

## Letter to the Editor

# Drivers of press media response to healthcare-associated infections caused by multidrug-resistant organisms: A report from Brazil

Priscila Zacarias de Azevedo Carazatto PhD, Felipe Francischetti Calil MS and

Carlos Magno Castelo Branco Fortaleza MD, PhD 

Department of Tropical Diseases, Botucatu School of Medicine, São Paulo State University (UNESP), City of Botucatu, São Paulo State, Brazil

*To the Editor*—Public awareness of healthcare-associated infections (HAIs) and antimicrobial resistance (AMR) has been described both as a primary goal of prevention policies<sup>1</sup> and as a factor influencing the practice of healthcare epidemiology.<sup>2</sup> Furthermore, public awareness can increase advocacy and can achieve higher levels of political commitment,<sup>3</sup> which is important to the development of countrywide (and even worldwide) infection prevention and control programs. This factor is especially relevant for low-to-middle income countries, in which higher incidences of HAIs are found and most of which do not include infection control in their public health agendas.<sup>4</sup>

Mass media (including printed and online press) has been variably successful in promoting changes in health behavior in issues such as tobacco use and protection against sexually transmitted infections.<sup>5</sup> Much less evidence is available regarding whether media can favorably influence public health policies, although the media may raise public awareness.<sup>6</sup> For HAIs and AMR, both impacts (on individual behavior and public policies) may play roles in prevention and control; however, the extent of their influence remains unclear.

To assess this issue, we conducted a review of press media news regarding 2 multidrug-resistant organisms (MDROs) that are hyperendemic in Brazilian hospitals<sup>7</sup>: carbapenem-resistant *Acinetobacter baumannii* complex (CRAB) and carbapenem-resistant Enterobacteriaceae (CRE). We chose to search the G1/GLOBO ([www.g1.globo.com](http://www.g1.globo.com)), which is the largest digital media network in Brazil, with branches in all Brazilian states. The search period included 2006 through 2017. Because we were interested in a sensitive search, we used simple terms: *Acinetobacter*, *Klebsiella*, *Enterobacter* OR *Escherichia coli* OR Enterobacteria OR Enterobacteriaceae OR CRE OR KPC OR resistance to carbapenems. We used the following inclusion criteria: (1) description of single cases, case series, endemicity or outbreaks of CRAB or CRE in hospitals and (2) all cases and/or healthcare settings possible to be assigned to a specific Brazilian state or region. The number of articles was then analyzed considering national surveillance data. Because we were interested in the “exposure of readers” to the subject, we did not exclude articles with overlapped or partially duplicated information. However, complete duplications (reprints of the same article) were excluded.

**Author for correspondence:** Carlos Magno Castelo Branco Fortaleza, E-mail: [carlosmagnocbfortaleza@gmail.com](mailto:carlosmagnocbfortaleza@gmail.com)

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Our search retrieved 101 articles, of which 85 met the inclusion criteria. Among those, 60.0% were reports of individual persons infected, 30.5% were reports of outbreaks, and 9.5% were reports of nonoutbreak settings. Only 9 articles regarded CRAB, whereas 76 reported on CRE. Table 1 presents the distribution of articles per period and Brazilian macroregions. The articles were more frequent in the most populated areas (ie, southeast and northeast) and were absent in the northern states. The peak period of publication was from 2011 through 2015.

Interestingly, the press elected CRE “a public concern,” and little attention was given to CRAB. This finding is not consistent with data from national surveillance. In the last report of the Brazilian Program for Infection Control (data from year 2015, available at <http://portal.anvisa.gov.br/documents/33852/3074203>), CRAB and CRE accounted for 8.2% and 9.1% of 22,499 etiological agents of central line-associated bloodstream infections (CLABSIs). Thus, a hypothetical rate of the relation between “articles in the period 2006–2018” and “number of CLABSI cases” in 2015 is 4.90 (CRAB) and 37.24 (CRE) articles per 1,000 CLABSI cases. The rate ratio (RR) for this comparison is 7.61 (95% confidence interval, 3.96–16.13), with  $P < .001$  (mid- $P$  exact test). Although this rate is artificially contrived, it is quite clear that the likelihood of CRE cases reaching the media press was much greater than for CRAB cases.

Notably, CRAB was hyperendemic in Brazilian hospitals since late 1990s, and CRE was first documented in 2006.<sup>7</sup> In the years immediately prior (2003–2005), the Brazilian Program of Infection Control was restructured, and some states started reporting surveillance data.<sup>8</sup> More information about HAIs was available than ever before, as the country underwent a period of economic development and political stability during this time. Finally, in those years, the first demands for public disclosure of individual hospitals’ HAI rates were made by consumer protection organizations. This issue remains a matter of heated and unresolved debate in Brazil.

In the period from the first CRAB infections to the emergence of CRE, there were substantial changes in the national infection control policy and in the dissemination of surveillance data. Several regulations for infection control in healthcare settings were raised.<sup>9</sup> It is likely that journalists covering health were increasingly interested on the “patient safety” issues during this period. Public awareness was possibly both a consequence and a feedback stimulus for publications on CRE.

