TELE-CRITICAL CARE PROGRAM

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RIDGEVIEW

Allina Health

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OBJECTIVES

Upon completion of this lecture, participants should be able to:

1. Describe the Allina Health Tele-Critical Care Program model and the patient care services offered.
2. Explain how the Tele-Critical Care Program expands patient care capabilities beyond the organization's boundaries and broaden the accessibility of critical care services to external patients and entities.

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Tele-Critical Care (TCC) Background

2018 Tele-Critical Care Concept Development

- Discussed ways to support critical care amongst the system
- To assist patient care for metro transfer
- Phone service grew into limited video service

2019 External Interest

- Initial discussions evaluated financial implications, potential care models and other factors to develop a service for non-Allina sites
- Work was put on hold as focus shifted to within Allina to COVID 19 pandemic

2020-2021 Pandemic

- Critical Care Telemedicine Program was launched to provide virtual and phone support to care teams across Allina Health
- Provided triage and transfer decisions support, ensuring the most appropriate patients were matched to available resources in the health system and across the state
- Safely increasing retention of critically ill patients at regional sites and resulting in increased capacity at metro facilities to care for higher acuity patients
- Designed to optimize bed and resource use across the Allina Health (STATE C5) system.

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Tele-Critical Care Aim

Allina Health Tele-Critical Care Aim:

- **"WHOLE HOUSE COVERAGE"**
  - Provide 24/7/365 support for management of critically ill patients (ED, Med/Surg, ICU).
  - Doc to Doc
- Increase collaboration on care of critically ill patients across health systems and providers
  - Neuro, Cardiology
- Care delivered is collaborative not in isolation

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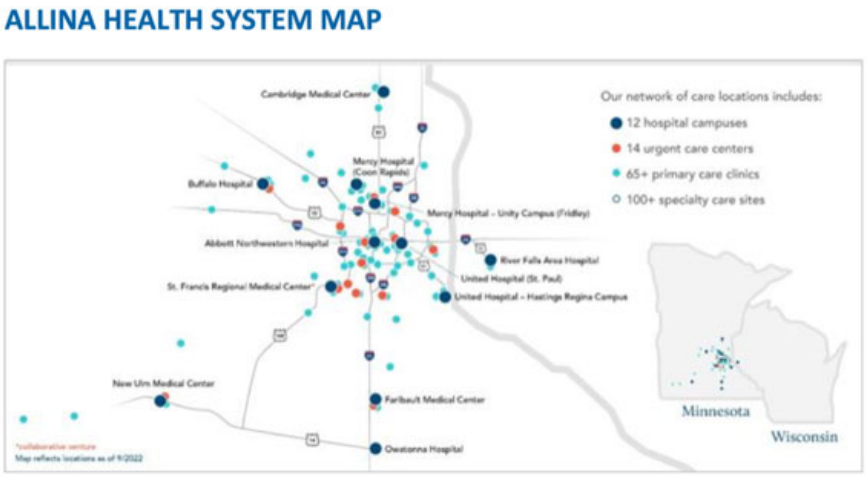
2022 Tele-Critical Care

Following the patient influxes, regional hospitals requested continuation of the TCC service within the Allina system



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Tele-Critical Care Goals

Support Triage and Transfer Decisions

Optimize patient pre-transfer, transfer

Right patient, right care, right place

Growth System Programs

TNK patients staying at regional sites

Code Blue involvement

PE ½ dose TPA

Expand critical care reach outside system

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Tele-Critical Care Services Provided

Responsive Care:
- Full consultation
- Curbside
- Triage
- Logistical support
- End of life discussions

Scheduled Care:
- PRN Rounding/MDRs
- Family conferences
- Other services as requested

Continuous Care:
- 24/7 staff collaboration
- Chart review
- Support if transfer delay

Responsive Care used for:
- New patients
- Questions on care plan
- Transfer decisions
- Second opinions

Scheduled Care used for:
- Complex patients that need daily collaboration
- Family conferences
- Care team meetings

Continuous Care used for:
- Boarding patients in non-critical care areas
- Provider shortage
- Transfer delay

Here for you to collaborate on care how & when you need it!

