

# Estimating the isolation burden if overseas residents are pre-emptively isolated for carbapenem-resistant Enterobacteriaceae (CRE) admission screening

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## 1. Introduction

- Overseas residents from known endemic areas are potentially at increased risk of carbapenem-resistant Enterobacteriaceae (CRE).
- Public Health England (PHE) currently recommend placing patients who have had healthcare abroad in pre-emptive isolation, with appropriate infection control measures, until three negative CRE admission screens separated by 48 hours have been obtained.<sup>1</sup>
- Overseas residence in high risk countries, with or without healthcare contact, may be a risk factor for CRE.

## 2. Methods

- We evaluated the historical proportion of overseas patients from high prevalence areas, and the impact of pre-emptive isolation of these patients within the existing isolation capacity of a North-West London NHS Trust.
- A retrospective study was conducted, using residential postcodes to establish the proportion of overseas residents admitted to the Trust from high prevalence areas, for the period April 2012 to December 2013.
- The number of single rooms available in the Trust was determined through an audit.

**Table: Breakdown of admissions from high prevalence areas.**

High prevalence area	Scheduled admissions	Emergency admissions	Other admissions	Patients total	Mean length of stay	Total isolation bed days
Balkans	4	16	0	20	3	60
Bangladesh	2	0	0	2	3	6
China	0	5	1	6	3	18
Greece	14	9	1	24	3	72
India	28	33	1	62	3	186
Eire	25	34	0	59	3	177
Italy	16	134	4	154	3	462
Japan	0	0	0	0	3	0
North Africa	82	121	5	208	3	624
Malta	13	6	1	20	3	60
Middle East	773	659	39	1471	3	4413
Pakistan	13	32	5	50	3	150
South East Asia	17	82	2	101	3	303
South and Central America	15	73	6	94	3	282
Taiwan	0	0	0	0	3	0
USA	17	206	6	229	3	687
	<b>1019</b>	<b>1410</b>	<b>71</b>	<b>2500</b>		<b>7500</b>

## 3. Results

- 2500 of 315000 (0.8%) admissions were overseas residents in high prevalence areas (as defined by PHE<sup>1</sup>) (Table).
- The Trust has 342 single rooms with en-suite facilities.
- Thus, if these admissions each remained in isolation for four days to allow three CRE screens separated by 48 hours, pre-emptive isolation for these patients would account for 5% of the Trust's annual isolation bed days ( $[2500 \times 4 / 342 \times 600]^* 100$ ).
- However, the mean length of stay was 3 days, so many patients would not stay long enough to obtain their three screens.

## 4. Discussion

- The majority (58.8%) of overseas residents were from the Middle East, which has an emerging CRE problem.<sup>2</sup>
- Single rooms in the Trust are already in short supply, so to pre-emptively isolate overseas residents for the purposes of CRE admission screening is unworkable in our Trust.
- Other options need to be considered if prevention and containment of future outbreaks of CRE is to be achieved.
- Further work is required to establish whether overseas residence in high prevalence areas is a risk factor for CRE carriage along with hospitalisation in these countries.

## References

1. PHE. Acute trust toolkit for the early detection, management and control of carbapenemase-producing enterobacteriaceae. 2013.
2. Zowawi *et al.* *Antimicrob Agents Chemother* 2014;58:3085-90.