

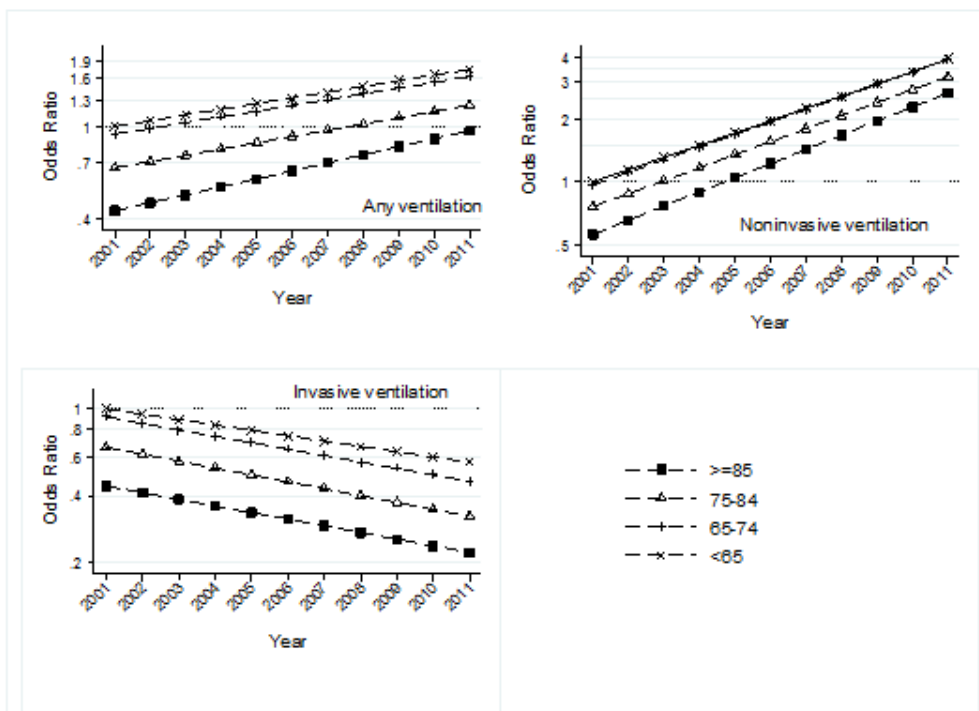
Trends in Mechanical Ventilation Among Patients Hospitalized With Acute Exacerbations of COPD in the United States, 2001 to 2011

Mihaela S. Stefan, MD; Meng-Shiou Shieh, PhD; Penelope S. Pekow, PhD; Nicholas Hill, MD, FCCP; Michael B. Rothberg, MD, MPH; and Peter K. Lindenauer, MD

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e-Figure 1.