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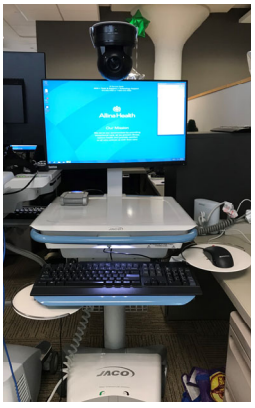
Allina Technology & Support

Telehealth Equipment and Software

- Allina telehealth carts will be used for the tele-critical care service. The carts will include:
  - An Allina CPU, keyboard and mouse
  - Pan/tilt/zoom camera with far-end camera control plus a remote to control the camera locally, if needed
  - VidyoConnect software
  - Can interchange use between Allina tele-health programs (i.e. tele-neurology/stroke, tele-critical care)



Support

- 24 x 7 x 365 on-call remote support
- Support is requested via a call to the Allina Service Desk, 612-262-1900

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Our Intensivist Group

- Diverse Training Backgrounds
  - 6 EM - CCM
  - 3 Anesthesia - CCM
  - 2 Pulmonary / Critical Care
  - 12 CCM
- 15 Dual-boarded in Neurocritical Care

*This image includes 5 APP's that are a part of our team, but currently not a part of the TCC service.

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Our Experience

3 Intensive Care Units
- 30 bed Med-Surg ICU
- 12 bed Neuro ICU
- 32 bed Cardiovascular ICU

Neurocritical Care
Cardiovascular Critical Care
Obstetrical Critical Care
Pulmonary Embolus Response Team
VV and VA ECMO

- High Volume, High Acuity Practice
- 4200-5200 annual ICU patients
- ~19,000 patient ICU days per year

Watson Health 15 Top Health Systems 2021

WORLD'S BEST HOSPITALS 2022 Newsweek statista

MAGNET RECOGNIZED

NATIONALLY RANKED in 2 Adult Specialties
REGIONALLY RANKED #2 in Minnesota #1 in Minneapolis-St. Paul
HIGH PERFORMING in 6 Adult Specialties in 14 Procedures/Conditions

LEAPFROG HOSPITAL SAFETY GRADE A FALL 2021

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Cases Allowed the Confidence to Grow the Program

Case 1 -

47 year old male with limited medical history presented to regional hospital with 6 days progressive SOB and new onset fever and headache.

CT chest showing bilateral dense ground glass opacities; patient admitted to medical floor. Tele-Intensivist consults on day 3 of hospitalization for rapid escalation in oxygen requirements. Patient placed on BiPAP with 100% FIO2

Tele-intensivist video into site given peri-intubaiton hypoxia. Patient intubated by CRNA and placed on ventilator

Regional pharmacy to prepare mixing IV sedation medications, paralytic and vasopressor medication given the expected post intubation hypoxia and hypotension. Tension PNX noted

Pt remain at OSH for ongoing daily support rounds. Extubated day 10

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Cases Allowed the Confidence to Grow the Program

Case 2 -

52 yr old male presents to regional ED with SOB, lower extremity edema and dizziness

Lactate elevated to 4.8 and patient remained hypotensive thus required norepinephrine infusion

Consulted to assist with management in regional ED. Trop mild elevated 1.2, with EKG not suggestive of acute ischemic changes. Bedside cardiac US with ED physician and we both agreed that images showed severe mitral regurgitation leading to pulmonary edema and cardiogenic shock; started dobutamine

Pt stayed at OSH for >18hrs and optimized for definitive care upon arrival ANW

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Cases Allowed the Confidence to Grow the Program

Case 3 & 4 – My two favs

Called NP at Melrose hospital in central MN. They had 19yr old male with peritonsillar abscess. CT scan showed airway only 5mm wide at this point and they wanted to rapid transfer to ICU for definitive airway management.

33yr old male called by NP in Cloquet MN for post intubation severe hypoxia refractory to all ventilator maneuvers. Patient emergently airlifted to ANW and placed on VV ECMO. Patient was extubated the next day and walking the hallways while on VV ECMO (lung bypass).

