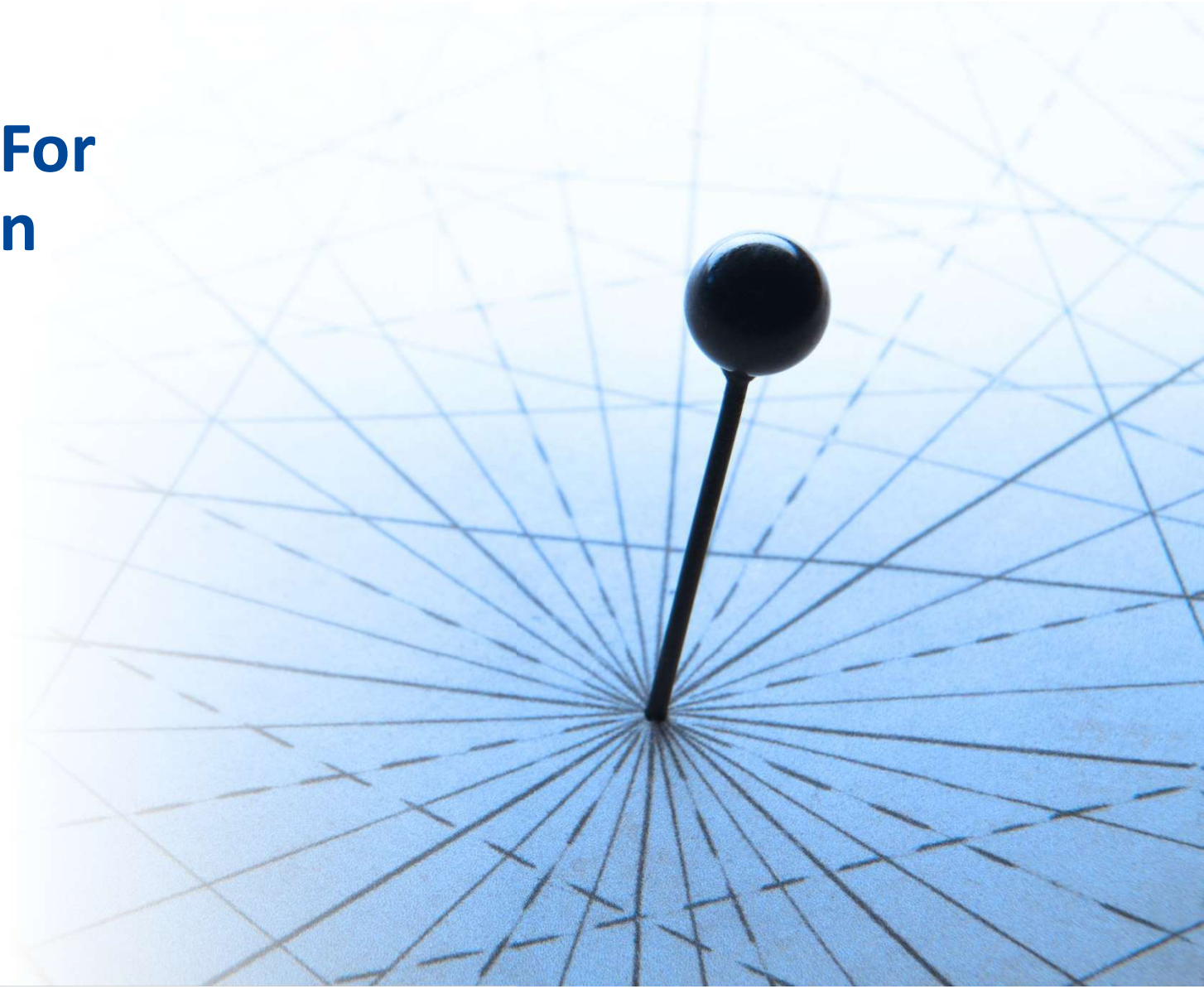
APP Workforce Planning & Clinical Workweek