A: Trends of ventilation use in COPD by age groups, 2001-2011

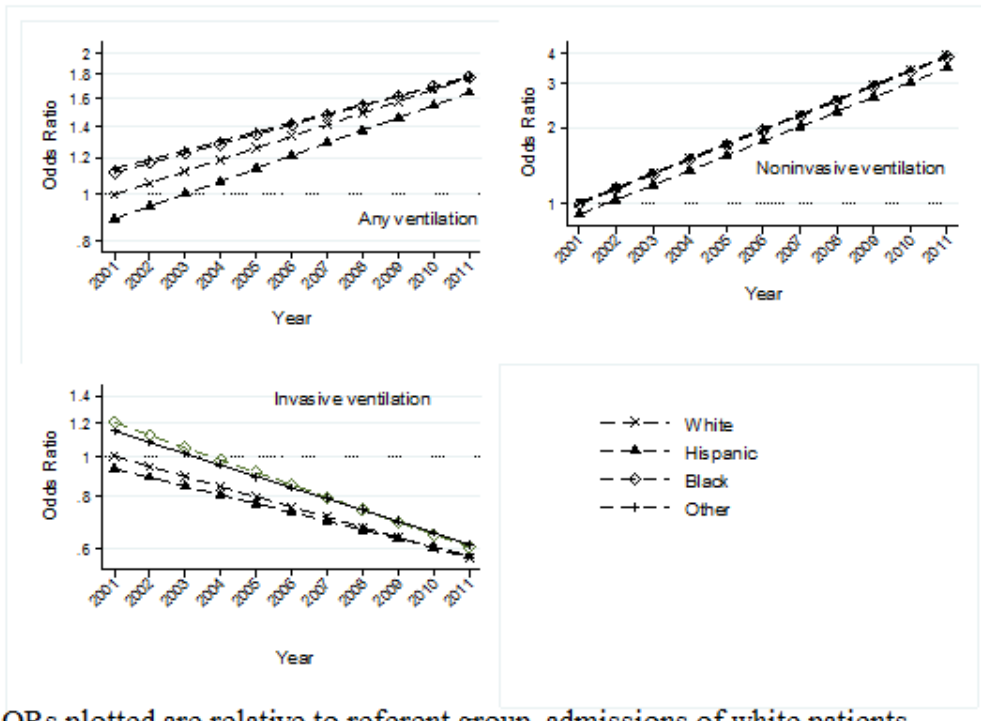


ORs plotted are relative to referent group, admissions of patients <65, in 2001

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e-Figure 2.

B: Trends of ventilation use in COPD by race groups, 2001-2011 .

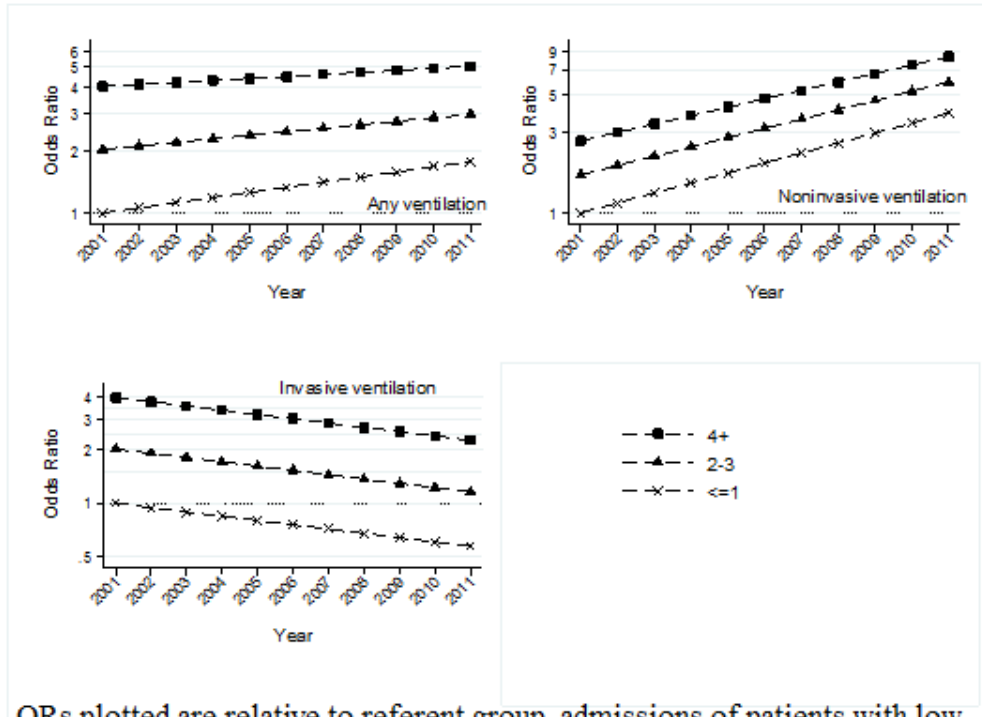


ORs plotted are relative to referent group, admissions of white patients, in 2001

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e-Figure 3.

