ROUTINE POLIO VACCINATION IN VANIMO GREEN DISTRICT, SANDAUN PROVINCE

A prospective descriptive study

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INTRODUCTION

POLIO/POLIOMYELITIS

- Highly debilitating viral infection, spread by wild polio virus type 1, and cVDPV (circulating vaccine derived polio virus)
- Can cause permanent disability and death.
- One of the causes of permanent disability in children less than 5 years old
- Transmitted by the oral faecal route excretion of virus up to two weeks

- Global coverage rate of polio – 85% in 2018
- Afghanistan, Pakistan remain endemic
- WHO Western Pacific Region –declared polio free 2000, polio vaccination coverage rate – 70%
- PNG polio vaccine coverage estimated at 56%
- Rates of routine polio vaccination in Sandaun– OPV: 37% and IPV: 49%

- Risk factors to outbreaks – low immunization rates, poor sanitation and high population densities

INTRODUCTION

POLIO VACCINE AND POLIO VACCINATION

- Polio vaccination prevents polio
- No cure for polio
- Old schedule – 3 doses OPV, 1, 2, 3 months
- Current –3 doses OPV1, 2, 3 months and 1 dose IPV at 3 months
- New Schedule – 3 doses OPV – 1, 2, 3 months, 2 doses IPV at 3 and 9 months

- IPV – introduced 1955, injectable form, 1 dose, 90% immunity, 2 dose 99% immunity against all 3 types – does not cause cVDPP (circulating vaccine derived polio virus) or VAPP (Vaccine Associated Paralytic Poliomyelitis)

- OPV – 1 dose 50% immunity, increases to 95% after 3 doses – in rare cases can cause VAPP and cVDPV
- In OPV using countries only,a birth cohort of 1 million children, 2–4 cases of VAPP translates to an estimated 250 –500 polio cases / year globally.
- PNG recent polio outbreak (2018) – caused by cVDPV

AIMS AND OBJECTIVES

➢ Primary Aim

Describe and identify gaps in routine polio vaccination in Vanimo Green District in Sandaun Province.

- Objective:

1. To describe and assess Health Workers general knowledge on Polio.
2. To assess children's routine polio vaccination status and some demography information of parents and care givers
3. To assess Health Facility cold chain and Polio Vaccine stock

➢ Secondary Aim

Make recommendations according to findings to improve practice or policies on Routine Polio Vaccination in Vanimo Green District, Sandaun Province

METHODS

➢ Study population

1. Different cadre of Health Workers in Vanimo Green District, Sandaun Province
2. Children 3 months to 24 months of age living near the Health Facility
3. Health Facilities around Vanimo Green District, Sandaun Province

➢ Study design:

Prospective Descriptive Study

➢ Study Site:

Vanimo Green District, Sandaun Province

➢ Exclusion criteria

Objective 2

- Children < 3 months of age
- Children > 24 months of age
- Recent movement to study facility –vaccinated elsewhere

METHODS

Procedure – Travelled to Health Facilities and villages, within the district on road and sea.

Objective 1 –

Questionnaire with 10 Questions, grouped into 5 areas. Answers graded as Poor, Basic, Good in relation to prespecified answers

Object 2 and 3 – Data collection forms and Health Facility assessment forms used.

- Study Duration:

June to November 2020

- Data Extraction and Analysis

✓ Data, answers in the questionnaires were entered on excel spread sheet. Proportions and totals were compared.

✓ Chisquares values, odds ratios and confidence intervals were calculated using OpenEpi.

✓ A P value of 0.05 was seen as significant.

- Ethical Approval

UPNG SMHS Post Graduate Committee, West Sepik PHA Research and Evaluation Committee

SUMMARY OF RESULTS

Objective 1 – Assessment of Health Worker Knowledge

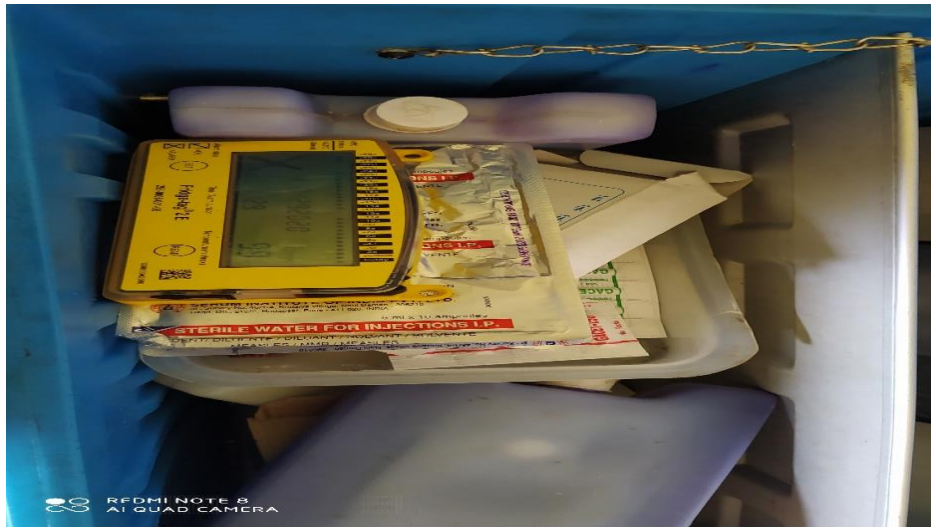
Total of 61 Health Workers were assessed

Objective 2 – Assessment of children's vaccination status / parents / care givers demography

Total of 535 children / parents and care givers, 104 were excluded, 431 had their information assessed.

