

# HOODINI: A multicentre point prevalence study of hospital onset diarrhoea

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Conflicts of interest = None



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# Background

- CDI-reduction guidelines in England encourage collection of data on hospital-onset diarrhoea (HOD) prevalence and management<sup>1</sup>
- Evidence suggests HOD is common (12% point prevalence in US tertiary centre)<sup>2</sup>
- It is associated with significant morbidity, mortality and economic impact (e.g. *Clostridium difficile* infection (CDI), norovirus)<sup>3,4</sup>
- Limited data for general medical, surgical and elderly care wards

1) NHS England. 2014

3) Wiegand. J Hosp Infect. 2012

2) Garey. Ann Pharmacother, 2004

4) Lopman. Emerg Infect Dis. 2004



# Methods 1: Location and timing

- Point prevalence survey
- 32 acute hospitals
- 141 wards:
  - 63 medical
  - 52 surgical
  - 26 elderly care
- 1 day in each of 2 time periods:
  - 11-22 January 2016
  - 6-17 June 2016
- Standardised data collection forms



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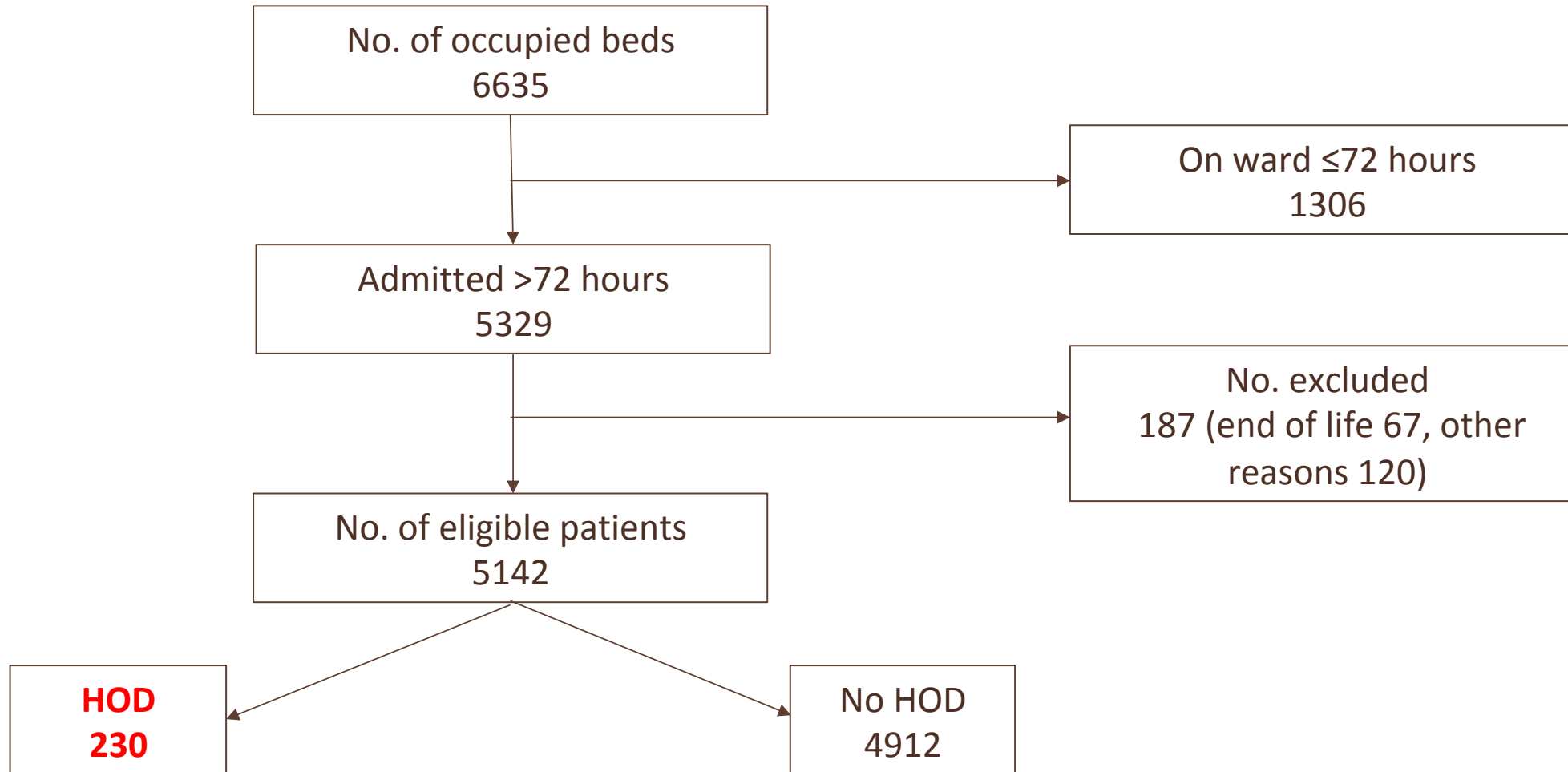
# Methods 2: Definitions and data collection

