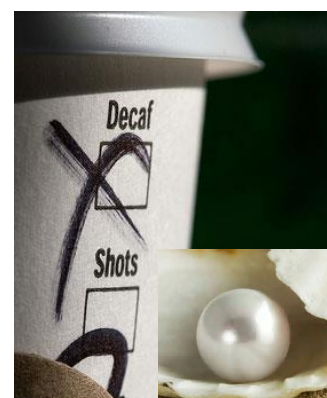


## Some DECAF and a few PEARLS

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The Academic Health Science Network are facilitating clinical implementation of clinical risk-stratification in patients presenting to hospital with COPD exacerbations.

Prognostic tools are used in a wide range of clinical settings, but hitherto COPD was a neglected area. Such tools do not seek to replace clinical judgement, but rather to enhance this by providing an objective and accurate estimate of the risk of particular outcome. This provides a sound basis for truly informed shared decisions with patients, and improves selection for place and level of care, alongside other aspects of management.



In exacerbations of COPD triaged for admission, DECAF and PEARL are the best available predictors of risk of in-hospital death and post-discharge readmission respectively. A randomised controlled trial (RCT) has shown that hospital at home selected by low-risk DECAF score is safe, clinically and cost-effective, and preferred by 90% of patients.

### How can DECAF be used?

#### Low risk DECAF 0-1:

- Admission avoidance in A&E, if no additional acute care need. Avoiding unnecessary admissions and improving flow through the department.

- Hospital at home: this provides care patients would normally receive in hospital, including 24/7 specialist support, controlled oxygen therapy if required, nebulised bronchodilators etc. There is the potential to extend this service to include exacerbations of bronchiectasis and pneumonia.

- Early discharge: if 24/7 support is not an option, you can at least discharge low risk patients earlier.

#### High risk DECAF 3+:

- Consider IV antibiotics in high risk patients. Survival and time to death is lower in high risk patients (median time to death 2 days in DECAF 5-6 patients). We may only get one bite at the cherry.
- Close monitoring. Specialist respiratory ward or higher level of care. Do not board patient.

DECAF Score		Circle
D	eMRCD 5a (Too breathless to leave the house unassisted but independent in washing and/ or dressing)	1
	eMRCD 5b (Too breathless to leave the house unassisted and requires help with washing and dressing)	2
E	Eosinopenia (eosinophils < 0.05 x10 <sup>9</sup> /L)	1
C	Consolidation	1
A	Moderate or severe Acidaemia (pH < 7.3)	1
F	Atrial Fibrillation (including history of paroxysmal AF)	1
Total:		

## How can PEARL be used?

Selection for supported discharge services aiming to reduce readmission risk.

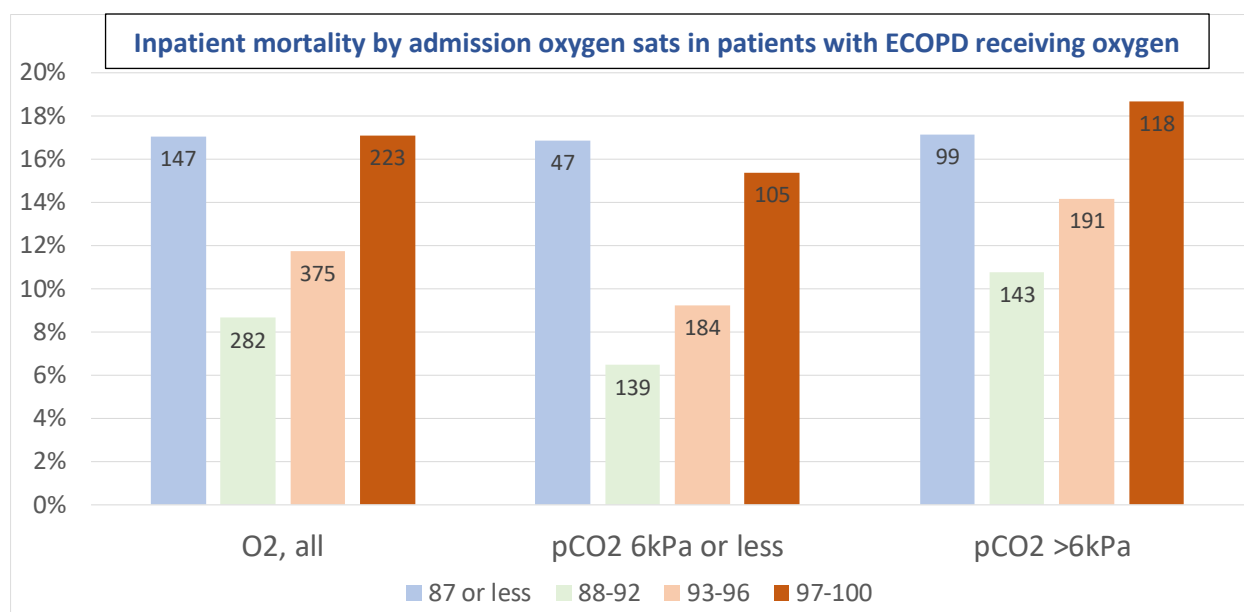
PEARL Score		Circle
<i>Prediction of 90-day readmission or death risk</i>		
<b>P</b>	Previous admissions ( $\geq 2$ ) <i>Admission to inpatient hospital ward. Do not count attendance at A&amp;E, Ambulatory Care or day-case units.</i>	<b>3</b>
<b>E</b>	eMRCD 4 (Stops for breath after about 100m or after a few minutes on the level)	<b>1</b>
	eMRCD 5a (Too breathless to heave the house unassisted but independent in washing and/or dressing)	<b>2</b>
	aMRCD 5b (Too breathless to leave the house but requires help with washing AND dressing)	<b>3</b>
<b>A</b>	Age ( $\geq 80$ )	<b>1</b>
<b>R</b>	Right sided heart failure <i>Clinical diagnosis of Cor Pulmonale (with or without imaging)</i>	<b>1</b>
<b>L</b>	Left sided heart failure <i>Confirmed by cardiac imaging</i>	<b>1</b>
<b>Total PEARL Score</b>		
<b>90-day risk of readmission or death:</b> PEARL 0-1 (low risk) = 20.7%; PEARL 2-4 (intermediate risk) = 42.1%; PEARL $\geq 5$ (high risk) = 66.4%		

