

## Introduction

- Frailty assessment using the Clinical Frailty Scale (CFS) has been incorporated into COVID-19 decision aids. **Frailty highlights risk of poor outcome** which can guide future care (1, 2).
- The critical care patient population continues to trend towards a younger, fitter and less co-morbid population (3). **COVID-19 is a disease that disproportionately effects the elderly**; people aged over 65 years represent more than 50% of Intensive Care Unit (ICU) admissions and account for 80% of mortality (1).
- There are subsequent **ethical considerations as to how resources were and continue to be allocated**. Frailty has sustained relevance in a critical care environment with continual scarcity of resources (3).

## Objectives

- To undertake a **service evaluation of the mortality and hospital outcomes of positive COVID-19 patients** admitted to Ysbyty Gwynedd (YG) ICU from 01/03/2020 to 01/06/2021.
- To consider **the effect of measured pre-admission frailty** of patients on ICU admissions and outcomes.

## Methods

Service evaluation of outcomes for **patients testing positive for COVID-19** and admitted to YG ICU.

- Patients aged 18 or over only were considered eligible and patients with suspected COVID that tested negative were excluded.
- Retrospective data was sourced from the ICNARC database, handover notes and clinical files.** CFS scores were used to dichotomise the cohort into two distinct groups; one group with CFS scores 1-4 was defined as fit or vulnerable and the second group scoring between 5-9 was defined as frail.
- Patients were then **assigned a pandemic 'wave' based on their date of admission**: admission between 01/03/2020 to 01/09/2020 were assigned 'Wave 1' and between 01/09/2020 to 01/06/2021 'Wave 2'.

## Conclusions

- Frailty alone should not be used to define ceilings of care since **those with high levels of frailty can still experience successful outcomes** (1).
- Human factors influence clinical decision-making in times of increased demand for resources; we suggest **frailty is considered amongst the broader clinical picture of each patient** but not as a stand-alone prognostic tool.
- Frailty assessment might form an important element of ICU decision-making** to ensure care does not disadvantage those who are both fit and elderly.

## Results

72 COVID-19 patients were included in the service evaluation; 65% of patients were male and the mean age was 59 years (SD 13). The population had a mean ICNARC score of 13.4 (SD 6.8), a mean APACHE-II score of 17.2 (SD 5.4); the predicted mortalities were 21.2 and 19.9 respectively. ICNARC reported previous severe respiratory disease in six patients (8.3% of cohort). The overall in-hospital mortality was 30.6%.

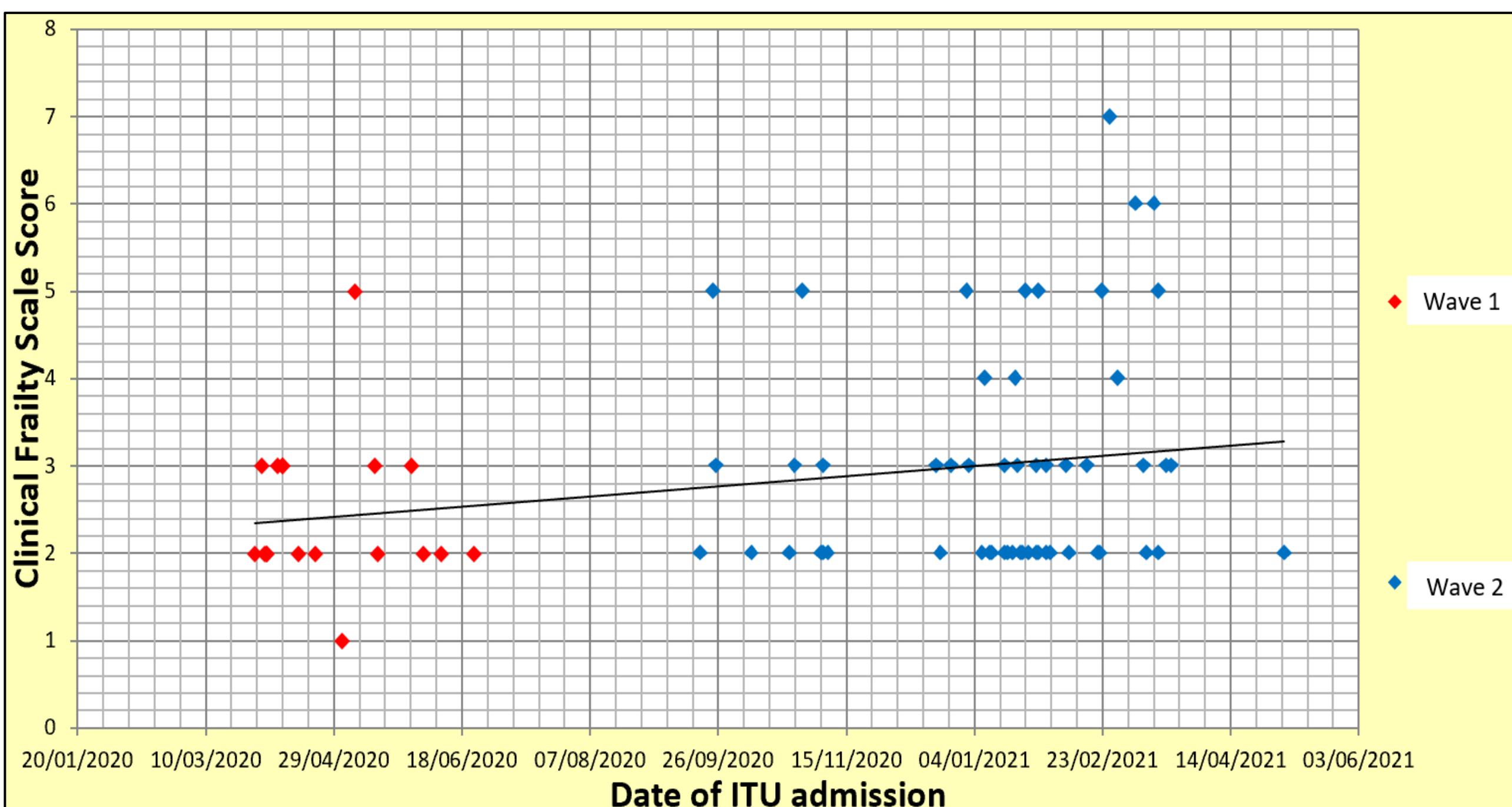
**The frail group of patients experienced worse outcomes than their fitter counterparts** (see Table.1). **The average CFS score of the admitted ICU patient increased over the evaluation period**; In Wave 1, 5.9% of admitted patients were classified as frail compared to 21.8% in Wave 2.

