

KNOWLEDGE AND PRACTICE OF DIFFERENT CADRES OF COMMUNITY HEALTH WORKERS (CHWs) AS RELATED TO THE MANAGEMENT OF ACUTE RESPIRATORY INFECTIONS (ARIS) IN ANAMBRA STATE, NIGERIA

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SUMMARY

This was a comparative descriptive study of 300 Community Health Workers (CHWs) of Different cadres chosen from 10 randomly selected LGAs in Anambra State to assess their knowledge and management skills for ARI in children less than 5 years of age.

This study did not reveal significant intercadre differences regarding knowledge and management skills for ARI. Only in 9 (19.6%) of the 46 variables assessed were statistically significant differences observed. Again, in some situations, degrees of correct knowledge and skills were inversely related to CHW cadres. i.e. JCHEWs having better knowledge than SCHEWs and even CHOs. This might be possibly due to the fact that the JCHEWs are usually the first to see these cases when they present at the health centres and are therefore more familiar with their features and also necessary treatment modalities. It was also noteworthy that for important signs like chest indrawing, the CHOs had much better knowledge than the SCHEWs and JCHEWs. It was therefore suggested that CHOs manage only severe cases in addition to their usual administrative functions, while the lower cadre CHWs deal with mild to moderate cases of ARI.

Again, whenever training is planned, all cadres of CHWs should be recruited, since with adequate training, they are all equally disposed to managing ARI cases in particular and minor ailments in general.

KEYWORDS: Knowledge, Practice, Community Health Workers (CHWs), Cadres, Acute Respiratory Tract Infections (ARIs).

INTRODUCTION

Acute respiratory tract infections (ARIs) includes all infections of the respiratory tract, ranging from the common cold to the lung infections¹. They are leading causes of childhood morbidity and mortality in the developing world, accounting for 4.3 million of the 13 million childhood deaths annually in the world². This has led to a renewed emphasis on reducing ARI-related morbidity and mortality, which are mainly due to pneumonia.

The cornerstone of the strategy for reducing ARI mortality is standard case management using simple antimicrobial agents. Effective case management is cost-effective and for both surveillance and cost savings, there is need for its practice to be improved at the health facility level³. The experience gained can also be utilized to influence practices in the family and community.

Applying the case management strategy recommended by the World Health Organization (WHO), health workers in various countries have achieved mortality ranging from 30 to 70%⁴⁻⁵.

The highest cadres of health personnel at the Local Government area are usually the following group of Community Health Workers: Community Health Officers (CHOs), Senior

Community Health Extension Workers (SCHEWs) and Junior Community Extension Workers (JCHEWs). The CHOs combine both clinical and administrative functions, whereas the CHEWs spend most of their time between the health facilities and communities⁶⁻⁷. Despite the fact that these CHEWs usually make the first contacts with patients at the primary health centres, the CHOs are usually more favoured when nominations are made for training activities⁶. They attend these workshops and the end continue with their administrative and management functions at the expense of clinical work.

This study aims at a comparative assessment of knowledge and management of ARI by different cadres of CHWs. Findings would hopefully help to determine whether to select all cadres or a particular cadre when any training is planned in ARI case management. This would enable Community Health Workers to be more effectively deployed.

STUDY AREA

Anambra state is one of the 36 states in Nigeria. It has a projected population of 3.6 million people and is administratively divided into 21 Local Government Areas (LGAs). Rainfall is seasonal with a peak period between June and September. Annual temperatures vary between 26^oc – 38^oc and the physical vegetation

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have features of tropical rainforest and open woodland. About 70% of the indigenes are rural dwellers whose only access to health care is through the primary health care centres manned by Community Health Workers.

METHODOLOGY

The total population included all the 654 community health workers on the records of the Anambra State Ministry Health. The study population consisted of 300 CHWs of various cadres chosen through a multistage sampling technique, where 10 LGAs were randomly chosen by balloting and proportionate sampling (of various cadres) used to select 30 CHWs in each of the 10 LGAs to get the estimated sample size of 300.

The study protocol involved the use of self-administered questionnaires given to all selected CHWs. It explored knowledge and skills of these health workers on ARI management using the following indicators: Symptoms, Signs, Prescribing practices, Health advice given to mothers or caretakers, Referral system.

