Hospital at Home for COVID-19: What We've Learned and What We're Learning

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Webinar
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- Hospital at Home for Cancer Care: Current Innovations, Opportunities, and Challenges
- Building Your Dream Team: Strategies for Staffing Your Hospital at Home Program

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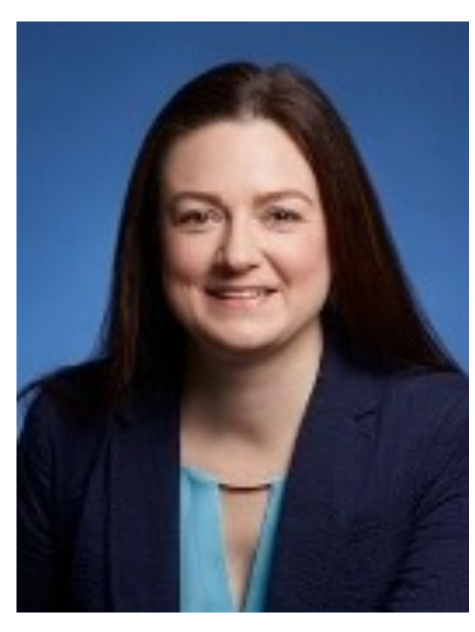


Linda V. DeCherrie, MD
Vice President, Clinical Strategy and Implementation
Medically Home

Bill to Extend the CMS Acute Hospital Care at Home Waiver for 2 Years Post-PHE

- Bill Title: **Hospital Inpatient Services Modernization Act**
- Introduced in House & Senate March 10, 2022
- Senate Bill's Sponsors are Senator Tom Carper (D-DE) and Senator Tim Scott (R-SC)
- House Bill Introduced by Rep. Blumenauer (D-OR) and Rep. Wenstrup (R-OH)

Today’s Webinar

Hospital at Home for COVID-19

What We've Learned and What We're Learning

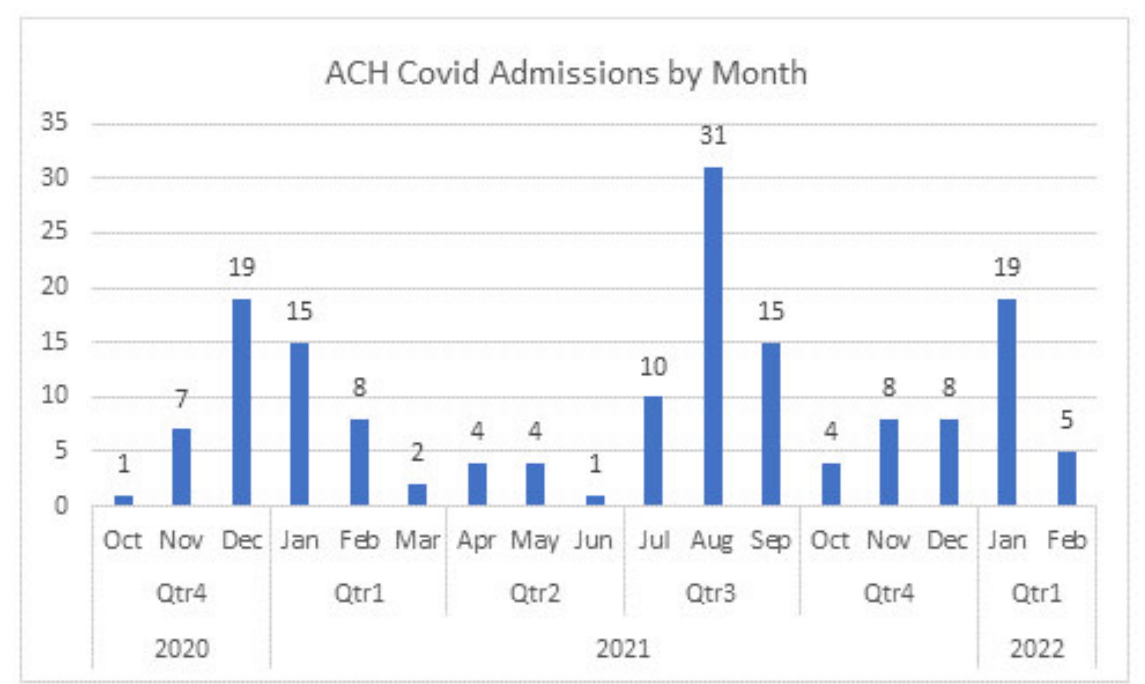
Constantinos Michaelidis, MD, MBA, MS
Medical Director, Hospital at Home
UMass Memorial Health

