Introduction to Annotated Bibliography Regarding COVID-19 Crisis:

Preparedness and Recovery

November 23, 2020

Dear ONL NJ Member,

The ONL NJ Nursing Workplace Environment and Staffing Council (NWESC) Commission has been continually active during this COVID Pandemic working behind the scenes for its members. A task force of the larger commission has been looking into resources regarding COVID-19 preparedness and recovery that would be of use to our members. This annotated bibliography should be a helpful summary resource for you and your organization as you also understand what has been written and published recently. In addition to Centers for Disease Control and Prevention (CDC) updates and health department updates, we understand that more information will continue to be published.

The following are the key document names as summarized in the annotated bibliography details, listed by author in alphabetical order:

American Hospital Association (AHA). (2020). *COVID-19 Pathways to Recovery*. (99 pages) Retrieved from www.aha.org/guidesreports/2020-05-05-COVID-19-pathways-recovery . The AHA website can also be a rich resource of other article s as well on COVID-19, many available to non-members.

American Organization of Nursing Leaders (AONL). (2020). *Nursing Leadership through COVID-19: Survey.* Retrieved from Nursing Leadership COVID-19 Survey | AONL.
The AONL website can also be a rich resource of other articles as well on COVID-19, many available to non-members.

Berkland, D. (2020). A workforce management strategy that builds organizational resiliency, American *Nurse Journal,* 15(9), 60-62.

Brickman, D., Greenway, A., Sobocinski, K., Thai, H., Turick, A., Xuereb, K., Zambardino, D., Barie, P., and Liu, S. (2020). Rapid critical care training of nurses in the surge response to the coronavirus pandemic. *American Journal of Critical Care*, 29 (5), e104-107. Doi: https://doi.org/10.4037/ajcc2020142

Cathcart, E.B. (2020). After the surge: how leaders promote healing and growth. *Nursing Management,* 51(10), 51-53. Doi: 10: 1097/01.NUMA.0000698140.19548.71

Deloitte & Joint Commission Resources. (2020). *COVID-19 Lessons Learned: A Resource for Recovery*. (32 pages) Retrieved from

www.jcrinc.com/products-and-services/COVID-19-lessons-learned-a-resource-for-recovery.

Dowling, M.J. and Kenney, C. (2020). Leading *Through a Pandemic. The Inside Story of Humanity, Innovation, and Lessons Learned during the COVID-19 Crisis.* New York: Skyhorse Publishing, (187 pages).

EvergreenHealth Enterprises. (2020). Protocols & Best Practices for Addressing COVID-19 in the Hospital Setting. Compiled by EvergreenHealth Hospitalists. To ensure you are reviewing the most up-to-date version, visit: https://www.evergreenhealth.com/COVID-19-lessons.

Gavigan, M., Das, J., and Kingston, M.B. (2020). Leveraging size while remaining nimble with a workforce management strategy. *American Nurse Journal,* 19 (9), 63-65.

Halpern, N.A. and Tan, K.S. (2020). *United States Resource Availability for COVID-19.* Version 3. Revised: 5/12/2020. Society of Critical Care Medicine.16 pages.

Horton, Richard. *The COVID-19 Catastrophe*. Cambridge, UK: Polity Press. 2020. 132-page book written by the editor of the journal *Lancet.* Written from a science perspective with a chapter "Toward the next pandemic."

Kerfoot, K. (2020). Workforce management strategies in time of uncertainty, *American Nurse Journal*, 15(9), 58-60.

Kuy, S.R., Gupta R., Correa, R., Tsai, R., Vohra, S. (2020). Best Practices for a COVID-19 Preparedness Plan for Health Systems. *New England Journal of Medicine Catalyst,* April 30, 2020. Doi: 10.1056/CAT.20.0108

Mackenzie, Debora. (2020). *COVID-19: The Pandemic that Never Should Have Happened and How to Stop the Next One.* New York, New York: Hachette Books. (279 pages).

Wiki wisdom Forum of Frontline Nurses. *Wisdom from Nurses so We Never Again Mishandle a National Healthcare Crisis.* (2020). 19 pages. Retrieved from the website of www.wikiwisdom.net/frontline-nurses

Wu, A.W., Sax, H., et al. (Editorial.) (2020). COVID-19: The dark side and the sunny side for patient safety. *Journal of Patient Safety and Risk Management,* 25 (94), 137-141. Doi: 10.1177/2516043520957116

Webinars

There are a series of 8 free webinars (about 1 hour each) on the Rutgers School of Nursing website, led by Rutgers alumna Dr. Donna Gaffney, nationally known for her work on loss and grief counseling. The topics cover self-care, grief, helplessness, and compassion and grief. The series is titled "Healing Ourselves While Healing Others: Nursing during the Corona Pandemic." She developed this series with others for all Rutgers students, alumni, and the nursing community. Others can also access this link. Https: nursing.rutgers.edu/ce/course-catalog/healing-ourselves-while-healing-others/.

Additional resource website: https://fuld.nursing.osu.edu/

The Helene Fuld Health Trust National Institute for Evidenced-based Practice in Nursing and Healthcare at the Ohio State University has a wealth of evidenced based practices related to successful evidenced based interventions for the treatment of COVID-19 patients, e.g., staffing approaches and recommendations, early proning, ventilator sharing, and mask effectiveness. (See attached document for some summary data).

Next Steps

Thank you to all the ONL NJ members for all your hard work during this COVID-19 pandemic. We look forward to any feedback regarding this annotated bibliography and reference materials made available to you and your recommendations for other resources. Send your comments to Susan Cholewka, executive director ONL NJ at scholewka@onlnj.org.

Sincerely,

Judy Caruso, Rita Smith, Kathy Borenstein, Pat Steingall, and Shannon Patel

Members of the ONL NJ NWESC Commission

American Hospital Association (AHA). (2020). *COVID-19 Pathways to Recovery.* Retrieved from

www.aha.org/guidesreports/2020-05-05-COVID-19-pathways-recovery

The AHA website is a source of great information; many features are available even without being an AHA member. This recent free document is a 99-page publication with input from many AHA members and many exemplars of best practices, covering chapters on workforce, testing and contact tracing, communications (internal and external), supply chain, ancillary and support services, plant operations/environments of care, financial management, governance considerations, a new patient experience, transitions of care, risk management with extensive appendices on exemplars from AHA organizations.

This is the preface of the document:
"COVID-19 has been an unprecedented challenge for our nation and the hospitals and health care systems that serve communities across the United States. We've cheered the heroics of nurses, physicians, emergency medical technicians, orderlies, dieticians, and other hospital workers who have cared for their patients under extraordinary circumstances. We've applauded the lab techs and scientists working around the clock to test and develop new innovations and cures. And we've begun to flatten the curve and see a path forward of what will be a new normal for all of us. As we chart that path together, we want to share a new resource, COVID-19 Pathways to Recovery. Development of this compendium has been led by a recently formed AHA Board Task Force with input from many members of the association. While it is not intended to be an all-inclusive resource and will evolve over time as we learn more, it provides important considerations, questions, and checklists to review moving forward.

