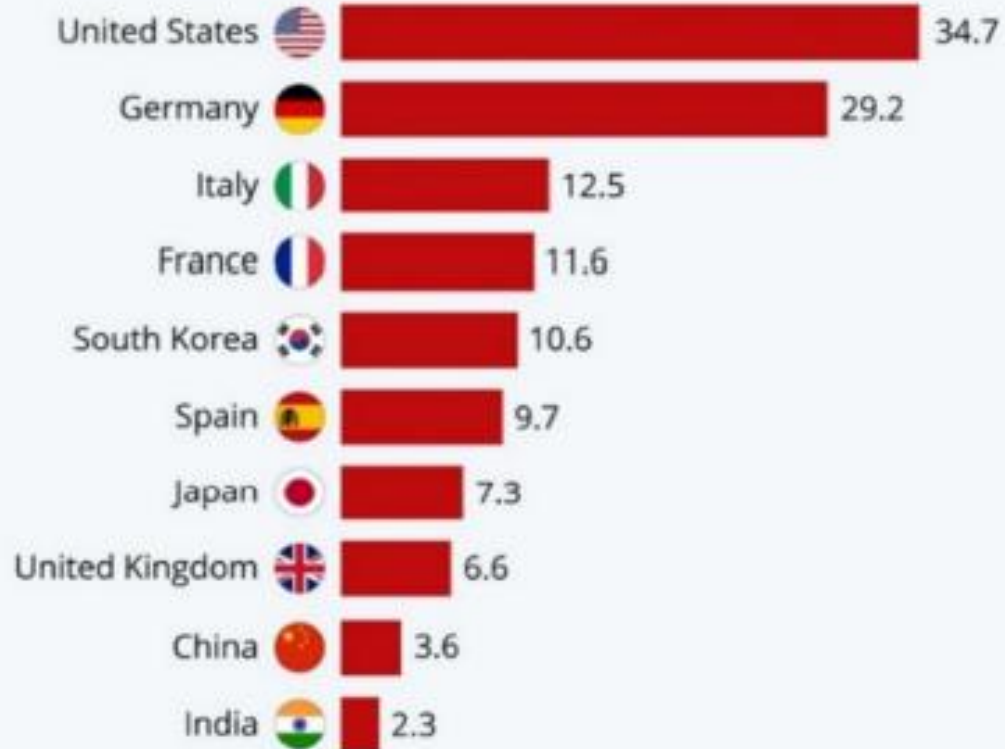


How to Prepare Predicting

Critical Care Beds Per Capita

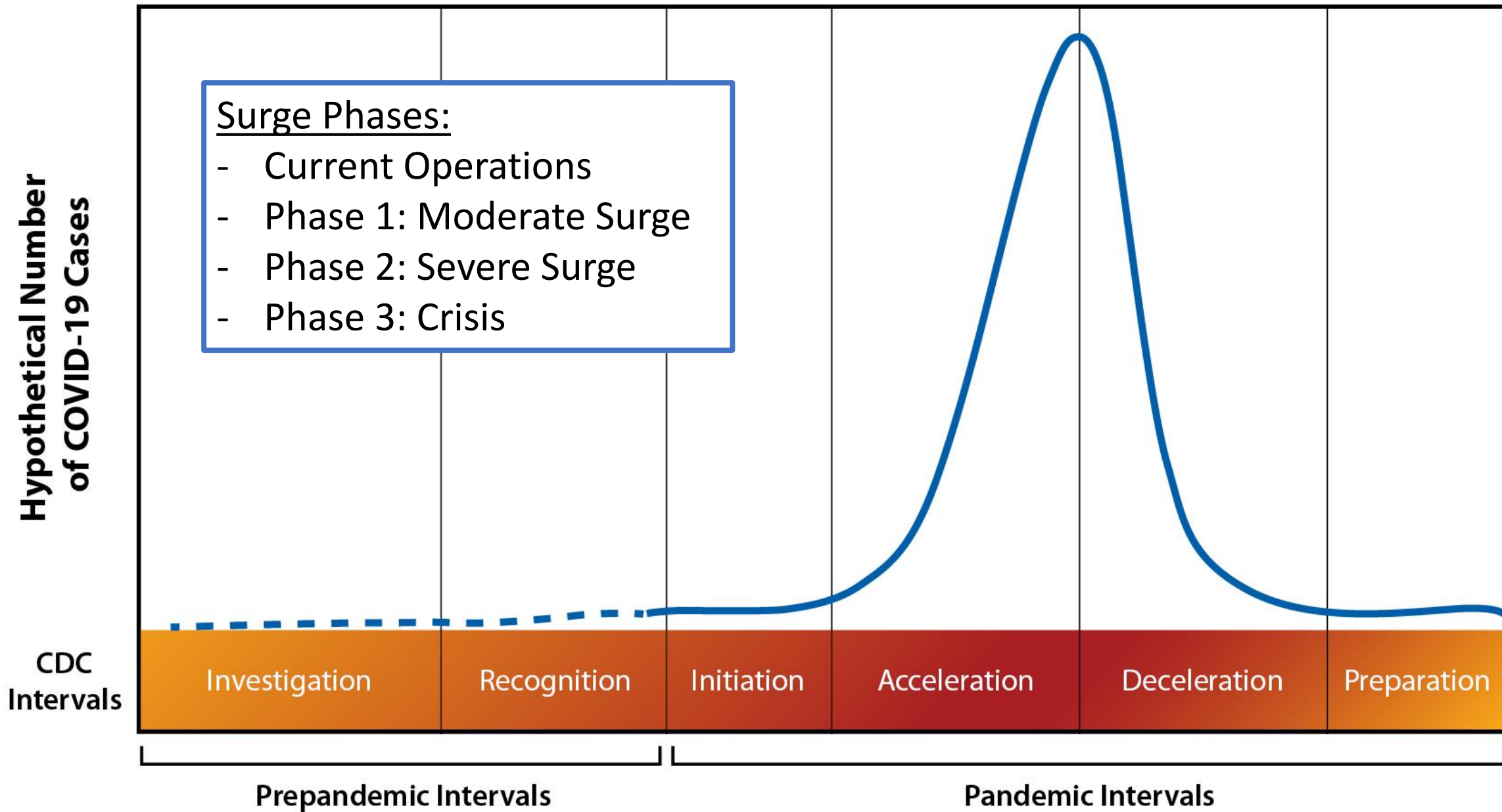
Total number of critical care beds
per 100,000 inhabitants in selected countries*



* Most recent U.S. and EU data from 2009 and 2012 respectively.
Asian data is from 2017.

Sources: National Center for Biotechnology Information, Intensive Care Medicine (journal), Critical Care Medicine (journal)

We are in the
best position.



Source: CDC's "Updated Preparedness and Response Framework for Influenza Pandemics" <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6306a1.htm>

Surge projections

<https://covid19.healthdata.org/united-states-of-america>

Allows you to view each state (and many other countries) and see:

- COVID deaths so far per day (bottom in red)
- COVID death projections
- Resource utilization projections
(can view all resources, all beds, ICU beds and/or vents)

From UW IHME (University of Washington Institute for Health Metrics and Evaluation)