- No standard assessment process for FTE requests yielding variable decisions

Creation of Team-based Best Practices

- Transition to APP models in academic medicine

Journey Map For APP Utilization

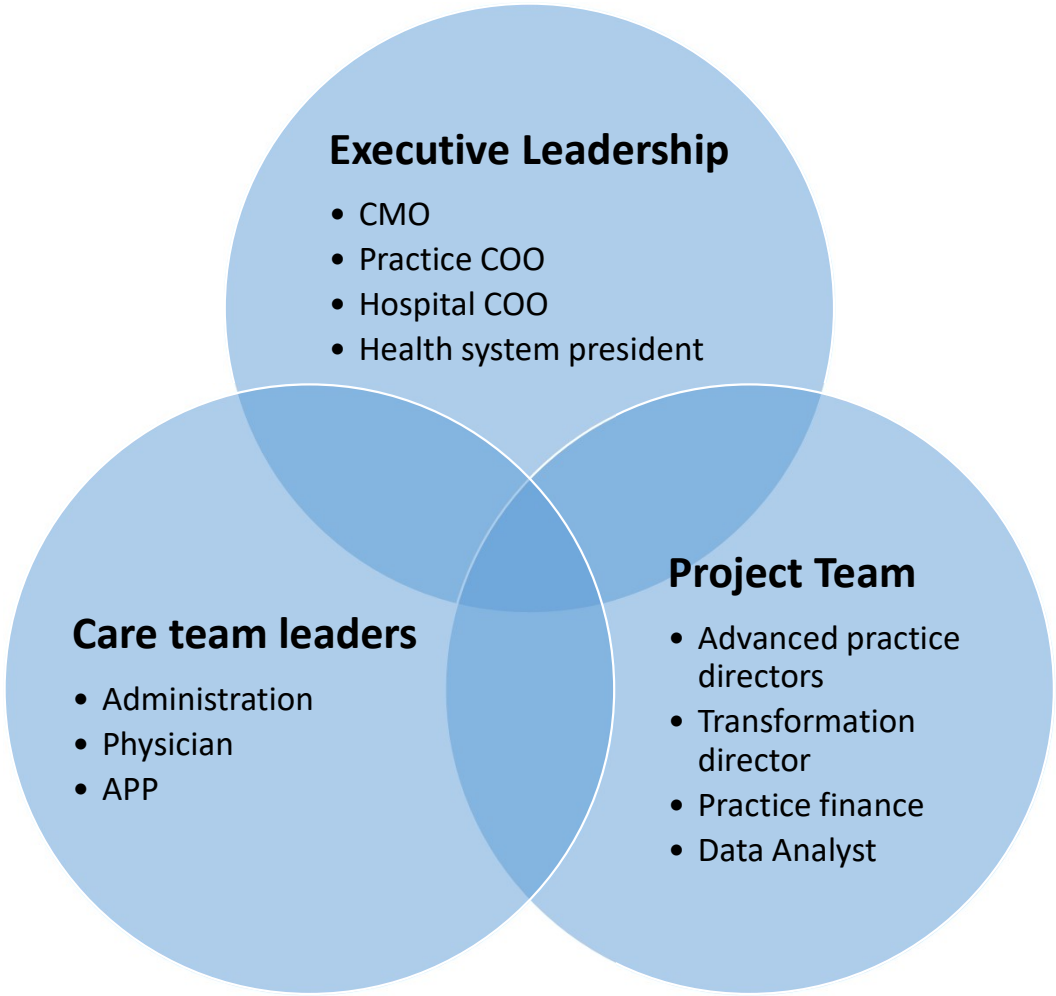


Team Assessment

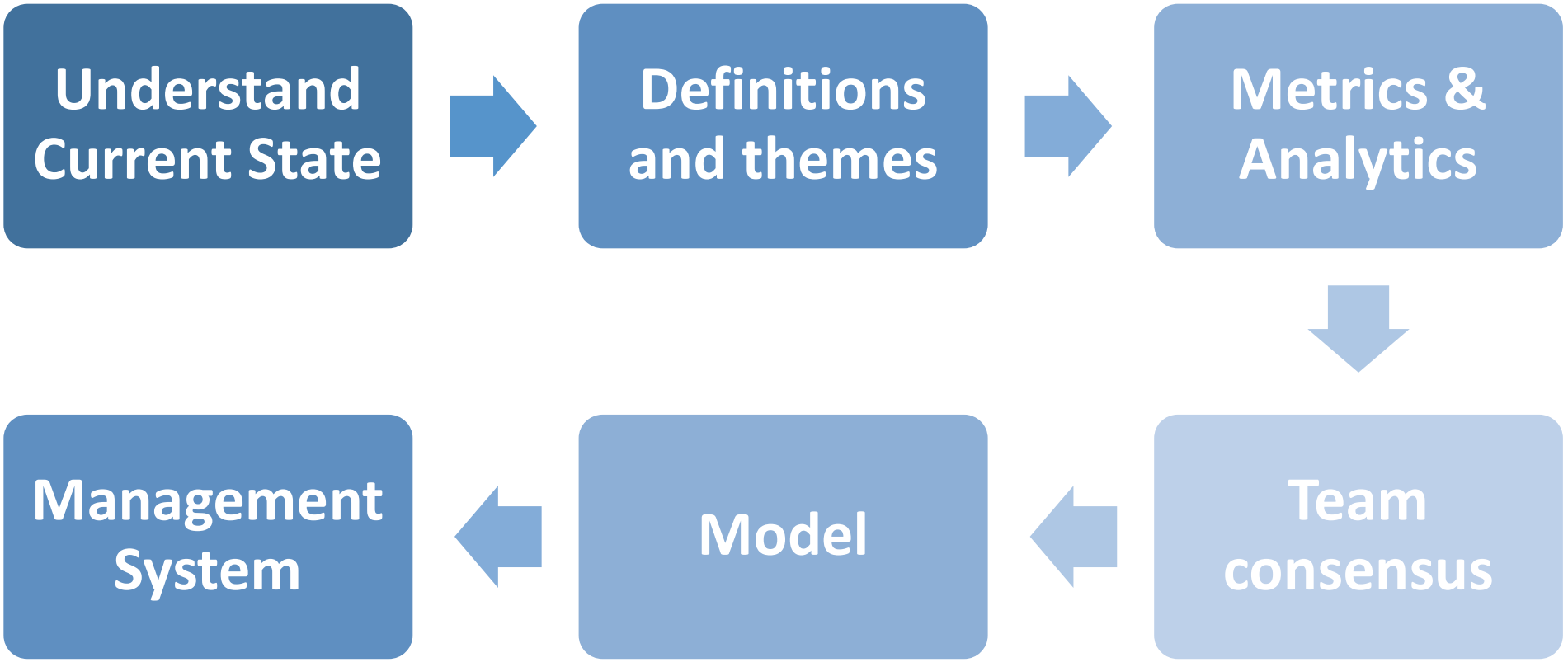
Critical Care

Inpatient

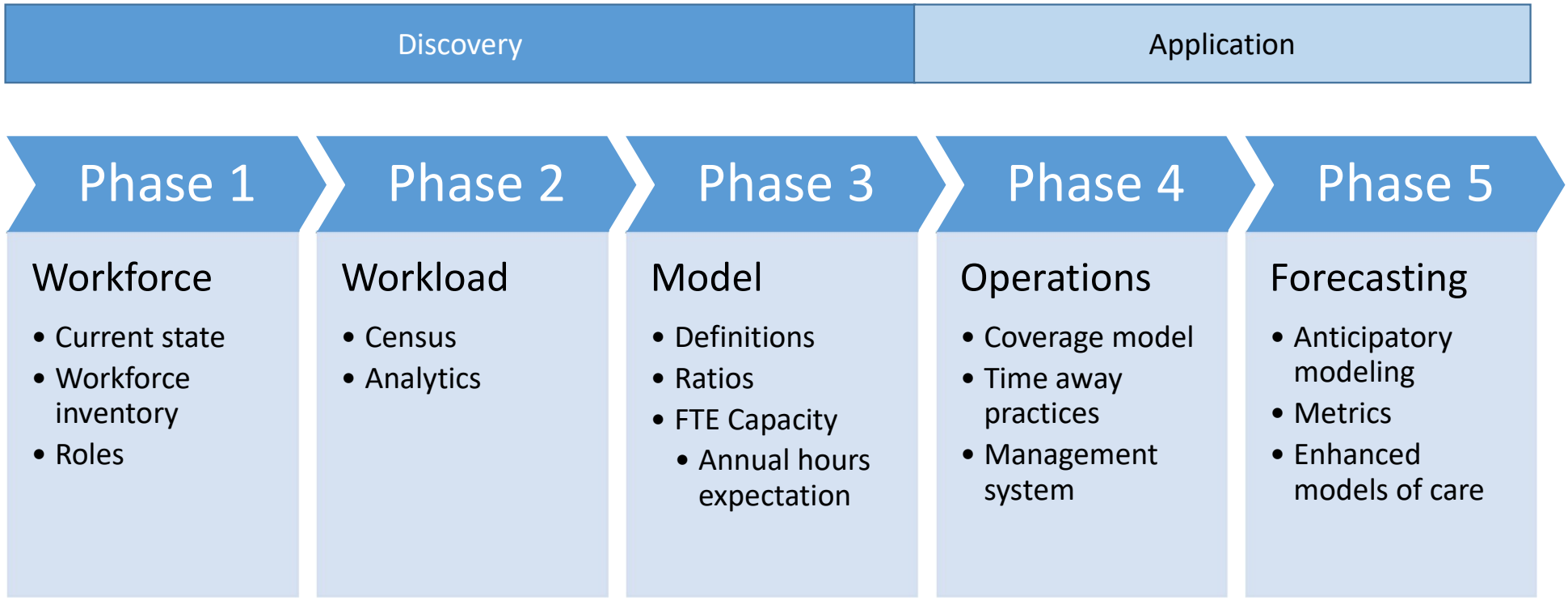
Our Team


Executive Leadership
• CMO
• Practice COO
• Hospital COO
• Health system president
Care team leaders
• Administration
• Physician
• APP
Project Team
• Advanced practice directors
• Transformation director
• Practice finance
• Data Analyst

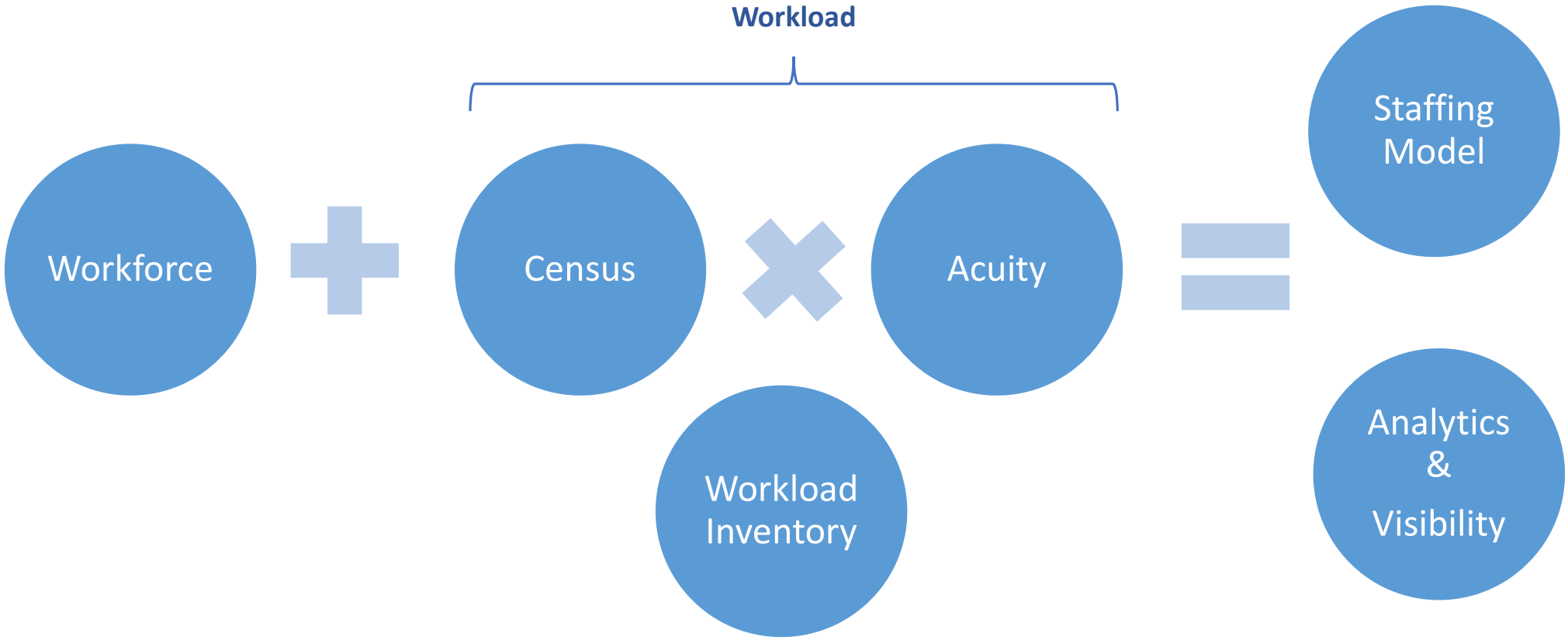
Our Process


Understand Current State
Definitions and themes
Metrics & Analytics
Team consensus
Model
Management System

Our Journey


Discovery
Application
Phase 1
Workforce
• Current state
• Workforce inventory
• Roles
Phase 2
Workload
• Census
• Analytics
Phase 3
Model
• Definitions
• Ratios
• FTE Capacity
• Annual hours expectation
Phase 4
Operations
• Coverage model
• Time away practices
• Management system
Phase 5
Forecasting
• Anticipatory modeling
• Metrics
• Enhanced models of care

Workforce Planning Model



Phase 1: Workforce

Macro Assessment

- Critical Care
  - SICU, NICU, MICU, TICU, CVICU
- Inpatient
  - Test tools used in critical care assessments to validate methodology and application to other IP environments
    - 8 services (4 surgical/4 medical)
    - Consult and Primary Services

Team Staffing Model for Day/Night Coverage and total FTE per Block

- Block = 4 weeks or 28 days
- 13 blocks per year

Staffing	Example Staffing Model
Attending Day	2
Attending Night	1 home on call
Total Attending FTE	4.8
What is a clinical work week, hours per block, or annual hours worked for an attending on the service?	
Fellow Day	1
Fellow Night	1 in house
Total Fellows per Block	2
How many days/hours per block?	22 shifts
Resident Day	3
Resident Night	1
Total Residents Per Block	8
How many days/hours per block?	22 shifts
APP Day	4
APP Night	1
Total APP FTE	10
What is a clinical work week, hours per block, or annual hours worked for an APP on the service?	38 hours averaged or 12, 13 hour shifts per block
Describe how the service does time away practices (CME/PTO).	For PTO we work less shifts that month and log the remaining time as Vacation or PTO.
Does your annual hour expectation exclude or include PTO?	Our annual hour expectation is the remaining hours after PTO is used (essentially our PTO is zeroed out at the end of the year)

Macro Workload Inventory

SNAPSHOT OF CRITICAL CARE TEAM TEMPLATE

Week Day Time range	Attendings	Fellow	Residents	APPs
Hand-off	• Day team arrives • Sign-out	• Day team arrives • Sign-out	• Day team arrives • Sign-out	• M-W (arrives at 0930AM); T-F (arrives at 7AM) • Sign-out
Pre-Rounding When sign-out complete to 0800	• Attends to critical patient needs or sees patients/reviews data/communicates with nurses and teams • Attends department/service line meetings/grand rounds some days • If only one APP or high census, may see patients as "primary contact"	• Attends to critical patient needs or sees patients/reviews data/communicates with nurses and teams • Attends department/service line meetings/grand rounds some days • If only one APP or high census, may see patients as "primary contact"	• Sees assigned patients, reviews data, attends to pertinent orders/patient care, etc. Primary contact for assigned patients • Communicates with teams/nurses • Attends department meetings/Grand Rounds some days	• Sees assigned patients, reviews data, attends to pertinent orders/patient care, etc. Primary contact for assigned patients • Communicates with teams/nurses
Rounding 0800-1100ish	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • Attending leads rounds • Attend to urgent/emergent patient needs	• Fellow may present primary patients • Fellow may lead rounds (later in academic year)	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • May write orders during rounds • Attend to urgent/emergent patient needs	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • Presentation of primary patients • Coordinates care with nurses/teams • Attend to urgent/emergent patient needs
Inpatient Day Completion of rounds until 6 PM	• Coordinates medical team and resources • Focuses time and care on higher acuity patients, but usually sees all or most patients • Family communication • Team and nursing communication • Procedures • Meetings/Education • Co-signs/bills/attests resident, fellow and APP fellow notes (inpatient and ambulatory practices) and may write their own notes	• Patient care focus on higher acuity/learning patients	• Ongoing active management of primary patients • Assistance/resourcing of other patients on the team • Documentation • Admissions/discharges • Coordination/communication with nurses and teams • Family communication • Procedures • Education	• Ongoing active management of primary patients • Collaboration with attending • Assistance/resourcing of other patients on the team • Documentation and billing for time • Admissions/discharges • Coordination/communication with nurses and teams • Family communication • Education or meetings • Procedures