Michael J. Maniaci, MD
Enterprise Physician Lead, Advanced Care at Home
Medical Director, Mayo Clinic Hospital in Florida

Mayo Clinic COVID-19 Virtual Care Snapshot

- Remote Patient Monitoring Experience – 14,177 patients monitored with ADC of 650 and peak of 900
- Advanced Care at Home
  - 161 home hospital patients (inpatient)
  - Began patient recruitment in October 2020 in NWWI and FLA
  - Expanded to AZ in September 2021
- 9/161 (5.6%) escalations

Data Element	All Sites
N	161 (FL=89, NWWI=61, AZ=11)
Sex	55.9% Male (90)
Race	African American – 1.86% (3) Asian Filipino – 3.11% (5) Black or African American – 5.59% (9) Choose Not to Disclose – 0.62% (1) Other – 1.24% (2) White – 87.58% (141)
Ethnicity	Choose Not to Disclose – 1.86% (3) Hispanic or Latino – 2.48% (4) Not Hispanic or Latino – 95.03% (153) Unknown – 0.62% (1)
Insurance	Commercial – 37.88% (61) Medicare/Government – 61.49% (99) Self-pay – 0.62% (1)



UMMH HAH – The COVID Experience

UMMH HAH – The COVID Experience

About UMass Memorial Health

- Primary safety-net tertiary care center in central Massachusetts
- Provide >70% of the acute inpatient care for patients with Medicaid in the region
- Opened/Operated DCU COVID Field Hospital for the State of Massachusetts in 2020
- Launched Hospital at Home program August 3, 2021
- Focus on high-acuity inpatient level care (not currently doing lower acuity ambulatory monitoring)
- UMMH providers are centralized/virtual only, UMMH in-home caregivers are nurses and paramedics

About UMass Memorial Health Hospital at Home Program

- Admitted n=230 patients in seven months (n=65 with severe COVID pneumonia as primary admitting dx)
- Our UMMH HAH COVID experience
    - Mean age 63, 52% female, 31% non-English speaking, 28% HL, 6% BAA
    - Payers: 32% Medicaid, 22% traditional Medicare, 18% Medicare Advantage, 15% duals
    - N=65 admissions with severe COVID-19 pneumonia as primary admitting diagnosis
    - N=6 admissions with severe COVID-19 pneumonia experiencing care escalation (n=3 to floor, n=3 to ED)
        - N=2 for worsening respiratory failure
        - N=4 for other non-respiratory indications
    - N=1 admission with COVID-19 as primary dx with care escalation and ICU <24 hrs of transfer

UMMH HAH – The COVID Experience

NEJM RCT of Remdesivir (Beigel et al)

NEJM RCT of Decadron (Recovery)

UMMH HAH First Admit (Aug 3)

UMMH HAH First Admit With Severe COVID (Aug 5)

Level of Care
Acute
DCU
ICU
OR
Other

Number of Patients

240
220
200
180
160
140
120
100
80
60
40
20
0

Mar 1, 20 | May 1, 20 | Jul 1, 20 | Sep 1, 20 | Nov 1, 20 | Jan 1, 21 | Mar 1, 21 | May 1, 21 | Jul 1, 21 | Sep 1, 21 | Nov 1, 21 | Jan 1, 22 | Mar 1, 22

Q1

What are your detailed inclusion vs exclusion criteria for COVID patients?

