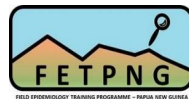# Operational Research Prioritisation Exercise

2018

Accelerating the development of evidence based policy and practice (ADEPPt) in Papua New Guinea

ADEPPt

FETPNG
FIELD EPIDEMIOLOGY TRAINING PROGRAMME – PAPUA NEW GUINEA

Australian Government

INDO-PACIFIC
CENTRE FOR
HEALTH SECURITY

DEPARTMENT OF HEALTH

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Accelerating the Development of Evidence Based Policy and Practice (ADEPPt) project in Papua New Guinea seeks to strengthen health systems in Papua New Guinea using **innovative approaches** to address local problems while undertaking operational research to assess their utility. This report summarizes the first stage of the ADEPPt project. The main aim of this exercise was to identify national priority areas and key focus areas for operational research, which will be undertaken by fellows completing the Advanced Field Epidemiology Training Program in Papua New Guinea (A-FETPNG) between 2019-2021. Operational research is defined as the search for knowledge on interventions, strategies or tools that can enhance the quality, coverage, effectiveness or performance of the health system or program. The generation of high quality, policy relevant knowledge is a necessary first step in enabling evidence-informed decision making to strengthen health systems in Papua New Guinea.

Through stakeholder engagement utilizing a ranking exercise and key informant interviews, four national key priority areas (KPAs) were identified; vaccine preventable diseases and immunization, health systems strengthening, maternal and reproductive health and communicable disease control. Each priority was workshopped with stakeholders to generate key operational research areas (KORAs) that have the potential to improve current health systems, contribute to policy and practice, have potential for impact and will contribute to evidence-informed decision making. Eight KORAs where cross cutting across all four KPAs; supply, procurement and distribution, governance, workforce, quality of care, service delivery, data management, health related behavior and access. Workshop participants unpacked the KORAs formulating operational research questions which were then assessed against pre-defined criteria; a total of 49 research questions were developed that met the criteria.

> *If we make sure that our health system is working and [flowing], people are going to receive services, our mortality rate is going to reduce, our mothers are going to benefit, children are going to benefit, you know, people in the rural areas are going to benefit.* Respondent on why they selected health systems strengthening as a priority area for operational research

This report outlines the methodology and results of the ADEPPt operational research prioritisation exercise. The Department of Foreign Affairs and Trade (DFAT) in Australia, through the Indo Pacific Centre for Health Security, provided funding for this project.

BACKGROUND

Papua New Guinea (PNG), Australia's nearest neighbour and the second most populous nation in the Pacific, is ranked 153rd by the 2018 UNDP Human Development Index, classifying it as a country with low human development.[1] Extremely low immunization coverage, weak primary health care systems and large-scale outbreaks of measles, cholera, dengue and chikungunya highlight the significance of the public health challenges faced by PNG. Uncontrolled epidemic and emerging diseases in PNG, such as multi-drug resistant tuberculosis (MDR-TB), extensively drug-resistant tuberculosis (XDR-TB), Zika and Japanese Encephalitis, pose significant regional health security risks. Prevention, early detection and controlling of these emerging disease threats requires, at its foundation, a strengthening of the health systems. Efforts to build public health capacity and strengthen health systems often fail to deliver sustained or substantial system change due to a lack of local ownership and poor engagement with national policymakers and program managers.

Health service delivery in rural Papua New Guinea. © Flickr/DFAT

The PNG National Department of Health (NDoH) has pre-identified Key Result Areas (KRAs) for prioritisation (Table 1). The PNG Health Research Policy (2012) identified a need for research on targeted national health priorities, however to date there is little evidence demonstrating that research outputs have resulted in the improvement of health systems in PNG.