- Patients admitted >72 hours screened for HOD
- HOD:
  - $\geq 2$  episodes of type 5-7 stool (Bristol Stool Chart) in the 24 hours before the survey day, with diarrhoea onset >48 hours after admission <sup>1</sup>
- Information sources:
  - Patient, medical records, bedside charts, staff, other (e.g. relatives)
- Additional data collected from patients with HOD
  - Clinical features, potential causes, investigation, management
- Ward / hospital data:
  - Ward admissions, CDI testing and Infection Control policies

1) Garey. Ann Pharmacother, 2004



# Results 1: Overview



# Results 2: Prevalence

- HOD point prevalence = 3.57% (95%CI 3.13 – 4.03%)

Hospital type	Point prevalence of HOD (%)	95% CI
District general (DGH)	2.2	1.56, 2.86
Teaching	4.79	3.77, 5.69

- OR for teaching hospital versus DGH = 2.21 (1.57 – 3.12)
- Prevalence unaffected by specialty, ward characteristics and season



# Results 3: Potential causes of HOD

- 97% patients had  $\geq 1$  potential cause of HOD
- 85% multiple possible causes (median 3; range 2 – 13)





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Potential Cause	No. of patients (% , n = 230)
Underlying condition	107 (47)
Antimicrobials	125 (54)
Other medication	195 (85)
CDI	9 (4)
Norovirus	3 (1)



# Results 3: *Clostridium difficile* testing

- Only 75 (33%) of HOD patients were tested for CDI after diarrhoea onset
- 71% tested on the day of diarrhoea onset, or following day
- Further 7 (3%) patients tested up to 14 days before HOD onset
  
- 9 patients toxin positive
  - 12% patients tested
  - 4% all HOD patients
  - (Further 4 patients GDH positive, toxin negative)



# Results 4: Potential causes of HOD in patients tested for CDI versus those not tested

	No CDI test, No. (%)	CDI test, No. (%)	Adjusted OR (95% CI)	P value
Total	155	75	-	-
Age (mean ± SD)	73 ±17	73 ±15	1.00 (0.98, 1.03)	0.80
Sex (m)	76 (49)	34 (45)	0.85 (0.45, 1.63)	0.70
No. of potential causes of HOD / patient (median)	3	3	-	-
Any underlying condition	74 (48)	33 (44)	0.77 (0.40, 1.49)	0.70
Receiving antimicrobials	78 (50)	47 (63)	1.73 (0.89, 3.37)	0.11
Any other medication that can cause diarrhoea	130 (84)	65 (87)	1.38 (0.52, 3.62)	0.72
Pre-hospital medication only potential cause of HOD	17 (11)	4 (5)	0.42 (0.11, 1.59)	0.25
No. of diarrhoea episodes in 24 hr before the survey (median)	3	3	1.10 (0.94, 1.29)	0.26
HOD documented in medical notes	59 (38)	58 (78)	6.47 (3.31, 12.66)	<0.001



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# Results 5: HOD management

- Only 35% of patients had a documented medical assessment - may indicate a lack of awareness<sup>1</sup> or concern amongst medical staff
- 40% patients had  $\geq 1$  additional investigation
- 27% patients had  $\geq 1$  treatment stopped / started / adjusted
  - Started: IV fluids, CDI treatment
  - Stopped: laxatives, antimicrobials, PPI
- Only 24% of patients not already in a side room were isolated (overall 63% HOD patients were not isolated)

1. Kyne. Age Ageing. 1998.



# Conclusions

- HOD affects large numbers of hospital patients (>68,000 beds in included specialities in England → ~2450 patients/day) <sup>1</sup>
- Multiple potential causes, mainly iatrogenic, can be identified in most patients – many potentially reversible
- Majority of patients with HOD...
  - Were not tested for CDI
  - Had no documented evidence of a medical assessment
  - Were not isolated
- Potential consequences
  - CDI cases may be missed
  - Risk of onward transmission of *C. difficile*

1) Health and Social Care Information Centre, 2017

