PRESCRIBING PATTERNS OF FILIPINO PHYSICIANS FOR COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN

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ABSTRACT

In 1989, the Department of Health (DOH) and the World Health Organization (WHO) introduced the Control of Acute Respiratory Tract Infection (CARI) Program to pediatricians and general physicians. The study was undertaken to determine the physician's adherence to the WHO-CARI Program. Questionnaires were served to 250 physicians asking their most commonly used antibiotics for treatment of Community-acquired pneumonia classified as: (1) mild-moderate, (2) moderate-severe and (3) very severe pneumonia. Of the 190 respondents, there were 164 general pediatricians, 17 general practitioners (GPs) and 9 pediatric subspecialists. Eighty-eight percent of the respondents adhered to the recommended drug for mild-moderate pneumonia. Less than half, however, were consistent with the CARI Program for the two other types of pneumonia. Amoxicillin, Pen G and cephalosporin were the empiric drugs of choice for the three respective types of pneumonia. Only 15 general pediatricians and two GPs followed the CARI Program strictly for all types of pneumonia. Thus, there is a need to determine the reasons for the limited use of the WHO-CARI Treatment Guidelines by physicians and to plan strategies for more effective means of dissemination and implementation of the WHO-CARI program.

Keywords: *Prescribing patterns, childhood pneumonia, CARI, Filipino physicians*

INTRODUCTION

Acute Respiratory Infection (ARI) is a major cause of death among children in developing countries. Pneumonia in particular accounts for 4 million deaths of the estimated 15 million deaths worldwide in children under 5 years annually. Two-thirds of these deaths occur among infants. About 20-30% of all mortality cases from ARI in children less than 5 years old occur during the first two months of life. According to the Philippine Health Statistics (1988), the morbidity rate of ARI is 3,570 per 150,000 for the less than 1 year old and 1,097 per 100,000 for 1-4 years age

group (PPS 1929). Through the years, it has remained the leading cause of morbidity and mortality among Filipino children.

Among developing countries like the Philippines, studies on etiologic agents of pneumonia are very few. Tupasi *et al.* (1990) and Capending *et al.* (1994) in 1990 and 1992 respectively documented Streptococcus pneumonia and Hemophilus influenza as the most common organisms causing bacterial pneumonia. Diagnostic tools in most hospitals however, may not be readily available and are of limited use in identifying the specific organism involved.

In 1989, the Department of Health together with the Philippine Pediatric Society (PPS) launched the Control of Acute Respiratory Infection (CARI) Case Management Program to provide doctors and health workers a rational approach in the management of ARI, particularly in areas where health facilities and health personnel are limited in number. Also the case management guidelines were intended to recognize the use of the most cost effective drugs and also prevent inappropriate antibiotic treatment for respiratory infections and thus retard the development of antibiotic resistance.

Eight years later, this study was undertaken to determine to what extent Filipino physicians adhere to the WHO Treatment Guidelines and to identify the antibiotics preferred for primary and alternative therapy of pneumonia in children.

METHODS

Questionnaires were randomly distributed to delegates attending the PPS Biennial Convention in August 1996. They were provided a list of antibiotics for treatment of three types of community acquired pneumonia namely: 1) mild to moderate, 2) moderate to severe and 3) very severe pneumonia.

The list of antibiotics was gathered from a previous pilot survey where respondents were asked to write down drugs they used for pneumonia cases. They were then asked to choose which of these antibiotics were their most commonly used primary drugs. Next, they were asked to indicate their alternative choices for each of the three types of pneumonia. They could also write down other antibiotics if they were not included in the list.

The accomplished questionnaires were then collected that the choices of antimicrobial therapy for pneumonia were compared with the WHO-CARI case management guidelines as shown in the following outline:

Recommended Drug Therapy
(WHO-CARI Program)

Pneumonia	–	Out-Patient Therapy Cotrimoxazole Amoxicillin
Severe Pneumonia	–	Admit Pen G IM or IV

Very severe Pneumonia	–	Admit Chloramphenicol IM or IV

RESULTS

A total of 190 respondents out of 250 (76%) returned the questionnaires and were included in the study. There were 86.3% general pediatricians, 8.9% general practitioners and 4.7% pediatric subspecialist. Almost half were in private practice (54.2%) and concentrated at the National Capital Region (NCR). Majority (65.3%) of the respondents conduct their clinical practice in urban areas of their respective regions (Table 1).