Table 1: The National Health Plan (NHP) 2011-20202 identifies eight Key Result Areas (KRA)

KRA1	Improve Service Delivery
KRA2	Strengthen Partnerships and Coordination with Stakeholders
KRA3	Strengthen Health Systems, including the Health Workforce, Financing, Information (ICT), Infrastructure, Drugs and Medical Supplies and Leadership and Governance
KRA4	Improve Child Survival
KRA5	Improve Maternal Health
KRA6	Reduce the Burden of Communicable Diseases
KRA7	Promote Healthy Lifestyles
KRA8	Improve our Preparedness for Disease Outbreaks and Emerging Population Health Issues

Rationale for operational research prioritisation

From a health perspective, operational research examines factors associated with the implementation of programmatic activities. Research questions are targeted at identified challenges and constraining factors, and seek to provide answers that have direct and practical relevance in improving health care delivery. In a call for support of operational research in low-income and middle-income countries, Quaglio et al. (2014:e308)[3] define operational research as;

> The search for knowledge on interventions, strategies or tools that can enhance the quality, coverage, effectiveness or performance of the health system or programme.

One of the key features of the FETPNG is the requirement for fellows to design an intervention based on data they have analysed and an identified need in their workplace. The fellow is required to construct a monitoring and evaluation framework for the intervention, implement the intervention, evaluate the outcome, make recommendations and report their findings.

Building on the success of the FETPNG, the ADEPPt project will offer an advanced field epidemiology training program (A-FETPNG) for alumni of the FETPNG with a focus on strengthening health systems. The A-FETPNG will generate high-quality, policy-relevant research knowledge whilst equipping health practitioners currently embedded in the PNG health system to undertake operational research with a health priority focus. Outputs will enable evidence-informed decision making.

Objective of the research prioritisation

As the first stage of the ADEPPt project, the main aim of this exercise was to identify key health priority areas (KPAs) and Key Operational Research Areas (KORAs) to focus projects of the A-FETPNG fellows with the aim of building a body of evidence to inform policy and practice, improving health systems in PNG. This aim was achieved through the following objectives:

Specific Objectives (SO)

SO1.   Through engagement with a variety of stakeholders, identify 3-5 focus areas for prioritisation of operational research.

SO2.   Workshop these focus areas to identify priority areas for operational research for the first two cohorts of the A-FETPNG in 2019-2021.

SO3.   Workshop the operational research priority areas to define research questions that will have a translational aspect achievable within the ADEPPt timeframe, with the aim of informing policy and practice in the long-term.

Scope

This exercise aimed to identify priority areas for focussed operational research that could be conducted within a short timeframe, meeting the requirements of the ADEPPt training program while building a comprehensive, localised evidence-based body of research to inform policy and practice in PNG. These priorities are therefore set for two years, however, identified priorities areas that are not addressed by the 2019-2021 A-FETPNG cohort can be used to help guide future FETPNG projects and other operational research initiatives.

The initial list of health priories for ranking was drawn from the Papua New Guinea National Health Plan 2011-2020[2], the PNG-WHO Country Cooperation Strategy 2016-2020[4], Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (ASPED III)[5] and the Papua New Guinea IHR Core Capacity Development Plan 2014-2016.[6]

With A-FETPNG fellows coming from across PNG, representing both rural and urban communities, geographic scope was not limited. A desired output of the program is for fellows to develop practical interventions during their training, with the larger vision to see successful interventions scaled up to improve health systems and outcomes nationally.

Methodology

This prioritisation exercise was informed by Viergever's framework for setting the National Health Research Agenda.[7] The methodology was based on Viergever et al. (2010)[8], *A checklist for health research priority setting: nine common themes of good practice*. A number of approaches to health research priority setting were reviewed to identify a systematic approach we could adapt to the PNG context and the scope of our exercise; the 3D Approach Matrix (3D-CAM)[9], the Essential National Health Research (ENHR) approach[10] and the Child Health and Nutrition Research Initiative (CHNRI) approach.[11] The methods used in the development of the PNG National Health and HIV Research Agenda 2013-2018[7] were also reviewed and our methods drew heavily from this document whilst also incorporating aspects of the prior mentioned approaches (Figure 1).

Phase One

Formulation of Values and Criteria

Roundtable discussion with FETPNG faculty. Consensus on values to underpin the workshop. Consensus on criteria for selection of key focus areas for operational research.

