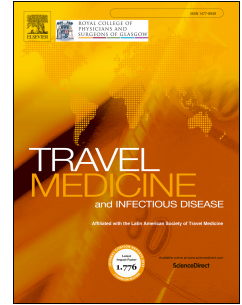


# Accepted Manuscript

Healthcare students and workers' knowledge about transmission, epidemiology and symptoms of Zika fever in four cities of Colombia

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1 Letter to the Editor

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3 **Healthcare students and workers' knowledge about transmission,**  
4 **epidemiology and symptoms of Zika fever in four cities of Colombia**

5

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30 *Dear Editor*

31

32 Latin America has recently witnessed the unprecedented arrival of emerging  
33 arboviruses such as Chikungunya and Zika <sup>1-4</sup>. This represents complex  
34 epidemiological scenarios, where assessing knowledge amongst healthcare  
35 students and workers about the epidemiology, symptoms and transmission of Zika  
36 in cities of Colombia would be relevant <sup>5</sup>. Particularly because no information about  
37 Zika was available in national or local settings before 2015.

38

39 An observational cross-sectional study was performed among assistants who  
40 attended a symposium on Zika on June-July (2015), simultaneously in four cities:  
41 Pereira and Dosquebradas, Risaralda; Sincelejo, Sucre and Cartagena, Bolivar (all  
42 of them, endemic for Dengue and Chikungunya).

43

44 Attendees who agreed to be part (convenience sample), filled out a questionnaire  
45 about basic knowledge on the epidemiology, symptoms and prevention of disease  
46 (five questions), before and after the meeting.

47

48 A total of 269 questionnaires were applied (93 in Pereira, 91 in Sincelejo, 65 in  
49 Dosquebradas and 30 in Cartagena). The mean age of participants was 32.2 year-  
50 old ( $\pm 12.1$ ; range 17-78, 65.9% female), 32.6% were physicians (15.4% general  
51 practitioners and 17.2% specialists), 20.4% nurses, 15.8% medical students.

52

53 Knowledge about virus transmission was significantly higher previous to the  
54 intervention in Cartagena (100%), being consistently high as well in the other  
55 assessed cities (>80%). Regard the frequency of symptoms, initial degree of  
56 knowledge was low among all of cities (<35%,  $p \geq 0.05$ ). Information about  
57 incubation period was significantly higher before at Pereira (80%) and lower in the  
58 other cities (<65%). Regard the most frequent symptoms associated and disease  
59 prevention, knowledge was also significantly higher in Pereira (91% and 100%,  
60 respectively). Also, in Pereira we observed a significant increase in questions 2  
61 and 3 (33.3% to 83.3% and 80.0% to 97.9%,  $p < 0.05$ ), reaching 100% of correct  
62 answer choice for the rest of the questions. In Cartagena 100% of correct answers  
63 were reached after. A similar pattern was observed for Sincelejo, except for  
64 question 5 in which 95.7% was obtained after intervention, with significant increase  
65 when compared to the baseline ( $p = 0.04$ ). For Dosquebradas, a significant rise was  
66 observed for question 2 ( $p = 0.001$ ), with a boost of up to 100% for question 1, as  
67 well as a >89% trend in final correct answers for the other questions (Table 1).

68

69 Despite its limitations, this is the first study to measure the level of knowledge on  
70 transmission, epidemiology and symptoms of Zika fever. Up to July 15, 2015, when  
71 the trainings were held, there were not officially confirmed cases of Zika in  
72 Colombia, contrasting to its neighboring country of Brazil, where almost 50 cases  
73 were reported. Since September 22, 2015, the first nine cases, were reported. Until  
74 November 28, 2015, there have been more than 3700 suspected cases, with 578  
75 RT-PCR-laboratory-confirmed Zika cases in Colombia. This would have been  
76 impact in clinical and epidemiological suspicion, then giving the relevance of

77 preparedness and alert before the arrival of Zika to these regions, in order to  
78 achieve a timely diagnosis and optimal disease management in endemic regions,  
79 but also for travelers returning from these areas<sup>2,4</sup>.

80

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83

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103**Table 1.** Results of questions about knowledge about transmission, epidemiology and symptoms of Zika fever in four cities of Colombia.