	Fit/Vulnerable (n=58) (% of group)	Frail (n=14) (% of group)
Male patients	41 (70.1%)	6 (42.9%)
Mean age (years)	58.3	60.0
BMI (kg/m <sup>2</sup> )	30.7	31.3
APACHE II mean score	12.8	16.1
(Predicted mortality %)	(20.3%)	(28.0%)
ICNARC mean score	16.7	19.6
(Predicted mortality %)	(19.4%)	(22.1%)
In-hospital mortality	17 (29.3%)	5 (35.8%)
Ventilator use	27 (46.6%)	9 (64.3%)
LOS in survivors (mean day length)	17.0	25.4

Table. 1 compares characteristics and outcomes of the fit/vulnerable and frail cohorts

## Discussion

**Frailty describes a lack of physiological reserve** to overcome the external stressors presented by disease (4). COVID-19 presents as a respiratory disease and subsequent physiological stressor that disproportionately effects males, the elderly and those with pre-existing comorbidities (1, 2). Our findings support that **frailty is a useful tool to highlight risk of poor outcome in COVID-19 patients** (2). A higher proportion of frail patients were admitted in Wave 2; this change might be explained by **perceived resource pressures influencing human based decisions on admission**. Clinicians may have been less likely to admit frail patients at the early stages of the pandemic when the ability of critical care resources to meet increasing demand was unknown or feared to be inadequate (5).



## References

- Hubbard RE, Maier AB, Hilmer SN, Naganathan V, Etherton-Beer C, Rockwood K. Frailty in the face of COVID-19. Age and ageing. 2020.
- O'Caomh R, Kennelly S, Ahern E, O'Keefe S, Ortuño RR. COVID-19 and the challenges of frailty screening in older adults. The Journal of frailty & aging. 2020;9:185-6.
- Pugh RJ, Bailey R, Szakmany T, Al Sallakh M, Hollinghurst J, Akbari A, et al. Long-term trends in critical care admissions in Wales. Anaesthesia. 2021.
- Pugh RJ, Ellison A, Pye K, Subbe CP, Thorpe CM, Lone NI, et al. Feasibility and reliability of frailty assessment in the critically ill: a systematic review. Critical Care. 2018;22(1):1-11.
- Haas LEM, de Lange DW, van Dijk D, van Delden JJM. Should we deny ICU admission to the elderly? Ethical considerations in times of COVID-19. Critical Care. 2020;24(1):1-3.

Figure. 1 shows the CFS scores of admitted ICU patients in Wave 1 and Wave2