

# Not Home Alone: A COVID-19 Post-Discharge Remote Patient Monitoring Pilot

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## ABSTRACT

The COVID-19 pandemic caused many hospitals, including the Medical University of South Carolina (MUSC) hospitals, to exceed capacity, delaying acute care for other patients. As many health systems move toward Acute Hospital Care at Home through the creation of Hospital at Home Programs, the complexity with implementation, medical staff shortages, and concerns for reimbursement have limited patient enrollment. Other telehealth technology remain alternative options.

A multidisciplinary team designed a remote patient monitoring service for adults over the age of 18 admitted to MUSC hospitals with acute hypoxic failure secondary to COVID-19.

The goals of the program were to ensure a safe transition home by providing nurse managed post discharge symptom assessment and biometric data monitoring, tele-hospitalists physician escalation support through to the first follow up visit with the outpatient provider at the end of the program.

## METHODS

**Inclusion Criteria:** Adults ≥18 years of age admitted to MUSC Charleston or Regional Health Network (RHN) with acute hypoxic respiratory failure secondary to COVID-19 with an oxygen requirement of ≤4 lpm with evidence of stable or improving oxygenation for at least 24 hours.

**Design:** Upon enrollment and prior to hospital discharge, patients were provided a pulse oximeter and a Stel Vitals Hub that passively transmitted the biometric results into the EPIC record.

- For the following 16 days, a RPM nurse performs twice daily touchpoints to obtain symptoms and vitals (HR, O<sub>2</sub> saturations, Respiratory Rate).
- If clinical improvement: nurse follows criteria to wean O<sub>2</sub>.
- If clinical decompensation: escalation to hospitalist via virtual visit.

## RESULTS

MUSC Facility	# of Patients Enrolled	Hospital LOS (Median, Mean, SD)	Days to Wean Back to Baseline O <sub>2</sub> or Room Air (Mean)*	Total Cost Savings**	Days Saved	Escalation to Hospitalist (n, %)	Readmits (n, %)	Post Discharge PCP Follow-up***
Charleston	36	6, 6.8±3.2	8	\$311,548	284	14 (39%)	7 (19%)	28 (78%)
Florence	13	6, 9.7±6.8	8	\$54,850	50	2 (15%)	2 (15%)	9 (69%)
Lancaster	5	6, 5.8±1.3	10	\$42,783	39	1 (20%)	1 (20%)	5 (100%)
Chester	2	6, 6.0±0	3	\$3,291	3	0 (0%)	0 (0%)	1 (50%)
<b>TOTAL</b>	<b>56</b>	<b>6, 7.4±4.4</b>	<b>8</b>	<b>\$412,472</b>	<b>376</b>	<b>17 (30%)</b>	<b>10 (18%)</b>	<b>43 (77%)</b>

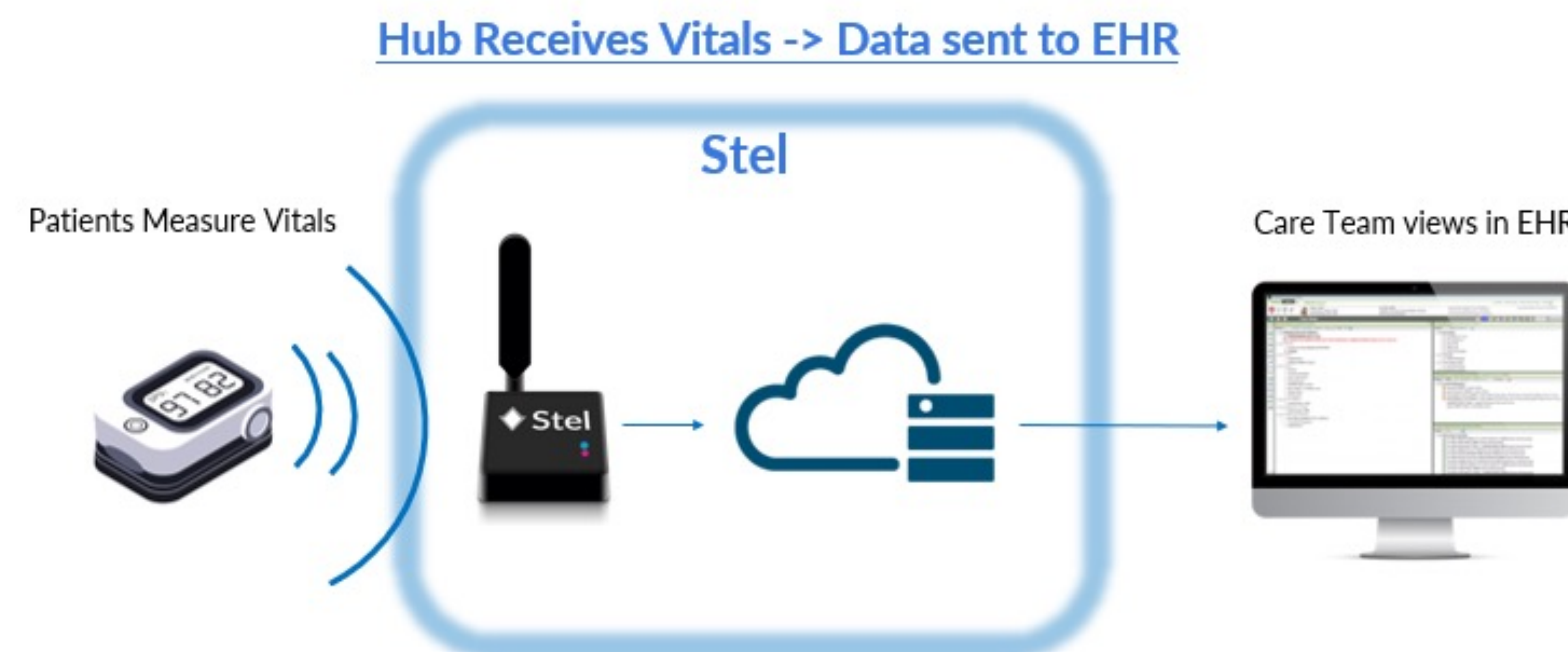
\*n=47 as there were 9 patients still enrolled on O<sub>2</sub>

\*\*direct costs estimated as \$1,097 per day; total cost savings=total hospital days saved x \$1,097

\*\*\*38 patients were already transitioned off O<sub>2</sub> at the time of the PCP visit



Results from our pilot of 56 patients include **376 total hospital days saved which equates to an estimated cost savings of \$412,472**. Approximately 50 additional patients were able to be transferred into our health system as a result of this pilot. Further, 77% of enrolled patients successfully attended their 14-day hospital discharge follow-up, with 88% of patients already transitioned off oxygen at the time of appointment.



## CONCLUSIONS

Although a small sample size, this study illustrates the clinical impact of nurse driven surveillance and remote patient monitoring to support the safe early discharge of patients weaning from oxygen at home. It is novel because, to our knowledge, it is the first to demonstrate the financial impact of CMS's decision to waive the certificate of medical necessity for oxygen claims during the COVID-19 public health emergency.

The success of the COVID-19 post-discharge RPM pilot serves as a proof on concept to encourage future expansion to additional eligible patient populations. Limitations from the initial pilot included a small sample size of the program, as well as a lack of a control arm. We should consider these limitation in future expansion of the program.

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