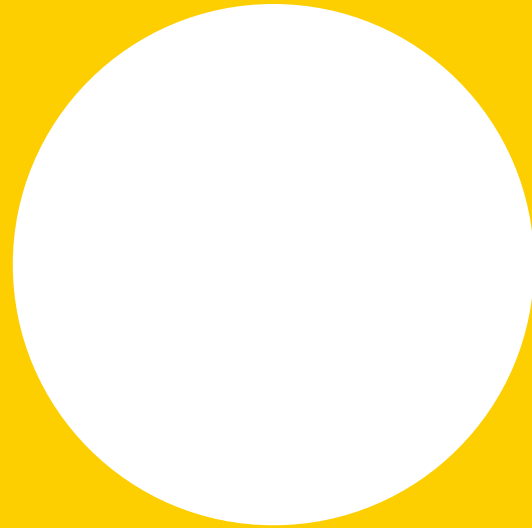


Summer Digital Academy Forum

ACORRD for COVID-19

John Maughan
Head of Products
S3 Connected Health



S3 Connected Health

Who We Are - Experience, Scale, Track Record

200
Strong Multi-Disciplinary Team




Rich Experience with Pharma, BioTech and MedTech Clients




20 Therapy Areas

- Neurology
- Immunology
- Endocrinology
- Rare Disease
- Respiratory
- Cardiology
- Oncology



Global Delivery services deployed in



50
Countries



20
Medical Devices



Needs & Requirements

Supporting Acute Care for COVID patients



ACORRD is a pragmatic tool designed specifically to respond to the challenges of delivering care for COVID-19 patients in acute settings.

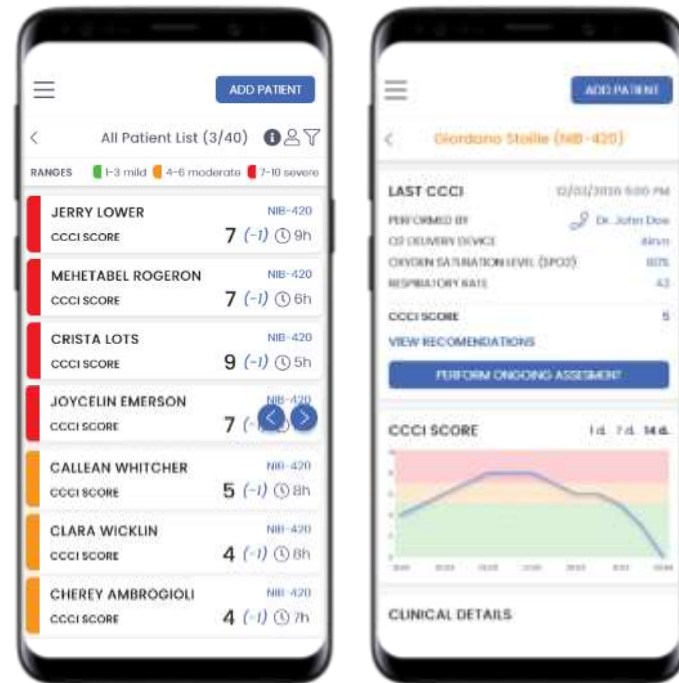
- If you are an **experienced or specialist respiratory clinician** then ACORRD will help you identify and prioritise the patients most in need of your attention.
- If you are not a **respiratory specialist clinician** ACORRD enables you collect data, communicate the patient status succinctly and prompts you with best practice guidelines to support clinical decisions.
- If you are a **Senior Respiratory team lead** ACORRD gives you instant oversight of the condition of the patients in your care and helps you treat them and optimise your resources appropriately.

ACORRD helps clinicians to better understand the patient journey and disease progression. Data from ACORRD will assist with planning and will provide insight into outcomes across care centres, which will inform evidence-based best practice.

What is ACORRD?

- Clinical tool for respiratory care of COVID-19 non-ICU inpatients
- Built in response to the need for hospitals to optimize and scale patient respiratory care delivery
 - A Class 1 Medical device web application accessible via mobile phone
 - Can be deployed in hospital in days
- Built around a patient risk model called the COVID Care Index (CCI) that accurately models patient risk and can predict rapid disease progression.

