

Randomized Trial of Child Care Staff Education to Improve Parent Knowledge and Attitudes Regarding Appropriate Antibiotic Use

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Background

- **Antimicrobial resistance has focused attention on appropriate antibiotic use**
- **Children attending child care are logical target group**
 - **Frequently receive antibiotics inappropriately**
 - **Antibiotics associated with carriage and transmission of drug resistant bacteria**
 - **Child care staff often interested in educational programs**

Wisconsin Antibiotic Resistance Network (WARN)

- **5-year, CDC-funded demonstration project for public and physician education about antibiotic use**
- **Developed an educational presentation for child care providers**
- **Unknown if information was transmitted to parents**
- **Performed a group randomized intervention trial with self-administered parent survey**

Hypothesis

On-site educational programs and materials for child care providers improved parents' knowledge and attitudes about appropriate antibiotic use

Child Care Center Identification and Randomization

- **Database of licensed group child care centers in Wisconsin**
- **Centers with licensed capacity of 50-70 children randomly assigned to intervention or control groups**

Child Care Center Presentations

- February-April 2001: educational presentation to child care providers
- Standardized, 45-minute presentation
 - Bacterial and viral infections
 - Antibiotic resistance
 - Infection control
 - Appropriate antibiotic use
- WARN educational materials
 - Brochures
 - Coloring sheets
 - Stickers



Parent Survey

- **Intervention and control centers were asked to participate in a parent survey about “how parents take care of cough and cold illnesses”**
- **Centers recruited until >300 eligible parents in each groups**
- **Timing of distribution**
 - **Intervention centers: 30-60 days after presentation**
 - **Control centers: April 2001**

Parent Eligibility

- **One parent/primary caregiver per family**
- **Child <5 years of age attended child care center at least one day per week**

Survey Response

	<u>Intervention</u>	<u>Control</u>
Centers, No. (%)	6 (87)	9 (100)
Surveys returned, No. (%)	150 (50)	150 (42)
Median response, % (range)	52 (26-72)	40 (7-87)

