Community Issues Concerning Antibiotic Practices

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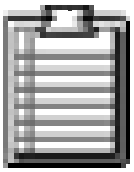
Rationale

- Antibiotic usage usually measured from prescription information; likely to be underreported
- Few household-level surveys, particularly in inner cities



Sample

- 1999: 398 households with 1,662 members
- 2001: 238 households with 1,178 members
- At least 3 in household, including at least one pre-school child
- Recruited with posters and brochures, word-of-mouth

Interview

- Home visit and extensive interview of each household (about 1 hour) to assess prevalence of infectious disease symptoms and their treatment in previous 30 days
- Symptoms: vomiting, diarrhea, fever, sore throat, cough, runny nose, skin infection (boils), conjunctivitis

Demographics (n=2,840)

- 43.7% male
- 97.2% Hispanic
- 27.2% age 5 years or younger
- 25.1% age 6-19 years
- 39.5% age 20-45 year
- 8.2% age 46 and older
- 55.2% born outside U.S.

Self-Reported Health Status

- 81.1% good or excellent
- 14.2% had chronic illness (mostly asthma, diabetes, or chronic respiratory disease)

Reliability and Validity

- Verification of first 100 symptom reports by physician visit
  - Sensitivity: 93% (i.e. symptom directly observed and verified)
  - Specificity: 97% (i.e. symptom found when not reported)
- Test-retest reliability: >90%

Self-Report of Antibiotics

- Problems with verification because antibiotics borrowed from friends, brought from outside U.S.
- Participants reluctant to state where obtained
- Specific name of drug was requested (e.g. amoxicillin, doxycycline, etc.)

Results

- One or more household members with one or more symptoms • 51.4%
- Sought medical attention • 50.2%
- Took an antibiotic • 29.7%

Among the 2,840 individuals

923 (32.5%) had 1,162 symptoms
- 50.5% respiratory
- 11.3% GI
- 9.1% fever
- 2.3% skin and conjunctivitis

Factors associated with seeking medical attention and taking antibiotics

More likely to get medical attention if….

- Fever or skin/conjunctival infections present (p=0.0008)
- Born in U.S. (p=0.002)
- Health poor (p=0.01) or chronic condition present (p=0.00006)
- Age 5 or younger (p=0.02)
- Multiple symptoms (p=0.000)
- Multiple household members ill (p=0.02)

More likely to take antibiotic if….

- Fever or diarrhea present (p=0.002)
- Health poor (p<0.00001) or chronic condition present (p=0.03)
- Multiple symptoms present (p=0.0004)

But NOT if...

- Born in U.S., age 5 and younger, multiple household members ill
- No significant difference in seeing medical attention or taking antibiotics between men and women

Positives

- Children 5 years and younger not more likely to receive antibiotics, even when seen by care provider;
- Those with chronic conditions and poor health more likely to receive antibiotics

Potential Concerns

- Those born outside U.S. less likely to seek medical attention
- About half of symptomatic persons took antibiotics, even though the majority of symptoms were probably of viral origin (e.g. URI)

And….

- Reported antibiotic use was even higher in this community than in a periurban Mexican community in 1992 (5% of >8,000 persons reported antibiotic use in previous 2 weeks)
  - Calva & Bohalil, *Soc Sci Med* 1996; 42:1121

From National Ambulatory Medical Care Survey

- Between 1989-90 and 1999-2000 for those <15 yrs old:
  - Population-based antimicrobial prescription rate decreased 40%
  - Visit-based rate decreased 29%

JAMA, 2002; 287:3096

Effects of Community-Wide Intervention

- Year-long educational campaign for providers, parents, public
- Prescription rate decreased 19% and 8% among intervention and control counties respectively

JAMA 2002; 287:3103

Conclusions

- Burden of infectious disease symptoms high in this community (>50% 30 day prevalence)
- Antibiotic overuse in this population is likely
- Non-U.S. born persons may have less access to health care

Implications

- We STILL have a problem!!
- Continued interventions to promote judicious use of antibiotics must include both clinicians and the public

Antibiotics without Prescription

- Availability of antibiotics without prescription in New York City
- 42nd Annual Meeting of the Infectious Diseases Society of America (IDSA), Boston, 10/04.

