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Reply to Sopirala

Shelley S. Magill[1], **Cindy Gross**[1,2], **Michael Klompas**[3,4]

[1]Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia

[2]CACI, Atlanta, Georgia

[3]Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, Massachusetts

[4]Department of Medicine, Brigham and Women's Hospital, Boston, Massachusetts

To the Editor—We thank Dr Sopirala for her letter regarding the National Healthcare Safety Network (NHSN) ventilator-associated event (VAE) definitions [1]. We would like to address 2 concerns: (1) that VAE definitions misclassify present-on-admission conditions as nosocomial events, and (2) that de-escalation of antibiotics may result in classification of a VAE as an infection-related ventilator-associated complication (IVAC) rather than a ventilator-associated condition (VAC), and that this may lead some clinicians to continue broad-spectrum antibiotics inappropriately to avoid IVAC reporting.

Dr Sopirala presents 2 case examples of patients who met VAE criteria despite having evidence of infection in the first 2 days of mechanical ventilation. These examples beg the question of whether VAE criteria misclassified these patients as having nosocomial complications. Both patients, however, required additional ventilator support on or after day 3 of mechanical ventilation. The author acknowledges that this could have been due to heart failure, mucous plugging, empyema, or progression of infection. These potential explanations are not misclassifications, but some of the conditions that VAE criteria were designed to detect. VAE definitions were specifically created to broaden the focus of surveillance and thus quality improvement to encompass more than just pneumonia [2]. Our hope is that bringing these additional events to the attention of clinical teams will help stimulate broader prevention efforts.

The author also expresses concern that IVAC criteria might lead to antibiotic misuse. In particular, patients on broad-spectrum antibiotics prior to a VAC who are switched to targeted antibiotics at the time of the VAC and treated for at least 4 days may meet the IVAC definition. This might induce some clinicians to try to avoid IVAC reporting by continuing broad-spectrum antibiotics. Deviating from best patient care practices to avoid reporting a surveillance event, however, would be surprising, highly inappropriate, and in opposition to

Correspondence: M. Klompas, Harvard Medical School, Department of Population Medicine, 401 Park Drive, Suite 401 East, Boston, MA 02215 (mklompas@partners.org).

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a joint statement issued by the Centers for Disease Control and Prevention (CDC) and the Centers for Medicare and Medicaid Services (CMS) [3]. The event would still be counted as a VAE, and is not considered less serious than if it were reported as an IVAC. CDC does not assign severity rankings to different VAE definition tiers.

The NHSN VAE protocol states, “Rates that may be appropriate for use in public reporting, inter-facility comparisons, and pay-for-reporting/pay-for-performance programs are the overall VAE rate (where the numerator consists of all events meeting at least the VAC definition) and the ‘IVAC-plus’ rate (where the numerator consists of all events meeting at least the IVAC definition)” [4]. Currently, long-term-care hospitals (LTCHs) are paid for reporting VAE data as part of the CMS LTCH Quality Reporting Program [5]. We are not aware of any federal pay-for-performance programs involving VAE at this time. If such programs were to incorporate VAE in the future, we believe the focus should be on all VAEs rather than a subset, mainly because we believe in the importance of preventing all serious complications of mechanical ventilation but also in part because of some of the concerns raised in Dr Sopirala’s letter.

IVAC may still be useful for internal quality improvement efforts. Both VAC and IVAC are correlated with antibiotic consumption in intensive care units [6]. Providers working on antibiotic stewardship can monitor the proportion of VAEs that are IVAC-plus events. We have found that this proportion varies widely between and within inpatient location types [7]. Exploring reasons for variation may reveal additional opportunities for antibiotic stewardship.

Finally, we would like to note a minor correction to the event date in the author’s second example. The VAE start date should be mechanical ventilation day 5 (the first day of increased ventilator settings) rather than day 4.

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