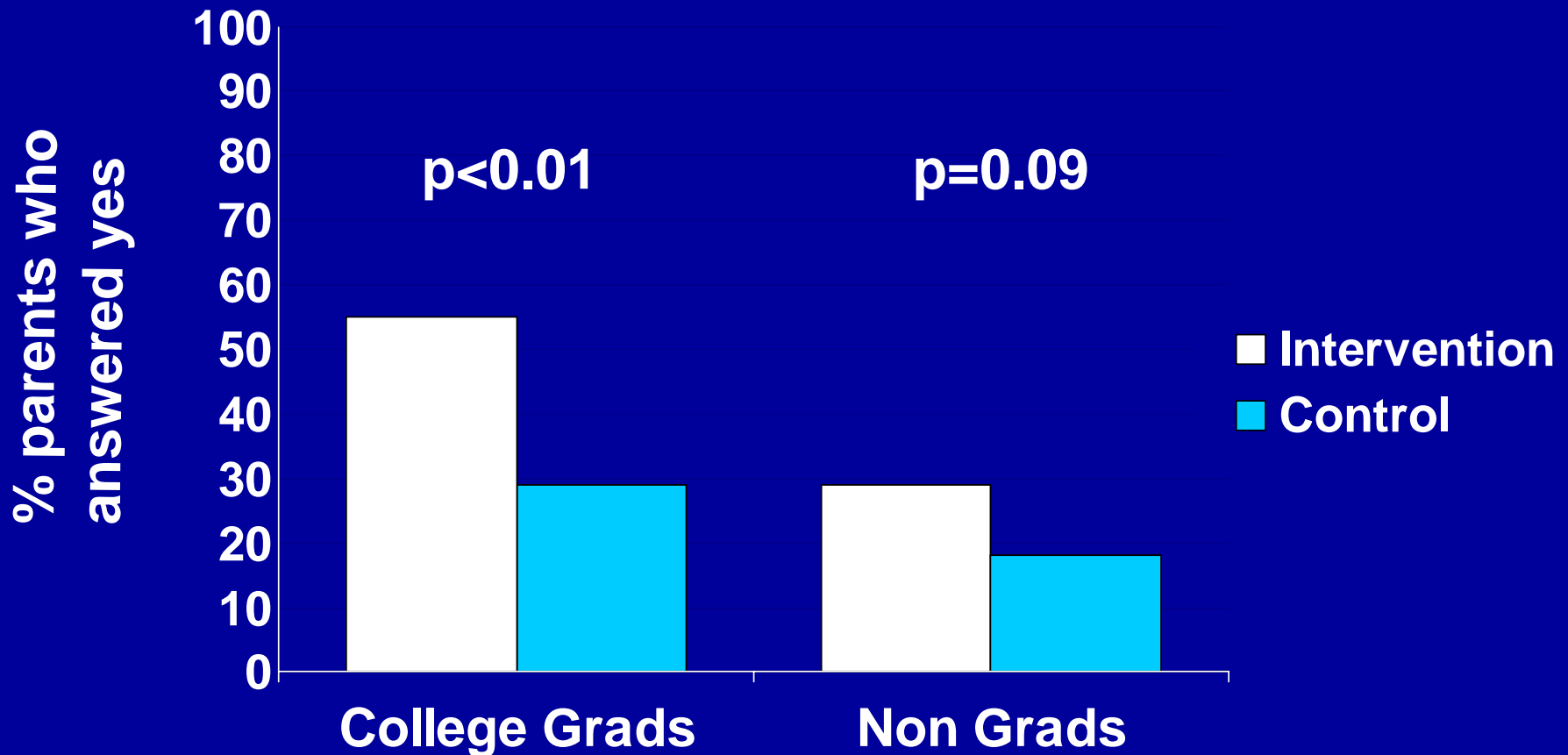
Respondents' Demographics

	<u>Intervention</u>	<u>Control</u>
Age in years, mean (SD)	32 (5.7)	32 (5.6)
Mother, %	97	95
White, %	97	83
College graduate, %	54	33
Insured, %	94	84

Stratified Analyses

- **Stratified by college education**
- **131 college graduates**
- **169 non college graduates**