C: Trends of ventilation use in COPD by comorbidity score, 2001-2011

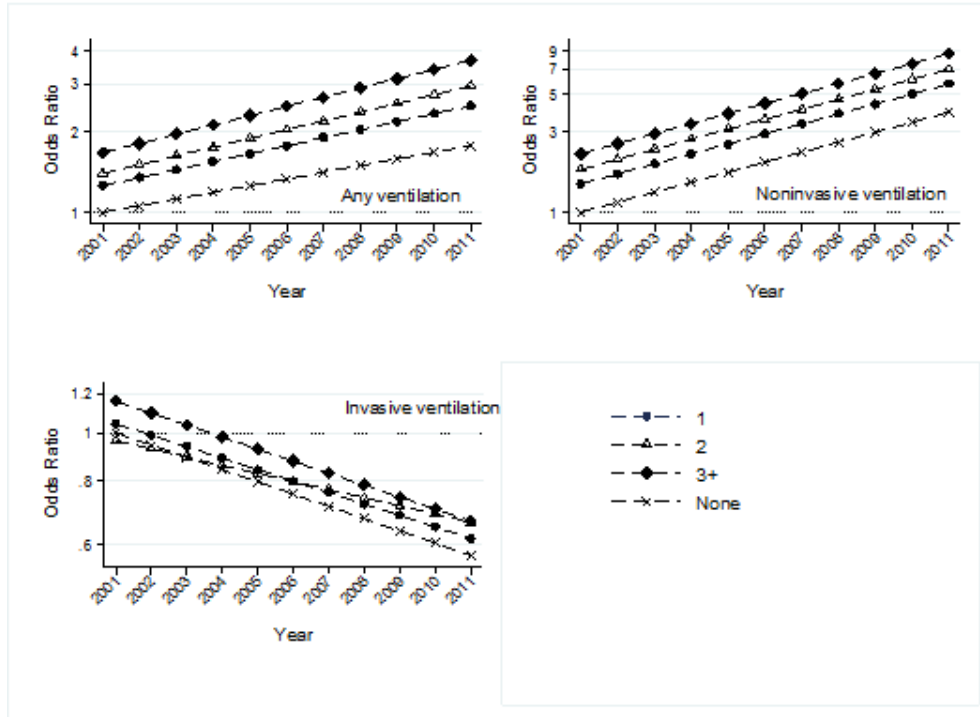


ORs plotted are relative to referent group, admissions of patients with low comorbidity score, in 2001

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e-Figure 4.

D: Trends of ventilation use in COPD by prior number of COPD admissions, 2001-2011



ORs plotted are relative to referent group, admissions of patients without prior hospitalization for COPD, in 2001

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e-Table 1: Patient Characteristics and Ventilation Management Over Time

