Atrial fibrillation virtual ward - a hospital is not always the best place to be


1University of Leicester, Leicester, United Kingdom of Great Britain & Northern Ireland
2University Hospitals of Leicester NHS Trust, Leicester, United Kingdom of Great Britain & Northern Ireland

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Background: Atrial fibrillation (AF) continues to represent a global health challenge. Our ability to prolong our lives has inevitably led to an increase in the incidence of AF, with subsequent increase in AF-related hospitalisations. With at least 92% of the global population having access to a digital telecommunication medium, virtual wards could be the way forward for managing acute AF patients.

Purpose: We implemented a virtual ward for hospital patients presenting with fast AF or atrial flutter (AFL), aiming to provide remote hospital-level care.

Methods: Patients presenting acutely with AF/AFL to the hospital were onboarded to the virtual ward and managed remotely at home, after being given access to a single-lead ECG device, a blood pressure monitor and pulse oximeter with instructions to record daily ECGs, blood pressure, oxygen saturations and to complete an online AF symptom questionnaire via a smartphone app. Data were uploaded to a digital platform for daily review by the clinical team. Admissions were either "step-up", where patients were onboarded to the virtual ward instead of hospitalisation, or "step-down" where early hospital discharge was facilitated through virtual ward support. Outcomes included hospitalisations avoided, bed-days saved and destination therapy plans (defined as electrical cardioversion, catheter ablation, or AV nodal ablation). Patients’ satisfaction was assessed using the NHS Friends and Family test (FFT) and free-text narrative feedback.

Results: There were 118 virtual admissions between Jan 2022 – Jan 2023. Sixty-six (55%) of them avoided initial hospital admission as patients were directly enrolled to the virtual ward from outpatient settings. A further 61 re-admissions were appropriately prevented during virtual surveillance. Hence, avoiding a total of 127 unplanned hospitalisations, saving a median of 444 days (assuming a median hospital stay of 3.5 days per AF admission). The mean age on onboarding to the virtual ward was 66 ± 10 years. Mean HR at the time of onboarding and offboarding was 124 ± 22 and 84 ± 24 bpm respectively (P<0.0001; 95% CI= -47 to -34). A rhythm control strategy was pursued in 75% (n=88, P<0.0001), and 65% (n=75, P<0.0001) were referred for destination therapy. The FFT questionnaire yielded 100% positive responses among participants. Positive feedback themes focused on avoiding hospital stay and active participation in care plans, whilst the main negative comments addressed initial difficulty with technology and expressed the need for more instant communication. There were 5 unplanned discharges from the virtual ward requiring hospitalisation.

Conclusion: Our preliminary outcomes demonstrate a promising foundation for a reproducible model of healthcare delivery that provides an alternative to the traditional in-patient care for patients with AF. Thus, reducing the huge associated economic burden on healthcare without compromising on patients’ care or safety.
AF virtual ward referral criteria

- No underlying acute factors causing AF (i.e. Heart failure/thyroid dysfunction/Sepsis).
- Haemodynamically stable
- Heart rate ≤ 140 bpm
- Blood pressure 90/55 - 180/110 mmHg.
- Normal TFTs.
- D-Dimer, Troponin and CRP results if clinically relevant.
- No other acute conditions requiring admission.

GP referral → Emergency department → Fast AF → Out-Patients → Self-present

Usual Care: No → All criteria met → Yes → AF virtual ward
The new Clinical Pathway