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BACKGROUND

Heart failure (HF) is a major public health concern that affects over 23 million people worldwide¹. Routine management of HF involves mostly in-person care via follow-up visits and hospitalisations during decompensations. Remote patient management (RPM), a more continuous form of care, has risen to prominence during the recent pandemic and reduces HF re-hospitalisation².

Remote management can facilitate a host of other tangible benefits; streamline prioritisation of patient care, reduction in need for inpatient visits, remote titration of medication, improved patient satisfaction and engagement with their healthcare provider.

RATIONALE

TRADITIONAL IN-PERSON HF MANAGEMENT

- Office visits (routine and symptom-based)
- Testing (outpatient and inpatient including labs, imaging, and catheterization)
- Emergency Department/Hospitalisations during HF exacerbations (i.e. IV diuretics)
- Cardiac rehab

CHALLENGE



SOLUTION



RESEARCH

EARLY DIAGNOSIS & PREVENTION OF DISEASE

- HF patients (class 2 and 3) generally undergo therapeutic intervention only when they report symptoms to their cardiologist via a hospital setting.
- In most cases, the underlying root causes can be treated more effectively if signs/symptoms are detected earlier than the day symptoms become emergent³

REMOTE PATIENT MANAGEMENT (RPM)

RPM facilitates routine care by daily home monitoring of critical cardiac parameters and patient status and allows earlier detection and prevention of worsening HF with minor medication or lifestyle changes.

HYPOTHESIS

Continuous remote management through Cordella Heart Failure System will improve patient NYHA classification

METHODS

METHODS

Cordella® Heart Failure System patient kits were deployed to heart failure patients. Patients submit daily vitals and the clinic review these within 4 days.



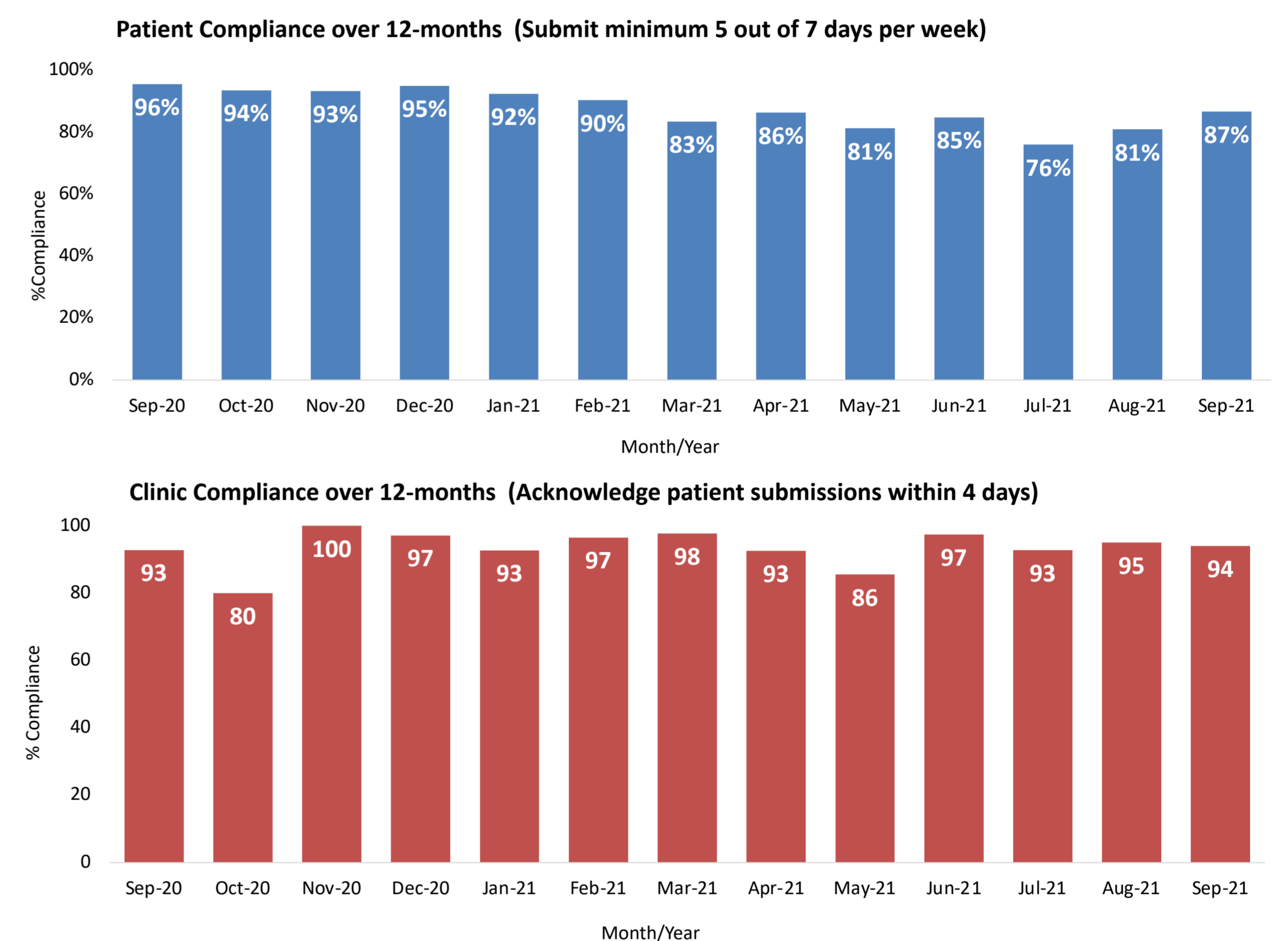
Figure 1: myCordella® Patient Kit (Tablet and Peripherals)