Table 1. Characteristics of the Respondents

	Number	Percent
Specialties:		
Pediatricians	164	86.3
General Practitioners	17	8.9
Pediatric Subspecialists	9	4.7
Type of Practice		
Strictly Government	30	15.8
Strictly Private	103	54.2
Both Government and Private	56	29.5
Unknown	1	0.5
Place of Practice		
1	7	3.7
2	7	3.7
3	4	2.1
4	43	22.6
6	17	8.9
7	1	0.5
10	4	2.1
11	5	2.6
13	1	0.5
NCR	83	43.7
Unknown	18	9.5
Area of Practice		
Urban	124	65.3
Rural	26	13.7
Both Urban and Rural	37	19.5
Unknown	3	1.6

Fig. 1 shows that for mild to severe pneumonia, 88% of the 164 pediatricians would adhere to the recommended drugs of the CARI protocol but as the pneumonia becomes more severe and complicated, the percentage of pediatricians following the CARI guidelines decreased from 31 to 20%. Likewise, among general practitioners the same pattern is seen where compliance with the CARI case management protocol decreased from 88% to 29% as the severity of pneumonia progresses (Fig. 2). The pediatric subspecialties group were also seen to have a similar prescribing pattern (Fig. 3).

On antibiotics used for mild to moderate pneumonia, doctors preferred ampicillin/amoxicillin over cotrimoxazole (Fig. 4). But drugs were used either as primary or alternative therapy. Only a small number of practitioners used penicillin VK, cephalexin, erythromycin and chloramphenicol as primary drugs for mild to moderate pneumonia. Erythromycin was used significantly as alternative therapy for mild to moderate pneumonia. It was remarkable that Pen G as a single drug given parenterally was preferred by more respondents as the primary drug while chloramphenicol was chosen as the main alternative therapy (Fig. 5). Ampicillin/amoxicillin, chloramphenicol and cephalosporin were chosen as the next three most common primary drugs after Pen G while cephalosporin was chosen as the next most common alternative drug. Combination therapy was also shown to have a significant following both as primary and alternative therapy.

For very severe and complicated pneumonia, combination therapy is the choice of the majority both as primary and alternative regimen. Combination of B-lactam drugs and aminoglycoside or either one of them plus another drug were the top choices. For single drug therapy, cephalosporin was the top choice followed by chloramphenicol with Pen G, ampicillin and oxacillin as minor choices (Fig. 6).

Only 15 out of 164 (9%) pediatricians and 2 out of 17 (12%) general practitioners adhered to the CARI-Case Management Guidelines for all types of pneumonia. The rest complied with only one, two or none of the recommendations for the various types of pneumonia.

DISCUSSION

The WHO-CARI Program is expected to decrease mortality from CARI in most developing countries. This has been proven in a study in Bohol, Philippines by Lucero *et al.* where training health workers in the CARI protocol resulted in a significant improvement in mortality rates (Lucero 1976). An increasing number of countries are now adapting WHO's strategy for ARI control (WHO 1995).

Despite global and national support, the CARI protocol is not extensively adopted to in our local setting. The answer is not easy. For one, the prescribing patterns of Filipino physicians are usually influenced by many factor such as the place of practice, type of practice and economic considerations. The major influences come from educational materials and promotional advertisements programs of the drug industry. Perhaps government efforts and influence are not enough to