Larson & Figueroa, J Urban Health 2004; 81:498-504

Methods

Survey of all independent pharmacies, grocery stores, delicatessens, bodegas and botanical or health food stores in 30 blocks of the major commercial areas of three neighborhoods were surveyed:

Predominantly Hispanic neighborhood (Washington Heights)
Predominantly Black neighborhood (Central Harlem)
Predominantly Caucasian neighborhood (Upper West Side)

Procedure

- A trained surveyor of same ethnicity as the neighborhood residents entered each store and ascertained whether antibiotics were available on the shelf or upon request to the store attendant.

	Neighborhood		
	Primarily Hispanic	Primarily Black, Non-Hispanic	Primarily White, Non-Hispanic
Available on shelf	7/34 (20.6%)	0/37	0/30
Available if requested	23/27 (85.2%)	0/37	0/30
Recommended for sore throat	3/4 (75%)	0/37	0/30
Total stores in which antibiotic available	34/34 (100%)	0/37	0/30

What Types?

- Antibiotics offered included ampicillin, amoxicillin, tetracycline, erythromycin, combination
- Offered as single doses individually wrapped and in larger quantities

Antibiotic Use Among Hispanic Adults Living in Northern Manhattan

Aim of the Study

- To describe knowledge, attitudes, beliefs, and practices regarding antibiotic use among Hispanic adults living in Northern Manhattan.

Background

- Inappropriate use of antimicrobials is associated with increasing antimicrobial resistance in the community

  [Diekema, 2000; Melander, 2000; Levy, 2002]
- Reasons for inappropriate use
  - public expectations and demand for medication
  - lack of understanding about ineffectiveness of antibiotics against viral illness
  - the ease of access to antibiotics without prescription in many parts of the world

  [Metlay, 2002; Mainous, 1996; McKee, 1999]

Background

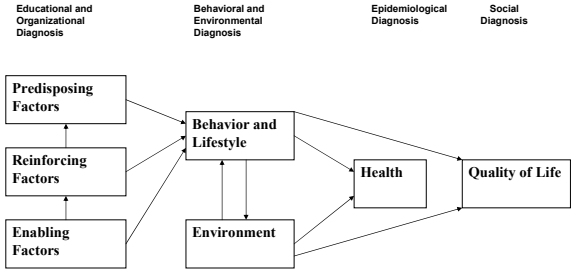
- Antibiotic misuse and resistance are more common in countries in which
  - antibiotics are available over the counter
  - cultural patterns regarding use and beliefs about medication effectiveness differ
- Hispanics have generally immigrated from countries in which antibiotics are available without prescription

Study Purpose

- **Study findings will be used to develop culturally relevant, effective interventions to improve the judicious use of antibiotics among Hispanic adults living in Northern Manhattan.**

Conceptual Framework

Green Precede-Proceed Model [1991]



Factors Assessed

- **Predisposing: knowledge and beliefs**
- **Enabling: insurance, availability of antibiotics**
- **Reinforcing: peers and support systems, availability of information**

Design

- **Exploratory, descriptive study.**
- **Quantitative and qualitative data collection methods.**
- **Questionnaire to assess knowledge and awareness of antibiotic resistance and appropriate antibiotic use [Trepka, 2001] .**
- **Eight focus groups to identify predisposing, enabling, and reinforcing factors associated with antibiotic use.**

Questionnaire

- **Adapted from a community intervention study [Trepka, 2001]**
- **Included questions about**
  - **obtaining antibiotics & health information,**
  - **household antibiotic use during past 3 months,**
  - **knowledge and beliefs about appropriate use & types of antibiotics**
- **Professionally translated into Spanish**
- **Back translated to assure accuracy of the meaning of all words and phrases.**

