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Patient Safety and Quality Care: Time to Focus on Nonventilator Hospital-Acquired Pneumonia

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Nonventilator Hospital-Acquired Pneumonia (NVHAP) & Patient Safety

What is the Impact of NVHAP?

- Hospital-acquired pneumonia is the most deadly and costly of all the hospital acquired infections - 1 in every 4 hospital acquired infections is pneumonia – Majority are NVHAP (60%)
NVHAP is found on ALL hospital units – **mostly outside the ICU**
- NVHAP is now **the most common hospital-acquired infection (HAI)**
- Antibiotic stewardship: Most common antibiotics starts are associated with respiratory/pneumonia
- Associated mortality=13-30.9%
- 8.4 X more likely to die than equally sick patients who do not get pneumonia
- Less likely to go home after NVHAP = Long term care (25%)
- Associated with 30-day readmissions (19%) & increased ICU utilization (46%)
- Respiratory infection/pneumonia: most common cause of sepsis



Photo: Taken by critical care nurse and photojournalist Alan Hawes, RN

Methods

Medicare claims data explored for implications of HAP on Medicare patient mortality and hospital length of stay, Medicare payments & costs to hospitals

Data Source: MedPAR Claims Federal Fiscal Year: 2019

- The Medicare Provider Analysis and Review (MEDPAR) file contains records for 100% of Medicare beneficiaries who use hospital inpatient services
- Beneficiaries who were without continuous Medicare Part A and B enrollment, End-Stage Renal Disease, and died (to control for high end of life care costs) were excluded
- Inpatient payments and 30, 60, and 90-day post-discharge episodes for 2,457 beneficiaries with HAP were examined and compared to a non-HAP control group of 2,457 beneficiaries
- Groups were matched on age, sex, race and the Diagnosis-Related Group (DRG) for their index hospitalization

Demographics

- The vast majority of HAP was NVHAP (N=2222; 89%) vs. VAP (11%)
- **Post match controls balanced each demographic**
- Age: <64 = 22.8%, 65-74 =36.2%, 75-84=28.4%, > 85 12.6%
- Sex: Male=51%, Female=48.5%
- Race: White=81.8%, Black 12%, Other=6.2%

Implications for Medicare

HAP represents a significant burden to patients, hospitals, and the Medicare program. For patients with HAP:

- HAP patients were 2.8 times more likely to die within 90 days of discharge than hospitalized Medicare patients without HAP
- Spend nearly one extra week in the hospital when they develop HAP (16.2 days versus 9.6 days) ($p < .0001$)
- Hospital costs estimated (using charges reduced to cost), HAP increased hospital cost by 63% (\$53,248 vs \$32,687) compared to control ($p < .0001$)
- Hospitals pay \$20,000 in cost per discharge
- Medicare program pays over \$10,000 extra
- Medicare also pays an additional \$4,300 per discharge across the 90 days following hospitalization

Given the 141K observed HAP cases in 100% data, we **estimate that Medicare spends \$2B annually on hospital-acquired pneumonia**

Conclusion

The time is right to include NVHAP as an HACRP HAI Initiative
These findings mirror other NVHAP studies on mortality, length of stay, and costs

- These findings provide further evidence in support of:
 - The National Call to Action from the NOHAP Initiative
 - The Joint Commission Patient Safety Alert on NVHAP (#61, Sept. 2021) to address NVHAP as patient safety priority

Disclosures: Data analyses were performed by the Moran Group with funding provided by Stryker

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