Noninvasive Positive-Pressure Ventilation

TO THE EDITOR: Kelly et al. (June 4 issue)[1] list the complications associated with noninvasive positive-pressure ventilation (NPPV) and potential responses to such complications in Table 1 of the print supplement to their video. There are two other important complications that might have been included. Gastric insufflation is reported in up to 50% of patients receiving NPPV.[2] If a tense and tympanic abdomen develops and arterial oxygen saturation declines, gastric insufflation should be considered. A simple radiograph may reveal the presence of substantial air in the stomach or an elevated diaphragm.[3] The insertion of a nasogastric tube quickly relieves the symptoms. In addition, noninvasive ventilation can result in conjunctival irritation as a result of an air leak or direct irritation, particularly in patients with a poorly fitting nasal or oronasal mask. Refitting or reseating the mask generally corrects the problem.

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No potential conflict of interest relevant to this letter was reported.

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THE AUTHORS REPLY: Mahmoodpoor and Golzari note two additional complications that may occur during NPPV. Gastric insufflation is common. In one study, inspiratory pressures of 10 cm and 15 cm of water led to sonographically detectable gastric insufflation in 19% and 35% of patients, respectively.[1] Abdominal discomfort and emesis, however, are much less common, and serious complications are rare.[2,3] To minimize the risk of gastrointestinal symptoms, the ventilator should provide the lowest pressures needed to achieve adequate respiratory support. Although a nasogastric tube can decompress the stomach, the tube can also increase the likelihood of air leaks and patient discomfort and should be inserted only if gastrointestinal symptoms occur. NPPV should be continued with great caution, if at all, in patients with persistent nausea, given the high risk of aspiration.

Ocular irritation may occur with NPPV. Avoiding masks that cover the eyes (e.g., a full face mask), adjusting other masks to eliminate air leaks near the eyes, or applying artificial tears will alleviate eye irritation.

The table we provided was intended for use as a guide to managing common complications of NPPV and was not intended to serve as a comprehensive review. See the references in the print supplement to the video for more detailed discussion.

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Since publication of their article, the authors report no further potential conflict of interest.

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Early Patterns of Sofosbuvir Utilization by State Medicaid Programs

TO THE EDITOR: The cure rates associated with sofosbuvir, a new treatment for hepatitis C virus (HCV), have been remarkable.[1] However, the high cost of the drug has raised concerns,[2] particularly in regard to socioeconomically disadvantaged populations with a high prevalence of HCV

infection, such as Medicaid beneficiaries. Demand for new HCV drugs in Medicaid populations drove historic surges in spending on drugs in 2014, the first full year during which sofosbuvir was available since its approval by the Federal Drug Administration (FDA) in late 2013.[3] Given its recent introduction to the market, little is known about state-level utilization and spending patterns for sofosbuvir.

We examined aggregate utilization (the percentage of prescriptions for HCV treatment attributable to sofosbuvir) and spending (the percentage of total spending on drugs attributable to sofosbuvir) for state Medicaid programs using quarterly data from 2014 for states and the District of Columbia provided by the Centers for Medicare and Medicaid Services (CMS).[4] We also assessed the associations of utilization and spending with state-level incidence of HCV infection and decisions to expand Medicaid programs.

In the first quarter of 2014, the proportion of prescriptions for HCV attributable to sofosbuvir ranged broadly, from 0.75% in West Virginia to 39% in Hawaii. Utilization increased in the next quarter in 42 states and more than doubled in 11 states. Wide variation persisted in the third quarter, although utilization fell in 7 states and stabilized or slowed in many others. Cumulatively over 2014, sofosbuvir accounted for anywhere from 2% (Texas) to 44% (Hawaii) of all prescriptions for HCV infections covered by Medicaid (see the Supplementary Appendix, available with the full text of this letter at NEJM.org).

Total spending on sofosbuvir reported in CMS data (which does not account for manufacturer rebates) exceeded $1.3 billion in 2014. Wide variation was observed across states (Fig. 1, and the Supplementary Appendix). Spending on sofosbuvir ranged from less than 0.5% of total program spending on drugs in Texas, Wisconsin,