The results are presented as cross tabulation of the various variables and the Chi-square tests applied to verify intercadre differences.

RESULTS

Table 1 shows the responses by the Health Workers regarding diseases considered as ARIs. Most of them knew that Tonsillitis, Bronchitis and Pneumonia were ARIs. Again, majority of the health workers also knew that Conjunctivitis was not an ARI, but an inflammatory condition of the eye. However, only few of them recognized that Otitis Media, an infective process of the ear is also considered an ARI. The only strongly significant difference in levels of knowledge between the various cadres of health workers was observed regarding Otitis Media as an ARI, because while 34.4% of CHOs answered correctly, only 9.2% and 11.4% respectively of SCHEWs AND JCHEWs, also gave positive responses for this variable.

Table 1: Comparative Assessment of correct Knowledge of Diseases Considered as ARIs

Diseases	Cadres			X ²	p-value
	CHW JCHEW N=105	SCHEW N=163	CHO N=32		
No. (%) correct.					
Tonsillitis	101(96.0)	148(90.3)	28(87.6)	4.80	>0.05
Otitis Media	12(11.4)	15 (9.2)	11(34.4)	15.75	<0.05
Bronchitis	67(63.7)	125(76.3)	22(68.8)	4.51	>0.05
Conjunctivitis	102(97.0)	159(97.5)	28(87.6)	7.00	<0.05
Pneumonia	85(80.7)	134(81.7)	26(81.4)	0.003	>0.05

Table 2 shows the assessment of the health workers concerning their knowledge of symptom of ARI. Cough was the only symptom for which the response rate was more than 50% among all cadres of health workers. While 57% of JCHEWs perceived fever as a symptom of ARI, 47.6% and 37.6%

respectively of SCHEWs and CHOs had the same perception. The responses for all the other more serious symptoms were low in ranging from 18.1% to 34.4%

Table 3 presents the assessment of the level of knowledge of signs of ARI among the health workers. Apart from Wheezing, the perception of signs of ARI by the respondents was poor for most of the more serious signs like Chest Indrawing, for which CHOs however had very significantly higher knowledge than the other cadres of health workers. Again, there was no consistency in knowledge pattern, since the CHOs, were not always more knowledgeable than the lower cadre CHWs.

Table 2: Comparative Assessment of Correct Knowledge of Symptoms Of ARI in under - 5 Children

Diseases	Cadres			X ²	p-value
	CHW JCHEW N=105	SCHEW N=163	CHO N=32		
No. (%) correct.					
Inability to drink	36(34.2)	45(27.5)	10(31.3)	1.52	>0.05
Fever	60(57.0)	78(47.6)	12(37.6)	4.62	>0.05
Cough	59(56.1)	127(77.5)	28(87.6)	15.17	<0.05
Increased					
Drowsiness	27(25.7)	52 (31.7)	9(28.2)	1.07	>0.05
Stopped Feeding	19(18.1)	52 (31.7)	11(34.4)	6.79	<0.05

Table 3: Comparative Assessment of Correct Knowledge of Signs of ARI in under - 5 Children.

Diseases	Cadres			X ²	p-value
	CHW JCHEW N=105	SCHEW N=163	CHO N=32		
No. (%) correct.					
Chest Indrawing	46(43.7)	97(59.2)	27(84.5)	17.33	<0.05
Wheezing	60(57.0)	118(72.0)	20(62.6)	6.02	<0.05
Resp. Rate (Per min)					
20 - 29	5(4.8)	22(13.4)	4(12.5)	8.75	<0.05
40 and above	23(21.9)	32(19.5)	5(15.7)	0.66	>0.05
Temp. (0°)					
37 - 39	27(25.7)	60(36.6)	19(59.5)	12.46	<0.05
40 and above	50(47.5)	64(39.0)	8(25.0)	5.56	>0.05

Table 4 shows the antimicrobial prescribing practice of the CHWs. The first major finding from this table is that for the four drugs assessed, there was no significant difference in the prescribing practice of all categories of Community health Workers studied.

Most of the workers also would most readily prescribe

Cotrimoxazole, while only about 26% would ever prescribe Amoxycillin, which is even occasionally most indicated than Cotrimoxazole.