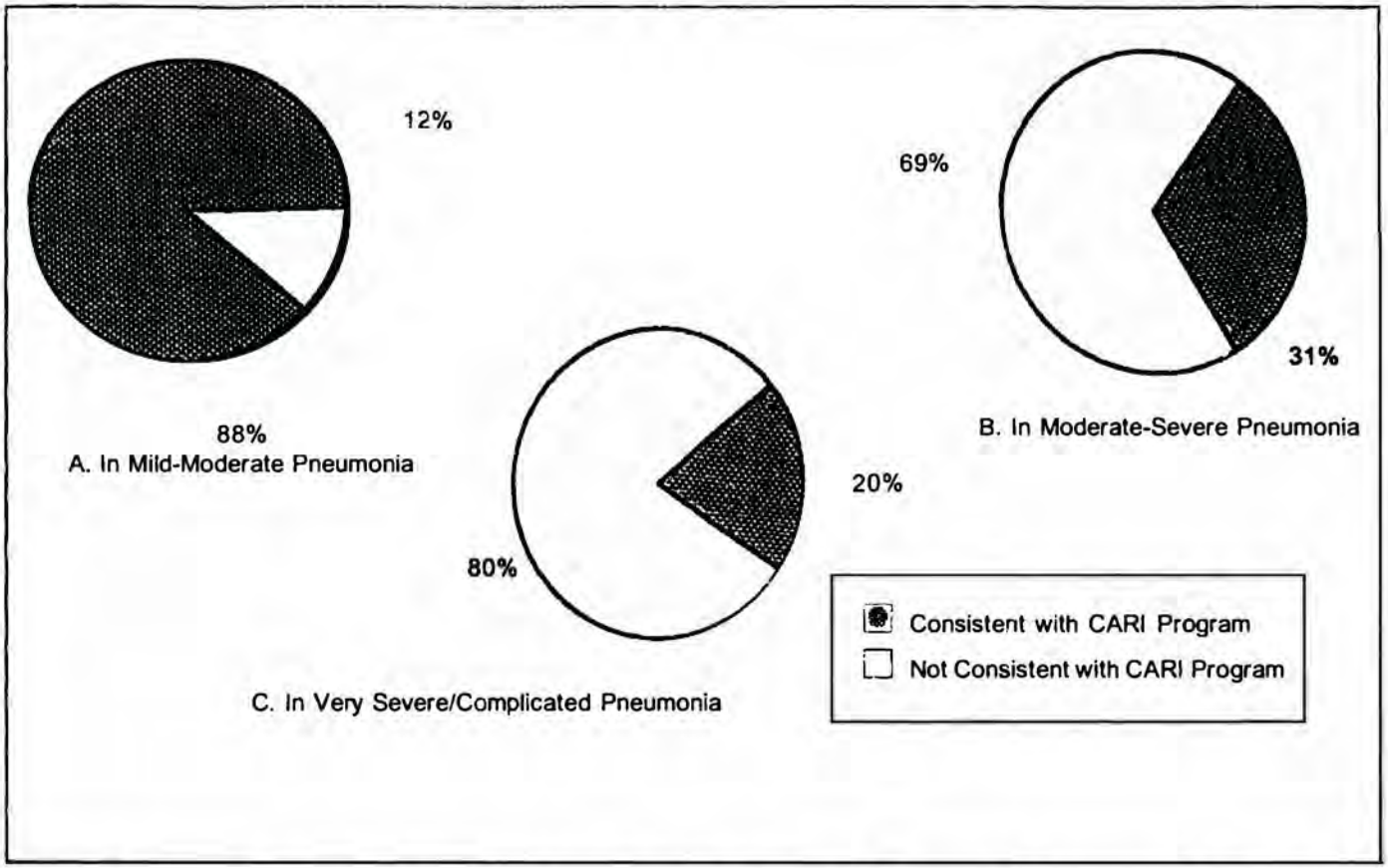

Figure 1. Proportion of 164 Pediatricians Whose Primary Antibiotic Therapy for Pneumonia is Consistent with CARI Program.