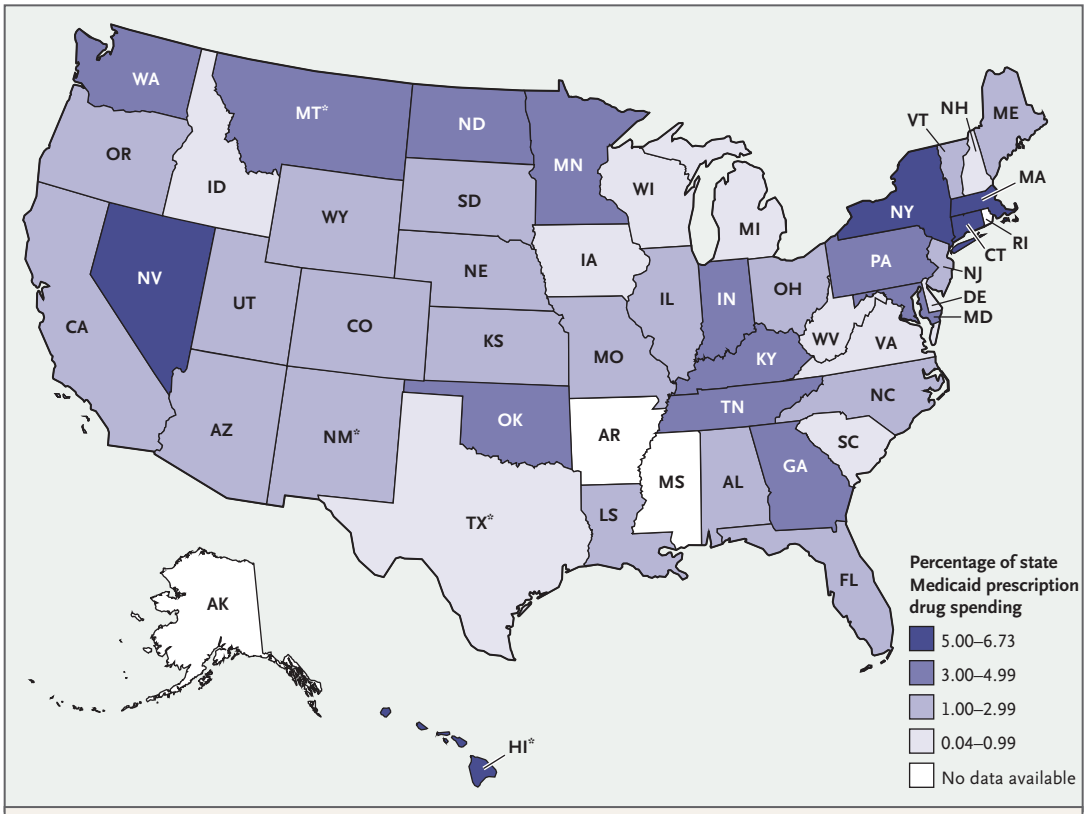

Figure 1. Percentage of Medicaid Spending on Prescription Drugs Attributable to Sofosbuvir According to State, 2014.

The states with the highest percentage of spending attributable to sofosbuvir in all four quarters of 2014 were New York (6.73), Connecticut (6.67), and Massachusetts (6.66). Asterisks denote states for which percentages were calculated on the basis of data from three quarters.

and Iowa to more than 5% in New York, Connecticut, Hawaii, Massachusetts, and Nevada. Sofosbuvir utilization and spending in state Medicaid programs were not correlated with state-level incidence of HCV infection (r=−0.04 for prescriptions [P=0.81] and r=0.17 for spending [P=0.30]). Utilization did not differ according to state decisions to expand Medicaid coverage (P>0.5), but states that did expand coverage spent more of their total drug budget on sofosbuvir than those that did not expand coverage (3.3% vs. 2.0%, P<0.01).

Our analysis reveals that in the first year after the approval of sofosbuvir by the FDA, there was a rapid, widespread increase in Medicaid spending on sofosbuvir, but with substantial variation across states. These results — together with Medicaid budgetary constraints, high drug costs, and the increasing availability of other expensive, new medications[5] — underscore the need to identify effective strategies to guide policy and reimbursement in order to ensure parity and appropriateness in the use of sofosbuvir among the Medicaid population and other high-need populations, such as prisoners and low-income patients who are not eligible for Medicaid, especially in states that did not expand Medicaid coverage.

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Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

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CORRECTIONS

An Integrated View of Potassium Homeostasis (July 2, 2015; 373:60-72). In the Internal Potassium Homeostasis section, the first sentence of the first paragraph (page 61) should have been two sentences: the phrase "between the intracellular and extracellular fluid, which occurs" should have read, "between the intracellular and extracellular fluid. This occurs . . . ." In Box 1 (page 63), in the paragraph beginning, "Hyperkalemic familial periodic . . . ," the final sentence should have begun, "Mutations in *SCN4A* . . . ," rather than "Inactivating mutations in *SCN4A* . . . ." In Figure 2 (page 67), "HCO_3^+/Cl^- exchanger" should have been "HCO_3^-/Cl^- exchanger." The article is correct at NEJM.org.

Permissive Underfeeding or Standard Enteral Feeding in Critically Ill Adults (June 18, 2015;372:2398-408). In Table 2 (page 2403), in the stub column, the two entries below "Enteral formulas on day 1" should have been "Without a specific disease indication" and "With a specific disease indication," rather than the reverse. The article is correct at NEJM.org.