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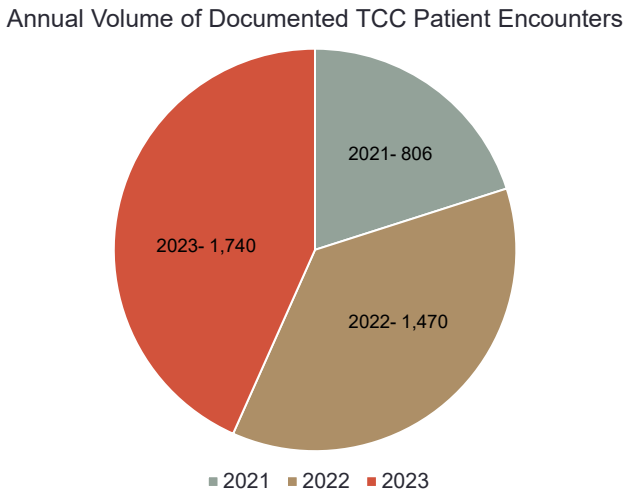
Tele-Critical Care Volumes



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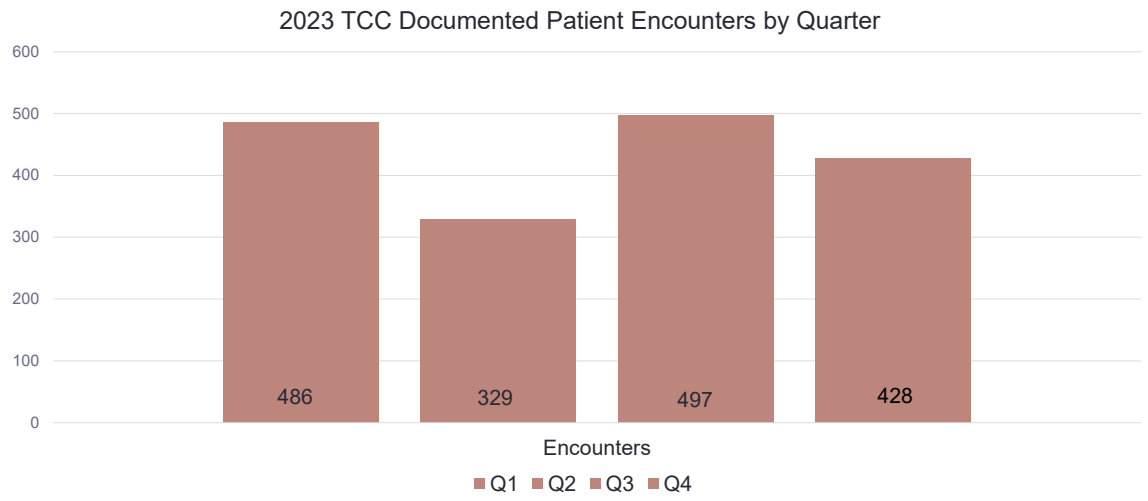
Tele-Critical Care Volumes



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Ridgeview Health System

- 4 hospital campuses
  - Waconia
  - Chaska- Two Twelve Medical Center
  - Le Sueur
  - Arlington
- 14 clinics
- 750+ physicians/APP
- 2,400+ employees
- Service area touches 7 counties, over 1,100 square miles and over 300,000 people

Mission: Ridgeview exists to enhance the lifelong health of the people it serves with a culture that nurtures the whole person- mind, body and spirit.

Vision: Ridgeview will be a regional, integrated health system recognized for its quality and exceptional, seamless experience.

Healthgrades 2024 Outstanding Patient Experience Award™ Recipient- top 5% in nation

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Ridgeview Health System- Acute Care

Waconia Campus

- 22,000 ED visits
- 1,500 births (12% increase)
- 109 inpatient beds
  - 10 ICU
  - 10 bed level III NICU; 30 weeks gestation
- 6 ORs
- Cath Lab
- Interventional Radiology
- 24/7 Hospitalist service
- Specialty services- cardiology, pulmonary, nephrology, ID, tele-stroke/neurology, GI, palliative, general surgery, orthopedics

Two Twelve Medical Center

- 23,000 ED visits
- Orthopedic Institute
  - 6 ORs
  - 20 inpatient beds

Le Sueur Campus

- 1,600 ED visits
- Inpatient & swing beds

Arlington Campus

- 2,400 ED visits
- Inpatient & swing beds

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Our Acuity Journey

Drivers For Change

Community demands

Organizational strategic goal to increase acuity and keep patients closer to home

Where We Were

High transfer rate of CC patients

2019 met with ANW to explore CC support

Pandemic put work on hold

Pandemic tested the system & demonstrated capabilities

Where We Need To Go

Capitalize on the momentum from the pandemic

Add critical care support through tele-health

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Tele-Critical Care Services

2021 expanded Allina Health and Ridgeview partnerships by adding Allina Tele-Critical Care Services