The CCI index has been designed collaboratively by a group of leading respiratory specialist clinicians and researchers, and S3 Connected Health.



ACORRD - COVID-19 Care Index (CCI)

- Includes a patient risk model based on the COVID Care Index (CCI) 0-13 score that:
 - Intuitive traffic light convention to model patient risk
 - Identifies patients most at risk of Adverse Outcomes specifically transfer to ICU or death
- Provides an early warning system in advance of Adverse Outcomes
- Provides clinical recommendations to clinicians based on CCI and CCI trend
- Longitudinal view of patient CCI



The COVID Critical Care Index (CCI) is a measure of patient status and is calculated as follows:

$$\text{CCI} = \text{Respiratory Rate Score} + \text{O2 Delivery Mechanism Score} + \text{O2 Sat Score}$$

RR Score

If RR < 10 then score 1
If 10 ≤ RR < 25 then score 0
If RR ≥ 25 then score 1

O2 Delivery Mechanism Score

If no oxygen then score 0
If nasal prongs ≤ 4L/min then score 1
If nasal prongs 6L/min then score 2
If face mask < 8L/min then score 3
If face mask ≥ 8L/min then score 5
If Airvo ≤ 40% O2 then score 5
If Airvo > 40% O2 then score 6
If NIV then score 6

O2 Sat Score

If O2 Sat ≤ 82 then score 6
If O2 Sat > 82 and < 88 then score 4
If O2 Sat ≥ 88 and < 92 then score 1
If O2 Sat ≥ 92 then score 0

CCI Scores are Categorised as:

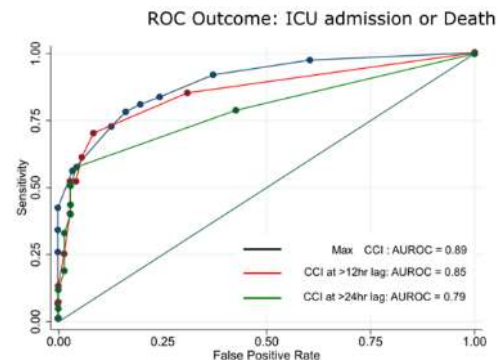
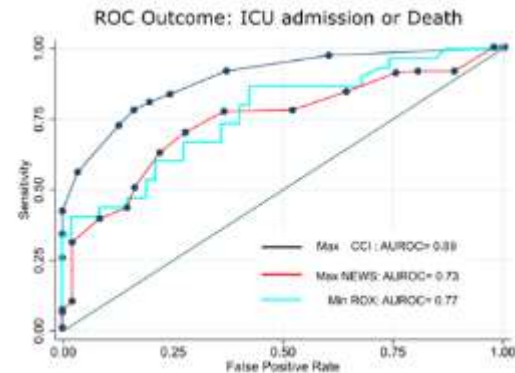
0-4
(MILD)

5-6
(MODERATE)

7-13
(SEVERE)

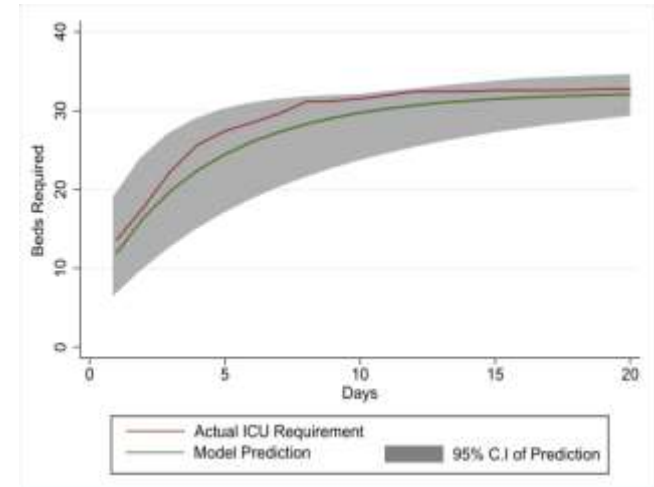
Data Support for CCI

- CCI is stronger predictor of C19 disease progression than the ROX index (AUROC 0.89 vs. 0.77) or NEWS (AUROC 0.89 vs. 0.73)
- C19 Clinical reports suggest that deterioration to a critical state can be rapid. CCI provides a better indication of patient disease status and their risk of further deterioration or improvement at any point
- CCI Values obtained at ≥ 12 hours and ≥ 24 hours prior to outcome showed that results at 12 hours prior to outcome are comparable to those obtained using the maximum CCI value (AUROC = 0.89), while CCI 24 hours prior to outcome is still strongly predictive, (AUROC=0.82)

