

An overview of the prevalence of 25-hydroxy-vitamin D inadequacy amongst elderly patients with or without fragility fracture in the United Kingdom.

Dixon T<sup>1</sup>, Mitchell P<sup>2</sup>, Beringer T<sup>3</sup>, Gallacher S<sup>4</sup>, Moniz C<sup>5</sup>, Patel S<sup>6</sup>, Pearson G<sup>7</sup>, Ryan P<sup>8</sup>

<sup>1</sup> JB Medical Ltd, The Old Brickworks, Chapel Lane, Little Cornard, Sudbury, Suffolk

<sup>2</sup> Faculty of Education, Health and Sciences, University of Derby

<sup>3</sup> Department of Healthcare for the Elderly, Royal Victoria Hospital, Belfast

<sup>4</sup> Medical Unit, Southern General Hospital, Glasgow

<sup>5</sup> Department of Clinical Biochemistry, King's College Hospital, London

<sup>6</sup> Rheumatology Department, St Helier Hospital, Carshalton

<sup>7</sup> Osteoporosis Centre, Southampton General Hospital

<sup>8</sup> Osteoporosis Unit, Medway Maritime Hospital, Gillingham, Kent

## Introduction

Many studies have investigated the prevalence of 25-hydroxy-vitamin D inadequacy throughout the world and found a high prevalence of 25-hydroxy-vitamin D inadequacy in older patients, particularly those with fragility fracture.

This poster reviews the findings from vitamin D audits from six units across the UK. In order to determine whether vitamin D levels differed according to fracture status, audits were split into three categories:

- patients attending metabolic bone clinics
- fragility fracture patients
- hip fracture patients.

Since there is no consensus on the thresholds used to define 25-hydroxy-vitamin D inadequacy – thresholds of 80, 70, 50 and 30 nmol/L have been used in this study.

## Results

### Patients attending metabolic bone clinics (Carshalton, Medway, Southampton)

- 954 patients, 49% had a prior fragility fracture.
- Mean 25-hydroxy-vitamin D levels ranged from 47.7 nmol/L to 62.4 nmol/L.
- Patients with fracture had lower mean levels of 25-hydroxy-vitamin D compared with patients without fracture. This was significantly significant in a sub-analysis of the Medway data (45.3 nmol/l versus 49.9 nmol/l, p<0.005).

### Patients with fragility fracture (Glasgow, Belfast, Medway sub-set)

- 330 patients.
- Mean levels of 25-hydroxy-vitamin D ranged from 40.0 nmol/L to 52.3 nmol/L.
- Levels remained low even in patients receiving vitamin D supplements
  - Patients receiving supplements: mean 25-hydroxy-vitamin D levels were 53.8 nmol/L in Belfast and 59.9 nmol/L in Medway
  - Patients not receiving supplements: 48.1 nmol/L in Belfast and 40.5 nmol/L in Medway

### Patients with hip fracture (Glasgow, Belfast, London)

- 694 patients
- Mean levels of 25-hydroxy-vitamin D ranged from 24.7 nmol/L to 36.1 nmol/L.

Figure 1:

Mean vitamin D levels at different locations around the UK (nmol/l). All denotes patients with and without fracture.