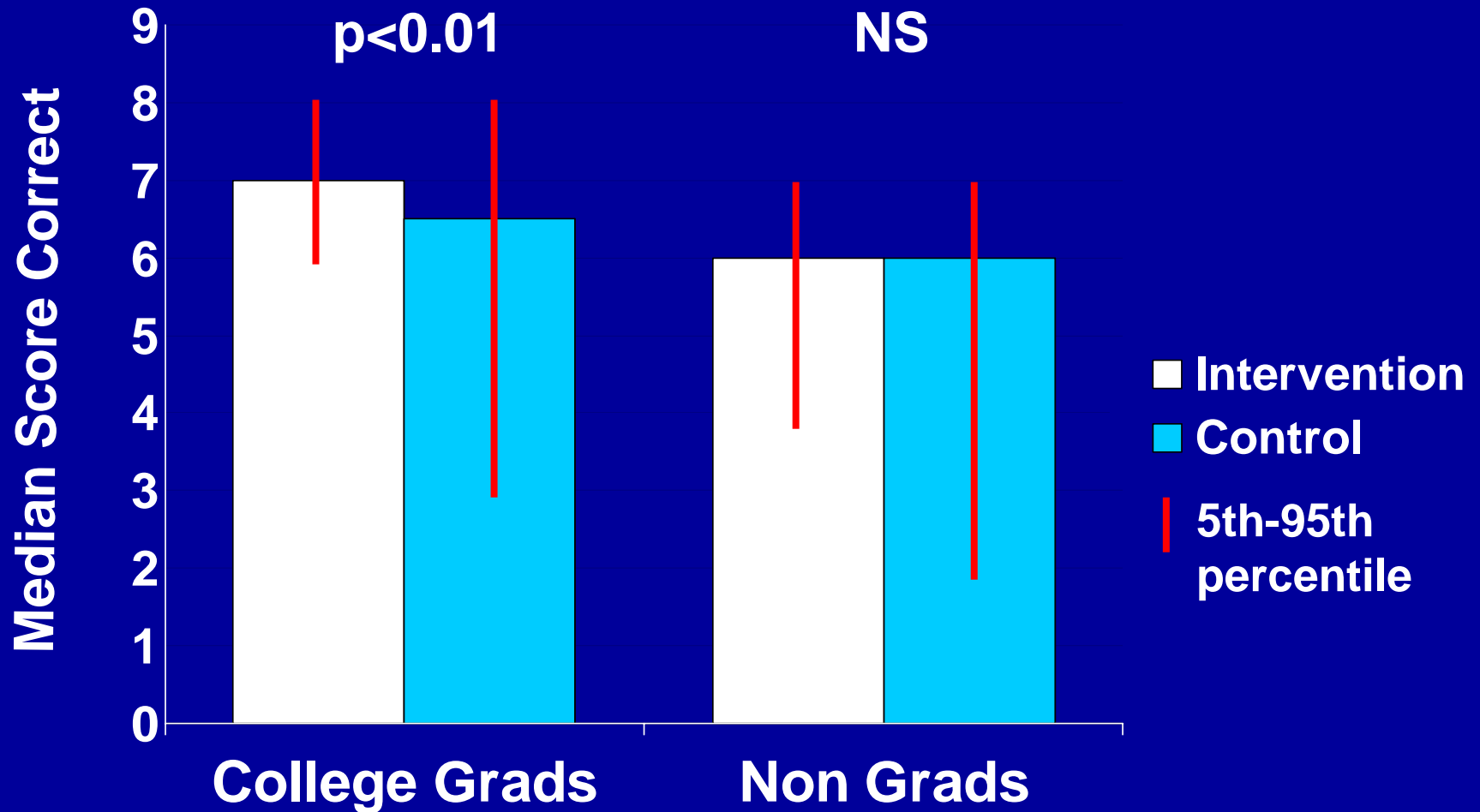
In the past 2 months, has anyone from your child's day care center given you a brochure or other educational materials about the careful use of antibiotics?