UMMH HAH – Inclusion/Exclusion Criteria

UMMH HAH High-Level Thoughts

- We are moving away from condition-specific criteria to service-specific criteria ("can we provide the standard of care for this patient and maintain isolation precautions")

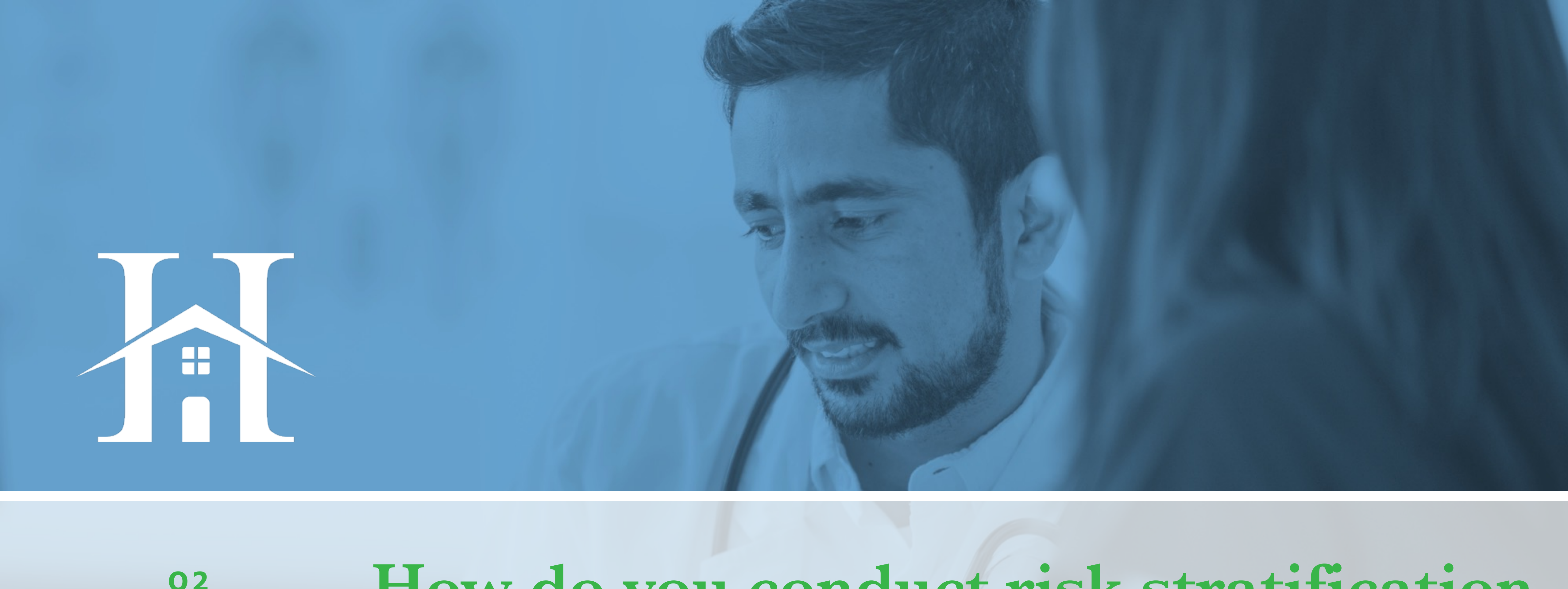
UMMH HAH Inclusion/Exclusion Criteria

- Non-Clinical Criteria: patient age ≥18, in UMMH ED/wards, meet IP criteria, home in service area
- Clinical Criteria
  - Low probability of ICU-level care (i.e. not intubated, off BIPAP >6 hrs, RR<30, sp02≥92% on ≤4LNC, not rapidly escalating oxygen requirement in last 6 hrs, not acidotic/hyper-carbic, account for certain modifiers including vaccination status)
  - Low probability of urgent advanced diagnostic (i.e. no CT-PE pending)
  - Low probability of urgent advanced therapeutic (i.e. does not require hemodialysis)
- Home Criteria
  - Have home recovery environment with electricity and climate control
  - Meets usual home safety criteria
  - Can safety plan with patient and family around isolation precautions

