CD Summary

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OREGON ALLIANCE WORKING FOR ANTIBIOTIC RESISTANCE EDUCATION (AWARE)

Okay, "Oregon's Campaign to Promote Judicious Use of Antibiotics" didn't really trip off the tongue—so this past year saw us adopt a new name, complete with an easy-to-remember acronym and eye-catching logo. In honor of cold and flu season, this scintillating issue of the *CD Summary* will update you on the coalition's activities and make you an expert on local and national trends in antibiotic resistance and prescribing.

THE UPS AND DOWNS OF PNEUMOCOCCAL DISEASE AND RESISTANCE

The increasing resistance of *Streptococcus pneumoniae* (SP) to penicillin, first documented in the early 1990s in the US, sparked widespread concern about the problem of antibiotic resistance and fomented the creation of AWARE. According to the Centers for Disease Control and Prevention (CDC), by the year 2000, 27% of invasive isolates of SP in the US were either partially or fully resistant to penicillin (CDC, Active Bacterial Core Surveillance). Yet in 2001, this figure fell slightly to 25%, and even further to 20% in 2002. Here in Oregon, where we conduct surveillance for SP in the Portland Tri-County area, we have seen a similar decline, from 24% in 2000, to 23% in 2001 and down to 18% in 2002.

Is this a cause for dancing in the streets? Yes, if you work in immunization programs, but not if you work for AWARE. Although we'd love to take credit for the recent decline, it is most likely due to the introduction of the pneumococcal conjugate vaccine (Prevnar™, Wyeth Lederle Vaccines) in 2000. Recommended for all children under the age of two years and for children ages 24–59 months with an increased risk for SP, the vaccine has led to dramatic declines in rates of invasive SP in the US.[1] But it has also had an interesting effect on antibiotic resistance. The vaccine covers the 7 serotypes of SP most commonly recovered from children in the pre-vaccine era. These 7 serotypes were more likely to be resistant to antibiotics than the non-vaccine serotypes, so declines in these serotypes explain the concomitant decrease in resistance: the rate of invasive SP caused by strains not susceptible to penicillin was 35% lower in 2001 in the US than in 1999.[1]

ANTIBIOTIC PRESCRIBING: A MIXED BAG OF TRENDS

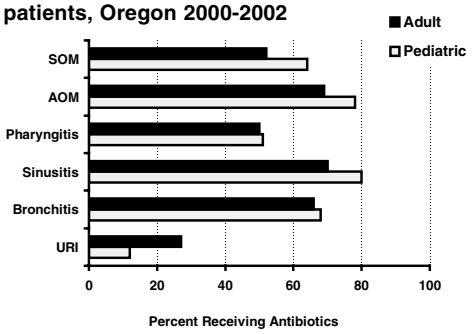
The good news is that despite skepticism on the part of many clinicians that anything could be done to discourage inappropriate use of antibiotics, antibiotic use for respiratory infections has fallen substantially in the past decade. The National Ambulatory Medical Care Survey (NAMCS), an annual sample of outpatient visits to office-based physicians, has shown promising declines in the percentage of patients receiving prescriptions for upper respiratory tract infections (URIs, the vast majority of which are caused by viruses) between the periods 1991–1992 and 1998–1999.[2] Among adults, antibiotic prescriptions decreased for the common cold (from 56% to 43% of patient visits), for pharyngitis (78% to 64%), and for acute bronchitis (76% to 59%). Among children, antibiotic prescribing decreased for the common cold (from 41% to 21% of patient visits) and for pharyngitis (73% to 54%); and it trended toward a decrease for otitis media (78% to 72%) and acute bronchitis (78% to 68%). However, during the same period, use of *broad*-spectrum antibiotics doubled among adults, from 24% to 48% of antibiotic prescriptions, and for children, it rose from 23% to 40% of antibiotic prescriptions. This increase is troubling given that all the pundits, including several local infectious disease specialists who helped draft AWARE's treatment guidelines (see description of our CE activity below), agree that URIs should be treated with the narrowest spectrum agent possible, if at all.

OREGON PRESCRIBING DATA

How are we doing in Oregon? Through an agreement with the Oregon Medicaid Assistance Program, we reviewed pharmacy and claims data for Oregon Health Plan (OHP) fee-for-service patients seen during 2000–2002. Fee-for service patients represented 40%–45% of patients on the OHP during that time period—the remaining belonged to managed care plans. Antibiotic prescribing rates were fairly stable during that time period. We were encouraged by the low frequency of prescribing for URIs and pharyngitis compared to the national data, although Oregon clinicians do tend to prescribe antibiotics more often for bronchitis and acute otitis media (AOM) (Figure). We were also encouraged to find that patients who do not receive antibiotics for URIs are *not* more likely to return for follow-up care than patients who do receive antibiotics (Table, *verso*). In fact, patients who received antibiotics for pharyngitis, URIs and AOM were actually *more* likely to seek medical care in the ensuing 30 days than patients who did not receive antibiotics.