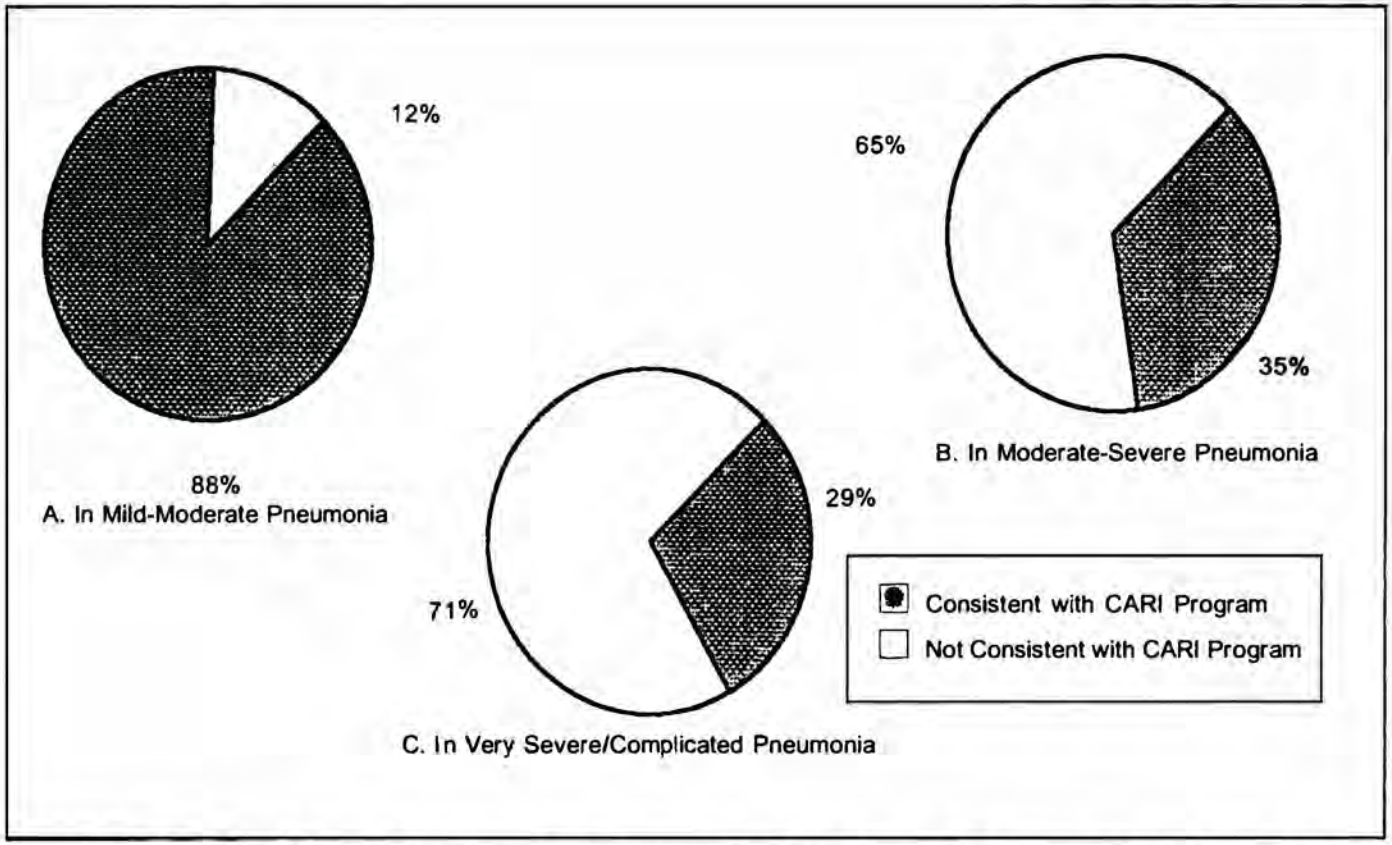

Figure 2. Proportion of 17 General Practitioners Whose Primary Antibiotic Therapy for Pneumonia is Consistent with CARI Program.