Phase 2: Workload

Week Day				
Time range	Attendings	Fellow	Residents	APPs
Hand-off 6:00 am – 6:30/7:00 am	• Day team arrives • Sign-out	• Day team arrives • Sign-out	• Day team arrives • Sign-out • Distribution of patients • Primary team update	• Day team arrives • Sign-out • Distribution of patients • Primary team update
Pre-Rounding When sign-out complete to 0800	• Attends to critical patient needs or sees patients/reviews data/communicates with nurses and teams • Attends department/service line meetings/grand rounds some days • If only one APP or high census, may see patients as "primary contact"	• Attends to critical patient needs or sees patients/reviews data/communicates with nurses and teams • Attends department meetings/grand rounds some days • If only one APP or high census, may see patients as "primary contact"	• Sees assigned patients, reviews data, attends to pertinent orders/patient care, etc. Primary contact for assigned patients • Communicates with teams/nurses • Attends department meetings/Grand Rounds some days	• Sees assigned patients, reviews data, attends to pertinent orders/patient care, etc. Primary contact for assigned patients • Communicates with teams/nurses • Attends meetings some days
Rounding 0800-1100ish	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • Attending leads rounds • Attend to urgent/emergent patient needs	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • Fellow may present primary patients • May write orders during rounds • Fellow may lead rounds (later in academic year) • Attend to urgent/emergent patient needs	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • May write orders during rounds • Attend to urgent/emergent patient needs	• Team rounds on patients • Cross-team communication • Interprofessional communication and rounds • Presentation of primary patients • Writes majority of orders during rounds • Coordinates care with nurses/teams • Attend to urgent/emergent patient needs

Micro-assessment: Work Inventory

		Timeframe:	Monday - Friday				
		Role:	Inpatient Ortho APP				
		FTE (hrs) =	8				
Admissions	Rounding		Care Coordination		Discharge		
Key Responsibility	**Definition**		**Simple - Time Standard (min.)**	**Simple - Volume per day**	**Complex - Time Standard (min.)**	**Complex - Volume per day**	**Total hours**
Add incoming patients from the OR schedule to our list	5 minutes per day		5	1	0	0	0.08
Prepping - Review incoming patient charts. Double check orders on new patients, adjust medications as needed, place parameters for BP management and urine output etc. Start discharge summary for incoming patients. Review PDMP for incoming patients.			5	5	10	6	1.42
Care Rounds with interdisciplinary teams (APPs, RNs, therapies, navigators, nurse manager, pharmacy, chaplain)	30-45 minutes per day		30	1	45	0	**0.50**
Report out to physicians on spine cases	10 minutes per day		10	1	0	0	**0.17**
Chart review current census			5	11	7	11	2.20
Round on patients			5	11	10	11	2.75
Progress notes			15	5	20	5	2.92
Rounding with physicians when they can come to the floor	this is physician dependent, not patient dependent, 30 min per APP (2 APPs per day)		60	1	0	0	1.00
Field questions from nursing, surgeon, CNA, RT, physical therapist, case management, pharmacy, wound care, and IPR regarding current census patients. Discuss plan of care with navigators (someone changes from home to needing home care or subacute).			5	11	8	11	2.38
Discuss charts with APP colleague			5	0	10	4	0.67
Perform Peer to Peer with insurance company so patient can get authorization to go to IPR	1x per week		30	0.1	60	0.1	0.15
Perform prior authorization for medications	1x per week		30	0.1	60	0.1	0.15
D/C summaries			10	7	18	3	2.07
D/C instructions. Complete discharges as needed. Prep any discharges that may be going that day	For most patients I would agree with 5 minutes, but when creating dc instructions for patients not navigated or who have standard instructions it takes 15 min to tailor instuctions to each patient.		5	7	15	3	1.33
D/C medications			5	7	10	3	1.08
Re-Assess patients later in day to complete discharge education if their discharge pending therapies. Reassess patients as needed (i.e. wound redness, lethargy etc.)			5	7	10	3	1.08
		Total					**19.95**
Respond to pages after hours including logging in to Epic	**1 hr per APP (M 1 APP, T-F 2 APPs).**		**60**	**2**			**2.00**
Standing Meetings	**Seen Meetings Tab**		**1350**	**1**			**22.50**

Inpatient Team Guiding Principles and Assumptions

Teams function as a primary team, a consulting team, or both primary and consulting.

Services provide ongoing patient management of acutely-ill patients 365 days a year and 24 hours a day through a coverage models that varies based on primary vs consultative role.

Care for core patient populations; however, there are more similarities than differences in acute care patient management.

Care for patients ranges encompasses low and high acuity patients at different stages of acute illness resolution.

Care teams include providers who participate in professional activities, and clinical activities contributing to patient process and quality improvement.

Integrate education into the daily function of the services. Provide education to a variety of learners (medical students, residents, fellows, onboarding APPs, APP students, and APP fellows). The number of learners on each service varies.

Phase 3: Modeling Definitions

Workforce

- Annual Hours/FTE
- Scheduling Blocks
- Replacement Factors
- Time Away Practices

Workload

- Census/Ratios
- Acuity Indicator
- Work inventory Tasks

Inpatient Clinical Work Expectation Definition

	Weekly Effort for full time Clinical	CWW Value/Unit	Full time CWW
E&M Based			
E&M Based - Academic Standard	8 half days	1 half day = 0.111	0.89
E&M Based - Academic Community Standard	9 half days	1 half day = 0.111	1.00
Inpatient/Critical Care			
Note: Inpatient work expectations vary widely based on specialty. Departments should define expecations for a full time equivalent for inpatient work based on nuances of the specialty and determine effort based on that full time effort equaling 0.90.			
Procedural			
Procedural - Academic Standard	36 hours	1 hour = 0.025	0.90
Procedural - Academic Community Standard	40 hours	1 hour = 0.025	1.00
Radiology			
Radiology - Academic Standard	36 hours	1 hour = 0.025	0.90
Radiology - Academic Community Standard	40 hours	1 hour = 0.025	1.00
Emergency Medicine			
Emergency Medicine - Academic Standard	30 hours	1 hour = 0.0286	0.86
Emergency Medicine - Academic Community Standard	35 hours	1 hour = 0.0286	1.00
Anesthesia			
Anesthesia - Academic Standard	36 hours	1 hour = 0.025	0.90
Anesthesia - Academic Community Standard	40 hours	1 hour = 0.025	1.00
Pathology			
Pathology - Academic Standard	36 hours	1 hour = 0.025	0.90
Pathology - Academic Standard	40 hours	1 hour = 0.025	1.00

Adopt a minimum of 38 active patient hours for IP Clinical Work Week - Academic Standard

Standard Definitions

Block

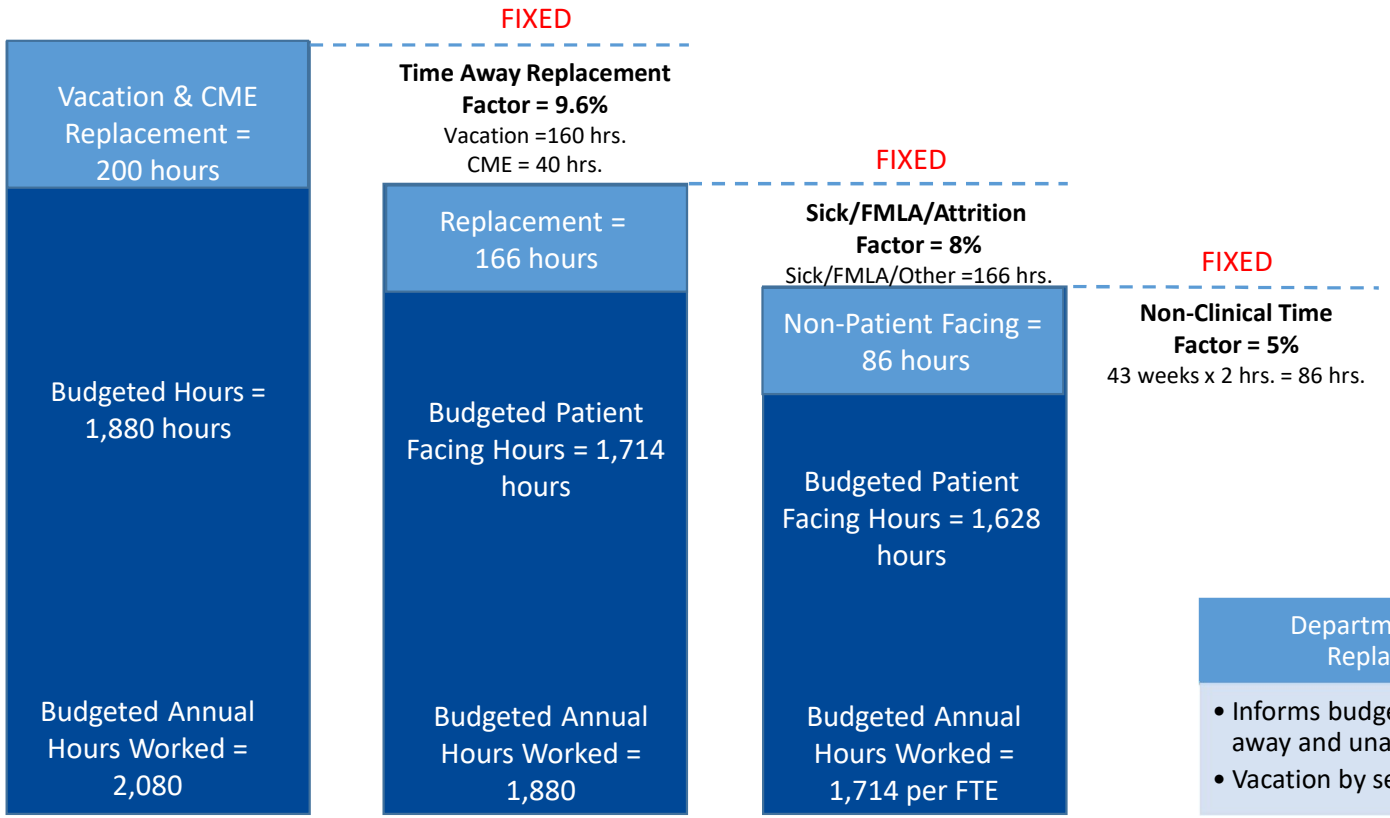
- A scheduling unit of measure that equals 28 days.
- There are 13 blocks per year.