Goal to improve patient outcomes through:

- collaboration on critical care patients and timely response,
- reduction of critical care transfers,
- support for consistent, evidence-based care and treatment approaches, and
- enhancement of the critical care skillset for Ridgeview care teams

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Tele-Critical Care Services at Ridgeview

Service/When:

- Intensivist provide 24/7/365 consultative supportive services to hospitalist, ED providers, and care teams

Who:

- Allina Intensivists from Abbott Northwestern Hospital

Scope:

- Waconia hospital- ED, CICU, inpatient areas
- EDs- Chaska, Arlington, Le Sueur
- CAHs- EDs and inpatients

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Program Development

- **EHR build & updates**
- **Data tracking & goal setting**
- **Revenue cycle & billing**
- **Credentialing / Privileging**
- **Developed guidelines & workflows**
  - Each hospital, ED and inpatient (ICU)
    - How/when to use TCC service
    - Providers & nursing responsibilities
  - EHR order entry responsibilities
  - Daily ICU rounds with interdisciplinary team
  - Transfer to Allina hospital- use of Allina Access Center
- **Education & communication plans**
- **Plan mock simulations**

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Tele-Critical Care Service Guidelines

Goal: provide 24/7/365 consultative supportive services

- assist hospitalists, ED provider and care teams in consistent best practices in the management of critically ill patients and to provide consultation for triage and transfer decisions

This is not an eICU or teleICU service (which would include comprehensive or continuous ICU patient care and monitoring)

INCLUDES
- Curbside consultation
- Acute patient change/decompensation
- Triage/transfer decision support & delayed transfer support
- ICU rounds and family conferences
- Provider initiated, unless critical RT or RN can contact

EXCLUDES
- Consultation services with established pathways/processes:
  - Stroke- Tele-Neurology/Stroke
  - Cardiology
  - Trauma Team Activation

**UNLESS establish pathway is unavailable

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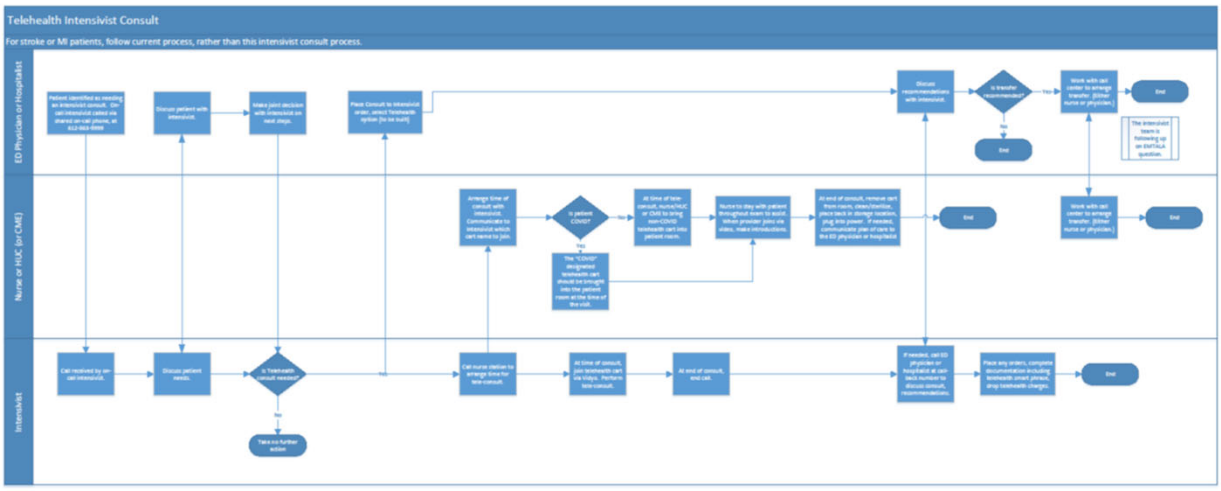
Workflows