The first part of this resource covers critical areas including workforce, testing and contact tracing, internal and external communications, and the supply chain. The second part covers additional areas for planning: support and ancillary services, plant operations/environment of care, financial management and governance. It outlines areas for hospital and health system leaders to consider as they work toward a safe orderly return to providing comprehensive health care services to their communities while continuing to care for their workforce and begin longer-range planning. The third part of the resource focuses on a new patient experience, transitions of care and risk management, as well as examples of lessons learned from throughout the country (see Appendix 6).

It is important to note that any plans to resume suspended services (see dashboard in Appendix) should be developed concurrently with a plan to modify services should conditions warrant. Where possible, modification parameters should be pre-established and widely communicated before such actions are required. Several examples are included in the report.

We recognize that COVID-19 has affected each community differently, so please use this resource in combination with – and not as a substitute for – other guidance and requirements from professional and accrediting organizations as well as the federal government and your state government.

Thank you to all of those who contributed to this resource. We welcome your comments as the resource continues to evolve."

American Organization of Nursing Leaders (AONL). (2020) *Nursing Leadership through COVID-19: Survey.*

Retrieved from Nursing Leadership COVID-19 Survey | AONL.

What is Joslin? With Joslin, AONL conducted a national survey in mid-July 2020 to measure nurse leaders' perceptions of key concerns, challenges, and future readiness with COVID-19. The survey results were from over 1,800 respondents. They asked about concerns for early on, during the surge, and sustaining care during COVID-19.

Many concerns centered on the following:

- No "playbook" to guide them for a pandemic
- Building capacity in retaining and redeployment: staffing shortages, reallocating staff, use of traveling nurses
- ICU rapid bed expansion
- Lack of trust with rapidly changing policies from conflicting information about COVID-19 early on
- Adapting to reinventing themselves
- Concerns with supplies and shortages of supplies, e.g., personal protective equipment (PPE) supplies, testing, ventilators
- Communication, communication, communication to their staff and patients

Over 86% felt prepared in July for a future surge in COVID-19 case. Many believed the largest advancement for healthcare during the pandemic was telehealth.

Berkland, D. (2020). A workforce management strategy that builds organizational resiliency, American *Nurse Journal,* 15(9), 60-62

- Technology is key to help balance staff and patient needs
- A holistic approach requires all disciplines use the same platform
- Use of descriptive and predictive analytics based on volume, turnover, leave of absence (LOA), length of service (LOS), and other metrics gives a complete picture. Dashboards provide a clear concise method to share including supply usage and volumes
- Workforce governance important
  - System workforce structure which includes all stakeholders, content experts from all disciplines including finance, payroll, Human Resources (HR)
    - provide oversight of the system
    - ensure standardization of technology terminology and decide which disciplines will use the systems

    - implement timelines
- Nurse executive council - role to ensure everyone has a voice and consensus is obtained
    - determines staffing standards
    - skill sets
    - hours per patient day (HPPD)
    - aligns these with the workforce technology

Communication is vital!

- Daily safety briefings
- use of the existing nurse governance structure
- weekly surveys to staff
- system, regional, and local Incident Command structure provide daily standardized, succinct, and transparent communications both vertically and horizontally
- Intranet communications with FACTS (Sanford called this communication Facts over Fears)
- Daily Townhalls recorded so most recent available for all
- Weekly Facebook live sessions hosted by leaders
- PPE/supply chain dashboard allowing leadership to make informed, data-driven timely decisions

Cross-training of staff/pool staff/agency staff

- Take advantage of low census times to train
- Partner novice with experts
- leverage nurse resource pool across sites within system
- agreements with outside agencies

Four workforce management factors contribute to building stability and resilience

1. Unit based managers viewed as CNO of their areas with fiduciary accountability and responsibility to maintain adequate staff and skill sets
1. Unit managers commit to cross-training to ensure flexibility
2. system wide pool to support the local resource pool and use of travelers
3. pool staff cross-trained to care for many different patient populations

Brickman, D., Greenway, A., Sobocinski, K., Thai, H., Turick, A., Xuereb, K., Zambardino, D., Barie, P., and Liu, S. (2020). Rapid critical care training of nurses in the surge response to the coronavirus pandemic. *American Journal of Critical Care*, 29 (5), e104-107. Doi: https://doi.org/10.4037/ajcc2020142

This four-page journal article reported on the creation and implementation of a 3-hour curriculum to prepare non-critical care nurses in New York to work with critically care nurses to manage patients with the coronavirus disease. Key curriculum items with skill stations for hands-on practice included:

- respiratory failure and ventilation management

- shock and hemodynamics
- pharmacology for critical illnesses
- renal replacement therapy

Over 143 nurses completed the training within a 10-day period, with tailored instruction adapted to learner needs. Most newly trained nurses continued to work in critical care. Ongoing evaluation in process. Program will assist in operational readiness for expected "second wave" of critical ill patients expected in 2020 after earlier first surge March through May 2020.

Cathcart, E.B. (2020). After the surge: how leaders promote healing and growth. *Nursing Management,* 51(10), 51-53. Doi:10: 1097/01.NUMA.0000698140.19548.71

This brief article discussed the following topics:

- Dealing with grief and garnering new knowledge
    - Reported declines in mood and increase in depressive symptoms after the surge of caring for COVID patients
    - Need to discuss their anxiety and trauma without being overwhelmed or paralyzed by it, to allow healing
    - Prepare for resources for a "second wave" from what was learned earlier
- Use the power of storytelling
    - Nurses need to tell their stories of their lived experiences, discuss moral issues or dilemmas
    - Discuss being alone with dying patients whose families were not permitted to be with them
    - Tell stories in a safe way in a trusted community of colleagues, led by nurse or counselor who can help interpret and respond to unfolding story. Utilize chaplains and grief counselors
- Support managers helping staff through this crisis
    - Utilize healthy outlets to reduce stress and focus on things you can influence
    - Garner, preserve, and disseminate frontline knowledge gained during the pandemic
    - Mend the broken places and hear the clinical voices

Deloitte & Joint Commission Resources. (2020). *COVID-19 Lessons Learned: A Resource for Recovery*. Retrieved from https://www.jcrinc.com/products-and-services/COVID-19-lessons-learned-a-resource-for-recovery

This 32-page whitepaper co-authored by Deloitte and Joint Commission Resources catalogues a broad array of lessons learned identified during the period of March through August 2020. These lessons learned are based on discussions with a diverse group of health care leaders; assessments of readiness/preparedness efforts across national, regional, and local stakeholders; and a review of public documents.

