Post-acute COVID Syndrome: Origins and lessons learned so far

David Putrino, PT, PhD
March 2020: Mount Sinai in crisis
The unhappy COVID choice

Too sick for home

Not sick enough for hospital
Increasing Healthcare System Efficiency

Number of Daily Cases

- - - - - Healthcare system capacity without RPM strategies

- - - - - Healthcare system capacity with RPM strategies

Time
Precision Recovery: The early rollout technology
Acute COVID care pathway

Patient experiences COVID-19 symptoms

- Patient consults Urgent Care/ER
  - Patient admitted
  - Patient discharged and referred to Precision Recovery
  - Patient begins Precision Recovery Monitoring
  - Patient referred to Precision Recovery
  - Patient begins Precision Recovery monitoring

- Patient texts Precision Recovery hotline
  - Patient begins Precision Recovery monitoring
The Precision Recovery Protocol

- **Daily**: Physiologic monitoring and brief survey of symptoms. (3 minutes)
- **Weekly**: Video visit and data review. (10 minutes)
- **Monthly**: Video visit, data review, curricular self-management education. (30 minutes)
Patients that sought out the Precision Recovery program self-reported the same symptomology regardless of PCR-test status.

Tabacof et al, 2020a
Fast forward to May 2020...
Not everyone recovers “within two weeks”

Patient discharged from conventional care

- Patient feels fully recovered
  - No further intervention required
  - ~70% of cases

- Patient is experiencing symptoms consistent with post-ICU syndrome (PICS)
  - Enrollment into Precision Recovery: PICS
  - >5% of cases

- Patient shows evidence of significant pulmonary/cardiac damage
  - Enrollment into Precision Recovery: Pulmonary/Cardiac rehabilitation
  - 10-15% of cases

- Patient is experiencing Post-acute COVID Syndrome (PACS)
  - Enrollment into Precision Recovery: PACS
  - 10-15% of cases
“Post-acute COVID Syndrome” – Demographics (from 1200 observed cases)

Gender
- Female: 82%
- Male: 17%
- Non-binary: 1%

COVID testing status
- Positive: 16%
- Negative: 51%
- Unknown: 33%

Median age: 42

Antibody testing status
- Positive: 11%
- Negative: 32%
- Unknown: 56%
Swelling
Numbness
Palpitations
Tachycardia
Thermoregulation
Syncope
Chest Pain
Fatigue
Dizziness
GI symptoms
Anosmia
Anxiety
Concentration Difficulties
Cognitive Difficulties
Dyspnea
Exercise Intolerance

Creation of an entirely novel approach to managing a debilitating post-viral syndrome.

Tosto et al (in prep)
Multidisciplinary care is *crucial*

Tabacof et al. (under review)
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