Phase Two

Selection of Key Prioritization Areas

Ranking exercise and interviews conducted with policy makers, program managers, educators, and health care workers. Top four priorities and operational research needs identified

Phase Three

Selection of Key Operational Research Areas

Pre-workshop situational report on key priority areas distributed to workshop attendees. Consultation workshop with Policy makers, program managers, educators and health care workers
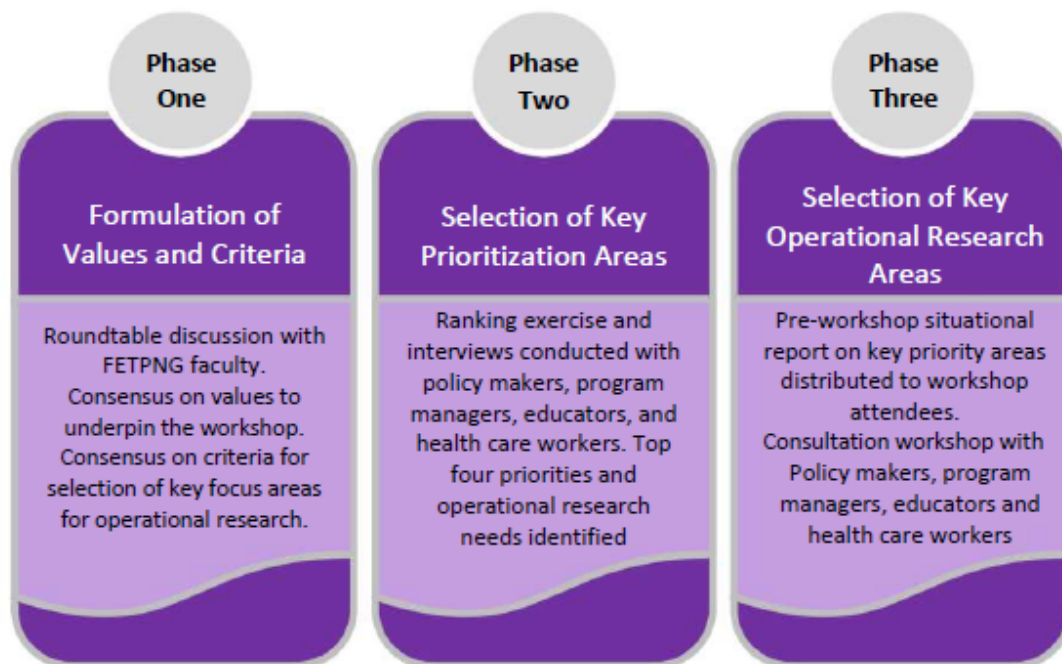
Figure 1: Process for selecting operational research priorities for the Advanced Field Epidemiology Training Program in Papua New Guinea (A-FETPNG), 2018

Phase One: Formulation of values and criteria

Stakeholders were engaged to formulate values and criteria for the workshop; these comprised of eight FETPNG faculty, including both PNG and international faculty members. Drawn from other research prioritisation exercise[12-16], twelve initial values were proposed, and through a consultative process one of these was removed and two additional values added, refer to Appendix 1. Participants were asked to identify the top four values they felt should underpin operational research carried out by fellows undertaking the A-FETPNG. The nominal group technique[17 18] was utilized to gain consensus. Four values were unanimously agreed upon;

> The operational research should improve current health systems
> The operational research should contribute to policy and practice
> The operational research should be evidence-based
> The operational research should have potential impact

In the same meeting, criteria for the prioritisation of operational research focus areas were also identified and finalised. A list of seventeen criteria drawn from other research prioritisation exercises[11 19] were provided and through a consultative process based on the nominal group technique[17 18], four criteria were removed, two were modified and three mandatory criteria were created;

> The operational research must be ethical
> The operational research must be able to be conducted using existing resources
> The operational research much be able to be completed within an 18-month timeframe.

These criteria were identified as mandatory in the assessment of the operational research questions developed during the prioritisation workshop. Four additional criteria were also identified as not mandatory but important in assessing and ranking operational research questions for the A-FETPNG program;

> Magnitude of the health problem
> Size of knowledge gap or lack of adequate implementation
> Effectiveness (potential for proposed research to address objectives)
> Implementation (potential for recommendations to be implemented)

Phase Two: Selection of Key Priority Areas (KPAs)

Key representatives from the NDoH, Provincial Health Department, District Health Department, health centres, program managers, healthcare workforce, World Health Organization (WHO), University of Papua New Guinea (UNPG), a church-run health service, United Nations Population Fund (UNFPA), the Adventist University, the National Agricultural Quarantine and Inspection Authority (NAQIA) and the FETPNG were engaged in the prioritisation process. The diverse representation of stakeholders across the health sector in PNG helped to ensure the process was inclusive and equitable.