The considerations in this whitepaper include observed best practices adopted by organizations throughout the COVID-19 response. For each health care domain and associated issues, it lays

out specific actions that organizations have taken to address them and provides access to guidance and tools that health care leaders can use to create and enact their own plan to address these challenges.

Some of the wide array of health care domains covered in this in-depth resource includes:

- Leadership
- Emergency readiness and crisis response
- Infection control
- Patient safety and high reliability
- Communications and change management

Dowling, M.J. and Kenney, C. (2020). Leading *Through a Pandemic. The Inside Story of Humanity, Innovation, and Lessons Learned during the COVID-19 Crisis.* New York: Skyhorse Publishing, (187 pages)

Overall intent of the book-
Northwell Health was on the frontline of receiving massive volume of COVID positive patients. They were the epicenter. They wrote the book to share their story- what they thought was important and successful and what the lessons learned were. The book was broken down into chapters to make reading more organized although there was some duplication.

Chapter 1: Epicenter-The Peak of the Crisis

- Staff is extraordinary and come together for the common good.
- They felt that being part of a large system has enormous advantages
- Load-balancing (the ability to transfer patients from an overloaded hospital to a hospital with less of an impact) enabled them to save lives (required central transport system)
- Stress- do not prepare for the worst-prepare for a reality even worse
- Assess the long-term impact on the staff who are dealing with anxiety, fear, and death.

Chapter 2: A Culture of Preparedness

- Establishing an emergency operations center (EOC) and Incident command (ICS) like the military is paramount (Northwell felt that because they had a strong ICS system, it made them more successful)
- Emergency preparedness must be a core part of the culture
- Daily dashboard with key data and metrics is essential for success
- In crisis- do not worry about the budget (deal with it later)
- Train staff to be "comfortable with being uncomfortable."
- Prepare and act early with resources- people, supplies and financial resilience-plan for it to be a long disruption

Chapter 3: An Integrated System

- Scale is important but more important the ability to use the scale to the fullest
- Integrated systems can "load-balance"
- With an integrated system you can deploy staff where needed most
- Build an ambulance transport system (critical care transport)
- Clinical staff on the frontlines are capable of learning new competencies and management skills during crisis
- The integrated system team approach must be fostered over time; it cannot be initiated during the crisis

Chapter 4: Staff Safety and Morale

- To care for patients- top priority must be to protect the health and safety of staff
- Must have sufficient PPE and the knowledge that they will always have sufficient supplies
- Protect staff emotionally- employee assistance program (EAP) that provide onsite counseling
- "Tranquility" tents so staff can calm themselves- meditation, reflection, or prayer
- Leaders must demonstrate via communication and visibility that staff is valued, and safety is the highest priority
- Have counselors and chaplains available on site when an employee dies to support the staff

Chapter 5: Protecting the Supply Lifeline

- Competent and effective internal supply-chain infrastructure with good leadership is essential
- Strong relationships with vendors built over time are lifesaving during crisis
- Dangerous to have an over-reliance on China (or others) for goods. Urgent need for domestic manufacturing capabilities
- Government (state and federal) should take the lead in stockpiling PPE without undermining hospitals and systems to do the same
- Allow staff to be creative in addressing problems. Internal innovation will surprise you

Chapter 6: Clinical Decision Making in a Pandemic

- A structured clinical advisory team (CAT) is one of the most important components of emergency management in a crisis
- The CAT's ability to issue alerts, policies, best practices, and clarification on clinical policy is paramount
- Communication (often daily) about what is going on clinically and what lies ahead enhances staff confidence and treatment modalities, and reduces staff anxiety and fear
- Cooperation between clinical and operational leaders promotes efficient implementation
- Enhancing testing capabilities must be a priority

Chapter 7: Policy and Regulation- the Government's role

- Many government rules and regulations are unnecessary
- The innovation resulting from the relaxation of many rules is an indication that many rules should be reviewed and possibly changed in the future
- Governmental leadership is essential for policy guidance and response coordination without micromanagement
- Strong professional relationships with elected officials and regulators enable faster action during crisis
- There is an urgent need to strengthen safety net hospitals/ambulatory centers to cope with disasters

Chapter 8: Research Trials- The Rigor of Science

- Having a major research institute within the systems enables YouTube conduct clinical trials quickly with rigor
- A global pandemic is a call to action for scientists to generate reliable data and convey message of hope
- The large volume at Northwell created an enormous database for future research
- Political leaders would advance the cause of science by relying on the data rather than speculating about untested methods
- Science in the United States is underfunded

Chapter 9: Communications- Information is Healthy, Fear is Not

- In crisis, information is healthy, fear is not
- A public health crisis creates an opportunity to engage the community and consumers to act towards improving their health
- Prepare to engage the media- print, online, radio, TV- be transparent as possible- media helps educate the public
- Continuous internal communication provides staff with facts needed to understand the reality of the situation. It cannot be overdone
- Leadership must provide a sense of calm, confidence, and optimism
- Leadership must be visible

Chapter 10: Looking Forward- Preparing for the Future

- Plan ahead
- Build an emergency management culture
- Commit to regulatory flexibility
- Urgently address inquiries in access to care
- Protect the physical and emotional health of staff (ongoing)
- Recognize the benefits of an integrated health system in a crisis

- Partner with-government, other health systems and the community
- Reverse America's cultural disrespect for science
- Develop leadership at every level of the organization
- Accelerate the movement to virtual care
- Educate the public
- Increase focus on safety measures in congregate settings
- Commit to creating a new normal

EvergreenHealth Enterprises. (2020). Protocols & Best Practices for Addressing COVID-19 in the Hospital Setting. Compiled by EvergreenHealth Hospitalists. To ensure you are reviewing the most up-to-date version visit:

EvergreenHealth | Best Hospital & Physicians | Kirkland, WA as therapeutics are constantly updated.

The information presented here is intended for use by physicians and hospital staff and should not be considered medical advice. Please contact your healthcare provider with any healthcare questions.

I. Anticipating and Preparing for COVID

Resource references:

CHEST: Too Many Patients: A Framework to Guide Statewide Allocation of Scarce Mechanical Ventilator During Disasters

Northwest Healthcare Response Network/Washington state DOH: Scarce Resource Management & Crisis Standards of Care

Accessing PPE

Accessing available beds in hospital and community beds

II. Develop Infection Control Systems

Aerosolizing procedures

Cohorting patients

III. Protect Human Resources

Policies for absenteeism

Monitor morale

Use of quarantined staff

Staff psychosocial support

IV. Inpatient Care of the COVID Patient

Venous thrombosis

Lab irregularities

False neg rate

Use of antibiotics for co-infections

Cardiac disease – collapse and cardiomyopathy

Awake proning

Social isolation

Discharge protocol algorithm

CDC guidance on discontinuing isolation in recovered COVID patients

V. Key Features of the ICU Course

Rapid decompensation, Severe acute respiratory distress syndrome (ARDS), Multisystem failure

For in-depth critical care guidance, please refer to Society of Critical Care Medicine: Surviving Sepsis Campaign in COVID-19.

