METHODS

Standardized questionnaire -> Co-ordinator in each country

Laboratory selection (1 lab/10 000 beds)

Feedback of questionnaires to co-ordinators and investigators

Analysis Epi-Info 6.0c

B: M. Delmée
DK: M. Tvede
G: C. Schneider
GB: J. Brazier, I. Poxton
I: P. Mastrantonio
Sp: R. Alonso
NL: E. Kuipjer
F: V. Lalande, F. Barbut
Parma 2003

RESULTS

University-affiliated hospitals = 101 (47.4%)
Hospital > 500 beds = 76 (35.5%)

214 questionnaires
FREQUENCY OF LABS NOT PERFORMING *C. difficile* TESTING

- **12.3 %** of labs forward stool samples to an outside laboratory
  - 32.4% for Hosp < 500 beds (vs 1.4% for H > 500 beds) (p<0.001)
  - 21.6 % for non univ-affiliated (vs 2% for univ aff.) (p<0.001)

- **3.3 %** of labs never or very rarely receive requests for *C. difficile*
CRITERIA FOR TESTING FOR CD

- ONLY if specifically requested: 58.6%
- Systematically on specific criteria: 40.7%
- No correlation with size or type of hospital

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CRITERIA FOR UNDERTAKING C. difficile TESTING
METHODS: an overview

CULTURE
- 55.1%
- or GDH detection 5.9%

TOXIN
- 93%

MOLECULAR BIOLOGY (PCR)
- 1.9%

STOOLS

Cytotoxicity assay
- 17.3%

EIA
- 79.2%

BOTH
- 3.5%
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CULTURE (n=102/185)

No difference between: Univ. versus non Univ. H (p=0.14) >500 versus <500 bed H (p=0.87).

(X² for trends= 37.5, p<0.0001)
CULTURE

• **Media**: home made: 28.4%
  commercial (CCA): 68.6% (Biomérieux>>Oxoid, Becton)

• **Inoculation** (no difference between countries):
  • direct: 68.6%
  • enrichment step: 26.5%
  • both: 4.9%

• **Incubation** (X² for trends: 41.1, p<0.001)
  • chambers: 29.4% (100% for Sp and Dk)
  • jars: 70.6% (Anoxomat: 29.2% but 100% for NL and 61% for B)

**Time incubation**: 48 h (82.4%) (no difference between countries)
Toxins: EIA vs cytotoxicity

No difference with size and type of hospitals.

$X^2 = 19, p=0.004$
TOXINS: types of EIA

- EIA rapid
- EIA A+B
- EIA A

B | Dk | F | NL | G | I | Sp | GB

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STRATEGIES

- Inappropriate (only culture or antigen): 4.8%
- Standard (toxins in stools): 42.2%
- Optimal (culture and toxins): 41.6%
- Others: 11.4%
STRATEGIES for DIAGNOSIS

No difference with size or type of H

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SUSCEPTIBILITY TESTING

- 18.3% of labs routinely test for *C. difficile* susceptibility
  - (F, NL (40-50%) > I, Sp (11-17%) > DK, GB, B (0%))
  - Large hospital > small hospitals (22.1% vs 8%, p=0.04)
  - University > non-university (24.2% vs 11.5%, p=0.039)

Typing Methods

- 10.7% of labs can perform *C. difficile* typing
  - Large hospital > small hospitals (13.6% vs 2.3%, p=0.04)
  - University > non-university (16% vs 4.0%, p=0.022)
FREQUENCY OF STOOLS WITH POSITIVE TOXIN (n=136)

- Means: $9.47\% \pm 6.46\%$
- Median = 8.15\% (25\%ile = 5\% - 75\%ile = 12.95\%)

- No influence of size, type of hospitals
- No influence of methods (Cytotoxicity vs EIA) or criteria used for diagnosis (on request vs systematically)

No difference between countries
DISCUSSION-CONCLUSION

• First european survey of diagnostic methods for CD

• Possible bias related to the mode of labs selection
  - No control procedures for labs selection
  - The more you do, the easier you answer
  - Important weight of answers from F and G

• Estimation of incidence based on data from all departments including pediatrics, long term facilities, oncology...
DISCUSSION-CONCLUSION

- 88% of labs are able to perform CD diagnosis and half of them do it systematically on appropriate criteria (nosocomial, ATB, liquid stools)

- 92.7% undertake direct detection of toxins in stools, with an EIA in 80% of cases

- Marked discrepancies are noticed between countries in strategies used and some inappropriate methods are still used in 4.8% of cases.

41.6% of labs use a reference strategy.