A priority-area ranking questionnaire was distributed to 39 stakeholder representatives. Individuals were asked to rank the listed priorities in order of perceived public health importance in the context of priority areas for operational research to be conducted by A-FETPNG fellows. Refer to Appendix 2 for a copy of the questionnaire and characteristics of respondents. Priorities were weighted in the following way: The priority ranked as 1 was given a score of 4, priority 2 was given a score of 3, priority 3 was given a score of 2 and priority 4 was given a score of 1. This process gave a higher weighting to the areas deemed most important. The results of the final ranking and non- weighted and weighted scores can be found in Appendix 3. Four Key Priority Areas were identified (Figure 2)
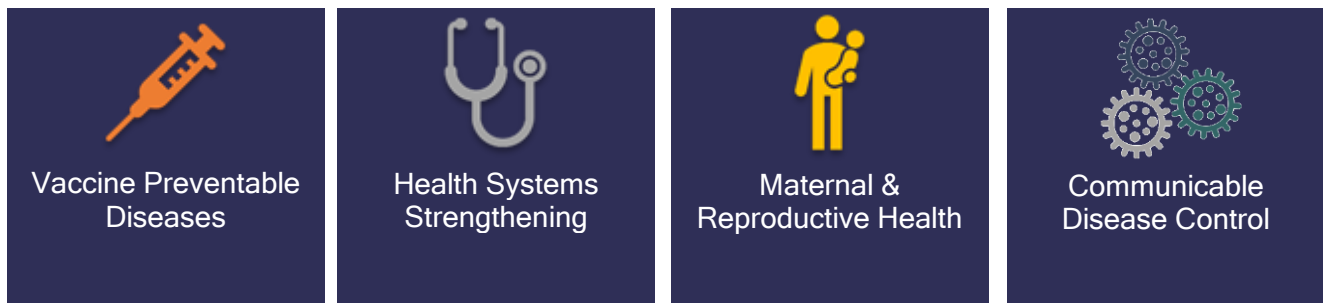

| Vaccine Preventable Diseases | Health Systems Strengthening | Maternal & Reproductive Health | Communicable Disease Control |

Figure 2: Key Priority Areas (KPAs) identified for Advanced Field Epidemiology Training Program in Papua New Guinea (A-FETPNG), 2018

Eighteen representatives of the stakeholder groups mentioned above were interviewed using a semi-structured interview guide after completion of the ranking questionnaire to discuss reasons for selecting the top four priorities. The semi-structured interviews explored perceptions on; reasons for selection, what is currently working well in these priority areas, operational research needs, potential barriers in conducting operational research on identified priority areas, potential for policy and programmatic change in identified priorities, and proposed beneficiaries of research outputs. Refer to Appendix 2 for a copy of the interview guide and characteristics of interviewees. Interviews were recorded (with permission), transcribed and analysed. NVivo software (version 11) was used to create structural codes of segments of text which were then categorized into broader level sub-categories.[20] In the final phase sub-categories were brought together under over-arching themes.[20] Results were collated and interviewee's perceptions organized under the four KPAs identified during the ranking exercise, refer to Appendix 4 for a summary of the main codes and themes.

Now that we have an outbreak, it is consuming a lot of funds from both [government health partners] and [time] which could have been devoted to something else, so it's time wasted, resources wasted, money wasted. It is actually getting a lot of people from the [health services] now they're concentrating on all these things, so other areas of priority are not given much attention.