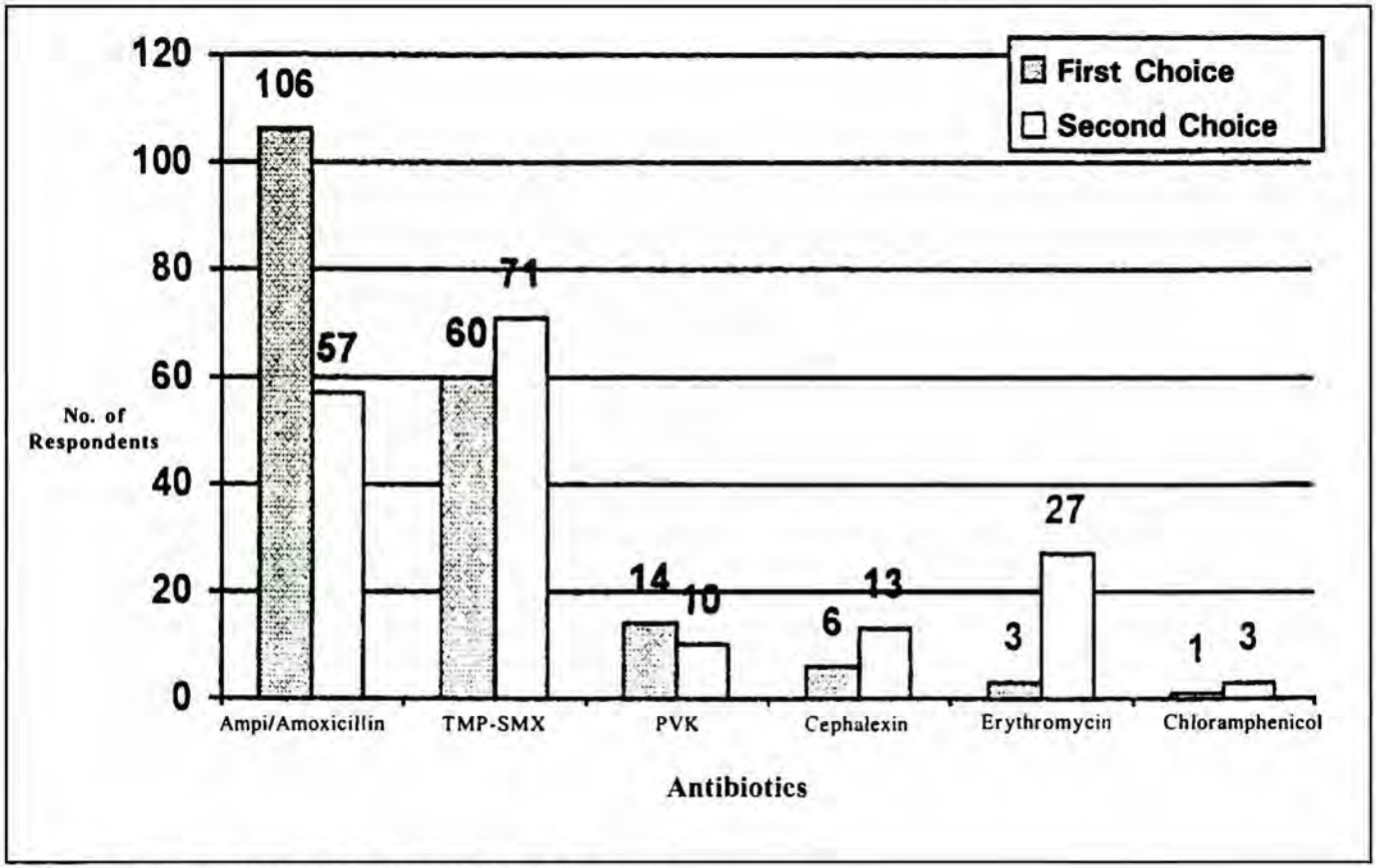

Figure 4. Antibiotics Preferred for Mild-Moderate Pneumonia.