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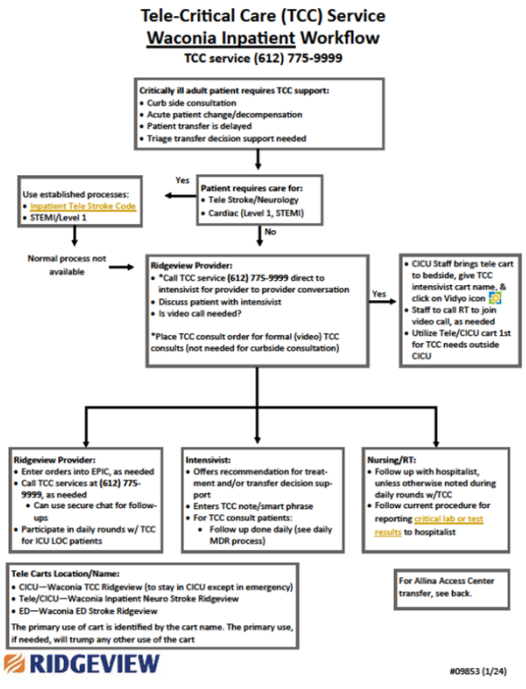
Algorithms



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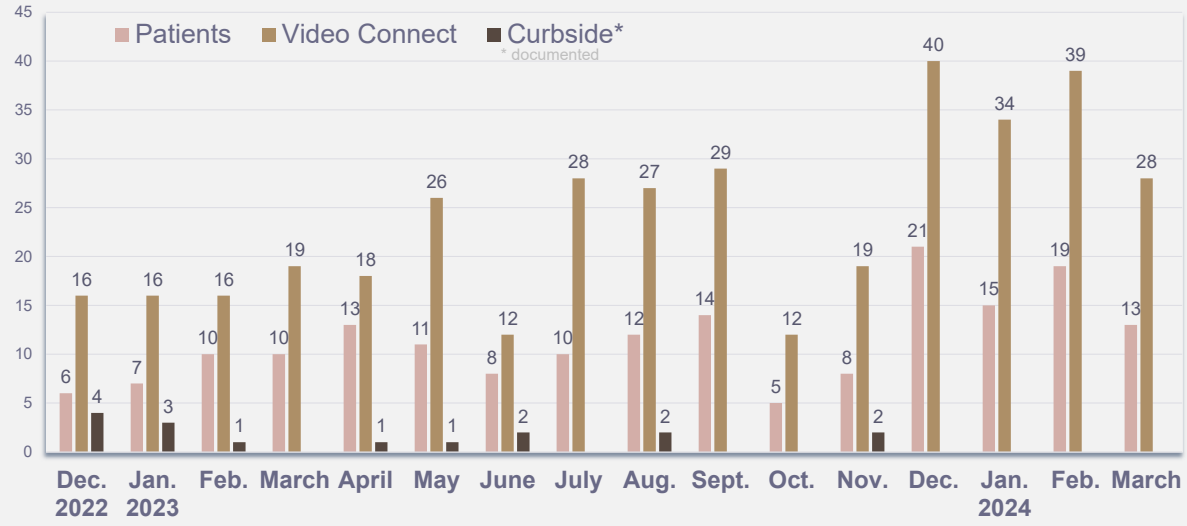
TCC Services Utilization 2022 - 2024



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TCC Services Program and Critical Care QI Work

Patient Care Expansion/Improvements:

- Acute renal failure
- Submassive PE- including s/p tPA administration
- Hypertriglyceridemia-induced acute pancreatitis
- ETOH withdrawal
- Severe DKA
- Sedation/analgesia/NMBA management in vented patients

Provider 3-way call transfer/admission decision support

RN call to Allina Access Center for TCC patient transfer

Measured SaO2% lab interpretation

Vented patient direct from OR to ICU

Critical transport paramedic huddle

EPIC & performance analytics adult ICU dashboard

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Future Growth

- Ischemic stroke s/p fibrinolytics
- Right heart failure patient with PA catheters
- Peripheral vascular-ischemic limb
- Respiratory failure requiring mechanical ventilation
- Complex/higher risk surgeries

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Case Review

Pulmonary Embolism

- 74f presents to ED worsening dyspnea last few weeks & LE edema
- CT chest- large acute embolus distal end R PA w/ extension to all 3 lobar arteries; small embolus distal L PA w/ extension to lobar arteries; RV strain
- Echo showed RV strain & troponins elevated
- TCC consulted in ED- sPESI score 8.9% (high risk), recommended half-dose tPA
- tPA given in ED, heparin restarted
- ICU LOC 20 hours
- Transitioned off heparin to Xarelto HOD 4
- Discharged HOD 5