Gavigan, M., Das, J., and Kingston, M.B. (2020). Leveraging size while remaining nimble with a workforce management strategy. *American Nurse Journal,* 19 (9), 63-65.

From Advocate Aurora multiple hospital system in Illinois and Wisconsin with over 500 sites serving greater than 3 million patients. Key Goals- To improve patient health safety and satisfaction while also improving team member satisfaction and ensuring an optimal work environment.

One initiative, pre-COVID- effective staffing vision driven by commitment to get four things right:
1. the right nurse
2. at the right time
3. the right competencies
4. the right credentials
5. ~~at the right time this is listed twice~~

Critical factors to achieve:
1. Shared governance
2. metrics
3. standardization

Ecosystems developed to unite stakeholders to ensure effective staffing
- Clinical leadership
    - develop a strategic plan with input from frontline staff
    - deployment of tactical strategies
    - ensure safe and effective staffing plans
    - oversight and attainment of performance metric targets

    - change and transition management
- Clinical education
    - efficient and effective on-boarding
    - facilitate cross-training
    - development and deployment of a flexible orientation
    - transition management
    - demonstrate agility if common cause changes threaten ecosystem
- Finance
    - system-wide development of budget assumptions to reflect actual performance
    - align the budget to ensure matching clinical resources to patient demand
    - support the standard staffing plans and facilitate effective position approval process
    - change and transition management
    - provide analytics to maintain alignment
    - demonstrate agility if common cause changes threaten ecosystem
- Human resources
    - proactive and innovative recruitment for vacancies and flexible nursing workforce
    - align wage and salary practices that attract and retain nursing staff
    - support standard staffing and scheduling practices with change and transition management practices and tools
- Information technology
    - develop infrastructure and processes to support a system implementation of standard staffing and scheduling practices and processes
    - change and transition management
    - proactive planning and delivering on planned enhancements to system staffing and scheduling software

Created a virtual system labor pool command center co-led by Vice President for Talent & Acquisition and Nursing.

- Included HR rep, HR analytics, ambulatory, system float pool, a project manager, and the director for contingent labor.
- Developed a 24/7 online process for sites to request and reassign staff. This optimized visibility of available, qualified, staff leading to success through
    - allowing team members to volunteer for reassignment
    - hiring greater than 100 zero assigned nursing students, nurses, respiratory therapists (RTs), environmental services (EVS), and hospitality staff
    - partnered with contingent labor companies to hire and onboard agency registered nurses (RNs
    - leveraged and relaxed licensing requirements across state lines
    - reassignment of team members to new roles
    - matching prior work experiences of furloughed employees to needs
    - twice/day calls to identify site needs
    - redeploying team members with medical restrictions to nonclinical areas
    - created database of all available team members for potential staffing support

Additional changes:

- all orientation moved to virtual
- virtual critical care course to increase skill set and increase flexibility of staff to move to areas of high need
- retraining of nurses that had been out of the clinical areas to facilitate redeployment

Communication:

- daily huddles/safety briefings
- daily communication of policy/procedure/practices

Halpern, N.A. and Tan, K.S. United States Resource Availability for COVID-19. Version 3. Revised: 5/12/2020. Society of Critical Care Medicine. 16 pages.

This 16-page report is written as an update on statistics on critical care focusing on resources available for COVID-19 in the United States. They addressed the estimates on:

- Number of acute care ICU, step-down (observation, progressive) beds based on AHA data gathered on by voluntary survey
- ICU occupancy rates
- Mechanical ventilators, based on CDC Strategic National Stockpile (SNS) and other ventilator sources
- Staffing- Tiered staffing strategies were discussed to augment critical care staffing, e.g., retirees, credentialing across state lines, advance graduation dates of providers, coverage needed for sick staff.
- Addressing ethic decision making process when resources may be overwhelmed.

They utilized data from the Institute for Health Metrics and Evaluation (IHME) an independent global health research at the University of Washington and the MRC Center for Global Infectious Disease Analysis (MRC GIDA) of the Imperial College London for their projections on COVID cases, rates of infection, hospitalizations, need for mechanical ventilators, mortality. The usefulness of their projections has been questioned as there were many frequent revisions. Future models may have gained from their experiences and projection models are needed at local rather than regional and national levels. Additional references for resources attached to document.

Horton, Richard. (2020) *The COVID-19 Catastrophe*. Cambridge, UK: Polity Press.

This 132-page book is written by the editor of the journal *Lancet.* It is written from a science perspective with a chapter "Toward the next pandemic."

Kerfoot, K. (2020). Workforce management strategies in time of uncertainty, *American Nurse Journal,* 15(9), 58-60.

Building a stable, data-driven workforce to smooth out variation and decrease chaos when the unexpected occurs is the foundation for resiliency

Ongoing journey-

Organizational goals based on:
1. clinical outcomes
2. staff engagement
3. patient experience
4. compliance
5. finance

How is this achieved?
1. Data- employee, patient and operational data must be included when making staffing and scheduling decisions.
2. Technology- Need to pull and coordinate information from many systems. Integrate timekeeping and scheduling can facilitate productivity and cost-effective workload balance.
    a. Ongoing monitoring with automated analytic and displayed in dashboards can facilitate proactive interpretation to improve managers ability to make timely decisions.
    b. The visibility, simplicity, and portability of the dashboard help with the managers work-life balance allowing him/her to make decisions quickly
    c. use across disciplines can improve communication to help streamline service and contain costs
3. Policies and Procedures- ongoing standardization across a system to make it easier to institute staffing decisions and improve workflow, optimize staff, and contain costs and improve care.
    a. standardization of best practices improves quality, productivity and sustainability including ongoing cross-training of staff
    b. standardization of pay, schedules, and policies to reflect fairness and equity of decisions
4. People- Need to connect HR, nursing, clinical education, payroll, information technology, finance, etc. to create a multidisciplinary ecosystem across all sites
        a. with shared oversight and governance structure
        b. transparency
        c. facilitates collaboration
        d. allows qualified caregivers to move from areas of low need to areas of high need
5. Patient-centered staffing approach- Recognize that each patient is unique and care needs may change rapidly making staffing complex. It can be simplified when data, technology, people, and processes are integrated.