Mayo HaH Inclusion Criteria

MAYO CLINIC

- RR<26
- HR<110
- SpO2>94% on ≤ 4LPM NC oxygen
- Elevated inflammatory markers within the following range:
  - D-dimer <3000 or down trending
  - CRP <10x ULN or down trending
  - Ferritin <1000 or down trending
- Not experiencing sustained dyspnea or respiratory distress not responsive to supplemental 02
- Social stability requirements:
  - Ability to perform ADLs alone or full time caregiver
  - Ability to perform vital sign measurements alone or full time caregiver
  - Usual ACH social stability criteria are met
  - Appropriate payer (1-2 qualifying midnights based on payer and confirmation that plan will cover remdesivir in ACH care setting)



Q2

How do you conduct risk stratification among COVID patients?

Mayo Clinic Risk Stratification

- Comorbid Disease States:
  - Chronic Pulmonary Disease
  - Hypertension
  - Cardiovascular disease
  - Diabetes mellitus
  - Chronic kidney disease
- Obesity BMI>304
- Age>55
- History of transplant, Immunosuppressive medications, or immunosuppressive disease (i.e. Active HIV (viremia, CD4<200)
- Inflammatory Markers (D-dimer>1000, LDH>240, Ferritin>300, Troponin elevation, CRP>100, CPK>300)
- Social Screening Factors:

  Are other individuals in the home? Are they quarantining or COVID+?

  During home visits, patient must wear a mask. Family members must be 6 feet apart from the staff, wear a mask or preferably be in another room. Is that okay with you and your family?

  Clinical teams will need to don and doff with PPE when doing a home visit. Is it okay with you that we dispose of this material in your garbage outside?

UMMH HAH – Risk Stratification

Then

No disease understanding

No risk factor understanding

None vaccinated

No known mortality modifying therapies

=

Clinical judgment limited

Now

More disease understanding

More risk factor understanding

Many vaccinated

Known mortality modifying therapies

=

Clinical judgment valuable

Q3

How do you maintain appropriate COVID precautions and inform/work with vendors in the context of COVID patients?

UMMH HAH – COVID Precautions

UMMH HAH Relevant Program Context

- We have in-sourced majority of our care team (physicians, nurses, paramedics)
- Our clinicians join MDRs and are all operating in the same EMR (our mobile imaging partner is external)

UMMH HAH Approach to Maintaining COVID Safety

- For our caregivers
  - We follow our system-level vaccination mandate for our caregivers
  - We follow our system-level COVID-surveillance policy (all admitted patients are screened in ED)
  - We follow our system-level isolation precautions for patients who are COVID+
  - We follow our system-level PPE (N95/gown/gloves/eyewear) and don/doff outside the home
  - We work to minimize in-home time (leverage video/phone to do complex histories in advance)
- For outsourced caregivers, they receive communication at time of referral regarding COVID precaution
- For family members, we screen for high-risk conditions, align on an isolation plan for patient and at times will decline patients if unable to safety plan for patient and family

Mayo Clinic COVID Precautions

- Staff in home will wear modified droplet PPE: N95, gown, gloves, face shield.
- Most patients will be encouraged to utilize incentive spirometry and/or flutter valve for pulmonary toilet, both of which are medium aerosol-generating procedures and necessitate N95 use rather than surgical mask and face shield.
- Facilities will have their own rules (COVID testing of staff, later on → vaccine status)

Q4

How do you monitor acutely ill COVID patients? Which protocols do you use?