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Case Review

Septic Shock
Bronchospasm
Post Extubation

- 55m presents to ED w/ abd. pain; CT shows perf. sigmoid colon diverticulitis
- To ICU postop, vented, septic shock
- HOD 1-4 vented, weaning off pressors, transitioned to Precedex, diuresis
- HOD 5 TCC consulted
  - Sedation reduction in am in prep for TCC video connect
  - Extubation with TCC present via video
  - Acute severe bronchospasm post extubation
    - Nebs, steroids, ativan, vapotherm
- Patient responded to therapies, stabilized, and tx out of ICU later in day

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Case Review

COPD Exacerbation; Hypoxic and Hypercapnic Respiratory Failure

- 58m presents to ED w/ SOB; +influenza A
  - Severe COPD oxygen dependent
- Treated with steroids, BiPAP, abx
- Developed severe respiratory fatigue requiring intubation (patient okay with short ventilator course)
- TCC consulted to support ongoing management
- HOD 1-4 periods of ventilator dyssynchrony & associated auto-PEEP
  - TCC assisted RT & nursing with ventilator adjustments and intermittent/continuous paralyzation
- HOD 5 family moved to comfort measures

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Case Review

Asthma Exacerbation; Hypoxic and Hypercapnic Respiratory Failure

- 38f presents to ED with SOB x 1week, upper respiratory track symptoms
  - Hx asthma, many asthma exacerbations (last 3 months prior)
- Boarded in ED 23hrs prior to admission
  - Steroids, nebs, O2, magnesium, nebs, terbutaline
- HOD 1 not improving despite continuous nebs, CO2 increasing, acidotic
- Tx to ICU, attempted BiPAP, intubated
- TCC consulted, present on video prior, during and after intubation
  - Very difficult to ventilate despite heavy sedation/paralytics, TCC assisted RT with ventilator adjustments
  - ABG not improving 1.5hrs post intubation
  - Only moderate ABG improvement 4hrs post intubation
- Tx to ANW (potential VV ECMO candidate)

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Case Review

Histoplasmosis; Hypoxic Respiratory Failure

- 63m presents to ED with 6 wks worsening SOB, weight loss, night sweats
  - Immunocompromised due to Crohns treatement (Remicade)
- DDx- histoplasmosis, TB, atypical mycobacteria, pneumocystis, pneumonitis
- ID, pulmonary, surgical consults
- HOD 3 bronched
- HOD 4 histoplasma urine Ag positive, amphotericin started
- HOD 6 worsening hypoxia, febrile, tachy- septic
- TCC consulted, recommended intubation & transfer to HLOC
  - TCC supported post-intubation hypotension, hypoxia, paralysis, ventilation
  - Tx out 2.5hours post intubation
  - ARDS treatment at ANW

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Ridgeview Testimonials

Nursing

- "The addition of TCC services to Ridgeview has been instrumental in not only providing patients with the best possible care, but also, allowing them to receive it close to home, within their community hospital. This joint service has given Ridgeview the opportunity and the means to keep higher acuity, more critical care patients. As an ICU nurse at Ridgeview, I have utilized the TCC services often and have always had a great experience with the doctors, as well as their interaction and high-quality care for the patients." **Patsy Doering, BSN, RN, PHN**

RT

- "The TCC service has been a great resource in providing specialized care as the acuity of our patients has increased. As an RT it is reassuring to be able to discuss ventilation/oxygenation strategies on complex patients and be confident that we are providing our patients with the best practice in respiratory care. It has been so encouraging to see patients' admission to discharge with successful outcomes due to the collaboration with TCC. To witness TCC being brought in to a patients care team and bringing a new perspective to his/her case and the patient being discharged with positive outcome has been incredible." **Lori Jorgenson, BS, RRT, CTTS**

Hospitalist

- "The TCC service has been an invaluable resource for me as a hospitalist. The ability to have an intensivist readily available to see a patient, place orders, follow up on results and assist in care coordination helps me as a provider feel confident in my ability to care for critical ill patients at Ridgeview." **Dr. Ben Krehbiel**
- "With the TCC service, we are able to keep and care for more complex/ill patients and also properly provide the higher level of care when and if needed and in a timely manner." **Dr. Marty Dvorak**

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