|   | Cities  |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      | All cities comparison |        |
|---|---------|-------|----|-------|--------|--------------|-------|----|-------|------|-----------|-------|----|-------|------|-----------|-------|----|-------|------|-----------------------|--------|
|   | Pereira |       |    |       |        | Dosquebradas |       |    |       |      | Sincelejo |       |    |       |      | Cartagena |       |    |       |      | Pre                   | Post   |
|   | Pre     | Post  | p  |       |        | Pre          | Post  | p  |       |      | Pre       | Post  | p  |       |      | Pre       | Post  | p  |       |      | p                     | p      |
| n   | %       | n     | %  |       | n      | %            | n     | %  |       | n    | %         | n     | %  |       | n    | %         | n     | %  |       | p    | p                     |        |
| <b>1. Zika fever is a disease transmitted by (answer: mosquito bite)</b>  |         |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      |                       |        |
| Correct   | 44      | 97.8  | 48 | 100.0 | 0.3    | 16           | 94.1  | 48 | 100.0 | 0.26 | 36        | 81.8  | 47 | 100.0 | 0    | 15        | 100.0 | 15 | 100.0 | n/a  | 0.0249                | n/a    |
| Incorrect   | 1       | 2.2   | 0  | 0.0   |        | 1            | 5.9   | 0  | 0.0   |      | 8         | 18.2  | 0  | 0.0   |      | 0         | 0.0   | 0  | 0.0   |      |                       |        |
| Total   | 45      | 100.0 | 48 | 100.0 |        | 17           | 100.0 | 48 | 100.0 |      | 44        | 100.0 | 47 | 100.0 |      | 15        | 100.0 | 15 | 100.0 |      |                       |        |
| <b>2. Regard symptoms, which proportion of patients present them? (answer: 75%)</b>                                     |         |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      |                       |        |
| Correct   | 15      | 33.3  | 40 | 83.3  | <0.001 | 3            | 17.6  | 32 | 66.7  | 0    | 10        | 22.7  | 47 | 100.0 | n/a  | 0         | 0.0   | 15 | 100.0 | n/a  | 0.0592                | <0.001 |
| Incorrect   | 30      | 66.7  | 8  | 16.7  |        | 14           | 82.4  | 16 | 33.3  |      | 34        | 77.3  | 0  | 0.0   |      | 15        | 100.0 | 0  | 0.0   |      |                       |        |
| Total   | 45      | 100.0 | 48 | 100.0 |        | 17           | 100.0 | 48 | 100.0 |      | 44        | 100.0 | 47 | 100.0 |      | 15        | 100.0 | 15 | 100.0 |      |                       |        |
| <b>3. Usual incubation period is (answer: 3-12 days)</b>  |         |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      |                       |        |
| Correct   | 36      | 80.0  | 47 | 97.9  | 0.01   | 11           | 64.7  | 46 | 95.8  | 0.49 | 28        | 63.6  | 47 | 100.0 | n/a  | 5         | 33.3  | 15 | 100.0 | n/a  | 0.0004                | 0.4691 |
| Incorrect   | 9       | 20.0  | 1  | 2.1   |        | 6            | 35.3  | 2  | 4.2   |      | 16        | 36.4  | 0  | 0.0   |      | 10        | 66.7  | 0  | 0.0   |      |                       |        |
| Total   | 45      | 100.0 | 48 | 100.0 |        | 17           | 100.0 | 48 | 100.0 |      | 44        | 100.0 | 47 | 100.0 |      | 15        | 100.0 | 15 | 100.0 |      |                       |        |
| <b>4. More frequent symptoms are (answer: fever, conjunctivitis and arthralgia)</b>                                     |         |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      |                       |        |
| Correct   | 41      | 91.1  | 48 | 100.0 | 0.05   | 14           | 82.4  | 47 | 97.9  | 0.05 | 40        | 90.9  | 47 | 100.0 | n/a  | 8         | 53.3  | 15 | 100.0 | 0.01 | 0.0023                | 0.5113 |
| Incorrect   | 4       | 8.9   | 0  | 0.0   |        | 3            | 17.6  | 1  | 2.1   |      | 4         | 9.1   | 0  | 0.0   |      | 7         | 46.7  | 0  | 0.0   |      |                       |        |
| Total   | 45      | 100.0 | 48 | 100.0 |        | 17           | 100.0 | 48 | 100.0 |      | 44        | 100.0 | 47 | 100.0 |      | 15        | 100.0 | 15 | 100.0 |      |                       |        |
| <b>5. In order to prevent disease spread in communities, is necessary to (answer: to reduce mosquito bite exposure)</b> |         |       |    |       |        |              |       |    |       |      |           |       |    |       |      |           |       |    |       |      |                       |        |
| Correct   | 45      | 100.0 | 48 | 100.0 | n/a    | 13           | 76.5  | 43 | 89.6  | 0.08 | 35        | 79.5  | 45 | 95.7  | 0.04 | 10        | 66.7  | 15 | 100.0 | 0.04 | 0.0029                | 0.0723 |
| Incorrect   | 0       | 0.0   | 0  | 0.0   |        | 4            | 23.5  | 5  | 10.4  |      | 9         | 20.5  | 2  | 4.3   |      | 5         | 33.3  | 0  | 0.0   |      |                       |        |
| Total   | 45      | 100.0 | 48 | 100.0 |        | 17           | 100.0 | 48 | 100.0 |      | 44        | 100.0 | 47 | 100.0 |      | 15        | 100.0 | 15 | 100.0 |      |                       |        |

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