Respondent on why they selected vaccine preventable diseases and immunization as a priority area for operational research.
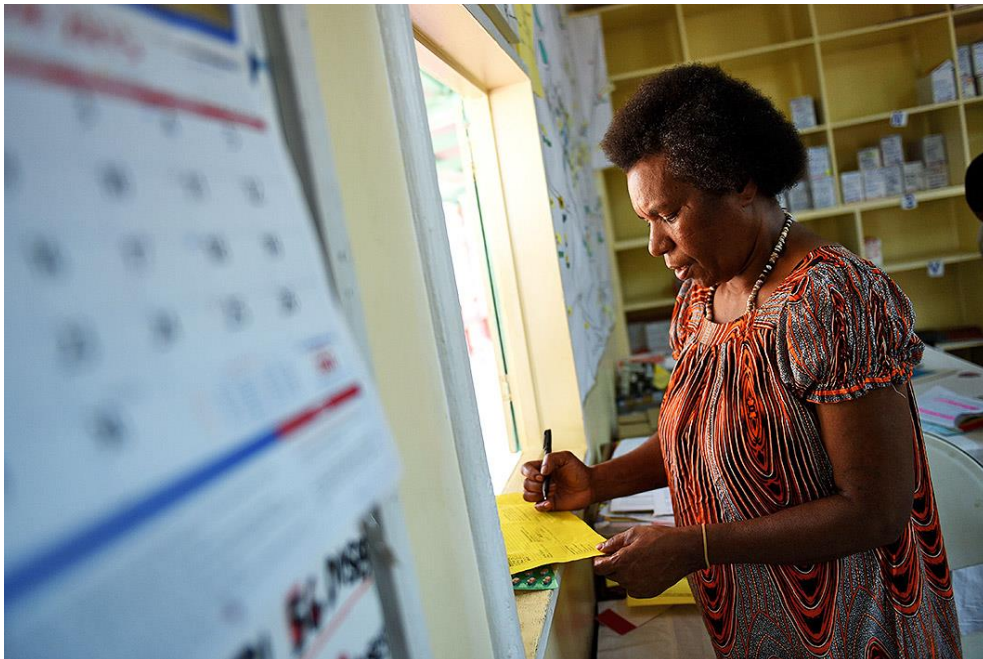
Community health worker dispenses medicine at a clinic in Port Moresby: ©Mick Tsikas/AAP Image

Doing health system strengthening [is my choice], if you do that then it will cover all the areas, even including my program, HIV or TB or malaria or communicable disease, that covers everything, so … even disability will benefit from health system strengthening that's why I choose it.

Respondent on why they selected health systems strengthening as a priority area for operational research.

Research is the key part that we can [explore or find out] and then give the right form of advice to the policymakers. This is the idea that we found out, that this can be done to address this or … it is a form of research that … we will greatly improve the policymakers, especially the decision making… Because you just fund money to do a TB program and you don't know what key areas to [to target], the impact areas - you just do things, then you cannot [do it successfully] - achieve the goal of [decreasing] the burden of TB. So … I think research plays a very important part in - giving the right form of information to decision makers to address the problem.

Respondent on why they selected communicable disease control as a priority area for operational research.

Picture: Tuberculosis patient at Daru Hospital in Papua New Guinea ©ABC News

Phase Three: Selection of Key Operational Research Areas (KORAs)

Integrated analysis of data collected during Phase 1 and Phase 2 informed the design of the workshop. A situation report for each of the four KPAs was collated with information on burden of disease, current knowledge and recent developments, current policies, future focus and how the priority sits within the National Health Plan[2] (refer to Appendix 5). The situation reports were circulated to invited stakeholder participants prior to the workshop, they were also made available during the workshop for further review by participants. Figure 3 illustrates the process conducted during the prioritisation workshop.

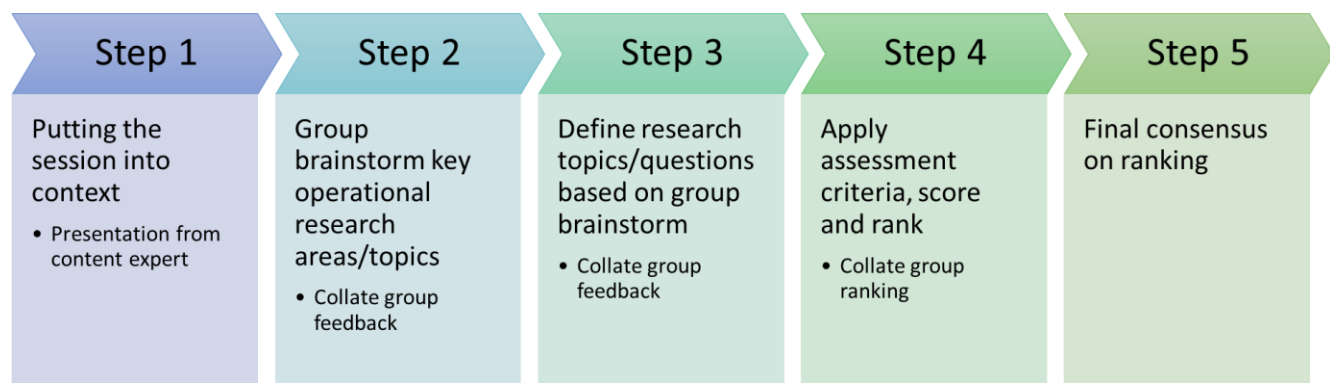| Step 1	Step 2	Step 3	Step 4	Step 5
Putting the session into context • Presentation from content expert	Group brainstorm key operational research areas/topics • Collate group feedback	Define research topics/questions based on group brainstorm • Collate group feedback	Apply assessment criteria, score and rank • Collate group ranking	Final consensus on ranking