Active Clinical Patient Time

Scheduled time when APP/physicians are available to respond to patient care needs based on role of the service and urgency including:

- In-person patient assessment, diagnosis, and treatment
- Chart or results review and action
- Performing procedures
- Documentation of patient care
- Patient and family communication
- Team collaboration and communication inclusive of return of pages, phone calls, multi-professional communication, rounding, or coordination of care.
- Hand-off of patient care

APP Replacement Factor Budget Proposal



Department Budgeting for Replacement Factor

- Informs budgeting FTE including time away and unanticipated time away
- Vacation by seniority

Measuring Workload: Analytic Definitions

Use of Epic Log in Department

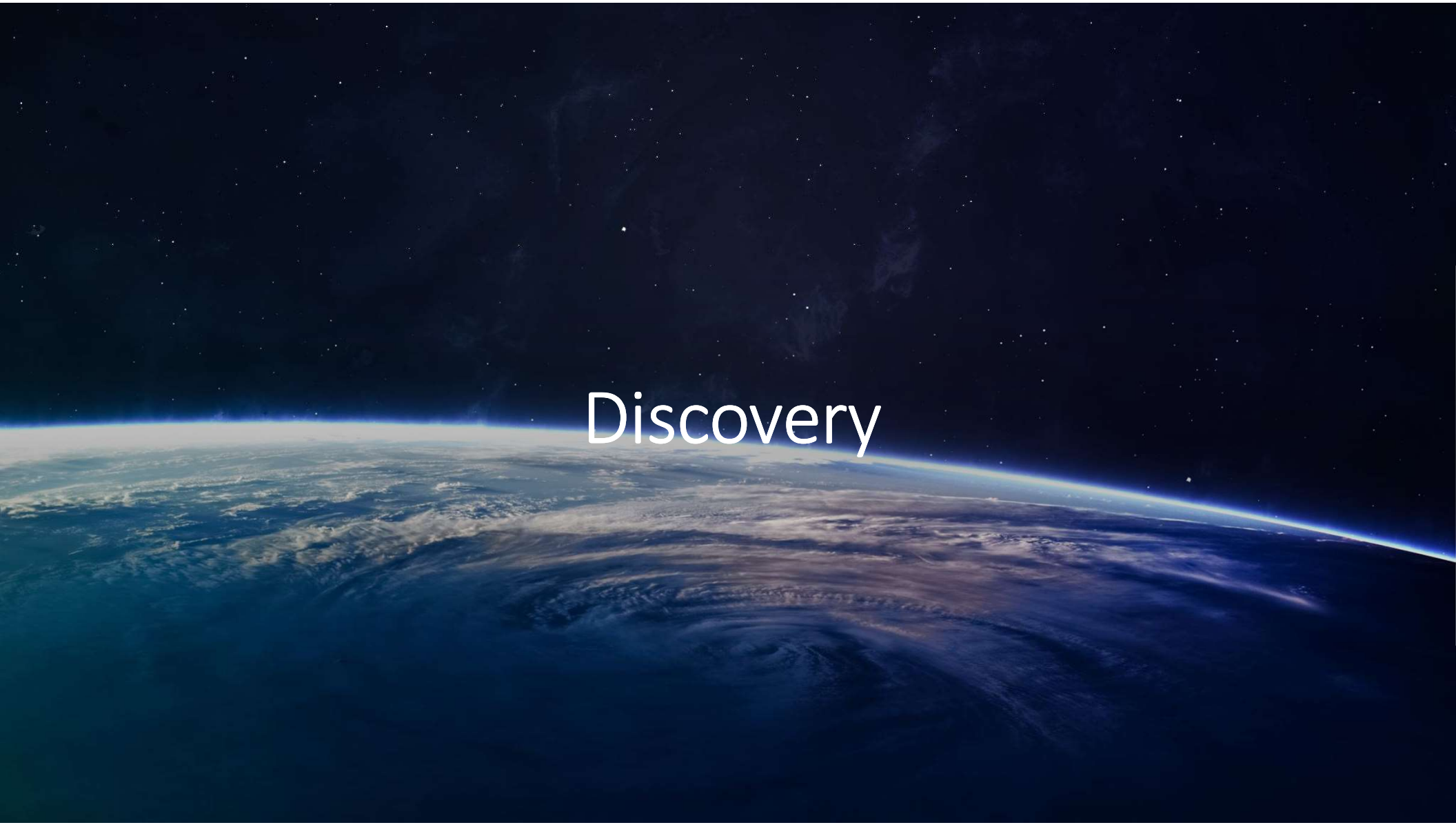
- Not perfect but directionally accurate
- Use Notes and Orders as indicator of active patient and service volume

Provider Notes

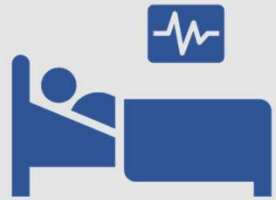
- Admission H&P & Consult note for new admit
- D/C summary for Discharge
- Progress Notes for Managed Patient

Orders

- Admission order for new admit
- D/C order for Discharge
- Consults for new consult


Discovery

Critical Care Teams



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Deliverables

Phase	Findings	Deliverables
Phase I: Workforce Analysis	❑ High variability in workforce roles, financial support, operations, and billing practices	✓ Inventory of team members ✓ Described critical care team model ✓ Described physician and APP roles
Phase II: Workload Analysis	❑ 80% of critical care tasks are similar ❑ No service census exists ❑ No standardized acuity measure	✓ Tools to visualize team workload ✓ Service census analytics ✓ Need EMR generated acuity
Phase III: Workforce Model	❑ Attending & fellow tasks are most alike ❑ APP & resident tasks are most alike	✓ Compliance team education ✓ Developed staffing model ✓ Validated critical care team model

Critical Care Workforce Coverage Model Current State

Data is self-reported

Provider Type	CC1	CC2	CC3	CC4	CC5
Attending Night	1	2 Home Call	1 Home Call	1	1
Attending Day	2 Weekday 1 Weekend	2	1	1	1
Fellow Night	Variable	1	Variable	Variable	Variable
Fellow Day	Variable	2	Variable	Variable	Variable
APP Night	1-2 (or resident)	None	None	None	1
APP Day	1-3 Weekdays 1-2 Weekends	4 weekdays 2 weekends	2	2 weekdays 1 weekend	4 weekdays 3 weekend
Total APP FTE	9.5 +	9 +	3 critical care (6 total with NH coverage)	4	12 +
Resident Night	1 (or APP)	2	1	1	None
Resident Day	0-2	7-9 per day	1-2	1-2	None
Residents/ block	2	11	1-2 Day 1 Night float	2	None

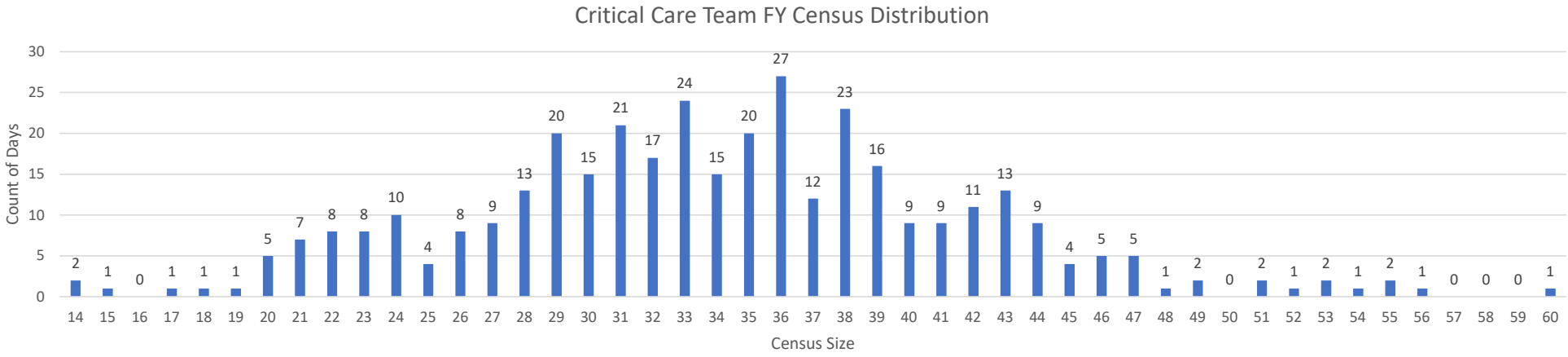
Critical Care Work Inventory Categories

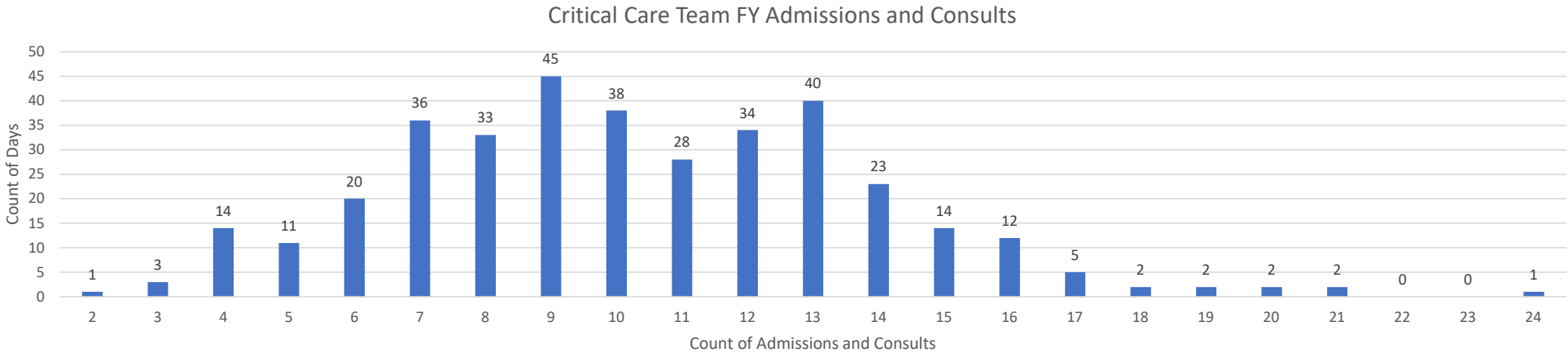
CRITICAL CARE PATIENT CARE ACTIVITY	TASK INVENTORY	DATA POINT
PATIENT MANAGEMENT	Patient Assessment & Treatment (chart review, patient assessment, etc.) Documentation Orders Procedures	Time reported # E&M notes # of Critical Care Units –99219 and 99292 # of Orders # Procedures
PROVIDER TEAM COLLABORATION AND COMMUNICATION	Team Rounding Hand-off Other collaboration	Time reported
OTHER COMMUNICATION	Communication outside of rounds #2 Nurses Other healthcare professionals Other provider teams Patients Family	Time reported