Table 4: Comparative Assessment of Prescribing Practice of Antimicrobials in under -5 Children

Diseases	CHW	Cadres		X ²	p-value
	JCHEW N=105	SCHEW N=163	CHO N=32		
No. (%) correct.					
Cotrimoxazole	78 (74.1)	132 (80.5)	26 (81.4)	1.39	>0.05
Procain Penicillin	34 (32.1)	41 (25.0)	9 (28.2)	1.81	>0.05
Ampicillin	49 (46.6)	94 (57.3)	94 (43.8)	3.64	>0.05
Amoxycillin	23 (21.9)	42 (25.6)	10 (31.3)	0.86	>0.05

Table 5 is a presentation of the assessment of home advice given to mothers by health workers. No significant difference was observed in response to all the statements listed. Only about one-third of the health workers would advice that mothers continue to feed their ill children. For all the other statements, between 56% and 75% gave positive responses. Another finding that could not be displayed on Table 5 was the response of health workers regarding referral. About 65% of all health workers studied would readily refer serious cases of ARI, and there were no significant intercadre differences in the responses.

Table 5: Comparative Assessment of Correct Home Advice to Mothers

Diseases	CHW	Cadres		X ²	p-value
	JCHEW N=105	SCHEW N=163	CHO N=32		
No. (%) correct.					
Continue feeding during illness	36 (36.2)	58 (35.4)	12 (37.6)	0.11	>0.05
Increase feeding after illness	59 (56.1)	108 (65.9)	22 (68.9)	2.93	>0.05
Increase breast Feeding	61 (58.0)	100 (61.1)	18 (56.3)	0.30	>0.05
Give the child more fluid	59 (56.1)	103 (62.8)	24 (75.1)	3.77	>0.05

DISCUSSION

The study showed that the Community Health Workers (CHWs) were considerably knowledgeable in the management of ARIs in under -5 children. This is important, because these group of infections cause considerable childhood morbidity and mortality, particularly in the rural areas where most of these CHWs practice⁴. The health workers were not as proficient for non-specific information like feeding patterns of sick children and

drowsiness which are important in assessment, classification and management of acute respiratory infections in these children⁵.

For most of the variables studied, the CHWs had either uniformly high or low knowledge and management skills regarding ARI, since statistically significant differences were observed for just about 20% of the variables studied. In a few cases, the more junior workers actually had better knowledge and management skills than the CHOs. Many studies have suggested that this might be due to the fact that these junior workers usually make initial contacts with these patients at the health facilities and are therefore more familiar with the presenting features⁶⁻⁹. These findings have implications for nominating CHWs for training as well as assigning responsibilities, since with appropriate training, most Community Health Workers can manage majority of the minor ailments at the primary health centres⁶. Most of the health workers knew that Tonsillitis, Bronchitis and Pneumonia were classified as ARIs, while Conjunctivitis is not. However, only about 18% of the health workers knew that Otitis Media is also an ARI, though many more CHOs (34.4) than JCHEWs (11.4%) gave correct responses about Otitis Media. This pattern is consistent in study, since the CHOs usually had better knowledge and management abilities for more complex issues and this might suggest that they are better disposed to managing serious cases, while other health workers manage milder cases⁷.

Of the symptom listed on Table 2, cough was the only symptom of the majority of the health workers appreciated as a feature of ARI. While this might be important, it is a non-specific symptom of many other ailments and therefore is of low sensitivity as a diagnostic feature. The perception of most of the other more important symptoms was quite low, since less than one-third of the health workers knew of these other symptoms. This underlies the need for more ARI-specific training, since most of the knowledge exhibited was gained either from practice or a few general primary health care training workshops they had earlier attended. Correct information would improve effective case management of ARI at health facilities and this would in turn help to reduce childhood mortalities in our communities²⁻³. Regarding signs of ARIs, apart from wheezing which is not specific to ARIs, the health workers had poor perception of many signs of ARI and this was worse for the more important signs of moderate to severe cases like chest indrawing. Apart from chest indrawing for which CHOs had significantly better knowledge, there was no consistency in knowledge and skills pattern, since for some of these indicators, the lower cadre workers had better perception than their senior colleagues. These agree with our earlier observations and support the fact that the lower cadres should not be discriminated against for training. The CHOs also appear better placed to manage more serious cases as mentioned earlier.