Kuy, S.R., Gupta R., Correa, R., Tsai, R., Vohra, S. (2020). Best Practices for a COVID-19 Preparedness Plan for Health Systems. *New England Journal of Medicine Catalyst,* April 30, 2020. Doi: 10.1056/CAT.20.0108

To combat the COVID-19 crisis, health systems leaders need a clear, systematic approach to quickly evaluate critical needs and identify areas of weakness. In addition, to flatten the curve of the rates of infection and hospitalization, health systems need to proactively deploy a robust preparedness strategy. This compilation of best practices for COVID-19 preparedness is based on established guidelines and firsthand experiences on the front lines of the COVID-19 pandemic. The cornerstones of an effective COVID-19 preparedness plan for a health system are: (1) mitigating local transmission; (2) conserving, supporting, and protecting staff; (3) eliminating non-urgent strains on the system; and (4) coordinating communication. Health

systems should not wait until they face a surge in COVID-19 cases to implement a comprehensive response. By acting early, health systems may avoid being crippled by crisis and continue to be operational and provide critically important care.

Mackenzie, Debora. (2020). *COVID-19: The Pandemic that Never Should Have Happened and How to Stop the Next One.* New York, New York: Hachette Books, 279 pages.

This is a 279-page book written by a science journalist addressing our past failings and unpreparedness for this pandemic. Her last chapter has a focus on how to stop the next pandemic from happening.

Wiki wisdom Forum of Frontline Nurses. *Wisdom from Nurses so We Never Again Mishandle a National Healthcare Crisis.* (2020). 19 pages. Retrieved from the website of http://www.wikiwisdom.net/frontline-nurses

The project was sponsored by **New Voice Strategies**, the **John Hopkins School of Nursing,** and the **American Journal of Nursing**. The online conversation was hosted by **Cynda Rushton**, Ph.D., RN, FAAN of the John Hopkins School of Nursing & Berman Institute of Bioethics, and **Theresa Brown**, BSN, RN, FAAN, and author of the New York Times bestseller *The Shift: One Nurse, Twelve Hours, Four Patients' Lives*. The report was written by **Cindy Richards**, a professional journalist who moderated the online forum. To learn more about WikiWisdom go to Frontline Nurses WikiWisdom Forum: Frontline Nurses WikiWisdom Forum.

This WikiWisdom Forum 19-page report is based on feedback from frontline nurses in response to the stresses of COVID-19. In the proposed solutions, extensive quotes are provided from frontline nurses based on their actual experiences during COVID-19. Through the 14 solutions/recommendations in this report, frontline nurses ask for three things:

- Listen to nurses
- Protect nurses
- Support nurses

Proposed Solutions

- Local Healthcare Solutions
  1. Adequately staff all departments
  2. Give nurses the protective equipment they need
  3. Give nurses emotional support on the job
  4. Ensure that employee benefits include mental health coverage
  5. Develop a comprehensive plan for crisis care that includes input from bedside nurses
  6. Expand the role of hospice care in hospitals
  7. Increase administrative transparency for patient safety
  8. Give bedside nurses a place at the table and commit to integrating their recommendations
  9. Require administrators and nurses to "Walk a Day in My Shoes."

- National Level Solutions

10. Create a Pandemic Response Team empowered to plan for and oversee response to the next pandemic
11. Ensure adequate PPE through domestic production and stockpiling
12. Make quality healthcare available to and affordable for all Americans
13. Expand access to and use of telehealth
14. Support a coordinated and collaborative public health infrastructure.

Wu, A.W., Sax, H., et al. (Editorial.) (2020). COVID-19: The dark side and the sunny side for patient safety. *Journal of Patient Safety and Risk Management,* 25 (94), 137-141. Doi: 10.1177/2516043520957116

This editorial discussed the tremendous strain to hospitals and health systems brought about from COVID-19 and the rapidly evolving needs of patients, ever changing.

The "dark side" is discussed that can interfere with healthcare processes and outcomes, as well as worker distress:

- Uncertainty and chaos in our health systems strained by high volumes of patients
- Lacking workers to care for high volume of critically ill patients with contagious respiratory disease without known treatments and rapidly changing protocols
- Overworked and exhausted clinicians; rapidly training inexperienced staff for crucial care roles
- Nursing home deficiencies in knowledge and supplies for effective infection control
- Virus affecting patients and staff; staff fearful to bring home virus to families
- Difficulty in social distancing, using PPE properly, having adequate PPE, needing staff respite places
- Physical barriers interfering with staff and patient communications
- Patients afraid to seek care or unable to seek care; patients not performing other preventive health screenings.
- Laboratory tests being developed, varying levels of accuracy and turnaround time
- Delaying other hospital infection and mortality reviews
- Psychological stresses to staff from work, no family to visit patients, isolations from patient contact
- The indirect effect of the pandemic: financial impact on health care.

The "sunny side" is discussed as health care united against the singular enemy of COVID-19, lowered the walls of silos, and welcomed more collaboration:

- Shared commitment to respond
- Developing new solutions and rapidly learn from failures
- Workers at all levels adapted quickly, especially to cross-disciplinary teams
- Major changes in supply chain management, new advances in telemedicine, frequent collaborative talks with competitive hospitals
- More acceptance to accept changes to longtime clinical habits and routines; velocity of learning accelerated
- Organizing training for crisis leadership for frontline managers and leaders

- Infection control paramount. Supporting the safety and well-being of healthcare workers. The word of 2020 is “PPE”
- New communication styles with families, unable to visit family members
- New respect for less visible colleagues, e.g., environmental services, food service, laundry, facilities, security, patient transport
- Using psychological first aid to foster human resilience.

Nurturing a new normal:

- Will old habits be reactivated to compete with recent improvements?
- Take careful note of new practices that have worked, and which have not, nurture the fragile new processes
- Don Berwick said, “Fate will not create the new normal-choices will”
- Future surges: Can we come out of this better than we had before
- Another period of adapting is about to begin.

Summary of Current Evidence Based Interventions Related to the Treatment of Covid 19 Patients

Shannon Patel, DNP, APN-C, AGPCNP-BC, NEA-BC,CPHQ, CCRN-K

*Evidence provided from the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare

The Ohio State University

Evidence Based Staffing Recommendations

*Evidence provided from the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare The Ohio State University

Evidence-Based Staffing Strategies During Times of Crisis

At the time of the literature review (completed by the Helene Fuld Institute for EBP at Ohio State University) there were no evidence-based models staffing models recommended for use during times of pandemic. The following strategies have been recently associated with successful patient outcomes during the Covid 19 Pandemic:

- Implement a care team model*
- Expand clinical expertise
- Use of a tiered staffing strategies
- Limit routine services
- Curtail administrative and teaching responsibilities
- Cancel vacations and leaves as possible
- Reassign staff

Synthesis of Current Evidence R/T Critical Care Staffing During Times of Crisis, Disaster, and Pandemic

