So You’ve Been Asked to See a Recovering COVID Patient in Clinic: What Do You Do?

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Survival is not the end-point for patients and families
Post-Intensive Care Syndrome (PICS)

Mental Health
- Depression
- Anxiety
- PTSD

Cognitive Impairments
- Executive Function
- Mental Processing Speed
- Visuo-spatial
- Memory
- Attention

Stressed Families
- Depression
- Anxiety
- PTSD

Physical Impairments
- Muscle Weakness and Loss
- Neuropathies
- Pulmonary Function

High Burden of Chronic Health Conditions

Adapted with permission from Hallie Prescott
How is recovery different in COVID-19?

Now add:

- Increased sedation
- Increased use of benzodiazepines
- Increased time on vent
- Decreased mobility
- Decreased family visitation
- Stretched resources and staff

Kamdar et al AJCC 2017
Physical sequelae
Alopecia

Onychomadesis

Battle et al J Crit Care 2018
## Shoulder Impairment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Shoulder Impairment, n (%)</th>
<th>Pain</th>
<th>Decreased Range of Movement</th>
<th>Abnormal Constant-Murley Score (Shoulder Impairment Assessment Score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient (n = 25)</td>
<td>19 (76)</td>
<td>4 (21)</td>
<td>19 (100)</td>
<td>Not assessed</td>
</tr>
<tr>
<td>3 mo (n = 62)</td>
<td>45 (73)</td>
<td>11 (24)</td>
<td>45 (100)</td>
<td>41 (91)</td>
</tr>
<tr>
<td>6 mo (n = 61)</td>
<td>41 (67)</td>
<td>21 (51)</td>
<td>39 (95)</td>
<td>37 (40)</td>
</tr>
</tbody>
</table>

Gustafson et al Crit Care Med 2018

Vanderbilt University Medical Center
Global Cognition Scores in Survivors

MoCA

https://www.mocatest.org/remote-moca-testing/

Pandharipande et al NEJM 2013
Delirium is the strongest independent predictor of cognitive impairment

P=0.004 for 0 vs. 5 days of delirium

N=382

RBANS Global Cognitive Score

Days of ICU Delirium

Pandharipande et al. NEJM 2013
PTSD after critical illness

- Meta-analysis:
  - PTSD symptoms in 1/5
  - More likely in those with:
    - comorbid psychopathology
    - benzodiazepines
    - early memories of frightening ICU experiences

Parker et al CCM 2015
Art by Nancy Andrews
One-Year Trajectories of Care and Resource Utilization for Recipients of Prolonged Mechanical Ventilation

Initial hospitalization (n = 126)
- Residing at 1 year: 1
- Transition to inpatient hospice: 3*
- Died: 23

99 patients

3 patients
- Alive at 1 y: 3
- Died: 0

Other hospital (n = 3)
- Total patients: 3
- Residing at 1 y: 0
- Died: 0

36 patients
- Alive at 1 y: 19
- Died: 6*

Long-term acute-care facility (n = 43)
- Total patients: 38
- Residing at 1 y: 0
- Died: 6*

17 patients
- Alive at 1 y: 13
- Died: 6*

Skilled nursing facility (n = 63)
- Total patients: 36
- Residing at 1 y: 10
- Died: 6*

23 patients
- Alive at 1 y: 22
- Died: 0

Inpatient rehabilitation facility (n = 54)
- Total patients: 28
- Residing at 1 y: 1
- Died: 0

20 patients
- Alive at 1 y: 13
- Died: 4*

Home (n = 136)
- Total patients: 71
- Residing at 1 y: 55
- Independent: 11
- Dependent: 47
- Died: 4*

Hospital readmission (n = 150)
- Total patients: 68
- Died: 13*

Unroe et al Ann Int Med 2010
Models of post ICU care
The Vanderbilt Model

**TEAM:**
- Respiratory therapy
- Pharmacy
- Critical Care
- Psychology
- Case management

**SELECTION CRITERIA:**
- Mechanical ventilation
- Shock
- Delirium
An Interdisciplinary ICU Recovery Clinic

Patient check in

Spirometry (RT)

Patient in exam room

Vital signs checked (LPN)

Medical history and exam (NP)

Patient back in exam room

6MWT

Neuropsych evaluation

Case management evaluation

Assessment and plan discussed with patient

Patient and family feedback

Data recorded

Report for primary provider prepared and sent

Team conference

Updated med list and plan (checkout)
Minimum criterion
Components of an ICU recovery program

- Care co-ordination/ Provision of educational materials
- Physical & Cognitive
  - Longitudinal MDT input
  - Goal setting
- Peer support
- Interventions specifically tailored to caregivers
- Improve symptom status
- Manage physiological disturbances
- External/ internal validation of progress
- Normalisation & expectation management
- Reduction in feelings of guilt/ helplessness
- Psychological/ Emotional
  - Visit back to the ICU
  - Care debrief
  - (Lay summary, specific structured interview, patient diary)
- Information on short & long-term adaptation
- Socio- Economic
  - Advice for welfare support & employment

McPeake et al April 2020
Telemedicine

Advantages
- Reach patients at critical time points
- Start up costs are low
- Can pull in multidisciplinary team members from afar
- See family, home environment
- "Screen and triage"

Disadvantages
- Limited objective data gathering, physical exam, and treatments
- Still some regulatory hurdles despite COVID
Interview tips

• **Diagnostic:** Ask very specific questions, and listen to the answers
  – Patient may not want to know the answer
  – You may not know how to deal with the answer*

• **Therapeutic:** Normalize recovery problems

*This is ok. If you don’t seek you will not find.
The Dirty Dozen: 12 Points to Cover Prior to COVID Dispo

- Home Meds Restarted?
- Should new ICU meds be stopped?
- What is the anticoag plan?
- Who fields q’s prior to 1st follow up?
- Exercise Plan to recondition
- What follow up is most key?
- Removal Plan for tubes/lines/filters
- Written tubes/lines recap
- Teach common readmit issues
- Have PT/OT evaluated?
- Can they pay for what they need?
- Expect post-ICU syndrome

Content: Iwashyna, Johnson, McPeake, McSparron, Prescott, Sevin
Graphics: Chelsea Harris @CAHarrisMD

https://litfl.com/the-dirty-dozen-common-errors-on-discharging-patients-recovering-from-critical-illness/
Serial assessments

Adapted from “Timing It Right” Framework: Cameron and Gignac 2008

- Anticipatory guidance
- Education
- Telehealth?
- Peer support

Weeks  Months  Years?
Vanderbilt ICU Recovery

CRITICAL ILLNESS, BRAIN DYSFUNCTION, and SURVIVORSHIP (CIBS) CENTER

ISOLATE-ICU
Impact of Solitude On Patients, Loved Ones And Healthcare Teams’ Experience in the ICU

CAIRE
Collaborative Assessment of ICU Recovery Needs

TelePORT
AN ICU RECOVERY STUDY