Media drives public response and vice versa. Both can impact on public policies. In this case, the public concern with the emergence of the “super bacteria” (as newspapers referred to CRE, especially to the KPC phenotype) in 2010 led sanitary authorities to enact RDC44, a

**Table 1.** Number of Press Articles Reporting Infections Caused by CRAB and CRE in Brazil, Distributed in Periods and Country's Macroregions

Subject and Date	North	Northeast	Middle-West	Southeast	South	Total
<b>CRAB</b>						
2006–2010	...	...	...	...	...	...
2011–2015	...	1	4	4	...	9
2016–2018	...	...	...	...	...	...
<b>CRE</b>						
2006–2010	...	2	2	2	4	10
2011–2015	...	13	8	19	13	53
2016–2018	...	4	4	5	...	13

Note. CRAB, carbapenem-resistant *Acinetobacte baumannii* complex. CRE, carbapenem-resistant enterobacteriaceae.

resolution that banned over-the-counter sales of antimicrobials in drugstores. That measure, focusing on outpatients, was not likely to succeed in controlling CRE spread in hospitals. Nevertheless, there was a substantial decrease in antimicrobial sales in private drugstores in response to public opinion.<sup>10</sup> The extent to which this decrease has influenced or will influence antimicrobial resistance is a matter for further research.

We did not perform quantitative or qualitative analysis of press articles content. Those approaches were beyond our scope, but they open interesting venues for investigation. The Brazilian case shed lights on the press media and public response to epidemiologically complex issues, such as HAIs and AMR. It also reinforces the importance of public communication for the practice of healthcare epidemiology. Messages to the general public must be delivered in clear, objective language and with evidence-grounded information. If we avoid negligence and panic, public awareness can support effective interventions for infection prevention and control.

## Monitoring healthcare professionals after monkeypox exposure: Experience from the first case imported to Asia

Win Mar Kyaw MPH<sup>1</sup>, Shawn Vasoo MRCP<sup>2,3</sup>, Hanley Jian An Ho MPH<sup>4</sup>, Monica Chan MRCP<sup>2,3</sup>, Tsin Wen Yeo PhD<sup>2,3</sup>, Charmaine Malenab Manauis MD<sup>5</sup>, Hou Ang MRCS<sup>5</sup>, Partha Pratim De FRCPATH<sup>6</sup>, Brenda Sze Peng Ang MPH<sup>3,7</sup> and Angela Li Ping Chow PhD<sup>3,4</sup>

<sup>1</sup>Department of Clinical Epidemiology, Tan Tock Seng Hospital, Singapore, <sup>2</sup>Infectious Disease Department, Tan Tock Seng Hospital, Singapore, <sup>3</sup>National Centre for Infectious Diseases, Singapore, <sup>4</sup>Department of Clinical Epidemiology, Tan Tock Seng Hospital, Singapore, <sup>5</sup>Emergency Department, Tan Tock Seng Hospital, Singapore, <sup>6</sup>Department of Laboratory Medicine, Tan Tock Seng Hospital, Singapore and <sup>7</sup>Infection Prevention and Control Unit, Tan Tock Seng Hospital, Singapore

*To the Editor*—Since monkeypox was first identified in humans in the Democratic Republic of Congo in 1970, most human monkeypox cases have been reported in Central and West Africa, with the largest documented outbreak occurring in

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### References

1. Shallcross LJ, Berin M, Roe J, Noursadeghi M. Are the public getting the message about antimicrobial resistance? *Arch Public Health* 2015; 73:55.
2. Marcel JP, Alfa M, Baquero F, *et al.* Healthcare-associated infections: think globally, act locally. *Clin Microbiol Infect* 2008;14:895–907.
3. Frieden TR. Six components necessary for effective public health program implementation. *Am J Public Health* 2014;104:17–22.
4. Allegranzi B, Bagheri Nejad S, Combesure C, *et al.* Burden of endemic healthcare-associated infection in developing countries: systematic review and meta-analysis. *Lancet* 2011;377:228–241.
5. Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behaviour. *Lancet* 2010;376:1261–1271.
6. Bou-Karroum L, El-Jardali F, Hemadi N, *et al.* Using media to impact health policy making: an integrative systematic review. *Implement Sci* 2017;12:52.
7. Rossi F. The challenges of antimicrobial resistance in Brazil. *Clin Infect Dis* 2011;52:1138–1143.
8. Padoveze MC, Melo S, Bishop S, Poveda VB, Fortaleza CMCB. Public policies on healthcare-associated infections: a Brazil and UK case study. *Rev Saude Publica* 2017;51:119.
9. Padoveze MC, Fortaleza CM. Healthcare-associated infections: challenges to public health in Brazil. *Rev Saude Publica* 2014;48:995–1001.
10. Moura ML, Boszczowski I, Mortari N, *et al.* The impact of restricting over-the-counter sales of antimicrobial drugs: preliminary analysis of national data. *Medicine (Baltimore)* 2015;94(38):e1605.

**Author for correspondence:** Win Mar Kyaw, Email: [mar\\_kyaw\\_win@ttsh.com.sg](mailto:mar_kyaw_win@ttsh.com.sg)

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Nigeria in 2017.<sup>1</sup> Monkeypox, a rare viral zoonotic re-emerging disease caused by an orthopoxvirus, has similar clinical signs and symptoms as smallpox and a case-fatality rate of 11% in unvaccinated patients.<sup>2</sup> It can be transmitted from person to person via direct contact with infected lesions, through respiratory secretions, or from contaminated objects and environments. Risk of infection for healthcare workers (HCWs) are high,<sup>3</sup> and patient-to-HCW transmission of monkeypox has been reported in the Central African Republic and the United Kingdom, where staff used