Staffing Model Definitions

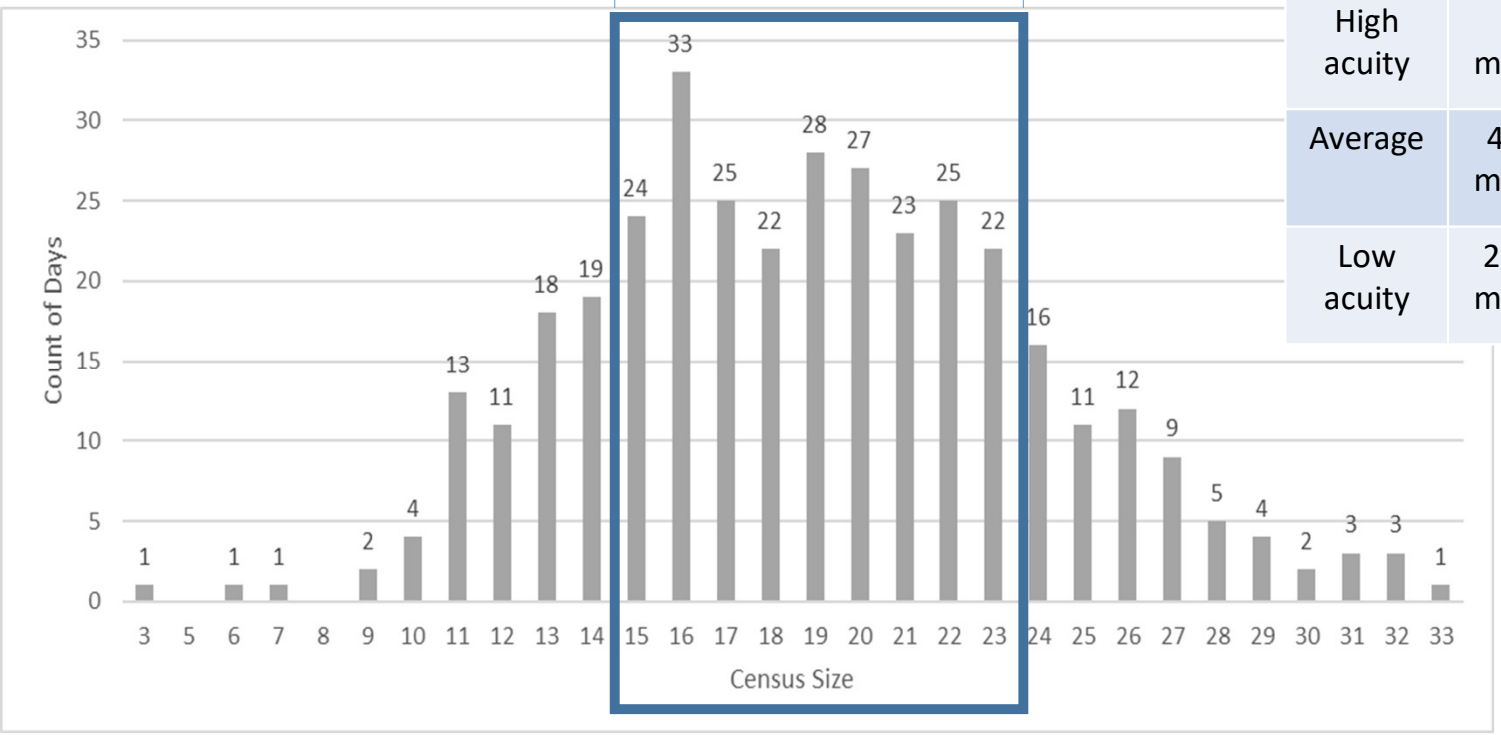
	Definition	Previous	Target
Daily Census	• Census derived from notes written by APPs or physicians. • Census frequency s identified in a data curve and adjusted by acuity	• No consistent method • Variable definitions	• # of patients in 24-hours • Inventory of notes written by provider
Acuity weight	↑ High 1.5 workload of average patient - Average acuity patient ↓ Low 0.5 workload of average patient	• Self Reported • Unit Centric	Consensus on a standard definition across services
Patient Acuity Mix	% Patients that are high, medium & low acuity	• Self Reported • Unit Centric	• Analytic reporting • Critical Care Time
Physician/APP : Patient Ratio	• Attending/Fellow: Day: 1:12 Night 1:20 • APP/Resident: Day 1:5 Night 1:10	• Not defined • Variable	Define standard provider staffing ratios
Scheduling	• Blocks = 28 days; 13 annually • Day/Night duration = 13 hours • Number of day/night per block	• Not defined • Variable	• APP annual hours worked • Model application

Critical Care Team





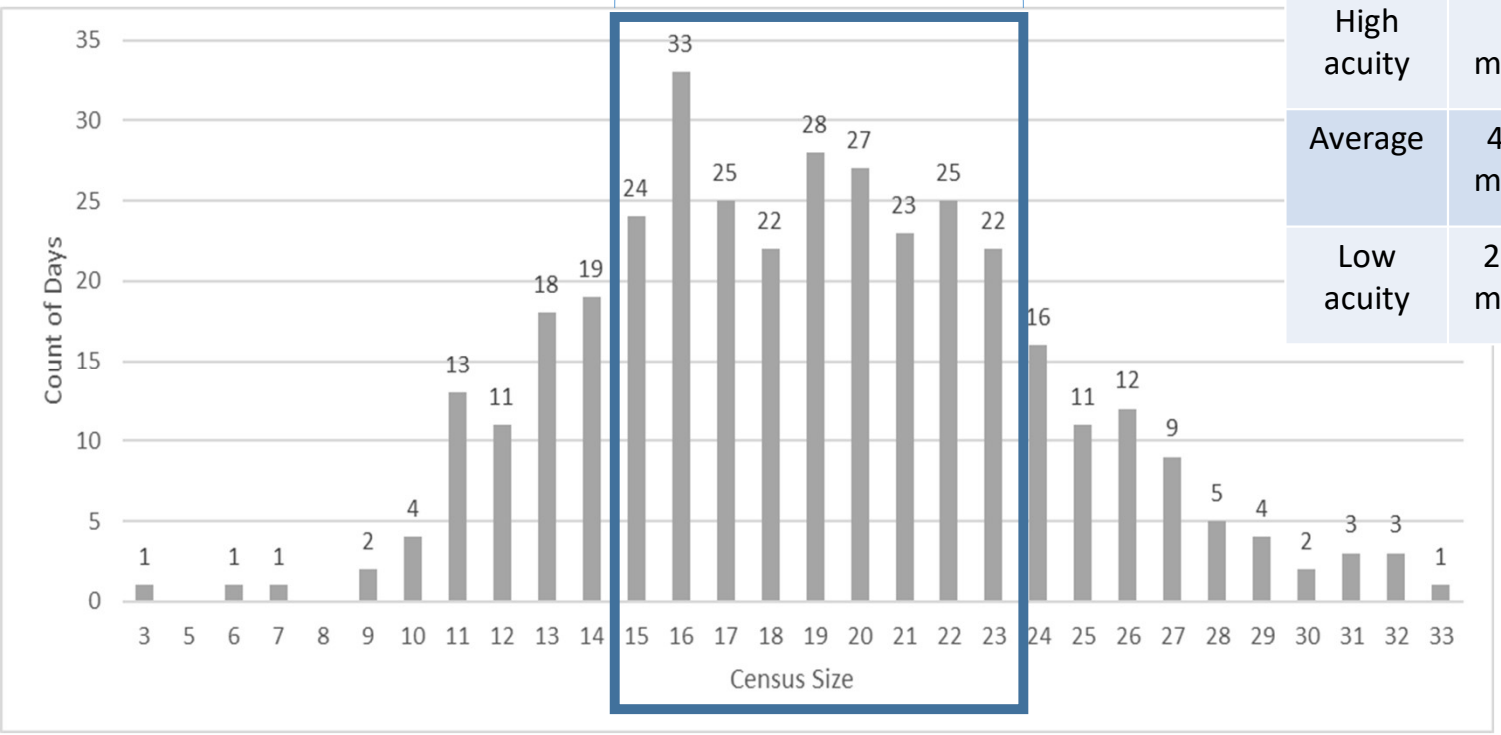
Census



Acuity Factor to Adjust Census				
Patient type	Critical Care Time per 24 hours	mSOFA Ranges	Acuity Factor	Default Acuity Factor
High acuity	60 + minutes	8 or Greater	1.5	35%
Average	40 -60 minutes	4-7	1.0	40%
Low acuity	20 - 40 minutes	0-3	0.5	25%