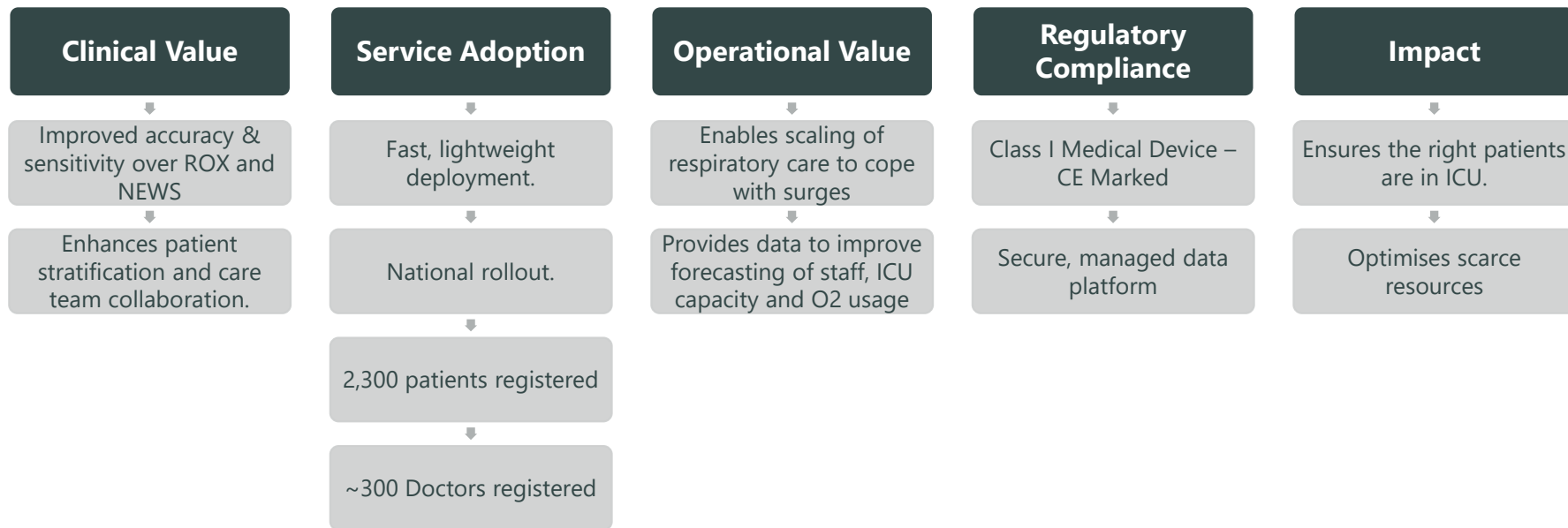


Senior Clinicians and Hospital Assets

- ACORRD leverages time of experienced C19 clinicians:
 - Ability for senior clinicians to assign patient cases to the ability of the clinical teams
 - Efficient communications between clinical teams and senior clinicians with communication recommendations provided by ACORRD
- ACORRD supports Hospital asset management
 - Ability to forecast ICU requirements (graph right)
 - Ability to monitor High Flow Nasal Cannula O2 therapy



ACORRD in Summary



Challenges & Lessons Learned

Hothouse environment - Early & Intense engagement of Clinicians and other stakeholders

- (Brutal) Focus on simplicity
- Iterative Design - Thinking approach to prototype & refine solution

Regulatory Process

- IEC-62304 at speed
- First contact to CE-Marked Class I Medical Device => 7.5 weeks

Integrated pilot + clinical evaluation + evidence creation process

Navigating individual data privacy assessments and processes across health system

- Cloud-based service

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