	1	2	3	4	5
	Society for Critical Care Medicine, 2020	Department of Defense, 2020	CHEST Consensus Statement Hick et al., 2014	CHEST Consensus Statement Einay et al., 2014	Sandrock, et al., 2010
Care team model	X	X	X	X	X
Expand clinician expertise (Expand the scope of practice pharmacist role, train non-ICU staff to provide ventilator care)	X	X	X		X
Tiered staffing strategy (see Figure 1)	X	X			
Limit routine services (elective surgery, clinic visits)			X	X	
Curtail administrative and teaching responsibilities			X		
Cancel staff vacation and leaves			X		
New divisions of labor (reassign staff) based on the skill sets needed rather than traditional roles or functions of providers	X		X		
Assess resource commitments based on Treater, Time, Treatment and Threat (see Table 2)		X	X		

Legend
X = Recommended Practice

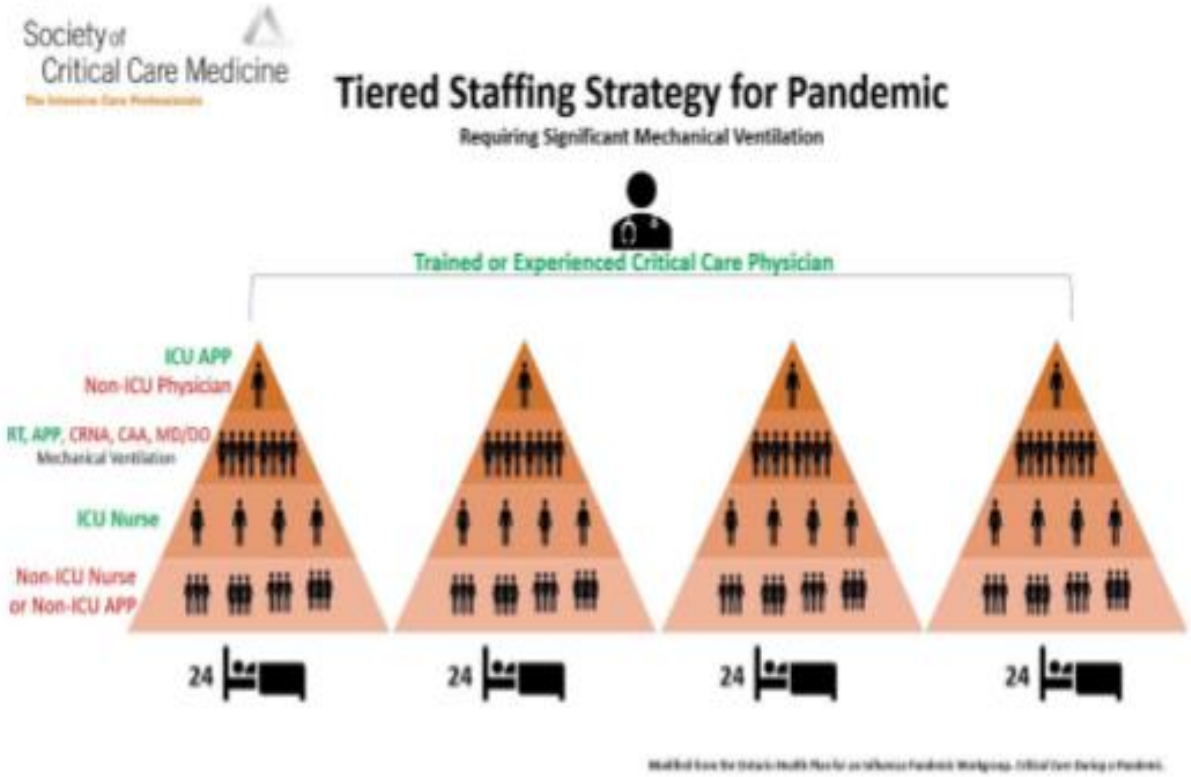
Evidence Based
Tiered Staffing Approach Tactics

Table 1: Key Components to Consider When Assessing Resource Commitments

Component	Details
Treater	The amount of staff expertise required to provide critical care
Time	The amount of staff time required to manage the patients
Treatment	The amount of resources required to manage the patients
Threat	Any risks to the provider or patient generated by the situation due to infrastructure damage, imminent dangers to providers and patients, or a high risk of disease transmission without appropriate personal protective equipment (PPE) available

Hicks et al., 2014

Figure 1:



Evidence Based Staff Support Measures

- Provide on-site respite for staff (Nutrition Support, Reflection, Sleep, Meditation, Exercise)
- Provide on-site housing accommodations
- Vary length of shifts (less than 12 hours is optimal when possible)
- Transport staff to and from hospital
- Remain open minded and accepting of all innovative approaches

Synthesis of Current evidence R/T the Provision of Staff Support During Times of Crisis, Disaster , and Pandemic

	1	2	3	4	5
	Society for Critical Care Medicine, 2020	Department of Defense, 2020	CHEST Consensus Statement Hick et al., 2014	CHEST Consensus Statement Einay et al., 2014	Sandrock, et al., 2010
Provide childcare support for staff	X	X		X	
Provide on-site respite (food, quiet spaces)				X	X
Provide on-site housing				X	X
Vary the length of shifts				X	X
Drive staff to and from the hospital				X	X

Legend

X = Recommended Practice

Innovative Solutions Implemented World-Wide During Recent Covid 19 Pandemic

- Utilize a nurse “runner” position that supports 2-3 nurses resulting in more efficient care, PPE conservation, improved safety, reduced staff distress, fatigue, and “burn out”
- “Clustering” or “clumping” of care
- Use of Video monitoring(i.e. AvaSure Tele-monitoring System) to reduce staff exposure and conserve PPE
- Utilize a “team approach” one nurse remains primarily in the room and one remains outside of the room

(Newby et al., 2020)

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Summary of Evidence Related to Early Proning

*Evidence provided from the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare The Ohio State University

Current Evidence Related to Proning and Early Proning in the Setting of Covid 19

Proning Defined as : placing a patient, esp. one with respiratory failure due to ARDS, face down in a prone position)

Early Proning Defined (also referred to as "self proning" or "awake proning" Defined as:

- non-mechanically ventilated patients
- patients able to participate in proning
- implemented as soon as a potential diagnosis is made

(Venes, D. & Tabers, C.W., 2017

Through this Early Identification Process, Juangsu Province in China Improved Patient Outcomes With Proactive Interventions (*Including Early Proning)*