| Characteristics | Number/Value |
|-------------------------------|-------------------------|
| Sample size (n) | 35 |
| Age, years, mean ± SD (range) | 69 ± 12.5 |
| NYHA | Class 1/Class 2/Class 3 |
| EF (reduced/preserved) | 18/9 |
| Co-morbidities, n | |
| Diabetes Mellitus | 9 |
| Chronic Kidney Disease | 10 |
| Ischemic Cardiomyopathy | 12 |
| Hypertension | 11 |
| Arrhythmia (A-fib) | 14 |
| Devices (pacemaker, ICD) | 12 |

Abbreviations: NYHA – New York Heart Association; EF – Ejection Fraction; A-fib – Atrial fibrillation; ICD – Implantable cardioverter defibrillator

Table 1 (Above): Patient Demographics

Figure 2 (Right): Summary of Patient Compliance (top) & Clinic Compliance (bottom)



RESULTS

- All 35 kits were deployed without in-person contact
- Twelve-months after deployment, patient compliance (Minimum submission of vitals for 5 of 7 days) and clinic compliance (acknowledging incoming data within 4 days of submission) averaged 87.7% and 93.3%, respectively.
- Dropout and mortality rates recorded constitute up to 11.4% and 5.7% respectively.
- We observed a more favourable distribution of patient NYHA class six-months post deployment of the system as illustrated in Figure 3.
 - 33% of class 3 patients improved to either class 1 or class 2 within 6 months
- Physician interviews indicated patient satisfaction with remote monitoring combined with frequent phone-calls and tablet-based messaging.