Next Slide shows Texas

34 days until peak resource use on
May 5, 2020

Resources needed for COVID patients on peak date

All beds needed

16,507 beds



All beds available

28,633 beds



Bed shortage

0 beds

ICU beds needed

2,482 beds



ICU beds available

2,259 beds



ICU bed shortage

223 beds

Invasive ventilators needed

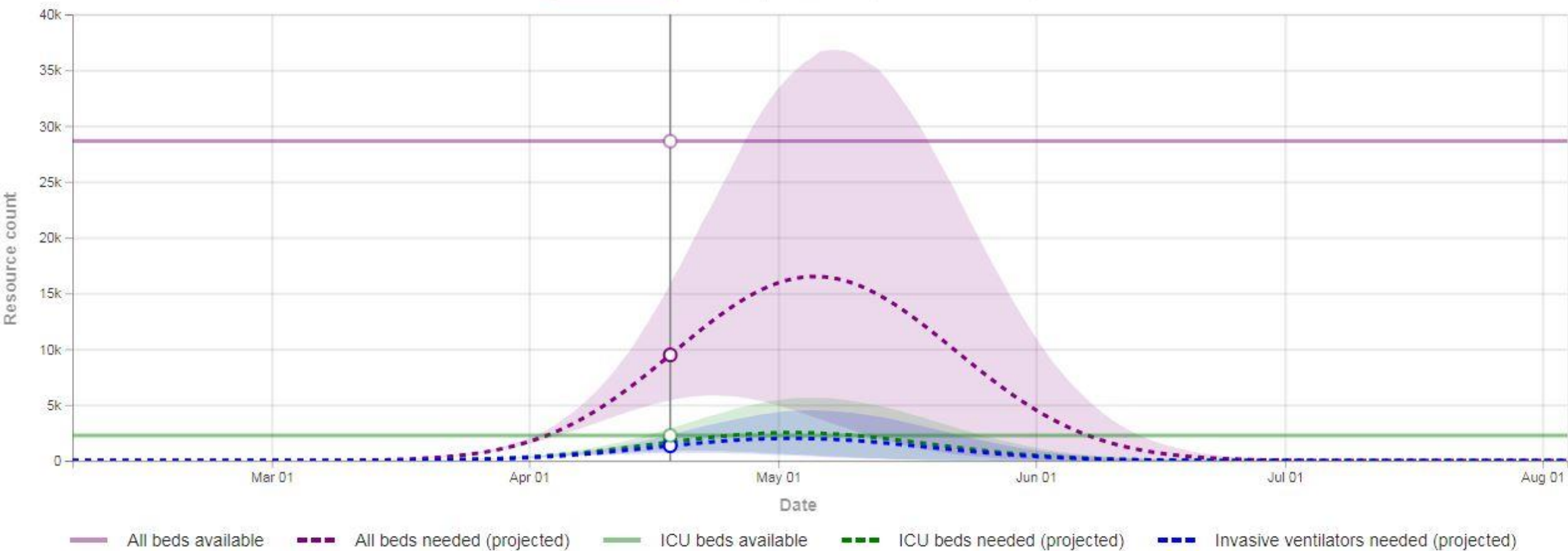
1,985 ventilators

All resources

All beds

ICU beds

Invasive ventilators



VISN 17



Summary of COVID Cases

Veterans PUI	Veterans Positive	Employees PUI	Employees Positive
83	12	34	9

Facilities with Staffing Impacts

Facilities with Call Center Impacts

(4V17) (519) Big Spring, TX (George H. O'Brien, Jr.)
 (4V17) (671) San Antonio, TX (Audie L. Murphy)

of Ventilators in Use



0
of Inpatient Humanitarians

of Operational Ventilators

110
ICU Ventilators
14
Transport Ventilators
124
Total

Bed Summary

Active MedSurg Beds	Available MedSurg Beds	MedSurg COVID Occupied Beds	Active ICU Beds	Available ICU Beds	ICU COVID Occupied Beds
422	222	13	90	54	5

of Ventilators in Use and # of Inpatient Humanitarians as of 12:30 Eastern
 Target = 75% of Operational Ventilators
 Source: BMS - National Patient Icon Report (NM14)

VISN Issues

This is what is presented each day from each VISN to Dr. Stone. This is for VISN 17 from March 31, 2020.

ICU Bed Needs – Ventilator Needs - Time

Total ICU beds	Surge ICU beds	Regular ICU beds	Reg ICU bed used	ICU Vents	ICU Vents Used	ICU capable transport vents	Reg ICU bed usage	ICU Vent Usage	Time
73	28	45	12	47	5	3	27%	11%	March 23
73	28	45	14	42	6	3	31%	14%	March 30
73	28	45	18	42	7	3	40%	17%	April 6