Figure 3: Outline of the steps undertaken during the operational research prioritisation workshop for the Advanced Field Epidemiology Training Program in Papua New Guinea (A-FETPNG), 2018

A total of 21 individuals participated in the workshop. Participants included representation from clinicians, clinical managers in health facilities, district and provincial health staff, and NDOH program managers. Program managers of the identified KPAs were invited to provide a brief overview of the context and key challenges associated with meeting programmatic targets. Participants then spent time brainstorming key operational research areas (KORAs) which were subsequently grouped into overarching themes (Figure 4).

Figure 3: Overarching themes of Key Operational Research Areas (KORAs) for the Advanced Field Epidemiology Training Program in Papua New Guniea (A-FETPNG), 2018

A summary of the identified KPAs, KORAs, how these relate to the National Health Plan Key Result Areas (KRAs), a summary of compiled themes identified during interviews and during the workshop brainstorming exercise can be found in Appendix 6.

The KORAs were used to direct the formulation of operational research questions. Research questions developed were broad overarching questions to enable the A-FETPNG fellows' flexibility in developing specific questions reflecting the operational programme needs within the context they are working. The research questions were then assessed against the previously developed assessment criteria (Appendix 1). Operational research questions meeting the criteria were then ranked using consensus ranking (Appendix 7).

Sixteen research questions were developed under KPA1: vaccine preventable diseases and immunization; 14 research questions were developed under KPA2: health systems strengthening; and 19 research questions were developed under KPA3: maternal and reproductive health priority. Due to time constraints specific questions were not developed under KPA4: communicable disease control; these will be developed later by the A-FETPNG fellows. Research questions for each KPA are presented in Table 2-4b and grouped by the KORA they address.

Table 2: Workshopped research questions under priority KPA1: Vaccine Preventable Diseases and Immunization

Key Operational Research Area (KORA)	Research Questions – Vaccine Preventable Diseases and Immunization
Governance	*What factors provided by the EPI programme would enhance delivery at the provincial and district levels?
Quality of care	What are the minimum required services for routine immunization? Are these being implemented?
Workforce	How do supervision visits impact motivation of workforce to improve service delivery?
	*What are the key challenges for health workers in providing a routine immunization service?
	Conduct a Review expected competencies of health centre staff related to surveillance of VPD and immunization and related training received by health centre staff.
Supply, procurement and distribution	*What are the key resources required to deliver routine immunization?
	How many vaccine fridges are functioning across the provinces? What power sources are most reliable?
	What is the impact of supply, procurement and distribution on routine immunization?
Access	Identify barriers to accessing immunization, what impact do these barriers have on coverage?
	What are the factors contributing to low accessibility to health facilities?
	Do mobile clinics improve uptake of immunization?
Data management	*Conduct an audit of the vaccination data collection and reporting system.
	What are the factors contributing to underreporting vaccination status? Is underreporting due to the lack of knowledge of the health service worker?
	Are health centre staff conducting active surveillance happening after a notification of a VPD?
Health related behaviour	*Conduct a Knowledge, Attitudes and Practices (KAP) survey on the utilization of child health registers in informing vaccination activities
	*What are health care staffs Knowledge, Attitudes and Practices (KAP) related to surveillance of VPD and immunization?