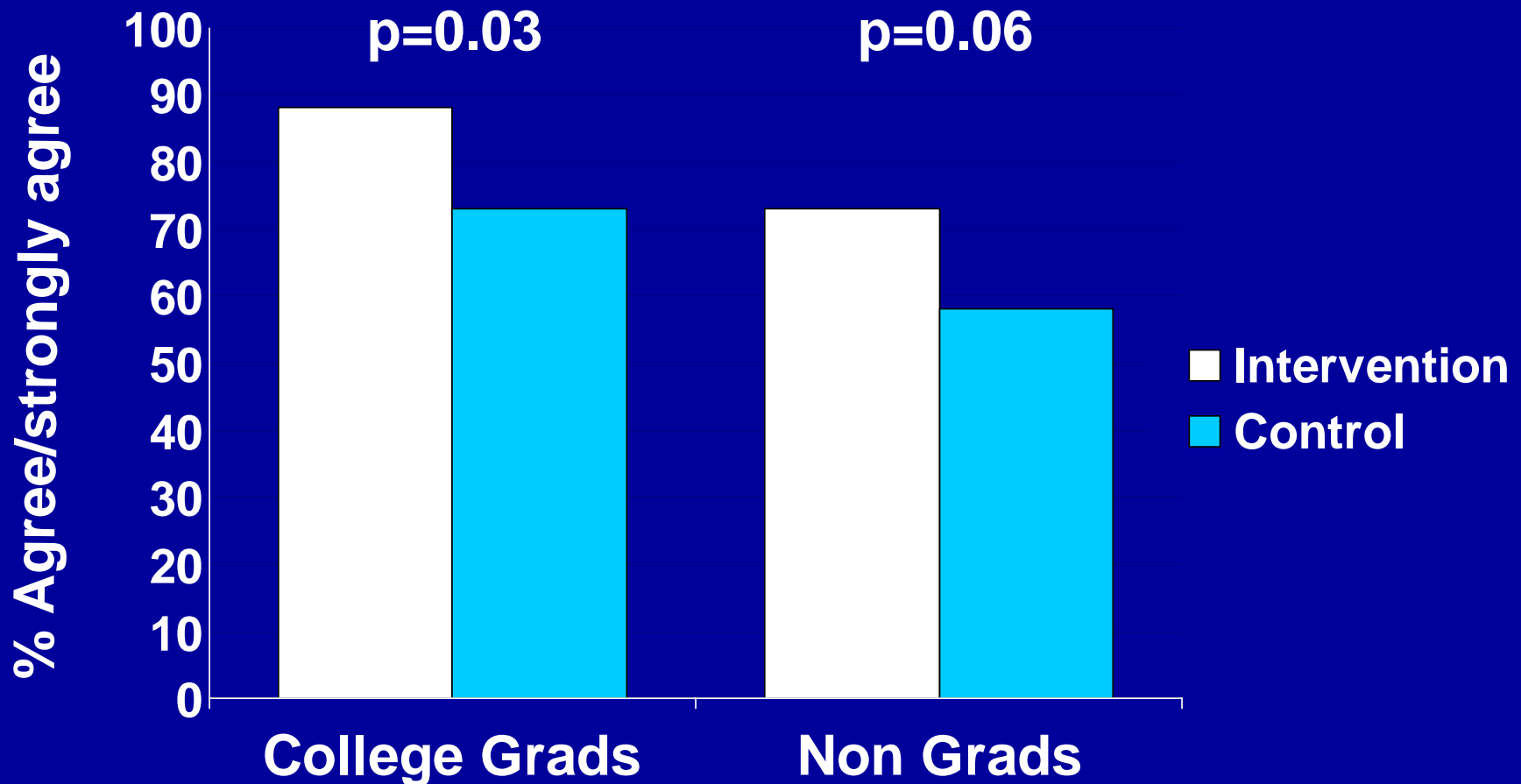
Knowledge Items

- **Are antibiotics needed for:**
 - **Bronchitis**
 - **Runny nose with yellow/green mucous**
 - **Sore throat not caused by Strep**
 - **Cough without fever**
 - **Cold**
 - **Middle ear infection**
- **Are antibiotics used to treat bacterial infections, viral infections, or both**
- **Are most cough, cold, and flu illnesses caused by bacteria or viruses**
- **My child will be sick for a longer time if he/she doesn't receive antibiotics for cough, cold, or flu**