Census

Core Coverage Census by Frequency



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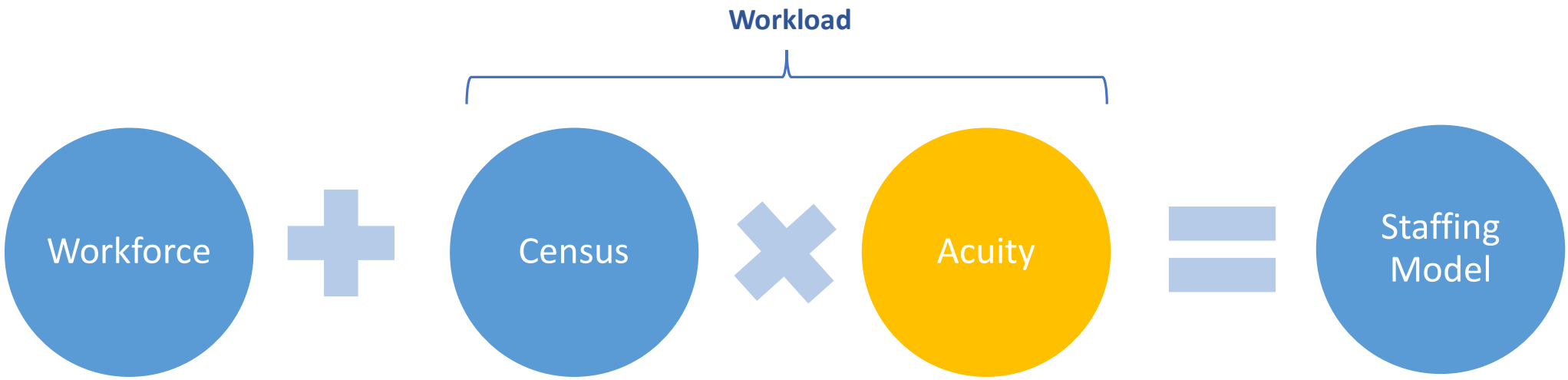
Average	40 -60 minutes	4-7	1.0	40%
Low acuity	20 - 40 minutes	0-3	0.5	25%

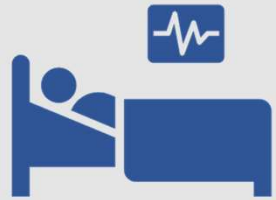
Is this accurate?

- We do not know until we can measure acuity and test our theory.
- Time may be low for APP
- May be accurate for physician

Critical Care Workforce Planning Model



Inpatient Teams



Key Learnings

Macro Assessment

- Teams do similar work and functions regardless of medical, surgical, or consulting services.
- Resident coverage is not consistent or reliable due to hour restrictions and educational requirements
- Variability in Shifts
  - Majority services APP staff M-F, Day shift - few use APPs for 24/7coverage
  - Variability in shift length driven by admission/consult trends (swing shifts)

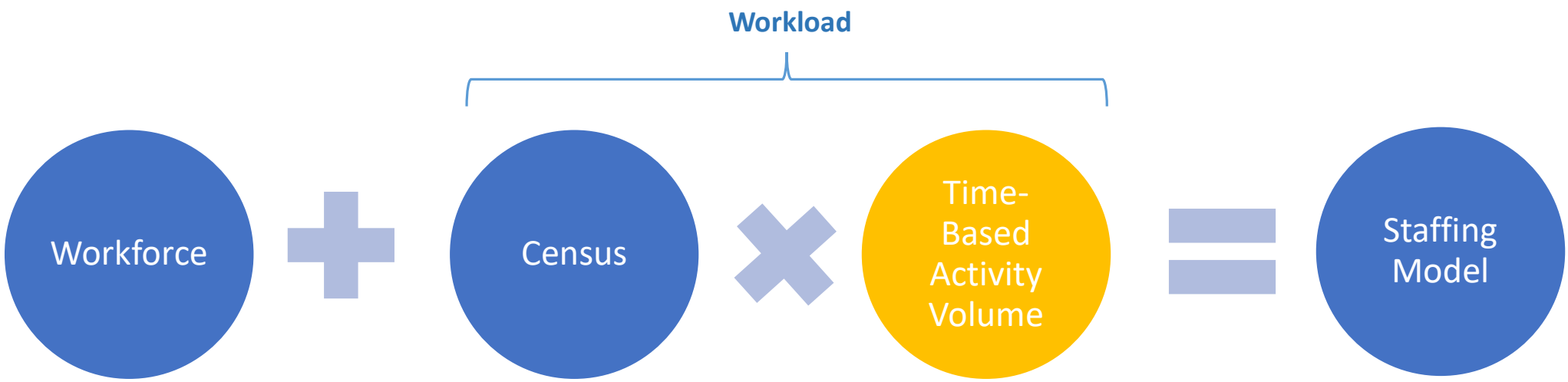
Micro Assessment

- Acuity not main factor in effort
  - Even spread between high, medium, and low acuity patients
- All IP roles have approximately 20% care-coordination (non-revenue) activity including travel (cumulative per day)
- Activity mix drove workload demands
  - Six categories of work: Admissions, Consults, Daily Clinical Management, Care Coordination and Communication, Travel, Discharges

Workforce Planning Factors

Factor	Critical Care	Inpatient
Clinical Work Week Definition	Minimum of 1976 annual hours (average of 38 hours per week)	Minimum of 1976 annual hours (average of 38 hours per week)
Patient: Provider Ratio	1 APP:4-6 day and 10-12 night	1: Variable (6-18)* - Variation in Day vs Night - Variation in what one patient represents
Census	Unique Provider Note/Service/Patient	Unique Note→ Service Census Orders/Service → Activity
Replacement Factor	Proposal for standard replacement factor → Need HR and Workforce plan integration	
Holiday/PTO Practices	Need standard guiding principles across clinical areas for PTO coverage (AMB/IP/etc)	

Acute Care Workforce Planning Model

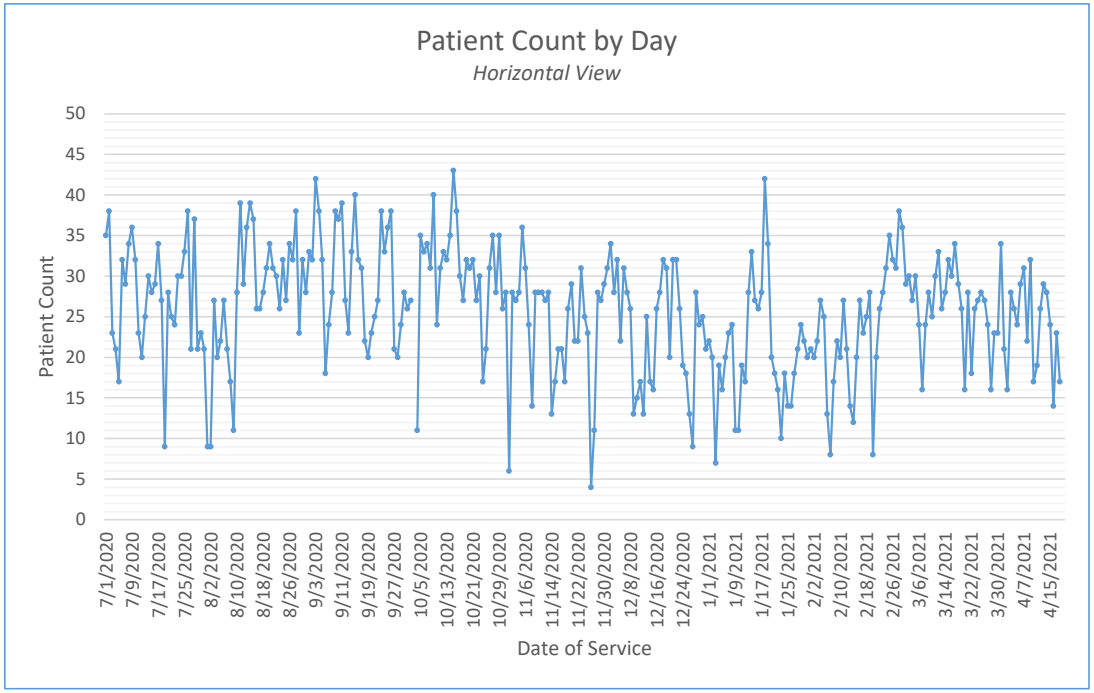


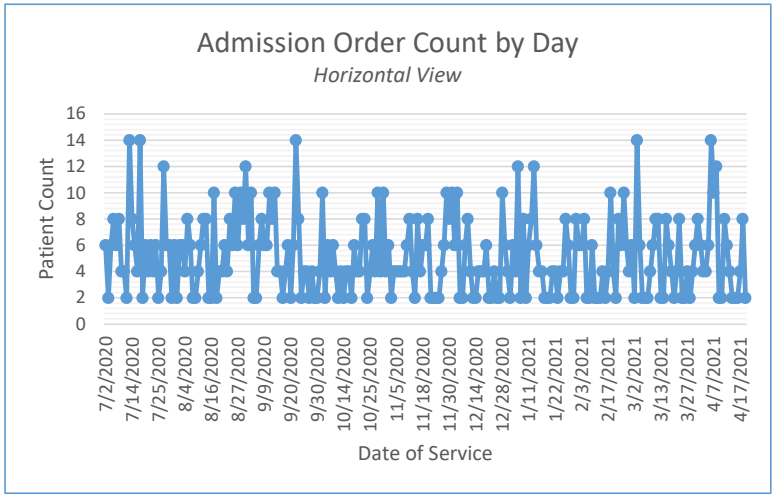
Activity Based Time per Patient

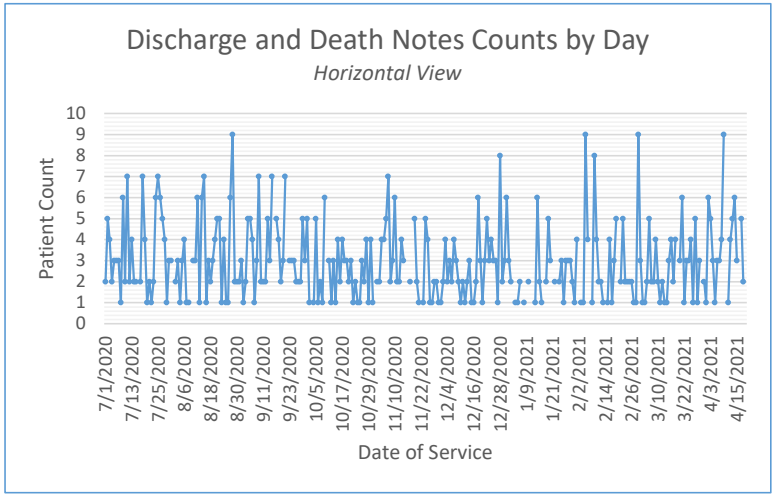
	Admits	Consults	Daily Manage.	Care Coord.	Travel	Discharges
Totals	1.03	0.84	0.88	18%	3%	0.44
Surgical	1.00	0.68	0.75	16%	2%	0.41
Medical	1.08	**1.66**	0.97	21%	5%	0.52
Procedural	-	1.50	0.75	20%	9%	-
Consultant	-	1.59	0.64	10%	6%	-
Mixed	1.03	0.68	0.95	24%	2%	0.40

