Cost of Antibiotic Resistance Hits Private Payers

BY MIRIAM E. TUCKER
BETHESDA, MD. — The overall cost burden of antimicrobial resistance—as high as $38 billion in one 2009 hospital estimate—has shifted sharply from Medicare to private payers over the last decade.

Medicare still pays the majority of the costs for excess length of stay, increased use of more expensive drugs, and poorer health attributable to treatment-resistant infections. However, the rise in infections caused by methicillin-resistant Staphylococcus aureus (MRSA), which largely affects younger, healthier individuals, has meant that the overall cost per patient has declined but more is being borne by private HMOs and PPOs, Susan D. Foster, Ph.D., said at the 2010 Conference on Antimicrobial Resistance sponsored by the National Foundation for Infectious Diseases.

**Major Finding:** The overall cost of antimicrobial resistance is rising, but because patients now are younger and living longer, the burden has shifted from Medicare to private insurance.

**Data Source:** Two studies assessing hospital database data and one Internet survey.

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Dr. Foster analyzed data from three studies. In an unpublished study, she and her associates reviewed Massachusetts hospital discharge data from 2000 to 2007 to look for ICD-9 “VO9” codes, which are specific for drug-resistant infections. Although these codes are difficult to use and therefore represent a study limitation, they do allow for analysis of trends over time, she explained.

Overall, the number of hospital discharges reporting antibiotic resistance in Massachusetts increased from 3,861 in 2000 to 11,218 in 2007. The inflation-adjusted total cost more than doubled over the 7 years, from $135 to $285 million.

However, the length of stay (LOS) per patient for drug-resistant infections dropped by 4.5 days, and the cost per patient fell by nearly $10,000.

In contrast, the length of stay for drug-susceptible infections didn’t change during the study period (just under 5 days), while the cost per patient with susceptible infections rose only slightly. The drop in LOS and cost per patient with drug-resistant infections is largely explained by the dramatic shift in patient age, particularly among 19- to 64-year-olds: In 2000, that age group accounted for 30% of drug-resistant infection discharges, whereas in 2007 the proportion had risen to 45.5%.

At the same time, the 65- to 80-year-old group dropped from 38% to 25%, while the 81- to 85-year-old group fell from 9% to 4%. While the proportion of infections due to drug-resistant organisms rose in all age groups, the greatest rise was among working-age adults, Dr. Foster noted.

Not surprisingly, then, was the concurrent payer shift: Medicare’s proportion of the cost dropped from 73% in 2000 to 58% in 2007, while Medicaid’s rose from 6% to 15%. The proportion paid by “other,” including private insurance, rose from 20.5% to 28%.

There were also declines in inpatient mortality due to drug-resistant infections (from 11% to 5%) and in discharge of patients to nursing homes (from 32% to 28%), with a concomitant increase in patients returning home from the hospital (from 33% to 48%).

The second study, conducted by Dr. Rebecca Roberts and her associates for the Chicago Antimicrobial Resistance Project, was an Internet-based survey of more than 300 respondents recruited from MRSA chat rooms, listservs, and Google Adwords. Acknowledging the limitations of such surveys—particularly the bias toward younger, healthier Internet users with strong opinions—she described “some heart-rending responses,” including one from parents who felt they had to send their children away to prevent transmission.

Respondents reported a mean out-of-pocket expenditure of $2,251, including copays for office visits, prescription drugs, and hospital stays. Nearly 70% reported having private insurance (HMO or PPO), and 14% said they were uninsured, which approximately reflects the national average, Dr. Foster said.

“Individuals and households affected by drug resistance bear a large uncompensated burden in terms of out-of-pocket expenses and lost wages,” she concluded.

A related video is at www.youtube.com/InternalMedicineNews (search for 72274).

In that study, LOS was three times longer for the patients with ARIs (24 vs. 8 days) and mortality 6 times higher (18% vs. 3%). The total inpatient costs were $58,029, compared with $13,210 for non-ARI patients. Even the daily cost was $517 greater for the ARI group, she noted.

The most common type of ARI was MRSA (43%), followed by vancomycin-resistant enterococci (VRE, 31%), Escherichia coli/Klebsiella species (16%), and multiple infections (6%). By cost, however, VRE accounted for the greatest proportion (36%), followed by MRSA (34%), and multiple infections (16%).

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