| CHARACTERISTIC or VENTILATION MANAGEMENT | | YEAR | | | | | | | | | | |
|--|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| Total COPD Admissions | | 43,421 | 51,173 | 59,249 | 56,689 | 64,295 | 71,057 | 73,016 | 86,039 | 86,345 | 83,161 | 49,115 |
| Gender | Female | 58.20% | 58.20% | 59.10% | 59.40% | 59.80% | 59.70% | 59.80% | 59.70% | 60.20% | 60.30% | 60.30% |
| | Male | 41.80% | 41.80% | 40.90% | 40.60% | 40.20% | 40.30% | 40.20% | 40.30% | 39.80% | 39.70% | 39.70% |
| Age (years) | Median, IQR | 71,62-78 | 71,61-78 | 71,61-78 | 71,61-78 | 71,62-79 | 71,61-79 | 71,61-79 | 71,61-79 | 70,60-79 | 70,60-79 | 70,61-79 |
| | <65 | 32.00% | 32.60% | 32.90% | 32.50% | 32.60% | 33.10% | 33.20% | 33.10% | 35.30% | 35.10% | 34.30% |
| | 65-74 | 32.00% | 31.00% | 30.20% | 29.80% | 29.20% | 28.50% | 28.60% | 28.10% | 28.50% | 28.40% | 28.70% |
| | 75-84 | 27.90% | 28.40% | 28.50% | 28.60% | 28.60% | 28.40% | 27.90% | 27.60% | 25.60% | 25.30% | 25.60% |
| | ≥85 | 8.10% | 8.00% | 8.40% | 9.00% | 9.60% | 10.10% | 10.30% | 11.20% | 10.60% | 11.20% | 11.50% |
| Race/Ethnicity | White | 76.70% | 73.20% | 74.00% | 73.20% | 72.80% | 71.50% | 70.90% | 70.80% | 70.60% | 71.80% | 75.80% |
| | Black | 7.60% | 8.80% | 9.60% | 10.50% | 10.30% | 10.50% | 10.80% | 10.60% | 11.00% | 10.50% | 10.30% |
| | Hispanic | 2.20% | 3.80% | 4.60% | 3.20% | 3.40% | 3.50% | 3.60% | 4.10% | 4.20% | 3.80% | 2.20% |
| | Other | 13.60% | 14.20% | 11.90% | 13.10% | 13.60% | 14.40% | 14.80% | 14.60% | 14.20% | 13.90% | 11.70% |
| Combined Comorbidity Score | Median, IQR | 2,1-3 | 2,1-3 | 2,1-3 | 2,1-3 | 2,1-3 | 2,1-3 | 2,1-4 | 2,1-4 | 2,1-4 | 2,1-4 | 2,1-4 |
| | Low (≤1) | 48.40% | 47.80% | 47.70% | 46.40% | 45.60% | 43.10% | 41.80% | 40.50% | 40.40% | 39.50% | 39.50% |
| | Median (2-3) | 33.70% | 33.00% | 33.30% | 33.10% | 32.70% | 32.20% | 31.90% | 32.00% | 31.60% | 31.50% | 31.70% |
| | High (≥4) | 17.90% | 19.20% | 19.00% | 20.50% | 21.70% | 24.80% | 26.30% | 27.40% | 28.00% | 29.00% | 28.90% |
| History of Concomitant Pneumonia | | 9.20% | 10.50% | 12.90% | 13.90% | 15.30% | 15.60% | 17.50% | 23.50% | 22.80% | 21.90% | 23.80% |
| Number of COPD Admissions in Prior Year | None | 70.50% | 70.40% | 70.50% | 68.40% | 69.70% | 69.50% | 68.00% | 68.20% | 66.80% | 66.70% | 70.00% |
| | 1 | 16.80% | 17.00% | 16.80% | 17.60% | 17.00% | 16.90% | 17.40% | 17.60% | 17.80% | 17.80% | 17.00% |
| | 2 | 6.40% | 6.40% | 6.60% | 6.80% | 6.60% | 6.60% | 6.90% | 6.80% | 7.20% | 7.20% | 6.30% |
| | ≥3 | 6.20% | 6.20% | 6.20% | 7.20% | 6.70% | 6.90% | 7.70% | 7.50% | 8.10% | 8.30% | 6.80% |
| Hospital Characteristics | | | | | | | | | | | | |
| Bed Size | Small (<200) | 18.30% | 19.20% | 18.70% | 16.00% | 17.70% | 17.30% | 17.90% | 18.80% | 19.90% | 20.30% | 23.40% |
| | Medium (200-400) | 41.50% | 42.30% | 41.50% | 41.80% | 41.30% | 41.30% | 40.80% | 41.30% | 42.00% | 42.20% | 41.90% |
| | Large (>400) | 40.20% | 38.50% | 39.90% | 42.20% | 40.90% | 41.40% | 41.30% | 39.90% | 38.00% | 37.60% | 34.70% |
| Region | Midwest | 20.90% | 20.60% | 17.80% | 19.20% | 20.50% | 20.20% | 20.20% | 20.40% | 19.70% | 19.70% | 20.20% |
| | Northeast | 9.30% | 10.10% | 17.30% | 19.80% | 20.40% | 19.70% | 19.90% | 20.40% | 19.70% | 19.00% | 17.90% |
| | South | 57.90% | 57.30% | 55.20% | 51.30% | 48.80% | 46.30% | 45.80% | 45.70% | 45.80% | 46.70% | 48.00% |
| | West | 11.80% | 12.00% | 9.80% | 9.70% | 10.30% | 13.80% | 14.10% | 13.40% | 14.70% | 14.60% | 13.90% |

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|-----------------------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Population Served | Rural | 21.90% | 19.60% | 17.50% | 15.00% | 15.80% | 15.30% | 14.60% | 14.90% | 15.00% | 16.30% | 18.40% |
| | Urban | 78.10% | 80.40% | 82.50% | 85.00% | 84.20% | 84.70% | 85.40% | 85.10% | 85.00% | 83.70% | 81.60% |
| Teaching Hospital | | 29.60% | 30.30% | 32.40% | 33.90% | 32.70% | 31.90% | 30.80% | 31.20% | 32.00% | 32.00% | 31.60% |
| Nature of Ventilation | No Ventilation | 86.47% | 85.30% | 84.69% | 83.12% | 82.65% | 81.35% | 80.72% | 81.09% | 81.00% | 80.04% | 79.98% |
| | NIV Initially | 5.46% | 6.27% | 7.26% | 8.59% | 9.52% | 10.73% | 11.75% | 12.13% | 12.48% | 13.86% | 14.21% |
| | IMV Initially | 8.07% | 8.44% | 8.06% | 8.29% | 7.83% | 7.92% | 7.52% | 6.78% | 6.52% | 6.11% | 5.80% |
| | Any Ventilation | 13.53% | 14.70% | 15.31% | 16.88% | 17.35% | 18.65% | 19.28% | 18.91% | 19.00% | 19.96% | 20.02% |
| Death | | 3.90% | 3.90% | 3.50% | 3.50% | 3.10% | 3.10% | 2.80% | 2.60% | 2.20% | 2.00% | 2.20% |

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