Census Data

- Current census data is by unit
- Patient volumes related to each activity drives workload







Proposed Tool

Service	Medical	Surgical	Consult/Procedural
Admits	1.00	1.00	-
Admit Volume (Orders)			
Consults	1.50	0.75	1.50
Consult Volume (Orders)			
Daily Management	1.00	0.75	0.75
Daily Management Volume (Census - Admits, D/C, and Consults)			
Discharge	0.50	0.50	0.50
D/C Volume (Orders)			
Total Direct Patient Management			
Care Coordination and Travel Assessment	20%	20%	20%
Total Hours to Cover			

CT Surgery Median Volume per Block
Total Census: 35
* APP only, 24/7 coverage

Service	Medical	Surgical	Consult/Procedural
Admits	1.00	1.00	-
Admit Volume (Orders)		**8**	
Consults	1.50	0.75	1.50
Consult Volume (Orders)		**4.00**	
Daily Management	1.00	0.75	0.75
Volume (Census - Admits, D/C, and Consults)		**23.00**	
Discharge	0.50	0.50	0.50
D/C Volume (Orders)		**6.00**	
Total Direct Patient Mangement	0.00	31.25	0.00
Care Coordination and Travel Assessment	20%	20%	20%
Total Hours to Cover per Day	0	37.5	0
Hours Per Year*	0.00	13687.50	0.00
APP FTE Required	0.00	**7.16**	0.00

Application note: if APP workforce were not to cover specific activity (ie Consults), those volumes would not be included in proforma

Workforce Forecasting Methodology

Critical Care

- Service Census
- x Acuity Factor
- Adjusted Census
- ÷ Provider/Patient Ratio
- Number of Providers to Staff

Inpatient

- Activity Based Service Census
- x Activity Average Time
- Hours for Patient Care Activity
- X Additional 20% Care Coordination time
- ÷ CWW Expectation
- Number of APPs to Staff


Application of Discovery

Steps 4 and 5: Application

Integrate and operationalize into workforce planning

Operationalize best practices

Management system & analytics assessments

Enhance forecasting & assess opportunities for innovation

Critical Care Workforce Methods

Assumption of attending and APP staffing model	Assumption of framework for blocks, day/night coverage, and annual hours worked	Calculations for attending and APP, adjustment for resident and fellows

- $Adjusted\ Census = Census\ x\ Acuity\ Factor$
- $Provider\ coverage\ for\ day + night\ required\ = \frac{Adjusted\ Census}{Provider{:}Patient\ Ratio\ (day\ \&\ night\ factor)}$
- $\#\ total\ providers\ required(FTE) = \frac{Provider\ coverage\ for\ day{+}night\ required}{Provider\frac{day}{night}coverage\ per\ block}$

General Critical Care Service Example

Service	General
Current State Provider Team	
Target Patient:Provider Ratio (based on average ICU acuity)	
Attending/Fellow Day	12
Attending/Fellow Night	20
APP/Resident Day	5
APP/Resident Night	10
Clinical Weeks Worked - Faculty	
Weeks/year	52
Discount Factors	
Vacation	5.00
Holiday	1.14
Non-clinical worked Time	
Sick/unplanned vacancy	0.75
Total Non-worked weeks	6.89
Total Time Off Factor	13.3%
Clinical Weeks Worked - APP	
Weeks/year	52
Discount Factors	
Vacation/CME	5.00
Non-patient facing clinical time	2.60
Other Standard replacement factor (Sick, FMLA, Recruitment, Onboarding, Vacancy	3.85
Total Non-worked weeks	11.45
Total Time Off Factor	22.0%
Acuity Impact	
Acuity Mix	
% High	35%
% Average	40%
% Low	25%
Total	100%
Acuity Factor	
High	1.50
Average	1.00
Low	0.50

Service:	General Critical Care Service	
	Target Census	**Adjusted Census**
Census Point	20.0	21.0
Projected Provider Staffing		
Attending/Fellow Day	1.7	1.8
Attending/Fellow Night	1.0	1.1
APP/Resident Day	4.0	4.2
APP/Resident Night	2.0	2.1
Days/Nights of Coverage per 28 Day Block		
Attending/Fellow	75	78
APP/Resident	168.0	176.4
PTO Factor		
Attending	13%	13%
APP	22%	22%
Projected FTE Need Incl PTO		
Attending/Fellow	**3.5**	**3.7**
APP	**17.1**	**17.9**
Resident	-	-

Phase 4 – Operational Application

Opening a new 20 bed ICU

- Staffing attendings and APPs
- Apply the staffing model
- Target census: 20 (Range 16-24)
- Acuity mix: 35%/40%/25%
- Adjusted census by acuity: 21

Projection Staffing Model

3.7 Attending FTEs

Day: 2

Night:1

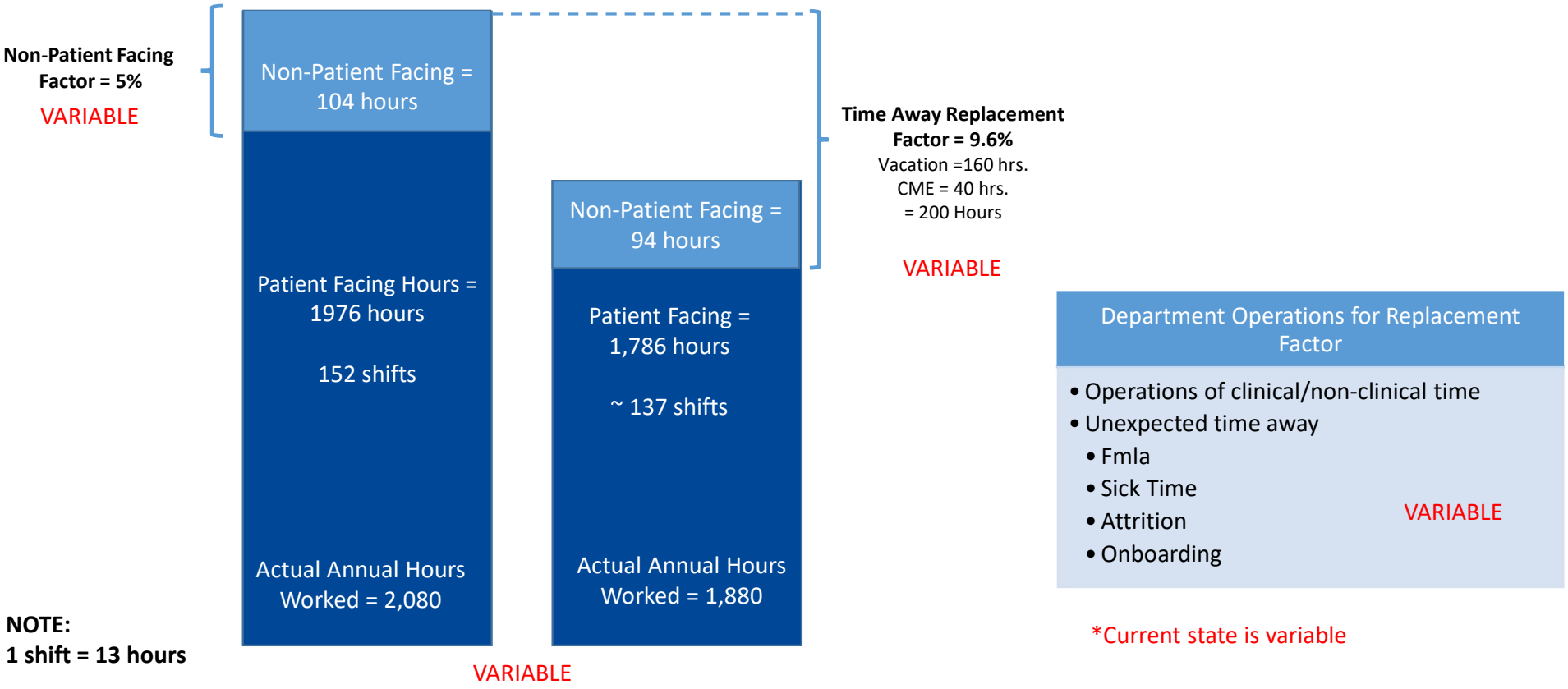
17.94 APP FTEs including replacement factor coverage