Mayo Clinic Monitoring of Patients

- Standard ACH Hospital Care
- No Continuous Telemetry
- No Continuous Pulse Oximetry
- Standard inpatient COVID-19 laboratory monitoring
- Daily APP visits (1-3)
- Daily RN visits x 2
- Paramedic visits PRN
- RT visits PRN

UMMH HAH – Monitoring in Severe COVID

Hospital at Home
UMass Memorial Health
UMASS MEMORIAL MEDICAL CENTER

What is The Same About Monitoring of Patients with Severe COVID Versus Other Diagnoses?

- Still need to build a culture of holistic risk balancing in your clinical teams
- Still need to balance sensitivity/specificity of your monitoring approach with level of acuity
- Still need to maintain therapeutic alliance with patients
- Still need to train towards "escalating 5% too early better than 5% too late"

What is Different About Monitoring of Patients with Severe COVID Versus Other Diagnoses?

- History
  - More effort to use virtual visits to reduce low-value in-home caregiver time where appropriate
  - More effort to use virtual visits for complex goals of care discussions (easier to hear w/o mask!)
  - More value in video translation services via single audiovisual technology platform
- Exam
  - More value in continuous pulse oximetry approach for the highest acuity patients

Q5

How do you manage advanced COVID-19 therapies ie. remdesivir?

UMMH HAH – Managing Severe COVID

What is the Same About Management of Patients with Severe COVID in HAH Versus Brick/Mortar?

- Supplemental oxygen (we bring 10LNC concentrator for patients on ≥4LNC, back-up 02 for all)
- Prophylactic lovenox for nearly all
- Dexamethasone for nearly all
- Remdesivir for nearly all (exclusions for ALT/AST elevations, advanced renal disease)
- Continue advanced therapies (baricitinib, etc.) for patients coming out of the ICUs to hospital at home
- We have – under exceptional circumstances – rarely given monoclonal antibodies in the home

What is Different About Management of Patients with Severe COVID in HAH Versus Brick/Mortar?

- Very little!
- Bias towards escalating slightly early before ICU required

UMMH HAH – Why We Are Here Today

To the Staff at Hospital at Home:

I don't know if you know it or not, but my love, [redacted] went to be home with the Lord, last night (10/6) in the Three Lakeside ICU unit. Although this was certainly not the outcome we had hoped for, God's timing was everywhere in it, and my daughter and I even got to spend a little while with her before her machines were turned off, and we were blessed to hold her hand and talk to her as she drifted off into eternity.

I am writing to thank you all for the medical treatment you gave [redacted], at home, for almost a week before it became necessary to put her back into the hospital. If it hadn't been for your program, we would have missed out on those six days with her, and she would have been alone for that much longer.

I know she expressed, to some of you, the happiness that being home gave her, and her joy at being in your program. I am confident that, if the program hadn't existed, she would have been admitted directly into the hospital, and things would have progressed just as they did. You gave us time with my Love, and so, I thank you, from the bottom of my heart!

I miss her so much, and last night was probably one of the hardest things I have ever done. Please, keep up your good work, to keep people home with their loved ones! Please know that you are appreciated for going in where others fear to tread, risking your health to help others, and giving superior care to someone who just needs to Hospital at Home

I wish our story had ended differently, but your part in it will never be forgotten. [redacted] is now at home with Jesus, and not only is she not in pain, anymore, but she can see!

Thank you!

In His Service,

Mayo Clinic Advanced Therapies

- Used our own pharmacy to set up Remdesivir in the home
- Streamlined advanced imaging at home or return to B&M
- Partnered with outpatient infusion clinic to complete treatments and address family members
- Partnered with the COVID virtual clinic / RPM for monitoring and follow up

Discussion

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For More Information

- Hospital at Home Users Group
  https://hahusersgroup.org/

- Hospital at Home Users Group Technical Assistance Center
  https://www.hahusersgroup.org/technical-assistance-center/

  - Featured Resource – Annotated CMS Waiver
    https://www.hahusersgroup.org/technical-assistance-center/cms-waiver-requirements/options-for-addressing-the-2020-cms-waiver-requirements/

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