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Background

Italy has among the highest antimicrobial resistance (AMR) rates in Europe. Within the Italian multi-society MuSICARe project to fight AMR, a national survey focusing on AMR control and prevention strategies was performed.

We here report the results of the national survey

Methods

A board from two Italian scientific societies, SIMPIOS (Italian Society for the prevention of health-care associated infections) and SItI (Italian Society of Hygiene, Preventive Medicine and Public Health) organized the survey. An eight sections - 79 questions closed-answer questionnaire was prepared.

The sections were:

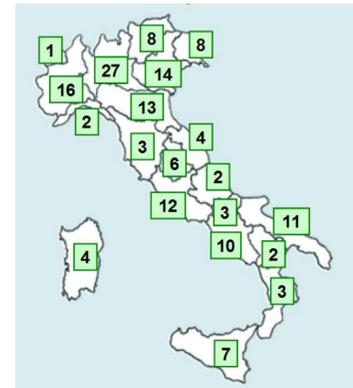
1) hospital general characteristics and infection control (IC) organization, 2) surveillance, 3) hand hygiene (HH), 4) prevention of device associated infections (DAI), and of multi-drug resistant organisms (MDRO) infections, 5) infection diagnosis, 6) antimicrobial stewardship programs (ASP), 7) education, 8) local situations and needs.

The questionnaire was sent in February 2016 to all Italian hospitals. A survey monkey® system was used. The coordinating committee received, recorded, and elaborated the questionnaires.

Conflict of interest: none declared

Results

We received 156 questionnaires from all Italian regions (see Figure 1), representing 11% of the Italian hospitals, 41% of the hospitals beds, accounting for 39% of the national admissions. The IC committee was present in 97% of the facilities, the IC team in 84%.



	MUSICARE	Italy	%
Hospitals	156	1489	11
Hospital beds (x 1000)	65	159	41
Admissions (x 1000)	2.110	5.834	36
Surgical procedures (x 1000)	1.185	7.630	16

Table 1. Musicare participant hospitals as compared to the country.

Figure 1. Distribution of surveys in the country.

1) General characteristics: an IC nurse and doctors were present in 78% and 59% of hospitals respectively. The IC team met a median of 5 times/year (range 0-52). 18% of the hospital did not publish any AMR report and a further 10% published data on an irregular base.

2) Surveillance: a surveillance system was missing in about a third of hospitals; 28% of hospitals did not perform carbapenemase-producing *Enterobacteriaceae* (CPE) surveillance.

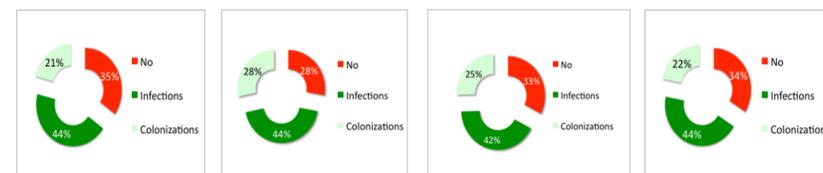


Figure 3. Surveillance of MDRO. CR= carbapenem-resistant

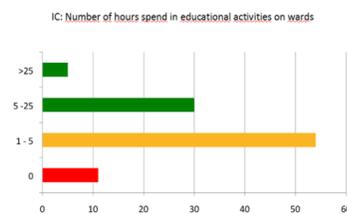


Figure 2. Weekly hours spent by the infection control team members in the wards.

18% of the facilities did not perform any surveillance of health-care associated infections (HAI). A third of the hospitals performed yearly prevalence surveys.

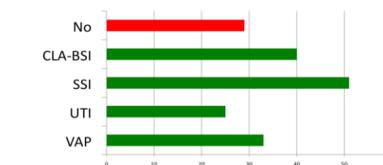


Figure 4. Number of hospital performing HAI surveillance per type of infection

3) HH: A HH program was ongoing in 88% of hospitals and 99% of the hospitals had alcohol hand rub solutions available. Adherence to HH was never or irregularly observed in 64% of centers. The WHO HH Framework was not used at all or irregularly in 63% of centers.

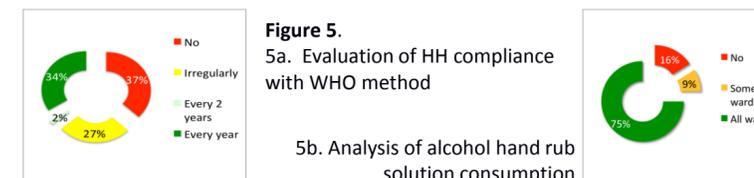


Figure 5. 5a. Evaluation of HH compliance with WHO method

5b. Analysis of alcohol hand rub solution consumption

4) Prevention of DAI and MDRO infections: guidelines for MDRO were available in 63 to 85% of hospitals, while audits on guidelines compliance were performed in 36 to 59% of centers: a 25-28% difference between theory and practise.

5) Infection diagnosis: guidelines for the diagnosis of community acquired infections and HAI were available for 12-45% and 45-62% of hospitals, respectively.

6) Education: education on antibiotic therapy, DAI, and MDRO infections was not implemented in 35%, 70%, and 55% of hospital, respectively. Courses for recently employed health-care workers are performed in only 8-42% of

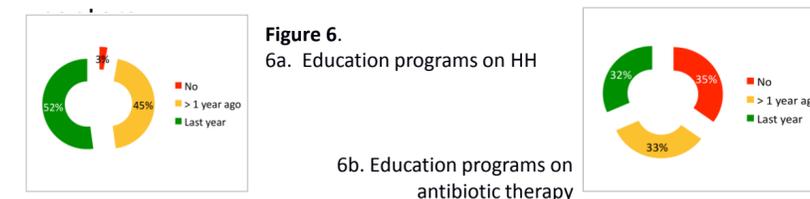


Figure 6. 6a. Education programs on HH

6b. Education programs on antibiotic therapy

7) ASP: ASP committee was present in 49% of hospitals. 35% of the centers had antibiotic treatment guidelines for the whole facility; local protocols for de-escalation and intravenous-oral switch were available in 14% and 16% of hospitals, respectively.

Surgical prophylaxis guidelines were available in 86% of centers. Effective audit and feed-back of antimicrobial therapy was done in 21% of centers.

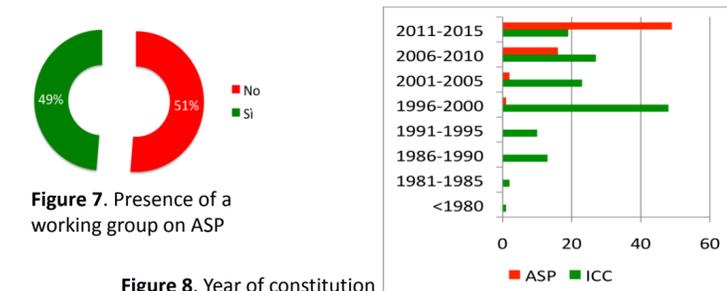


Figure 7. Presence of a working group on ASP

Figure 8. Year of constitution of the infection control committee (ICC) and ASP committee

8) local situations and needs: the feeling of the survey rapporteurs was that medical directions were not identifying AMR as a critical problem.

Conclusions

The survey identified several critical clues in the AMR control system in acute care hospitals Italy, among which probably the most important are:

1. improving ICC activity in the wards,
2. hand hygiene compliance,
3. antimicrobial stewardship programs, with a 15-years gap between the implementation of infection control programs as compared to ASP.

A coordinated national action possibly starting from these three critical issues is urgently needed.

Progetto Multi Societario Italiano sul Controllo dell'Antibiotico Resistenza

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