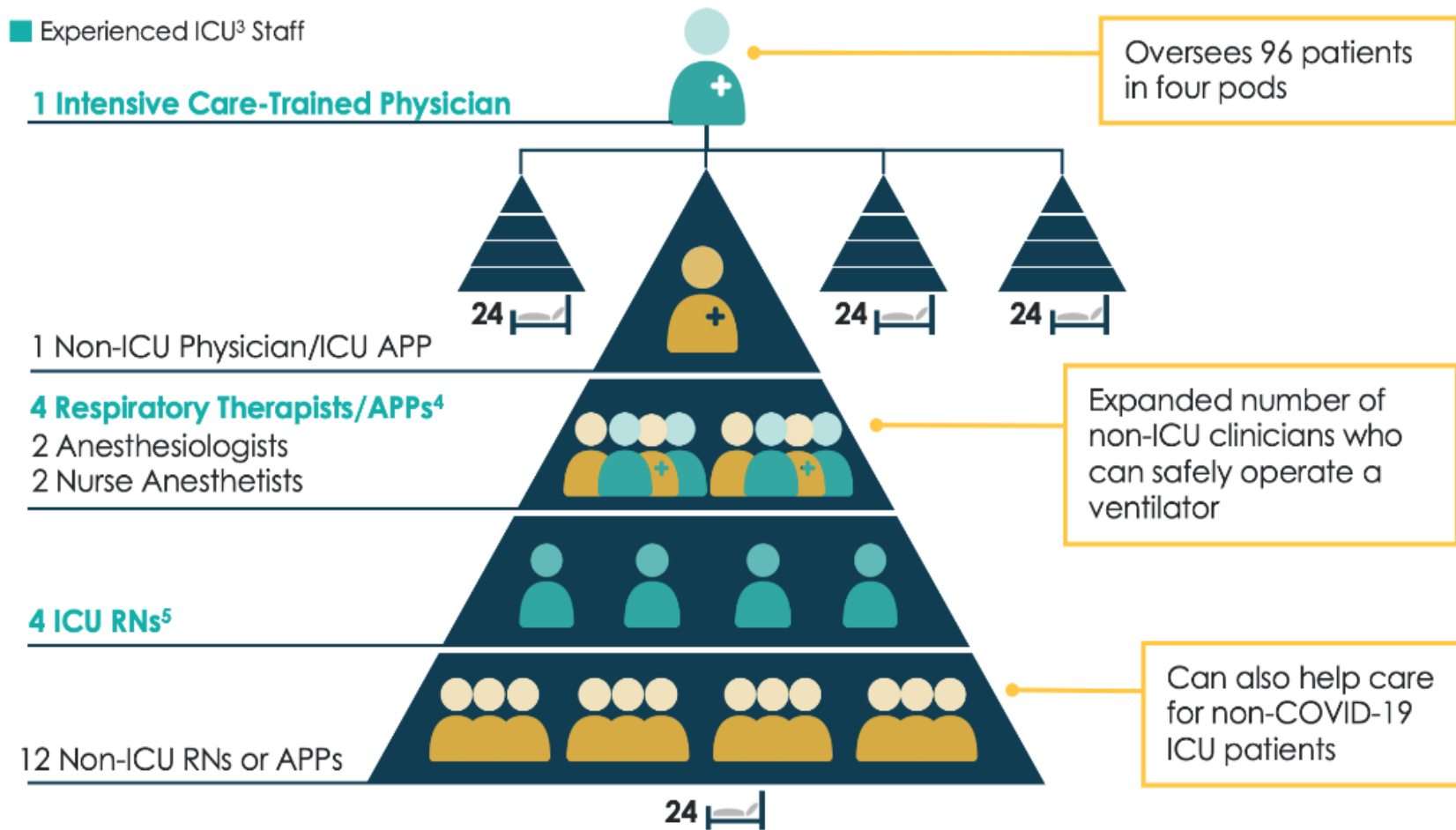
Each row is one week. Request ventilators when ICU vent usage is 60% and slope of surge is still rising.

Rethinking Critical Care Staffing for the COVID-19 Crisis

Tiered Staffing Strategy Greatly Augments Limited Number of Ventilator-Trained Clinicians

Society of Critical Care Medicine Guidelines for Pandemic-Level¹ Intensive Care Unit Staffing²

■ Experienced ICU³ Staff



Current Respiratory Therapist Staffing Insufficient

36K-162K Estimated number of patients that can be ventilated nationally in a conventional staffing model

90K-324K Estimated number of patients that can be ventilated nationally in a modified staffing model⁶



1. Pandemic requiring significant mechanical ventilation.
2. Guidelines state each hospital will need to adjust both demands for critical care and available supply of personnel.
3. Intensive care unit.
4. Advanced practice provider.
5. Registered nurses.
6. Includes adding non-ICU staff, increasing patient to clinician ratios, and expanding staffed bed availability 20% to 60%.