There was no significant variation regarding prescribing practice among all cadres of health workers studied, because while more than 70% of CHWs of all cadres would prescribe Cotrimoxazole, only about 26% would do the same for Amoxycillin, which is even usually more indicated than Cotrimoxazole²⁻³. It is possible that greater availability of Cotrimoxazole than

Amoxicillin in most primary health centre might account for this better familiarity with the drug. There is need for the health workers to be better trained on the case management of ARI, since appropriate choice of antimicrobials, particularly for moderate to severe cases are the cornerstone of reducing the high mortality due to these infections^{4,9}.

It has also been observed that unacceptably high childhood mortality is partly due to the inability of mothers and caretakers to take timely and appropriate actions when their children develop ARI at home^{1,11}. In this study, between 56% and 75% of the respondents would advise the mothers appropriately on 3 of the 4 statements assessed.

Only about one-third of these health workers would however advise mothers to continue feeding their children even during illness. No significant difference was observed in response to all the statements listed. The health education component of case management must be sustained, since with correct advice, majority of the cases are managed most cost-effectively¹¹. Some other studies^{4,10} also reported that community health workers correctly advised mothers and caretakers on what actions to take with ill children.

Referral mechanism is an important concept in ARI case management and Primary Health Care (PHC) in general^{6,8}. In this study, about 65% of the health workers would refer patients when necessary. This agrees with some other Nigerian studies^{9,10} and must always be emphasized, so that severe cases should be promptly referred to higher level health facilities, since delays could lead to increased mortalities¹¹. It must however be emphasized that in rural areas, many logistic bottlenecks militate against prompt referral.

Extensive review of the literature did not reveal a similar comparative study on ARI to enable us fully discuss the findings relative to other studies. However, as stated earlier, only for a few indicators were the CHOs more knowledgeable than the lower cadre CHWs, and these were mainly for features of several cases. It is therefore important to attempt to train all categories of community health workers at the primary health centres.

Again, it might seem more cost-effective that the CHOs manage only the severe cases and perform more administrative functions, while the JCHEWs and SCHEWs manage minor ailments that present at the health facilities.

In this way, the health workers, who are usually the most senior health workers in the rural areas, where more than 70% of Nigerians live⁷ would help to considerably reduce the morbidity and mortality from ARIs.

REFERENCES

1. Childhood pneumonia. Strategies to meet the challenges. Proceedings of the first international consultation on the control of acute respiratory infections. 1991. AHRTAG, LONDON
2. WHO. Acute respiratory infections in children. Case management in small hospitals in developing countries. A manual for doctors and other senior health workers. Programme for the control of acute respiratory infections. 1991. WHO, GENEVA.
3. WHO. Technical bases for the WHO recommendation on the management of the pneumonia in children at first level health facilities. 1992. WHO/ARI/92.4. GENEVA.
4. **Khan AJ, Khan JA, Akbar M, Addiss DG.** Acute respiratory infections in children: A case management Intervention in Abbottabad district, Pakistan. Bull. WHO. 1990; 68: 577.
5. WHO. Case management of acute respiratory infections in children: Intervention studies. Report of a meeting. 1999. WHO/ARI/98.2. GENEVA.
6. **Ekunwe EO.** Self reliance in human resources and money; IN: Nigerian primary healthcare delivery-The challenges of implementation. Lagos. BLAZE Publications. 1996. 81-4.
7. **Kuteyi D, Bamasaiye A, Oyegbite KS.** Strengthening training for primary health care in: Ransome Kuti O, Sorungbe AOO, Oyegbite KS, Bamasaiye A (Eds). Strengthening primary health care at local government level-The Nigerian experience. Academy Press. 1991. 105-8.
8. WHO. Outpatient management of young children with acute respiratory infections. (Participant manual). Programme for control of ARI. 1991. WHO. GENEVA.
9. **Fagbule D, Kalu A:** Case management by community health workers of children with ARI. Implication for National Programme J. Trop. Med. Hygiene. 1995; 41 (12): 1677-83.
10. **Fagbule D, Parakoyi DB, Speigel R.** ARI in Nigerian children. Prospective cohort study of incidence and case management. J. Trop. Med. Paed. 1994; 40 (5): 27-984.
11. WORLD BANK. Better health in Africa. Experience and lessons learned. 1994. WASHINGTON D.C.