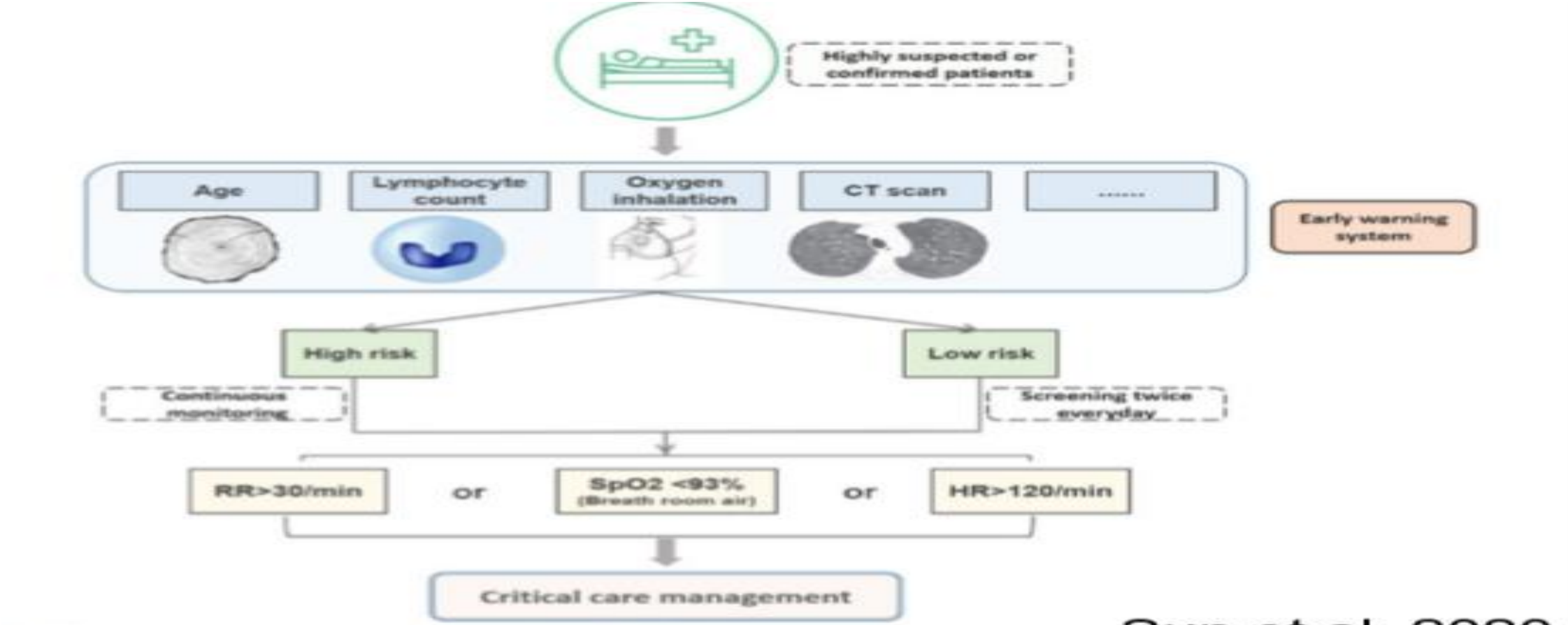

Fig. 1 Early warning system and screening procedures for NCP patients

Sun et al. 2020

Evidence-Based Covid 19 Management Guide Utilized Throughout the US (and the world)

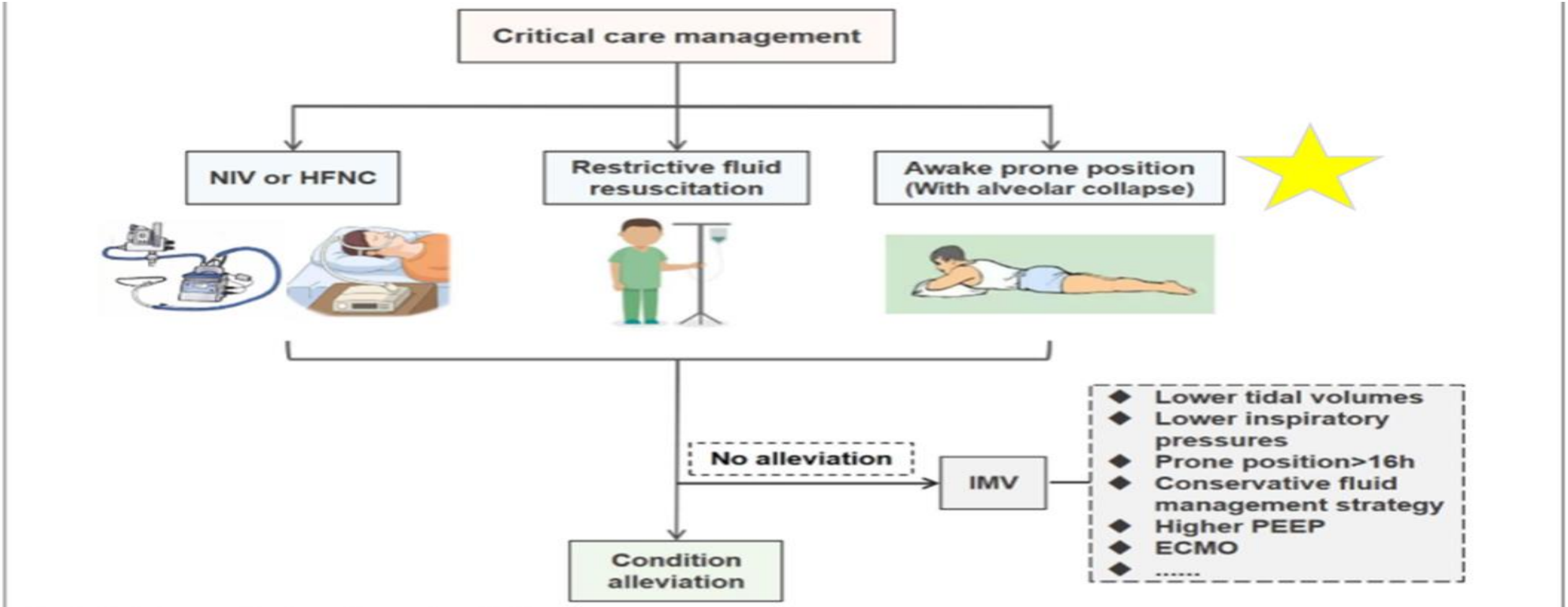

Fig. 2 Early intervention for patients with critical condition

Sun et al. 2020

Synthesis of Current Evidence R/T Early Proning

	Article 1: Marini, et al. 2016 (SR, n=6)	Article 2: Scaravilli et al 2015	Article 3: Valter et al, 2003	Article 4: Sun et al 2020	Article 5: Ding, L. 2020	Article 6: Weig et al	Article 12: DynamicHealth: non-critical pts. (2020)	Article 13: DynamicHealth : critical pts.(2020)	Article 14: Obaidan, A., et al 2018	Article 15: Gordon A. L., 2019
Respiratory rate >30/min			X	X						
Heart rate >120/min				X						
SpO2 <93 % on rm air				X						
FiO2 > or equal to 0.6			X						X	
Pao2/FiO2 <200 (moderate ARDS)	X								X	X
Pa02/FiO2 <300 mmHg (mild ARDS)		X				X				
Alveolar collapse				X						
ARDS requiring elevated plateau pressure (nonspecific)							X	X		