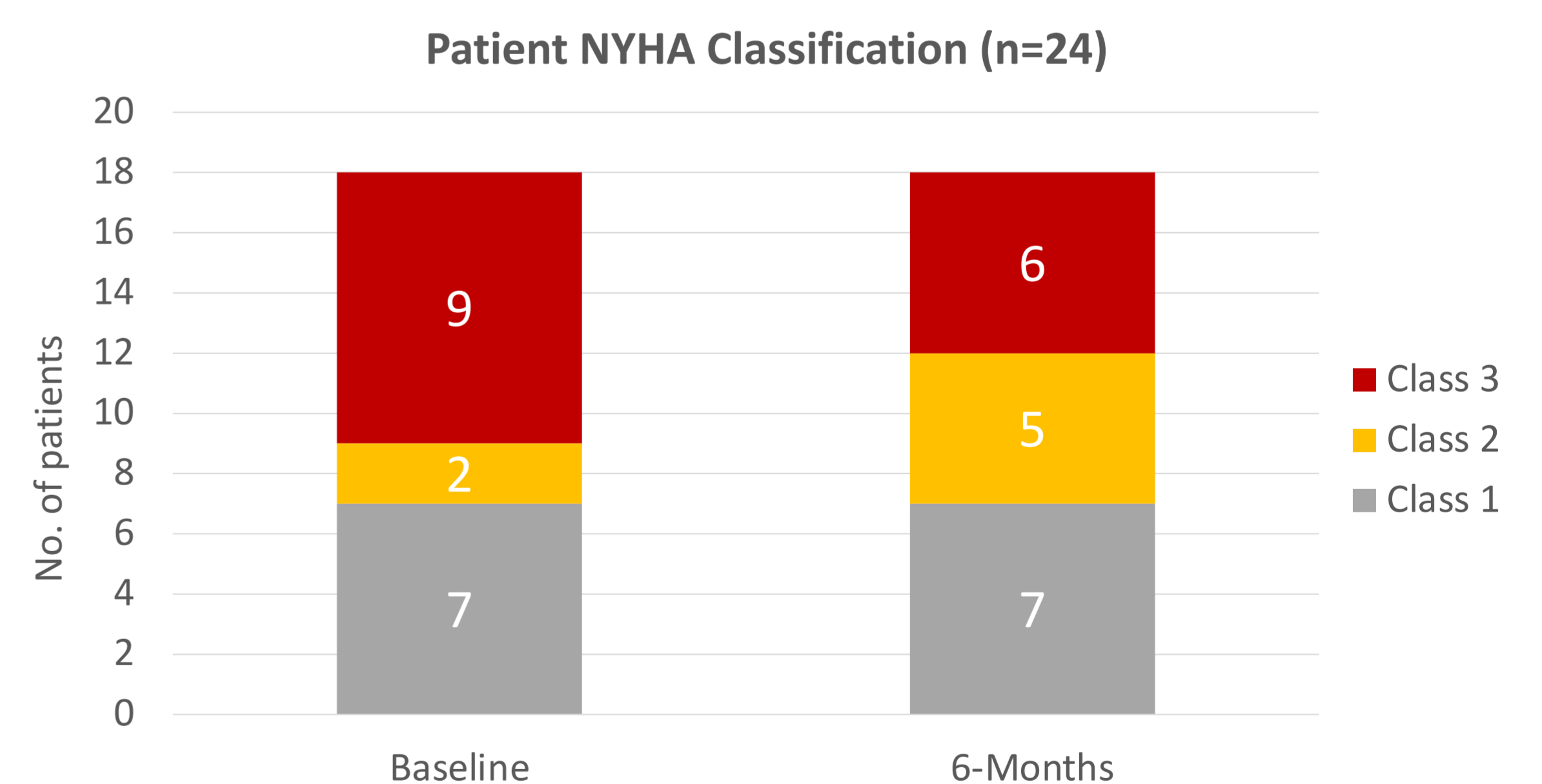


Figure 3. Patient NYHA status at baseline and 6-months

DISCUSSION

- From these results, we believe RPM has aided the clinics in efficient and effective management of heart failure patients.
 - This is demonstrated by sustained high compliance rates in both the clinic and patient populations
 - Initial indications are that overall patient health has improved (as measured by their NYHA classification). We intend to continue to increase the number of patients on the system to investigate this trend at a higher sample size. We are increasing our sample size to 50 patients.
- Future work will focus on quantifying medication titrations and the number of HF hospitalisations/outpatient IV diuretic visits post Cordella deployment

References

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