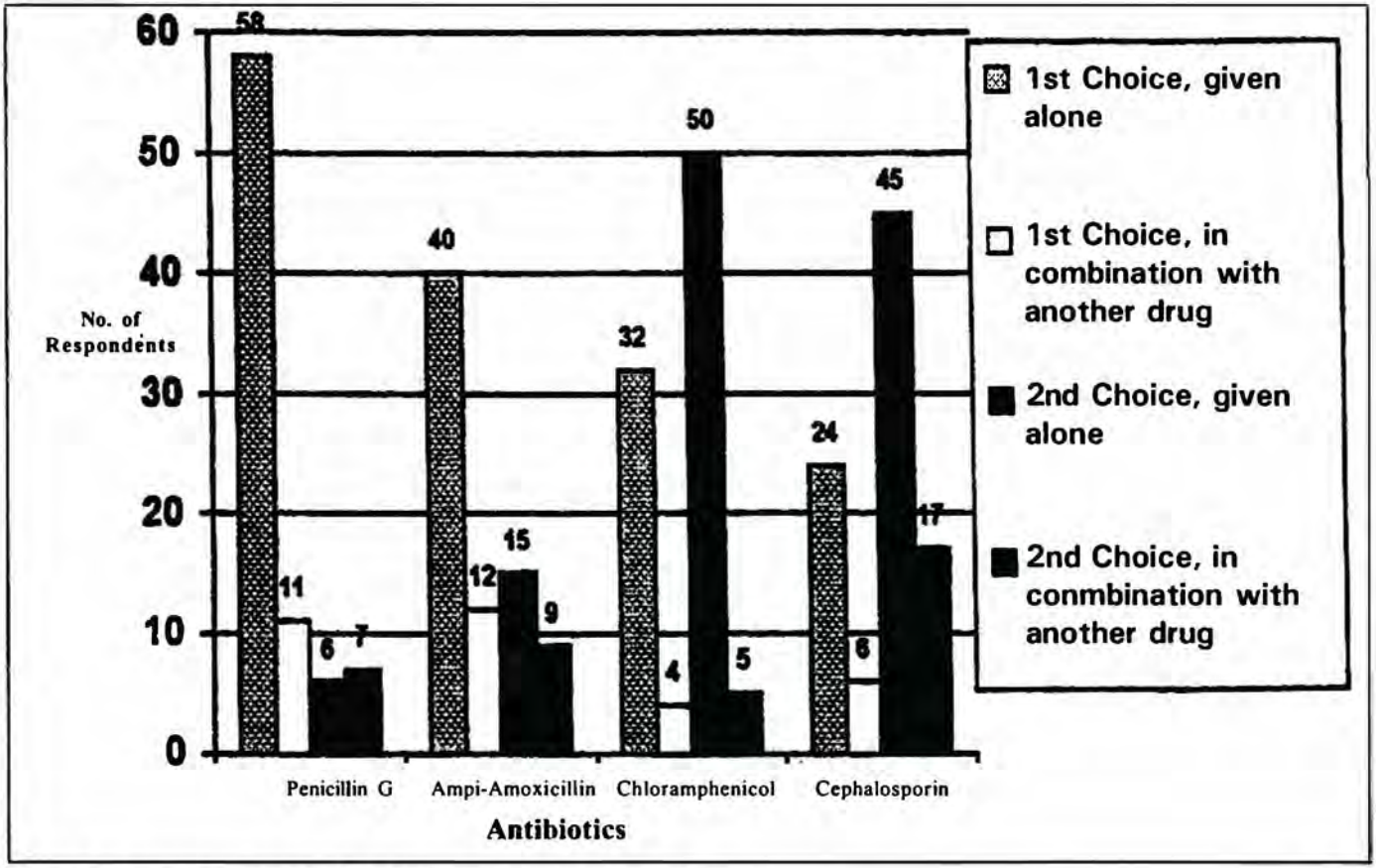

Figure 5. Antibiotics Preferred for Moderate-Severe Pneumonia.