Focus Groups

- **Conducted in Spanish by trained facilitator**
- **Three community member focus groups met twice**
- **Bodega employees met once**
- **Health care providers met once**

Data Collection Procedures

- Columbia University IRB approval obtained
- Recruitment through community groups, board, flyers, church bulletin boards

Participants

- Community members:
  - Adult living in northern Manhattan
  - Spanish as first language
  - Household with at least one preschool child
  - With or without a primary provider or health insurance
- Employees of neighbourhood bodegas
- Health care providers in the community

Procedure: First Meeting

- Questionnaire to obtain baseline data
- Discussions based on the three concepts of Precede Proceed model. Scenarios presented to elicit specific practices
- After discussion of each concept, facilitator provided summary and asked for validation
- Groups discussed current sources of health information, computer literacy, and how health communications could be targeted to them

Procedure: Second Meeting

- Community members met for 1 hour
- The themes and issues that emerged were reviewed with participants to assure that their input had been accurately captured
- Participants clarified, amplified, and/or corrected the summaries and added opinions not expressed in the focus groups but raised in written questionnaires

Data Analysis

- Responses from the questionnaire were summarized using SPSS
- From the audiotapes of focus group discussions, common themes and factors related to attitudes, beliefs, and practices were identified
- Data were examined to assure that saturation had been achieved

Preliminary Findings

- 25 Hispanic women participated in the community focus groups
  - mean age 35.7 years (22-47 years)
  - 92% were born in the Dominican Republic
  - average family size was 4.7 members (3-8 members)
- Twelve informants (44.4%) had taken an antibiotic within the past 3 months
- 13 (48.1%) reported that at least one other person in their household had also taken an antibiotic

Preliminary Findings

- Antibiotics included ampicillin, amoxicillin, erythromycin, amoxicillin/clavulanate potassium (Augmentin), and penicillin
- Taken for a mean of 12 doses (1 28)
- Most common reasons for taking an antibiotic: sore throat, ear ache, fever
- One third (5/15) of reasons for taking antibiotics were for other symptoms, including nausea, pain, itching, and allergies

Preliminary Findings: Knowledge

Item	% (No.) agree
Treating a cold with antibiotics will help prevent an ear infection	72 (18)
Antibiotics should be stopped as soon as the person feels better	24 (6)
Antibiotics are usually needed if there is yellow drainage in the nose	16 (4)
Antibiotics help cure a cold	56 (14)
Antibiotics work to kill viruses and bacteria	56 (14)

Preliminary Findings: Knowledge

Item	% (No.) agree
If there is excessive use of antibiotics they will not be as effective in treating infections	56 (14)
Bacteria can become resistant to antibiotics if they are taken in inadequate doses	60 (15)
If antibiotics are taken for fewer or more than the days indicated, bacteria can become resistant	48 (12)
Antibiotics can be harmful to one's health	36 (9)

What next?

- Meetings with Bodega Association, local community board, CDC, and NYC Health Department to plan relevant interventions

Under auspices of

- NIH-funded Center for Interdisciplinary Research on Antibiotic Resistance (CIRAR)
- http://www.cumc.columbia.edu/dept/nursing/CIRAR/

Other Winter 2005 Teleclasses

For more information, refer to www.webbertraining.com/schedule.cfm

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- *February 15* – **Endemic Influenza, Pandemic Influenza, and Avian Flu** with Dr. Stephano Lazzari
- *February 17* – **Sad Cows and Englishmen, Predicaments and Predictions for Spongiform Encephalopathies** with Dr. Corrie Brown
- *February 24* – **Sneezes, Coughs and Drips: Respiratory and GI Outbreaks in Long Term Care** with Dr. Chesley Richards
- *March 17* – **Biocide Use in a Healthcare Environment** with Dr. Jean-Yves Mailard