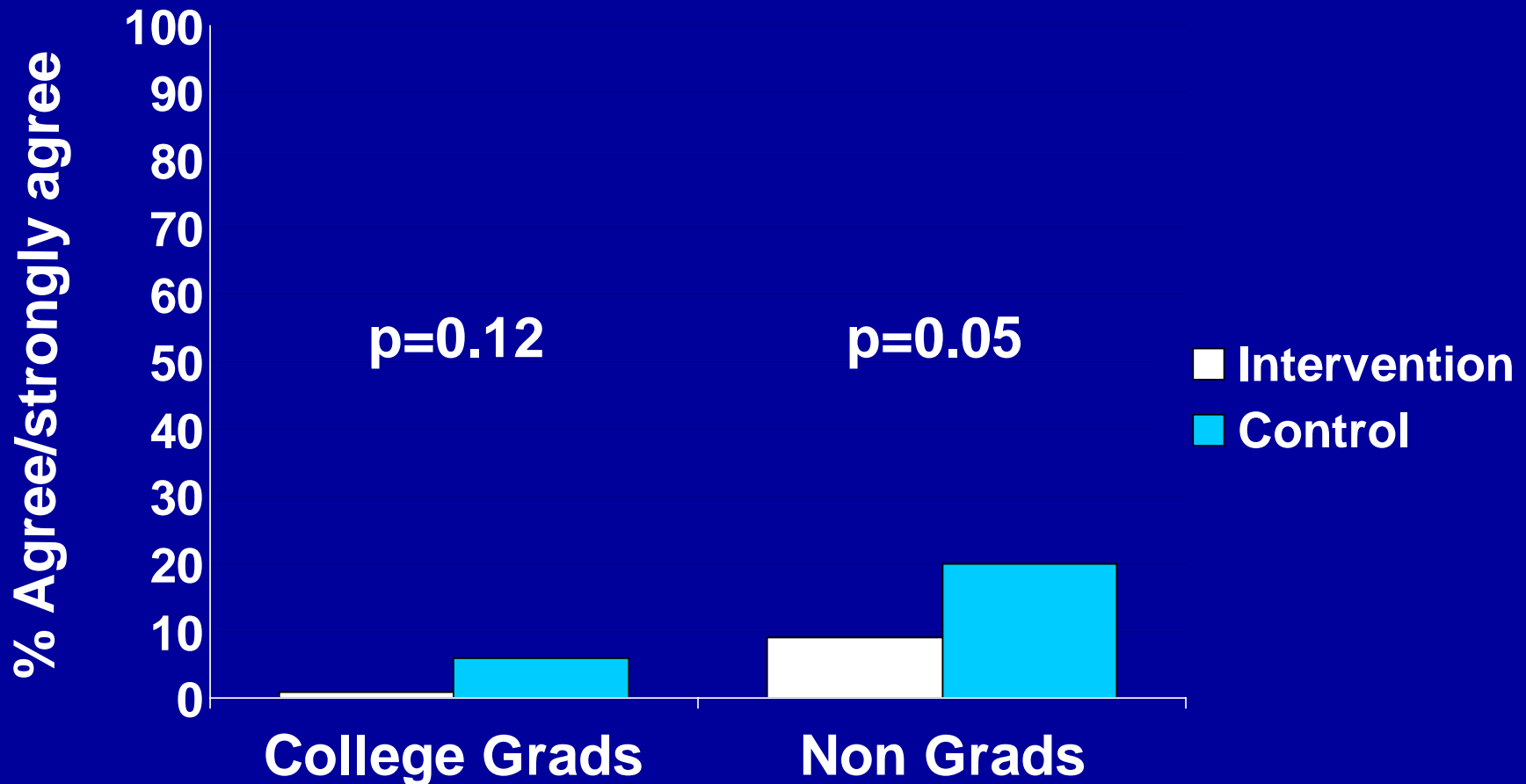
Nine Item Knowledge Score



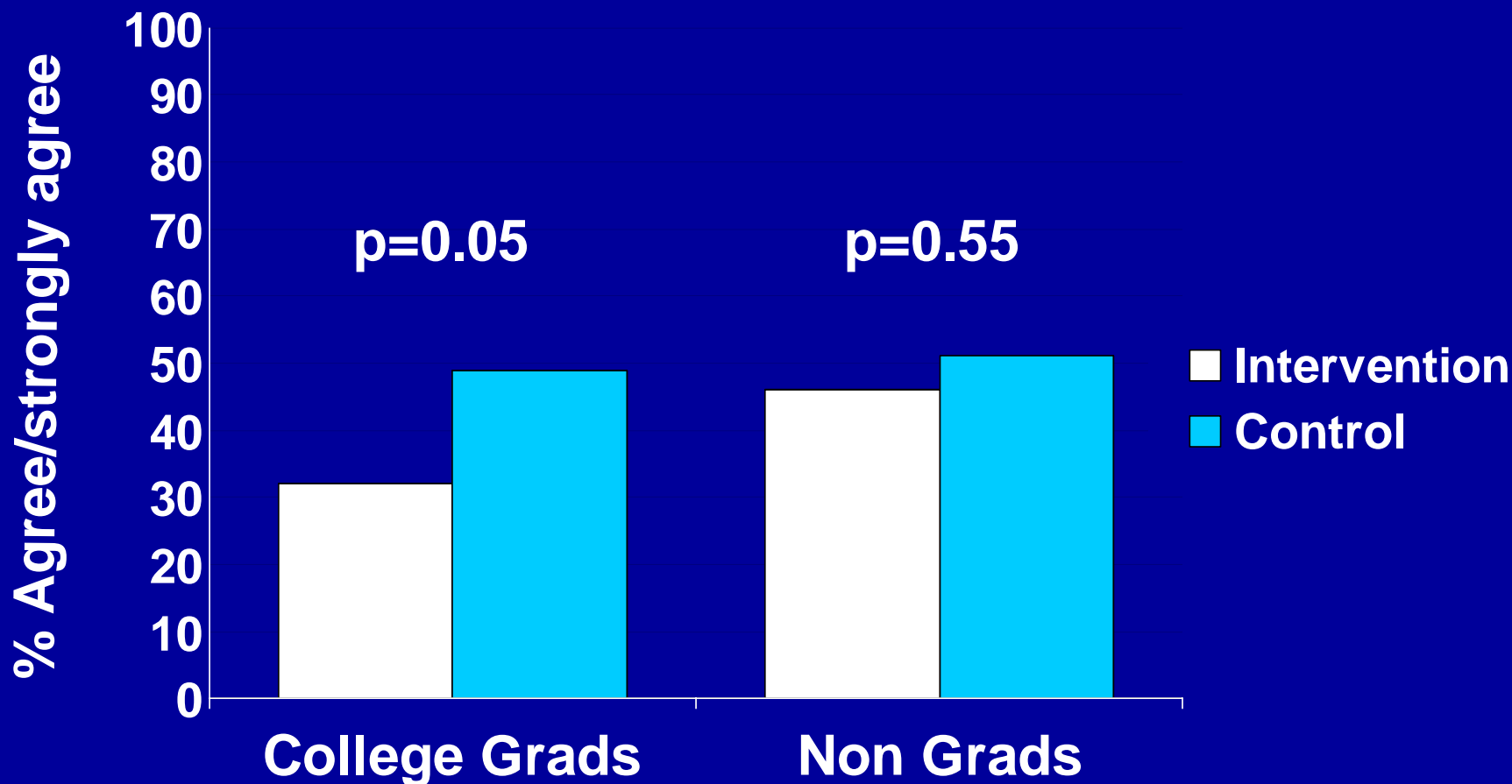
My child is more likely to develop an infection that is hard to treat if he/she takes antibiotics when they are not needed



I may ask my child's doctor for an antibiotic when my child has cough, cold, or flu symptoms



I usually know if my child needs an antibiotic before I take him/her to the doctor for cough, cold, or flu symptoms



Multivariate Analysis

- **Associations with high knowledge score (\geq median)**
 - **Non-Hispanic, white race (p=0.02)**
 - **College graduate (p=0.02)**
 - **Intervention group (p=0.06)**
- **No significant associations with attitude items**

Findings

- **College-educated intervention parents recalled receiving information from child care center**
- **Overall knowledge improved among college-educated parents**
- **No difference in overall knowledge among non college-educated parents**
- **Individual measures of attitudes improved in intervention group**

Study Limitations

- **Chance differences between groups in education level, race/ethnicity, and insurance status**
- **Parents who read educational materials might have been more likely to complete survey**

Conclusion

Educational presentations to child care providers are effective strategy for improving parents' knowledge and attitudes about antibiotic use

Exclusion Criteria

- **Previously received in WARN presentation**
- **Previously participated in WARN child care administrator survey**
- **Center didn't operate year round**
- **No children <5 years of age**

Sample Size

- 150 parents per group provided 80% power to detect 20% difference ($\alpha=0.05$)
- Anticipated 50% return rate

Survey Distribution

- **Center administrators distributed packets**
 - **Cover letter**
 - **Survey form**
 - **Incentive coupon**
 - **Reminder note**
- **Timing of distribution**
 - **Intervention centers: 30-60 days after presentation**
 - **Control centers: April 2001**