Outcomes Synthesis Table of Early Proning

Legend:

= COVID-19 article

= increase

= decrease

*green indicates good outcome

Evidence Based Indications for Early Proning

- Respiratory Rate >30/min
- Heart Rate >120/min
- SPO2 < 93% on room air
- FiO2 >or equal to 0.6
- PaO2/FiO2 < 300 mmHg (mild ARDS)
- PaO2/FiO2 < 200 mmHg (moderate ARDS)
- Alveolar collapse—seen on radiography

Relative Contraindications to Early Proning

- Abdominal Surgery
- Cardiac Surgery
- Active Internal Bleeding
- Neuro (stroke , bleed, aneurysm, etc.)
- Trauma
- Increased intraocular pressure or ocular surgery
- Drainage tubes (chest tubes with anterior leaks; thoracic or abdominal) • Tracheal surgery or sternotomy
- Asthma • High dependency on airway and vascular access
- Weight: >135 kg (298); < 40 kg (88 lbs.);
- Height >198 cm (6ft. 6in.)

Clinical Consideration Related to Early Proning Management

Patient positioning

- Alternating swimmers position q 2 hrs. (1 arm up; 2nd arm alongside body)
- Upper limbs alongside body
- Alternate position of head q 2 hrs. from facing right to facing left

Length of time proning

2-5 hours each session as tolerated

Frequency of proning;

average twice daily but as much as tolerated by patient

Patient monitoring

- Heart rate; blood pressure; respiratory rate & effort; capnography; pulse oximetry; oxygen setting; PaO2/FiO2; agitation, central venous pressure (CVP) (if applicable)

Resources

- PPE; foot board; pain meds; extra EKG leads; minimum of 2 staff members; suction; additional pillows, sheets, towels and/or blankets; foam/foam dressings; turning/support frame (i.e. Vollman Prone Positioner)

Evidence Related to Ventilator Sharing

*Evidence provided from the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare The Ohio State University

Mechanical Ventilator Sharing

*

According to synthesis of current evidence completed by the team at the Helene Fuld Trust National Trust for Evidence Based Practice: *No studies using one ventilator for multiple patients has been performed in humans, only in simulation and in studies with sheep (kept on a ventilator for less than 12 hours).*

The following are concerns with ventilator sharing:

- microbial cross contamination
- lung compliance
- distribution of PEEP & tidal volume
- Ventilator sharing is not supported or recommended according to current literature

(Neyman & Irvin, 2006; Paladino et al., 2008)

Mechanical Ventilator Sharing (2)

The SCCM, AARC, ASA, APSF, AACN, and CHEST* issued a consensus statement on March 26, 2020, on the concept of placing multiple patients on a single mechanical ventilator:

- The above-named organizations advise clinicians that sharing mechanical ventilators **should not** be attempted because it **cannot be done safely** with current equipment.
- The physiology of patients with COVID-19-onset acute respiratory distress syndrome (ARDS) is complex.
- Even in ideal circumstances, ventilating a single patient with ARDS and nonhomogeneous lung disease is difficult and is associated with a 40%-60% mortality rate.
- Retrieved from https://www.sccm.org/COVID19RapidResources/Resources/Consensus-Statement-on-Multiple-Patients-Per-Venti

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Current Evidence Related To Mask Effectiveness &Recommendations

*Evidence provided from the Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and Healthcare The Ohio State University

Summary of the evidence related to mask effectiveness in the setting of Covid 19

Based on the current evidence, the Fuld Institute for EBP recommends and supports the provision of personal protective equipment (PPE) for healthcare workers (HCWs) at all points of care and that HCWs use appropriate PPE consistently and correctly rather than homemade cloth face masks. HCWs should consider homemade cloth face masks only as a last resort.(03/31/2020)

- **Respirator:** (N95 masks) A tight-fitting, fit-tested, personal protective device that filters out at least 95% of particles (including bacteria and viruses) from the air to protect the wearer.
- **Surgical mask:** A loose-fitting, commercially made, disposable device that creates a physical barrier over the mouth and nose of the wearer to protect others from the wearer's respiratory emissions and to protect the wearer against large droplets or sprays.
- **Homemade cloth face mask:** A loose-fitting, homemade device that creates a physical barrier over the mouth and nose of the wearer to protect others from the wearer's respiratory emissions and to protect the wearer from inhaling particles in the environment.

How do N95 respirators, surgical masks, and homemade cloth face masks differ in terms of their protection against the transmission of respiratory particles?

- **An N95 respirator provides adults with 25x** the protection of surgical masks and **50x** the protection of homemade cloth face mask (van der Sande et al., 2008)

- **Surgical masks offer about 2x** the protection of homemade cloth face masks (van der Sande et al., 2008)

- **Homemade cloth face masks** provides the wearer with some protection from particles in the environment

Table 1. Synthesis Table: Level of Evidence Regarding Use of Homemade Cloth Masks in Healthcare Workers (HCWs)

	World Health Organization Health Organization, 2020) Control(World	CDC (U.S. enters for Diseass , 2020)	Mac-Intyre et al. (2015)	Jung et al. (2014)	van der Sande et al. (2008)	Chugtal, Seale, &	M(2013) re re Davies et al.	Offeddu et al. 7)	Patel et al. (2019)	Dato et al. (2006)	Yang et al. (2010)
Level I: Systematic review or meta-analysis											
Level II: Randomized controlled trial			X								
Level Ill: Controlled trial without randomization											
Level IV: Case-control or cohort study											
Level V: Systematic review of qualitative or descriptive studies						X		X			
Level VI: Qualitative or descriptive study, CPG, Lit Review, QI or **EBP**				X	X		X				X
Level VII: Expert opinion	X	X							X	X	

Table 2: Synthesis Table: Evidence Regarding Use of Homemade Cloth Masks in Healthcare Workers (HCWs)

	World Health Organization (World Health Organization, 2020)	CDC (U.S. enters for Control[s], 2020)	Mac-Intyre et al. (2015)	Jung et al. (2014)	van der Sande et al. (2008)	Chugtal, Seale, &	M(2013) re re Davies et al.	Offeddu et al. 7)	Patel et al. (2019)	Dato et al. (2006)	Yang et al. (2010)
No	X		X[b]	X[c]				X[d]			
Yes, during a crisis or pandemic situation		X[a]			X		X[a]		X[e]	X	
Possibly (evidence gap)						X					X

Legend

a = when nothing else is available; b= due to increase in infection; c= conducted under experimental conditions; d=cited MacIntyre et al. (2015); e= cited Davies et al. (2013)

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