Source: Ajao, Adebola, et al. "Assessing the Capacity of the US Health Care System to Use Additional Mechanical Ventilators During a Large-Scale Public Health Emergency," *Disaster Medicine and Public Health Preparedness*. U.S. National Library of Medicine, Dec. 2015. Web. 20 Mar. 2020; Halpern, Neil A. et al. "U.S. ICU Resource Availability for COVID-19." *Society of Critical Care Medicine*. 13 Mar. 2020. Web. 18 Mar. 2020; Gist Healthcare analysis.

How to Prepare Training

Resources for Training Up Staff – Internal VA content

- The Basics: VA SOP – Interim Guidance for Medical Management of Hospitalized COVID-19 Patients *(new update coming out this week – includes many links to current treatment guidelines)*
- From EES SimLearn (weblinks pending):
 - Trauma Nurse Core Course (general info, not just for trauma) – signup needed ahead of time
 - Existing TMS modules – see next slide
- Integrated Community of Practice Sharepoints (links below):
 - [Specialty Care](#)
 - [Emergency Medicine](#)
 - [Hospital Medicine](#)
- Note: training alone is no substitute for supervised practice. Tele-ICU will supported a tiered strategy of support across VA facilities. See [SCCM Tiered Model](#)

Existing TMS Modules:

TMS Module	Course	Clinical
Atrial Dysrhythmias	13267	Y
Automatic External Defibrillator (AED)	4526621	Y
Bar Code Medication Administration (BCMA)	19028	Y
Chest Tube Insertion	100053	Y
Defibrillator	45266219	Y
Medication Administration for the UAP	23030	Y
Moderate Sedation (NFED)	NFED 100296 & 17352	Y
Moderate Sedation (NFED) Post Test	NFED 13886	Y
Nasogastric Tubes	100304	Y
Rapid Sequence Intubation (RSI)	4486771	Y
Sinus Dysrhythmias	13265	Y
Thoracentesis	100498	Y
Ventricular Dysrhythmia	13268	Y
Basic Life Support (RQI 2020 Provider)	VHA-88*	Y
Advanced Cardiac Life Support (RQI 2020 Advanced)	VHA-89*	Y

*Must be assigned by a TMS Administrator

Resources for Training Up Staff – External, reviewed by VA subject matter experts

- Free training (may need to self-register for an account):
 - American Association of Critical Care Nurses (AACN): [COVID-19 Pulmonary, ARDS and Ventilator Resources](#)
 - Additional resources: [Top 5 AACN Clinical Education Resources](#)
 - Society of Critical Care Medicine (SCCM): [Critical Care for non-ICU Clinicians](#)
 - See next slide for specific modules and time requirements
 - Society of Hospital Medicine (SHM) “Critical Care for the Hospitalist”
 - [Fluid Resuscitation in the Critically Ill](#)
 - [Mechanical Ventilation Part I – The Basics](#)
 - [Mechanical Ventilation Part II – Beyond the Basics](#)
 - [Mechanical Ventilation Part III – ARDS](#)
 - American Heart Association (AHA) CPR resources: <https://cpr.heart.org/en/resources/coronavirus-covid19-resources-for-cpr-training>
 - University of Toronto (has the most experience with severe SARS; excellent videos): <https://www.quickicutraining.com>
 - Internet Book of Critical Care: <https://emcrit.org/ibcc/covid19/>

SCCM training modules:

Module	Time	Clinical	Non-Clinical
Recognition and Assessment of the Seriously Ill Patient	30	Y	
Airway Management	30	Y	
Airway Assessment and Management	45	Y	
Care of the Older Adult	25	Y	
Diagnosis and Management of Acute Respiratory Failure	30	Y	
Mechanical Ventilation 1	20	Y	
Mechanical Ventilation 2	20	Y	
Diagnosis and Management of shock	10	Y	
ICU Microcosm Within Disaster Medical Response	45		Y
Augmenting Critical Care Capacity During a Disaster	30		Y
Disaster Triage and Allocation of Scarce Resources	30		Y
Sustained Mechanical Ventilation Outside the Traditional ICU	25		Y
Biohazard Disasters: Natural and Intentional Outbreaks	30		Y
Total Minutes and Designations	370 minutes	210 min.	160 minutes

Questions?