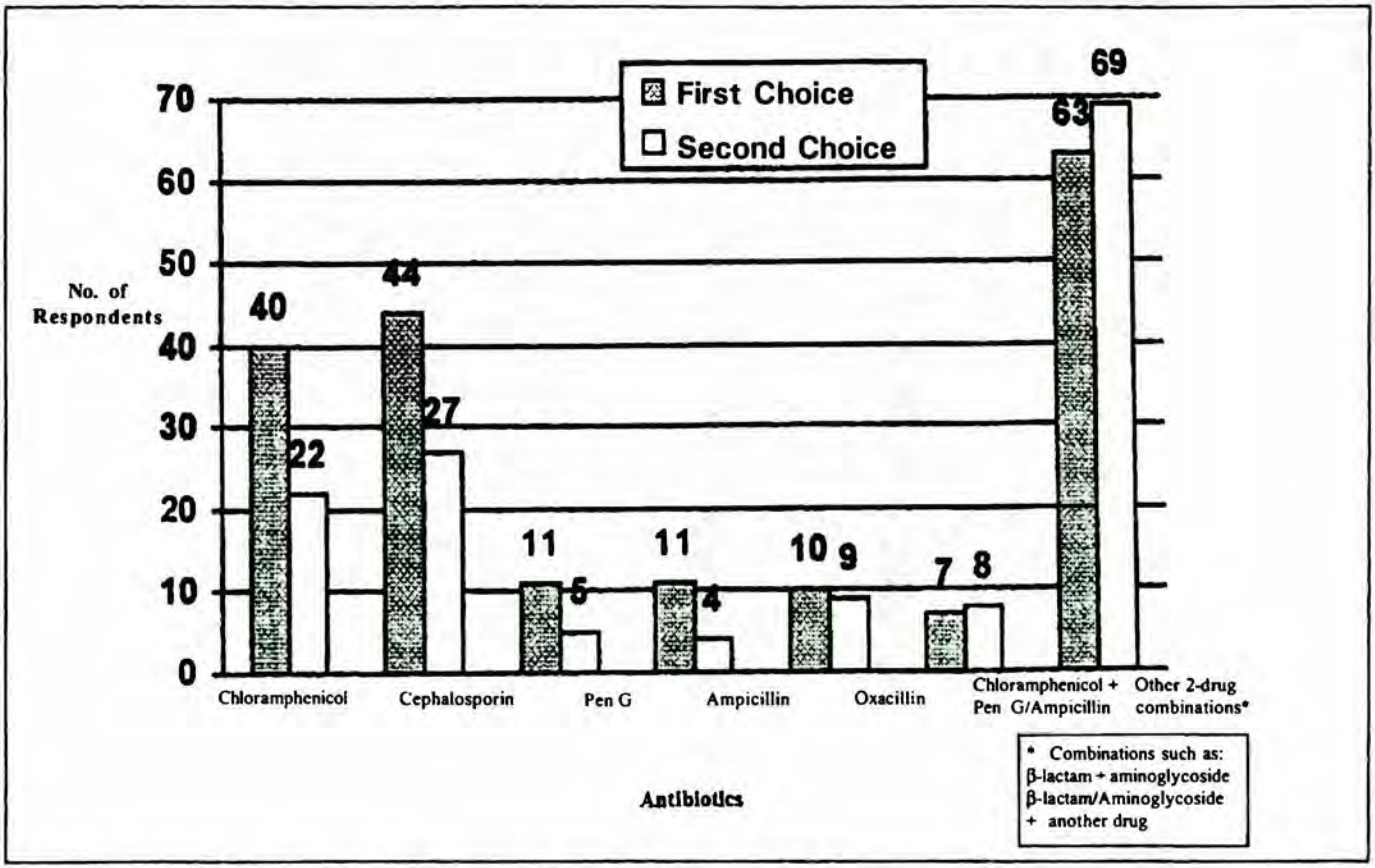

Figure 6. Antibiotics Preferred for Very Severe/Complicated Pneumonia.

promote the CARI program. The pharmaceutical industry may also prove to be a more influential factor.

The Department of Health and the PPS have worked together in the campaign of using the CARI Protocol to provide the most cost effective drugs for pneumonia. It is noteworthy that a significant number (88%) of pediatricians and practitioners adhere to the protocol for mild to moderate pneumonia but for the more severe cases only about one fourth to one fifth would follow these guidelines. Furthermore, only 9-12% of the respondents followed the guidelines for all three types of pneumonia. Clearly there is the need for greater education and promotion of these guidelines by those in the government health policy makers as well as health providers in general.

Understandably, there are many unresolved issues with regard to the use of drugs in the CARI protocol. Among these, are widespread over-the-counter sale of drugs, self medication and emergence of antibiotic resistance for the most common respiratory tract pathogens. These issues sometimes prevent physicians from using the recommended drugs. Another common observation is the inherent resistance of physicians to change their prescribing habits especially when there are no incentives. The incentives may come in various ways, but economic gains, recognition, and self-satisfaction are the most powerful. For private practitioners who make up the bulk of our respondents perhaps the CARI Program does not provide these needs so that there is low compliance to the program.

Those who have more advanced training i.e. subspecialists, academicians were observed to deviate more likely from the recommended guidelines and this was also shown in this study. Perhaps they should be encouraged to do more research studies and work on some of the unresolved issues to help them realize the validity and reliability of the protocol. Support for the program must indeed come from all sectors including the paramedical and nonmedical workers with the pediatricians as the lead role.

In summary, the study showed that there is only a small percentage of pediatricians, and general practitioners 9% and 12% respectively who will adhere strictly to the WHO-CARI Case Management Protocol for the therapy of the community acquired pneumonia. The highest compliance (88%) is observed in the therapy for mild to moderate pneumonia but this diminished considerably as the severity of pneumonia increases. The primary choices for the nonsevere pneumonia are ampicillin/amoxicillin and cotrimoxazole with cotrimoxazole and erythromycin being used as alternative for OPD therapy. Pen G is most commonly used in moderate to severe pneumonia. With the very severe cases of pneumonia, a greater use of cephalosporins, aminoglycosides and combination drug therapy is shown. Thus there is a need for better promotion, planning and formulation of strategies to increase physicians' compliance or adherence to the WHO-CARI Case Management Guidelines which is expected to benefit the Filipino child today.

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