

# Uptake of evidence-based prevention for deep vein thrombosis and pulmonary embolism in stroke units in England, Wales and Northern Ireland

Kaili Stanley<sup>1</sup>, George Dunn<sup>1</sup>, Alex Hoffman<sup>1</sup>, Walter Muretu<sup>1</sup>, Victoria McCurran<sup>1</sup>, Charles Wolfe<sup>1</sup>, Martin James<sup>2</sup>, Anthony Rudd<sup>1</sup>

1. King's College London, Division of Health and Social Care Research, London, UK. 2. Royal Devon and Exeter NHS Foundation Trust, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK. On behalf of the Intercollegiate Stroke Working Party and the SSNAP Collaboration.

KING'S  
College  
LONDON



## Introduction

Intermittent pneumatic compression (IPC) is an evidence-based treatment that reduces the risk of deep vein thrombosis (DVT) after stroke. Evidence shows that the incidence of DVT within three weeks among stroke patients is 40% (CLOTS 2013). In 2013, NHS Improving Quality provided funding for hospitals in England treating stroke patients to encourage IPC uptake. In 2015 National Institute for Health and Care Excellence recommended their use (NICE 2015). The Welsh Government funded the provision of IPC sleeves in all Welsh stroke units in 2016. We report IPC usage in acute hospitals in England, Wales and Northern Ireland (NI) over time.

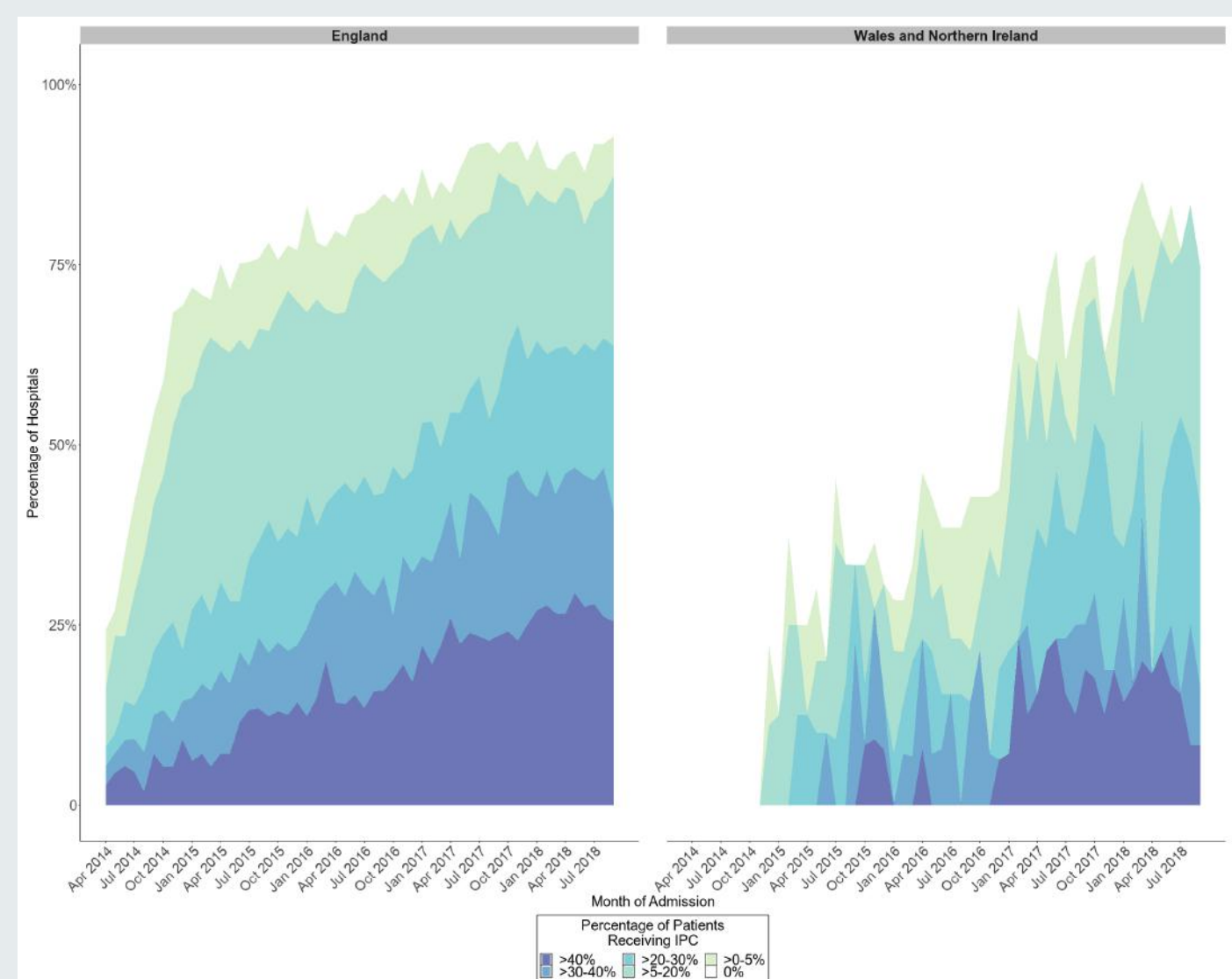
## Methods

Data were extracted from the national register of stroke in England, Wales and NI (SSNAP). We report the percentage of hospitals applying IPC to patients between April 2014 and September 2018 and comparative changes in the proportion of hospitals treating patients with IPC England and Wales and NI.

## Results

The proportion of hospitals treating any patient with IPC increased from 24% (95%CI, 17 to 34) in April 2014 to 93% (86 to 97) in September 2018 ( $p$  for trend  $<0.001$ ). In Wales and NI, no hospitals reported IPC use until December 2014, when 22% (4 to 60) of hospitals reported use; IPC use has increased to 75% (43 to 93) in September 2018 ( $p <0.001$ ).

In England, the percentage of hospitals applying IPC to  $\geq 40\%$  of patients increased from 3% (1 to 8) in April 2014, to 26% (18 to 35) in September 2018 ( $p <0.001$ ). In Wales and NI, no hospitals applied IPC to  $\geq 40\%$  of patients until October 2015 and no significant monotonic trend in the percentage of teams applying IPC to  $\geq 40\%$  of patients was identified ( $p = 0.392$ ).



There was a significant correlation between an increased percentage of patients receiving IPC and time in England (Somers'  $d = 0.26$ , 95%CI 0.24 to 0.27;  $p <0.001$ ) and Wales and NI (Somers'  $d = 0.17$ , 95%CI 0.15 to 0.20;  $p <0.001$ ).

## Conclusions

IPC is an inexpensive and effective treatment, however, a significant proportion of hospitals are still treating a minority of eligible patients. Compared to Wales and NI, more hospitals in England use IPC and have for longer, which may be due to the earlier provision of funding for IPC sleeves. While IPC usage has increased, the percentage of hospitals treating  $>40\%$  of patients has remained lower than expected since January 2017 in all three countries. The low rate of implementation and variation of IPC usage is concerning. Efforts focussed on education, training and increasing availability should be made.

## Acknowledgements

Thank you to all of the individuals and organisations who participate in SSNAP. SSNAP is funded by NHS England and Wales.

## References

CLOTS Trials Collaboration, Dennis M, Sandercock P, Reid J, et al, 2013. The effect of graduated compression stockings on long-term outcomes after stroke: the CLOTS trials 1 and 2. *Stroke*, 44, 1075-9.