What do Oregonians know about the problem of antibiotic resistance? We added a new set of questions in 2002 to

Proportion of visits resulting in antibiotic prescription in Medicaid fee-for-service patients, Oregon 2000-2002



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Percentage of Medicaid fee-for-service patients returning for care within 30 days of an initial visit for an upper respiratory tract infection, Oregon, 2000–2002

	Percent returning who received antibiotics on initial visit	Percent returning who did ***not*** receive antibiotics on initial visit
Pharyngitis	17	14
URI/common cold	23	17
Sinusitis	15	16
Bronchitis	15	15
Acute otitis media	26	22

the Behavioral Risk Factor Surveillance System, a year-round annual survey of adults living in a household having a telephone. Among the 2,110 respondents, 10% had taken antibiotics in the last four weeks, and 24% demonstrated knowledge of the danger of antibiotic resistance. Although we do not have any baseline data with which to compare, 10% of the population of Oregon taking antibiotics in a 4-week period sounds like a lot to us, and we plan to monitor this annually—and hopefully see it drop.

Women, whites, and respondents with more than a high-school education were more likely to have knowledge about antibiotic resistance, whereas Asians, Hispanics and people over 65 were less likely to know about the danger of antibiotic resistance.

STUFF FOR YOUR PRACTICE

We recently updated our educational materials for patients and mailed our "Judicious Use Educational Toolkit" to primary-care clinicians in February 2003. New materials included a new general brochure in English and Spanish, Q&A sheets in Spanish, a bilingual waiting-room poster featuring Bill Nye (The Science Guy), and a children's activity kit. In April, we mailed a self-study monograph entitled *Judicious Use of Antibiotics—A Guide for Oregon Clinicians* to 4,500 MDs, DOs, and PAs. The monograph provides background on the problem of antibiotic resistance and concise algorithms on the management of URIs, such as when to test for group A streptococcus (hint: they need more than just a sore throat), when to treat sinusitis (hint: *very* rarely), and which agents to use (hint: the "pink" medicine is still the best).

The activity is approved for one hour of continuing medical education credit or one continuing nursing education contact hour. You can download or order copies of the patient education materials and monograph from our web site at *http://www.healthoregon.org/antibiotics.cfm*. And remember: all of our publications are in the public domain, so copy them to your heart's content!

During the peak of the rhinorrhea season this year, Governor Kulongoski will declare the week of January 25–31 "Antibiotic Resistance Awareness Week" in Oregon. To commemorate this historic event, we will hold a press conference to release the BRFSS results and distribute informational flyers through retail pharmacies throughout the state.

TOP FIVE WAYS TO CELEBRATE ANTIBIOTIC RESISTANCE AWARENESS WEEK, JANUARY 25–31, 2004

1. Cut our press release out of your local paper and post it prominently in your office. Then, the next time you mention antibiotic resistance as the reason you're not going to prescribe an antibiotic, maybe the patient won't give you that puzzled look.
2. Get copies of our continuing education book and throw a CE party for your colleagues—it's now accredited for physician and nursing continuing education units.
3. Paper your waiting room or lunchroom with patient education materials from either CDC† or AWARE—we have brochures, fact sheets, children's activity booklets, and posters.
4. Arrange for our staff to give a talk on judicious use of antibiotics for your local medical society, hospital department meeting or grand rounds.
5. Better yet, use our canned "lay public presentation" to give a talk for your child's class at school, daycare providers or other local community group (call Laura Saddler, 503/731-4024 for the presentation).

REFERENCES

1. Whitney CG, Farley MM, Hadler J, Harrison LH, Bennett NM, Lynfield R, et al. Decline in invasive pneumococcal disease after the introduction of protein-polysaccharide conjugate vaccine. N Engl J Med 2003;348:1737–46.
2. Steinman MA, Gonzales R, Linder JA, Landefeld CS. Changing use of antibiotics in community-based outpatient practice, 1991–1999. Ann Intern Med 2003;138:525–33.

† *http://www.cdc.gov/drugresistance/community/orderform.htm*

CORRECTION to *CD Summary,* Vol. 52, No. 26 (Dec. 30, 2003) — Pediarix® does *not* contain *H. influenzae* type B vaccine, it contains Hepatitis B vaccine. Our apologies. There are always regrets that remain from the year before, aren't there?