NB: Due to time constraints, consensus ranking was not undertaken for KPA1. Questions were prioritised based on highest scores on the criteria Checklist, the six highest scoring are marked with an asterix *

Table 3: Workshopped research questions under priority KPA2: Health Systems Strengthening

Key Operational Research Area (KORA)	Research Questions – Health Systems Strengthening
Access	*What are the barriers and enablers for community access to care at health services and aid posts?
	*What are the barriers and enablers to health care workers conducting outreach services?
Workforce	*Upskilling village birth attendants and village health volunteers to provide integrated care and explore barriers and incentives for engagement with health centres and health care workers.
	*What factors are affecting staff recruitment and retention in rural areas?
	What different training programs are available for health staff? How can multi-skilled training approaches strengthen primary health care?
	Assessing staff attitudes towards people presenting at health facilities.
	What is the current health workforce capacity in public health domains? Assess the health workforce against current benchmarks and identifying training needs.
	What are the gaps in knowledge of health center staff that need filling for an integrated approach to PHC?
	What different training programs are available for health staff? How can multi-skilled training approaches strengthen primary health care?
	Does empowerment of village health volunteers have an impact on health services in the community? What skills do village health volunteers need?
Health related behaviour	*How do men act as barriers and facilitators for health care, how can they be engaged to act as partners in health care?
	Assess community knowledge on health related issues and services available.
Service delivery	*Evaluate the impact of the health island concept
	Review of current outreach services and designing strategies to integrate and improve them without having an impact on current health services
Quality of care	Do village health volunteers give medication in accordance with national guidelines?

NB: Group consensus ranking was undertaken for KPA2, questions ranked as the top six priorities are marked with an asterix *

Table 4a: Workshopped research questions under priority KPA3: Maternal and Reproductive Health

Key Operational Research Area (KORA)	Research Questions – Maternal and Reproductive Health
Health related behaviour	*What are the roles of men in enabling and preventing uptake of reproductive health services? How do they see themselves participating more?
	*What are the contributing factors to adolescent pregnancy?
	*What sexual, reproductive health topics are taught in schools? How effective are current methods of delivery?
	What influence does religion and tradition have on the use of contraception? What are the most prescribed?
	What are the knowledge, attitudes and practice of teachers delivering sexual, reproductive health education in schools?
	What are the enabling factors associated with health seeking behaviours for sexual, reproductive health?
Service delivery	*What factors are the most important in shortening the three-delays[1]?
	*What are the barriers to accessing antenatal care? Exploring the association between the number of antenatal visits and associated barriers and enablers.
	What are the demographic factors associated with family planning uptake?
	What options are available to discontinue pregnancy? What are the most common pathways
Quality of care	Compare unsupervised community based delivery outcomes with health centre delivery outcomes.
	What is the association between age of a mother and complications during delivery?
	Assess the knowledge of health care workers on use of cervicograph and referral practices
	Are guidelines being followed appropriately during delivery at health care centres?
	Assess the quality and completeness of antenatal care

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[1] The three delays in maternal and reproductive health care refer to 1. delay in decision to seek care, 2. delay in reaching care, 3. delay in receiving adequate care.

Table 4b: Workshopped research questions under priority KPA3: Maternal and Reproductive Health

Key Operational Research Area (KORA)	Research Questions - Maternal and Reproductive Health
Supply, procurement and distribution	What are the most common family planning commodities available and how frequently do they stock-out? What commodities are unavailable? What are the most popular commodities?
	At what point in the supply chain does distribution of family planning fail?
Access	*What are the barriers preventing access to family planning?
	What proportion of antenatal visits are by pregnant teenagers

NB: Group consensus ranking was undertaken for KPA3, questions ranked as the top six priorities are marked with an asterix *

Table 5: Results of brainstorm activity for priority KPA4: Communicable Disease Control