Objective 3 – Assessment of facility cold chain and polio vaccine stock

14 Health Facilities , 12 visited, other 2 – difficult road and geography



OBJECTIVE 1 RESULTS

ASSESSMENT OF KNOWLEDGE OF HEALTH WORKERS ON POLIO

Table 1.1: Assessment of Health Workers n = 61

Questions	CHW N=36			OTHERS N=25		
	Poor	Basic	Good	Poor	Basic	Good
Transmission						
1	0	17 (47%)	19 (53%)	1 (4%)	9(36%)	15 (60%)
2	0	11 (31 %)	25 (69%)	1 (4%)	13 (52%	11 (44%)
Vaccination						
3	0	3 (8%)	33 (92%)	1 (4%)	1 (4%)	23 (92)
4	1 (3%)	7 (19%)	28 (78%)	2 (8%)	9 (36%)	14 (56%)
Implication of low coverage						
5	7 (19%)	7 (19%)	22 (61%)	9(36%)	8 (32%)	8 (32%)
6	5 (14%)	5(14%)	26 (72%)	3 (12 %)	4 (16%)	18 (72%)
Vaccine management						
7	2 (6%)	24 (67%)	11 (31%)	1 (4%)	2 (8%)	9 (36%)
8	1 (3%)	2 (6%)	33 (92%)	0	2 (8%)	23 (92%)
Polio prevention						
9	1 (3%)	8(22%)	27 (75%)	0	9 (36%)	14 (56%)
10	1 (3%)	25 (69%)	10 (28%)	4 (16 %)	14(56%)	7 (28%)

Table 1.2 : Number of Good Responses

	CHWs n = 36 No of good responses / 72		Others n = 25 No of good responses / 50		P value
	no	%	no	%	
Transmission	44	61	26	52	0.31
Vaccination	6	84	37	74	0.14
Implication of low coverage	48	66	26	52	0.10
Vaccine Management	44	61	32	64	0.75
Polio Prevention	37	51	21	42	0.31
Total	234/360	66	142/250	57	0.04

Table 1.3 – EPI TRAINING

Questions	CHWs N=32				Others N=25				All Health Workers N=57			
	Had training n=11	%	No training n=21	%	Had training N=6	%	No training N=19	%	Had training N=17	%	No training N=40	%
	Good		Good		Good		Good		Good		Good	
Transmission	14	64	21	50	4	33	33	87	18	53	54	68
Vaccination	17	77	30	71	11	92	27	71	28	82	47	59
Implication of low coverage	15	68	25	60	9	75	15	39	24	71	40	50
Vaccine management	17	77	20	48	10	83	20	53	27	79	40	50
Polio prevention	13	59	17	40	5	42	20	53	30	88	37	46
Total	76/110	69	113/210	54	39/60	65	115 /190	61	127/170	75	218/400	55

Table 1.4 : Good responses only on EPI – ALL HEALTH WORKERS

Questions	All Health Workers N=57				P values
	Had training N=17	%	No training N=40	%	
	No of good responses / 34		No of good responses / 80		
Transmission	18	53	54	68	
Vaccination	28	82	47	59	
Implication of low coverage	24	71	40	50	
Vaccine management	27	79	40	50	
Polio prevention	30	88	37	46	
Total	127 / 170	75	218 / 400	55	

OBJECTIVE 2 – RESULTS
ASSESSMENT OF CHILDRENS VACCINATION STATUS AND PARENTS/CAREGIVER DEMOGRAPHY

Table 21 :Health Facility vs Childrens Vaccination Status

Variable	Up to date N=252	Not up to date N=136	Total IPV N=271	Non received N=43
Health facility				
Provincial hospital	60 (24 %)	13 (10%)	60 (22 %)	0
Health Centre	35 (14 %)	15 (11 %)	38 (14 %)	4 (9 %)
Health Sub Centre	25 (10 %)	24 (18 %)	34 (13 %)	21 (49%)
Community Health Post	72 (29 %)	58 (43 %)	34 (13 %)	3 (7%)
Urban clinic	60 (24%)	26 (19%)	63 (23%)	8 (19 %)

Table 2.2: Parents / care giver Education level vs Childrens's Vaccination status