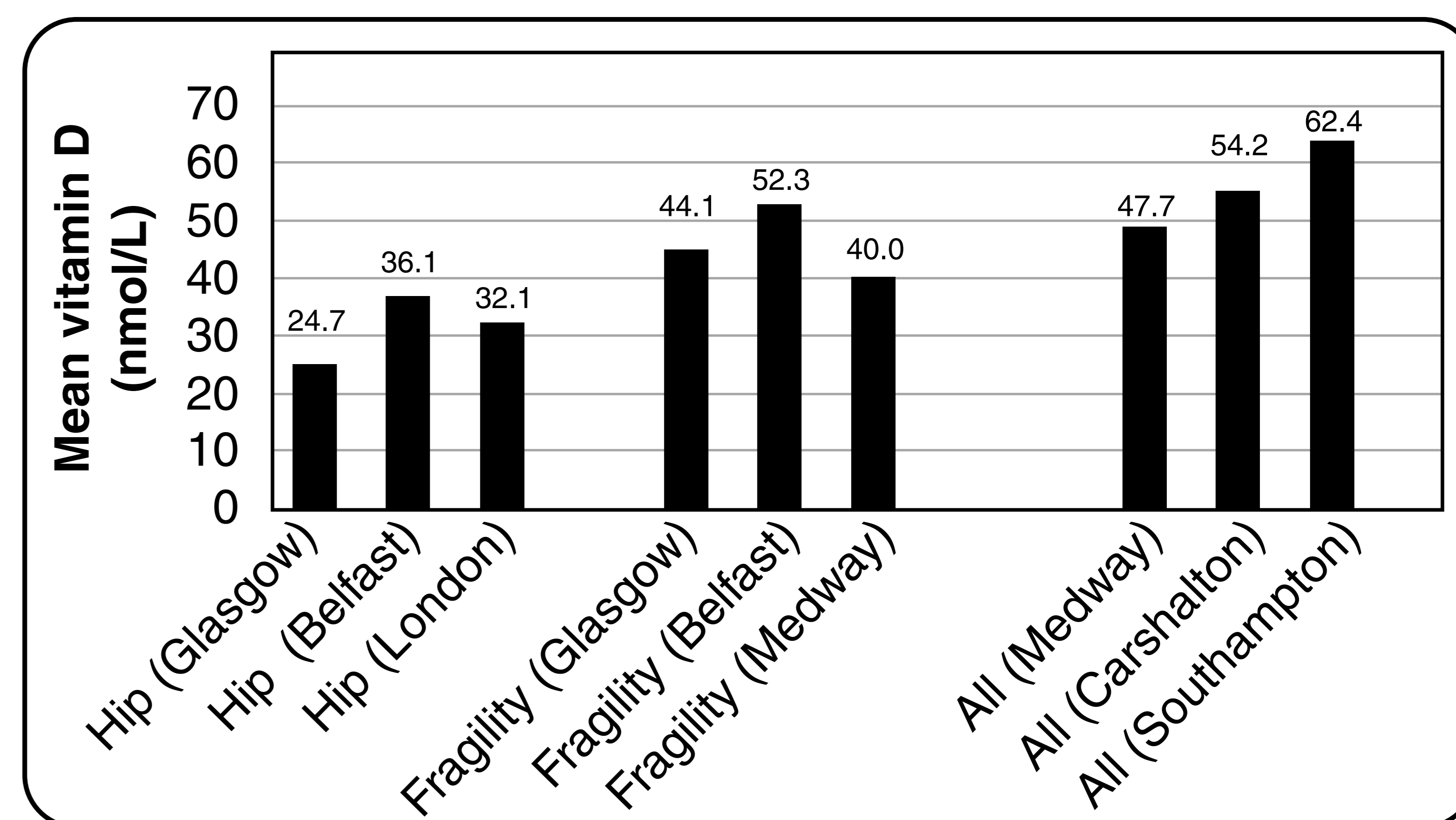
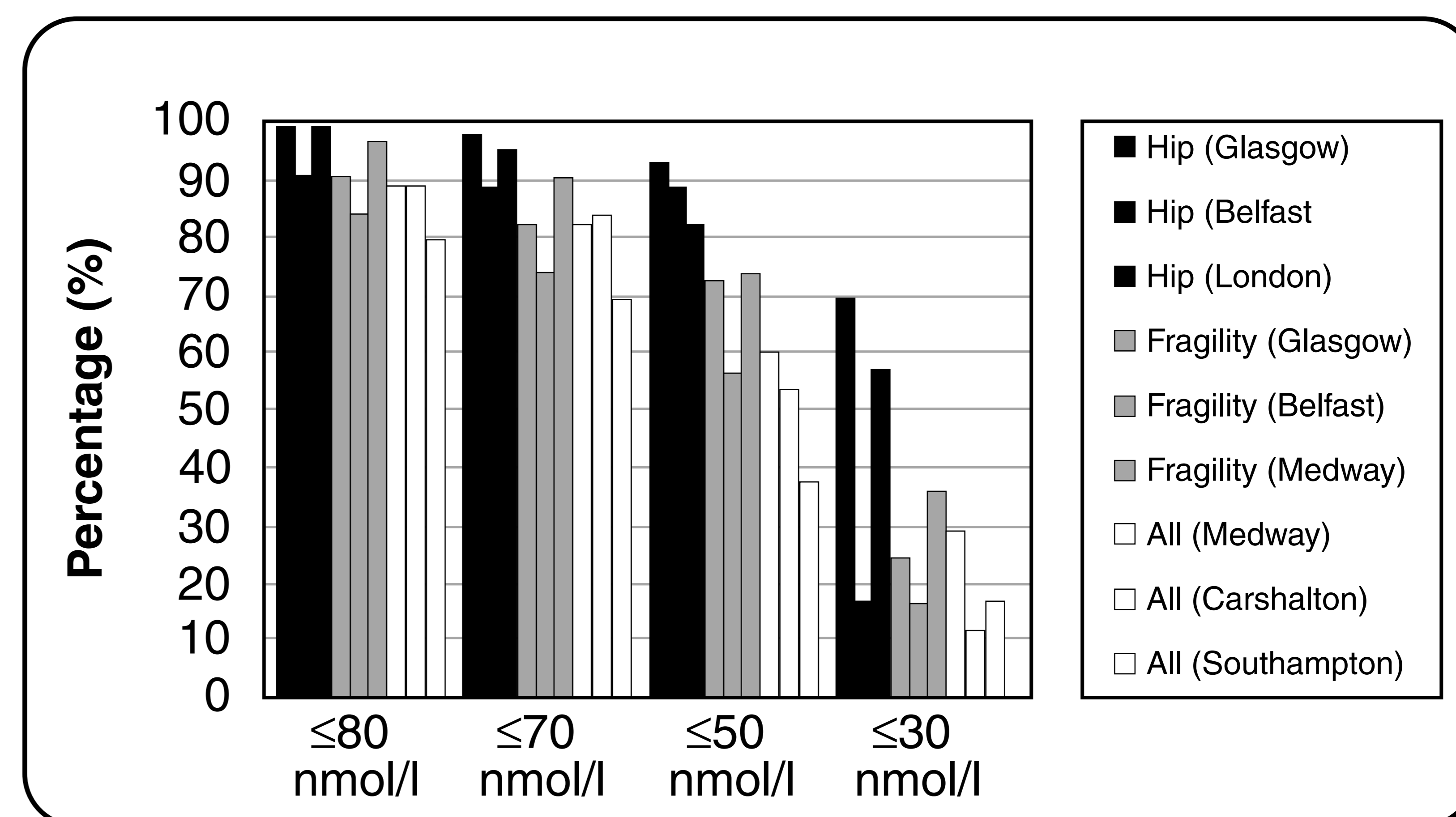


Figure 2:

Percentage of patients at different locations across the UK with vitamin D inadequacy according to four different inadequacy thresholds. All denotes patients with and without fracture.



## Conclusion

Inadequate 25-hydroxy-vitamin D levels are extremely common in the elderly and particularly so in patients with fragility fracture – specifically in those with hip fracture. Although the differing audit specifications and assay techniques used make direct comparisons difficult, the data do provide a snapshot of 25-hydroxy-vitamin D status across the UK and are consistent with those previously observed elsewhere in Europe and the rest of the world.