

## A “Solution” for Infectious Stethoscopes?

**To the Editor:** Although the article by Longtin et al<sup>1</sup> published in the March 2014 issue of *Mayo Clinic Proceedings* is an important contribution, it does not offer a solution to the infectivity of stethoscopes. An article by my colleagues and me,<sup>2</sup> which was cited by Longtin et al, documented that ethanol-based hand sanitizer effectively cleans stethoscope surfaces as well as the hands. The simple maneuver of concurrently wiping stethoscope surfaces and cleaning hands with sanitizer is proven to be effective in reducing colony counts of known pathogens and requires virtually no additional time. We found no difference in effectiveness on stethoscope diaphragms between use of this solution and the recommended isopropyl alcohol pad.

We were disappointed that the behavioral aspects of our study were generally not understood or implemented, although the article by Longtin et al revealed that this maneuver could considerably affect patients. Anecdotally, we were told by several of our study participants that the 2 behaviors were mutually reinforcing, ie, cleaning the stethoscope was a reminder to clean hands and vice versa.

Although damage to stethoscope tubing is cited as a problem with cleaning the stethoscope, given a tubing replacement cost of less than \$50, and a new stethoscope generally less than \$200, can we afford not to replace our stethoscopes for the sake of protecting our patients?

As stated by the Centers for Disease Control and Prevention,<sup>3,4</sup> “Clean hands are the single most important factor in preventing the spread of pathogens and antibiotic resistance in healthcare settings.” If this is so, and stethoscopes bear nearly the same number of bacteria, how important is it to sanitize our stethoscopes simultaneously, using the now ubiquitous

ethanol-based sanitizers? We have documented this to be an immediate, simple, and effective “solution.”

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## In reply—A “Solution” for Infectious Stethoscopes?

We thank Dr Lecat for his interest in our article on contamination of stethoscopes after a physical examination. We agree that our study was not designed to identify the optimal decontamination strategy. Numerous articles have examined potential decontamination strategies, including ethanol wipes,<sup>1</sup> isopropyl alcohol swabs,<sup>2-6</sup> isopropyl wipes,<sup>7,8</sup> sodium hypochlorite,<sup>9</sup> benzalkonium chloride swabs,<sup>9</sup> regular detergent,<sup>10,11</sup> antiseptic soap,<sup>11</sup> and ethanol-based hand rub solution.<sup>12</sup> All these disinfectants were found to substantially reduce the microbial burden on stethoscopes. However, because few comparative studies have been conducted, the optimal method of decontamination remains to be identified. In addition, other aspects such as ease of use, accessibility, and compatibility should also be

considered when selecting a decontamination method.

Regrettably, despite the publication of several studies on the infectious risks associated with stethoscopes, physicians still fail to comply with this simple rule. Studies have shown that 47% to 86% of health care workers do not disinfect their stethoscope regularly<sup>13,14</sup> and that only 6% to 15% disinfect their stethoscope after every use.<sup>9,15</sup> As a solution, Dr Lecat suggests advancement of proper behavior through education and promotion strategies. However, there are reasons to believe that such strategies would be of limited efficacy. For example, despite numerous campaigns stressing the importance of hand hygiene, physicians' compliance with this simple gesture remains distressingly low.<sup>16,17</sup> There are few reasons to believe that physicians could be any better at disinfecting their stethoscope than they are at disinfecting their own hands.

Confronted with this situation, a more appealing, feasible, and scientifically sound solution should be to ban the use of personal stethoscopes and replace them with dedicated stethoscopes available at every patient's bedside. This strategy would have the immediate benefit of greatly reducing the risk of transmitting potential pathogens between patients through this instrument.

Regardless, we appreciate Dr Lecat's comments and suggestions. Clearly, future research is warranted to identify methods to decrease the infectious risks associated with the use of stethoscopes.

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## Treatment of Hepatitis C With the Earliest Protease Inhibitor—Based Therapy

**To the Editor:** We found the article by Al-Bawardy et al<sup>1</sup> published in the May

2014 issue of *Mayo Clinic Proceedings* regarding telaprevir-based therapy for hepatitis C interesting. We agree with the authors that the future use of telaprevir is certainly a possibility considering the astronomical costs of the newer hepatitis C therapies.<sup>2,3</sup> We would like to share our own experience in a county hospital with both boceprevir and telaprevir for the treatment of hepatitis C. Our hospital serves as a safety net for patients without insurance, and most of those who have insurance have Medicaid; 40% of our patients are Hispanic.

We treated 19 patients each with telaprevir and boceprevir. A sustained virologic response (SVR) was achieved in 19 of the 38 patients (50%; 10 of 19 and 9 of 19 patients receiving boceprevir and telaprevir, respectively). There was no difference in median age, sex, body mass index, and platelet count between those achieving or not achieving SVR; other important variables studied are summarized in the Table. Our 50% SVR rate was not significantly different from the 53% overall rate achieved at Mayo Clinic.<sup>1</sup> The patients in the study by Al-Bawardy et al were locally referred patients, whereas at our facility, 8 of 38 treated patients were undocumented

immigrants and many were Hispanic; however, the SVR rates were very similar.

In the Mayo experience, 11 of 55 patients (20%) had to stop treatment prematurely,<sup>1</sup> whereas among our patients, 7 of 38 patients (18%) could not complete 12 weeks of treatment, and only 1 of 7 patients who could not complete 12 weeks of treatment achieved an SVR. Moreover, 6 patients received transfusions and 8 were hospitalized for either anemia or failure to thrive. We also found it interesting that in the Mayo experience, a relatively large number of patients receiving dual therapy could not complete their hepatitis C virus treatment either.

On the basis of our own experience and that reported by Al-Bawardy et al, we believe that as the floodgates are opening for patients to receive new treatments for hepatitis C, whoever would like to treat these patients should be well prepared. The currently available treatment with sofosbuvir is still combined with peginterferon and ribavirin, and in the near future, all-oral therapy is going to be available. However, close follow-up and diligent attention to minute detail cannot be

**TABLE. Important Clinical Variables and Responses to HCV Treatment With Telaprevir (19 Patients) or Boceprevir (19 Patients)<sup>a,b</sup>**

Variables	SVR (19 Patients)	No SVR (19 Patients)
Fibrosis		
None	3 (15.8)	2 (10.5)
Mild	10 (52.6)	8 (42.1)
Severe	1 (5.3)	3 (15.8)
Cirrhosis	4 (21.1)	7 (36.8)
RVR	11 (57.9)	5 (26.3)
EVR	5 (26.3)	5 (26.3)
Previous relapse	4 (21.1)	7 (36.8)
Previous null response	0 (0)	2 (10.5)
Free medication	2 (10.5)	6 (31.6)
Insurance	17 (89.5)	13 (68.4)
Blood transfusion (during Tx)	2 (10.5)	4 (21.1)
Hospitalization	1 (5.3)	7 (36.8)

<sup>a</sup>EVR = early virologic response; RVR = rapid virologic response; SVR = sustained virologic response; Tx = treatment.

<sup>b</sup>Data are presented as No. (percentage) of patients.