Variable	Up to date N=252	Not up to date N=136	Total IPV N=271	Non received N=43
Education level				
No school	17 (7%)	26 (19%)	24 (9%)	0
Elementary school	6 (2%)	3 (2%)	6 (2%)	0
Primary school	144 (57%)	77 (57%)	155 (57%)	38 (88%)
Secondary school	78 (31%)	22 (16%)	79 (79%)	5 (12%)
Tertiary school	7 (3%)	8 (6%)	7 (3%)	0

Table 2.3: Other variables vs Childrens Vaccination Status

Variable	Up to date N=252	Not up to date N=136	Total IPV N=271	Non received N=43
Age (years)				
<30	171 (68%)	92 (67%)	183 (68%)	31 (72%)
>30	73 (29%)	40 (29%)	79 (29%)	12 (28%)
Not Sure	8 (3%)	4 (3%)	9 (3%)	0
Care giver				
Mother	236 (93%)	126 (93%)	253 (93%)	40 (93%)
others	16 (6%)	10 (7%)	18 (7%)	3 (7%)
Distance from facility (hours)				
<1	204 (81%)	102 (75%)	214 (79%)	18 (42%)
1-3	31 (12%)	24 (17%)	39 (14%)	22 (22%)
>3	17 (7%)	10 (7%)	18 (7%)	3 (7%)

Table 2.4: Associations with variables

Variables	Pvalue	OR	CI
Health center vs (Health Sub Centre + Community Health Post)	0.09	1.97	1.01 – 3.95
Provincial Hospital vs Urban Clinic	0.06	1.99	0.94 – 4.95
Health Centre vs Community Health Post	0.7	1.87	0.94 – 3.83
Primary School vs (Elementary + no school)	0.009	2.35	1.28 – 4.35

OBJECTIVE 2 – RESULTS
ASSESSMENT OF HEALTH FACILITIES

Table 3.1: Health Facility Cold Chain

Name of Facility	Maka	Green River	Lote	Bewani	Ossima	Dapu	Imonda	Laitre	Utai	SPH	Vanimo district	Baro
Facility Classification	CHP	HC	CHP	HC	HC	UC	HC	HSC	HC	PH	District Office	CHP
Deep freezer and ice – lined refrigerator	1	1	1	3	3	2	3	2	3	1	1	1
Back –up generator	1	1	3	1	1	3	1	3	3	1	1	1
Back up solar	1	1	3	1	1	3	1	1	1	1	1	1
Cold Boxes	1	1	1	3	3	1	3	3	1	1	1	1
Vaccine carrier	1	1	1	1	1	1	1	1	1	1	1	1
Ice pack	1	1	1	1	3	1	1	1	1	1	1	1
Clean and well maintained	1	1	1	1	1	1	2	1	1	1	1	1
10 cm or more away from the wall	2	1	1	1	1	2	2	1	1	1	1	1
Cold Chain room separate and adequate	1	2	2	2	2	2	2	1	1	1	2	1
Ice packs correctly placed	2	2	1	2	2	2	2	1	1	1	2	1
Serviced in the last three years	1	2	1	2	2	2	2	1	2	1	2	1

Key - 🟢

DISCUSSION

OBJECTIVE 1 – HEALTH WORKER KNOWLEDGE

- Scores of CHWs higher than others in percentage wise
- However no significant P values when scores were combined
- Doesn't seem to be much difference between trained and not trained on EPI, between the different Health Worker – furthers analysis needed with scores combined

OBJECTIVE 2 – CHILDRENS VACCINATION STATUS AND CARE GIVER DEMOGRAPHY

- Community Health Post are doing better than other Health Facilities.
- Having Primary School education improves vaccination status
- Not much significance noted on association of variable to vaccination.
- Primary School education has Significant P value

OBJECTIVE 3 – HEALTH FACILITY ASSESSMENT

- Most Health facilities have cold chain equipment
- Almost the same number of Health Facility with good and bad cold chain practices
- Further analysis may be needed.

CONCLUSION

- Having primary education background increase the chances of children being fully vaccinated for polio
- Community Health Post have high proportion of children being fully vaccinated compared to other Health Facilities
- CHWs have better general knowledge on Polio than other Health workers.

- Available facilities, human resources can be utilized further to improve indicators

RECOMMENDATIONS

- Similar studies be conducted in other districts, preferable with the 4 regions – comparisons can be made, if findings similar and used/advice Government policies (PNG Vision 2050 – KRA 4.1, National Strategic Plan 2030 Objective)

- HEALTH EDUCATION IN SCHOOLS – PRIMARY

  Teaching syllables and materials – e.g: Health messages on exercises books, rulers etc.

- REGULAR SUPERVISORY VISITS TO HEALTH-REFRESHER TRAININGS/MOTIVATION/ MANDATORY STANDARDS ASSESSMENT / INFRUSTRUCTURE IMPROVEMENT

LIMITATIONS

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THANKYOU