## Do not forget oxygen

1. Set target oxygen saturations 88-92% in ALL COPD, including normocapnic patients.

The DECAF cohorts included 2,645 unique patients consecutively admitted to six participating hospitals. Of these 1,027 received oxygen therapy. Admission oxygen sats 88-92% was associated with the best risk-adjusted survival regardless of PaCO<sub>2</sub>.

This data is supported by the Austin RCT (BMJ 2010) showing that controlled oxygen titrated to target sats 88-92% from ambulance pick-up in patients with presumed COPD exacerbation improved survival compared to usual care (8 L/min).

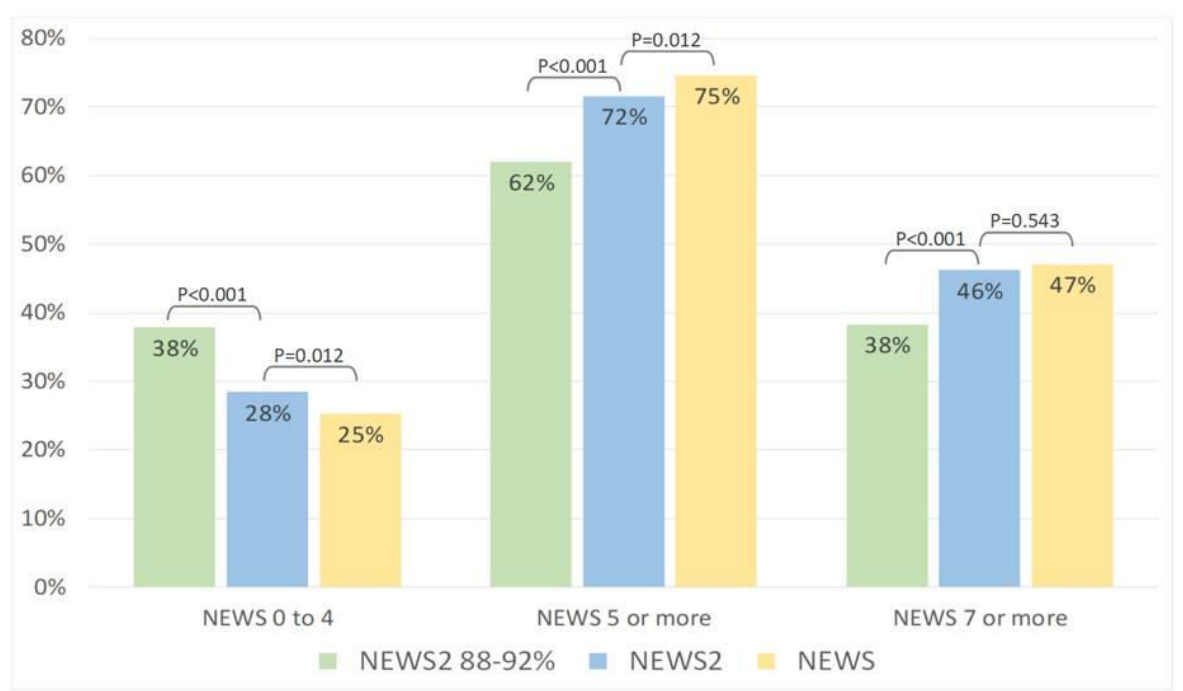


*Inpatient mortality by admission oxygen saturations in patients with ECOPD receiving oxygen. Echevarria C, Steer J, Wason J, Bourke SC. Oxygen therapy and inpatient mortality in COPD exacerbation. Emerg Med J 2021;38:170-177*

2. Use NEWS2 Scale 2 in ALL COPD, including normocapnic patients.

Using NEWS2 Scale 2 from the point of admission in all COPD patients safely reduces false alerts.

In-patient mortality is now ~4%, yet 72% of patients score 5 or more points using NEWS 2 requiring senior review. This risks instilling complacency and alert fatigue – the little boy who cries “wolf!”.



Frequency of alerts for NEWS2All COPD, NEWS2 and NEWS. The first column in each group is NEWS2All COPD, the second is NEWS2 and the third is NEWS. P values were calculated using Fisher's exact test. NEWS 5–6=medium risk, prompting urgent response by clinician/clinical team and minimum hourly observations. NEWS 7=high risk. Urgent response by clinician/clinical team, which may include critical care, and continuous monitoring or vital signs. Echevarria C, Steer J, Bourke SC. Comparison of early warning scores in patients with COPD exacerbation: DECAF and NEWS score. *Thorax* 2019;74:941-946

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Stephen is the educational lead for this programme and can be contacted for copies of supporting assessment sheets and other materials in use in Northumbria (to adapt to your own service).

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Carlos is supporting individual centres with their implementation plans.

Sue Hart: [sue.hart@ahsn-nenc.org.uk](mailto:sue.hart@ahsn-nenc.org.uk)

Sue is facilitating all activities through her role within the AHSN.