Day: 4

Night: 2

4-5 FTE to cover time away

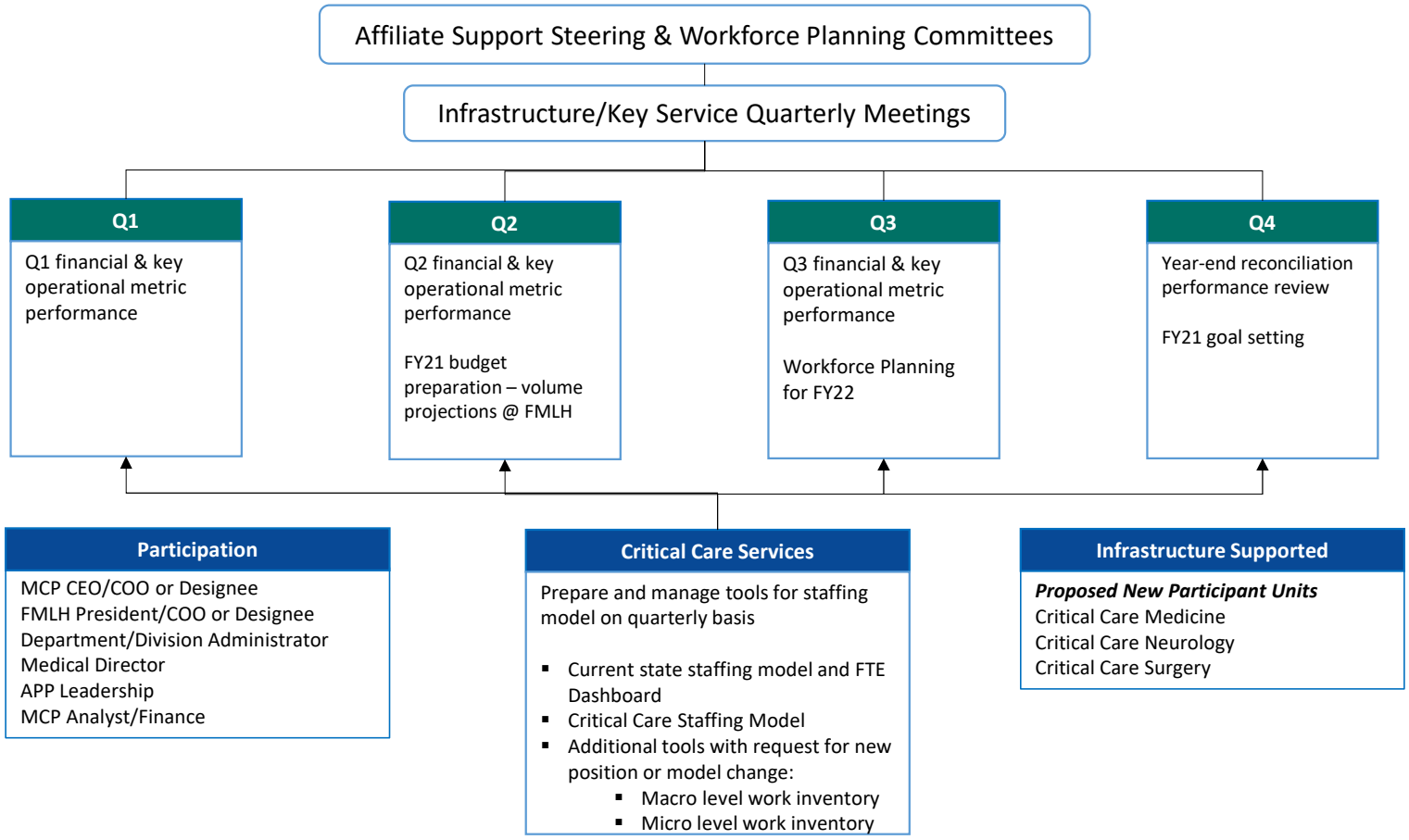
APP Replacement Factor Application



Gaps & Mitigations

Phase	Gaps	Mitigation
Phase I: Current State Analysis	❑ Variabilities in annual hours worked for staff APPs	❑ HR workgroup to address
Phase II: Workload Analysis	❑ No adopted physiologic acuity	❑ Evaluation of physiologic acuity metrics
Phase III: Workforce Model	❑ EMR support for acuity ❑ Sustainable analytics (application) ❑ Cross-department management structure	❑ Integration of analytics for census & acuity ❑ Enable EMR acuity functionality ❑ Implement management structure

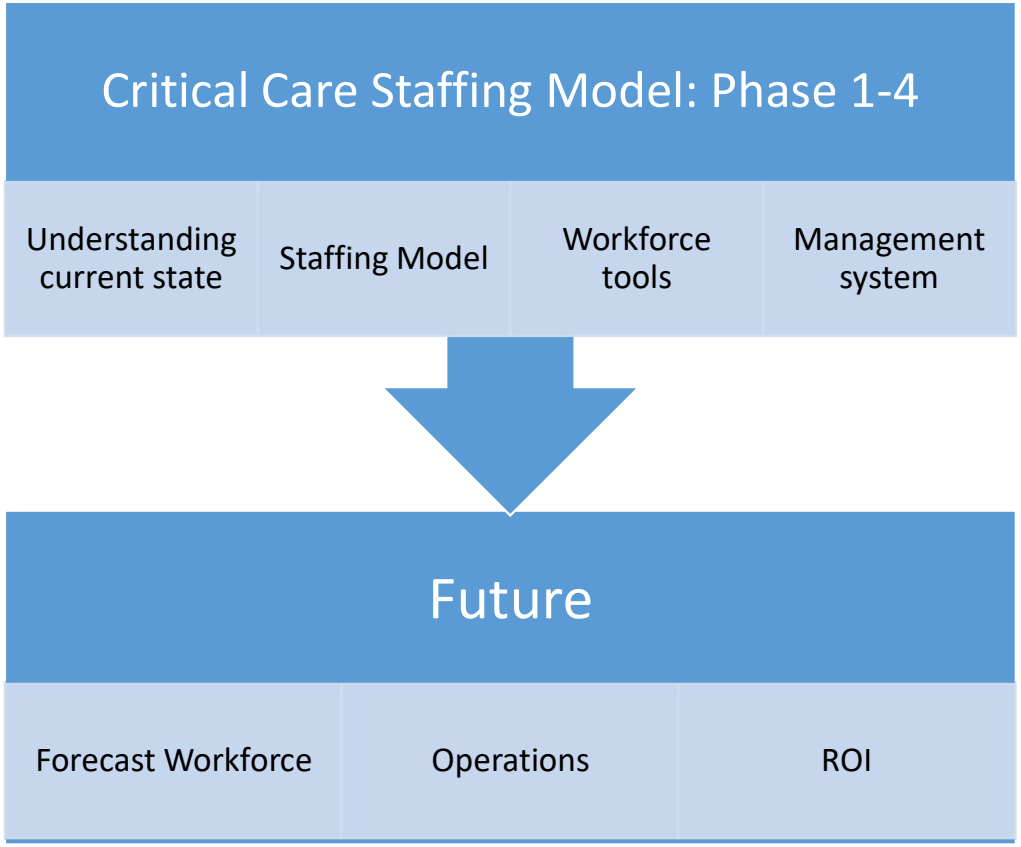
Proposed Management System



Opportunities and Innovation

Unique Innovation

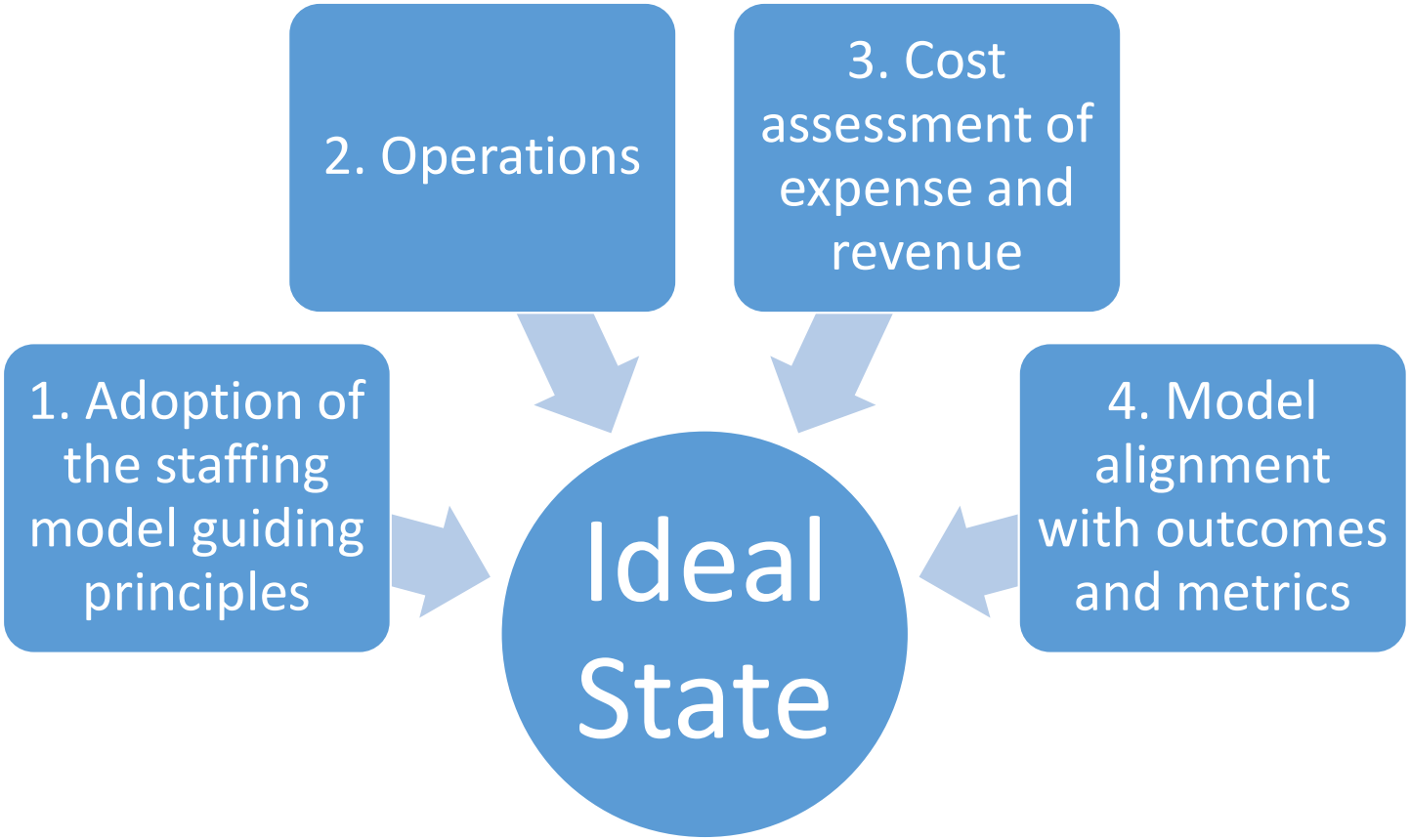
- We now have foundational tools and methods
- Process must adapt overtime
  - Flex for future growth
  - Inform new care models
- Application beyond this group
  - Piloting on inpatient services
  - Enterprise
  - Nationally



Phase 5: Model alignment with outcomes and metrics

Billing/reimbursement	Documentation	Length of Stay • ICU time • Transfer metrics • Discharge/LTACH • Hospice pathways	Morbidity & Mortality
Mechanical Ventilation • compliance • duration • reintubation	HAI reduction & Antimicrobial Stewardship	Patient Experience	Lab and Imaging Utilization
ABCDEF Bundle Compliance and Metrics (ICU Liberation Bundle)	Prophylaxis Metrics	Multi-professional Collaboration and Development	Community & External Partner Support

What does good look like?



Lessons Learned

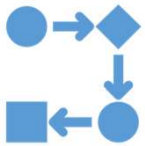
Phased project with continuous process improvement

Create consensus

Team diversity

Management system for transparency and sustainability

Key Takeaways



Process

Definitions

EMR & Analytics

Test your model

Questions

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