Key Operational Research Area (KORA)	Brainstorm – Communicable Disease Control
Health related behaviour	Population factors influencing transmission – cultural and geographical
	Social impact of tuberculosis (TB) infection on patients and their families
	Self-stigma associated with TB infection
Data Management	*Prevalence studies on drug sensitive TB and multi-drug resistant (MDR) TB
	*Studies on prevalence and management of TB in high risk populations
	*Improving the data collection and timeliness of reporting of TB
Service delivery	The provision of prophylaxis to contacts
	*Conducting school based surveys on the prevalence of TB
Governance	Roles of provinces and districts in providing care and treatment for TB
	Roles of partners and collaborations on the provision of care and treatment for TB
	Cost analysis of TB treatment for the patient and family
Workforce	Engagement of voluntary treatment partners - Non monetary incentives to aid retention of voluntary treatment partners - Upskilling current volunteers VBAs 2
	Identifying and addressing issues related to high staff turnover
Quality of care	*Reducing lost to follow up (LFTU) and effective case management of TB cases
	*Improving the identification and treatment of HIV/TB coinfection
	Review of tuberculosis diagnostic practice and influences on delayed diagnosis
	Addressing waiting times at health centres

NB: Due to time constraints operational research questions were not developed for KPA4. Key operational research areas identified during the brainstorm session were ranked using group consensus ranking. The top six priorities are marked with an asterix *

CONCLUSION

As the first stage of the ADEPPt project, the main aim of this exercise was to identify and prioritise operational research topics/questions within four national health priority areas. These topics/questions will help guide the implementation projects undertaken by fellows in the advanced field epidemiology training program in Papua New Guinea.

Building on the success of the FETPNG, the advanced program will focus on strengthening health systems by building a body of evidence around four specific priority areas; vaccine preventable diseases and immunization, health systems strengthening, maternal and reproductive health and communicable disease control. Implementation projects undertaken will generate high-quality, policy-relevant research knowledge whilst equipping health practitioners currently embedded in the PNG health system to design, implement and evaluate interventions with a health priority focus. Outputs will enable evidence-informed decision making.

To maximize impact, program managers and policy makers should be engaged at all stages of project design, implementation and evaluation. It is our vision that the body of work created by the fellows undertaking the A-FETPNG will be scaled up to strengthen the health system across the nation.

EVALUATION

The workshop concluded with an overall evaluation of the prioritisation process. This evaluation was guided by six questions addressing each activity carried out during the workshop and participant perceptions of the overall utility of the exercise.

'It was a really interesting and educational process.'

'A very useful exercise for now and for the future.'

'It gives you a confidence and pride that you have gone thru this process to develop research questions to help inform interventions.'

Participants felt that the prioritisation exercise provided a transparent and collaborative approach to reaching collective decisions on key focus areas. The process of brainstorming the priority areas and then formulating research questions was viewed as a constructive way of breaking a topic down and identifying the key focus areas. Participants felt that thinking through a priority area in such detail was an important process. This process was seen as not only useful in helping to direct the intervention projects of the A-FETPNG fellows but also in informing the way they view their current day-to-day activities.

The concept of fellows building an evidence base for a few specific priorities was viewed positively by faculty of the FETPNG, they saw this as an opportunity to build a body of evidence that could be used to help bridge the gap between policy and effective program implementation.

Recommendations

- Follow-up with content experts on the final list of research questions to identify which questions are currently being addressed or have been addressed by other organizations/partners.
- Ask content experts for their views on the most important priorities for FETPNG fellows to focus on to strengthen the evidence base needed to run effective programs. This will create buy-in from program managers and facilitate access for fellows to conduct their projects.

Suggestions for improvement of the prioritisation process

- The brainstorm activity could have been provided the night before, to allow more time for reflection, then reviewed as a group during the sessions.
- During group discussions, providing people with time to write things down would facilitate clarity as English was not the first language. It can be difficult for people from non-English speaking backgrounds to articulate thoughts verbally on-the-spot. Being provided the opportunity to write thoughts down could strengthen the discussion.
- Individual scoring on criteria was preferred to group consensus scoring. It was felt group consensus scoring allowed dominant personalities to influence results.
- Ideally one day per priority would allow enough time for group consensus ranking. Due to rich discussions some sessions were found to run short on time.

WORKSHOP PARTICIPANTS

A total of 21 individuals participated in the workshop; participants included representation from district and provincial health staff, NDOH program managers, FETPNG faculty, academic institutions and international non-government organizations.

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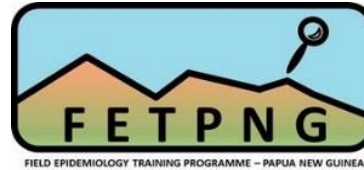Ministry of Health
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'"The workshop was transparent. Many people come and say this is what we have developed, but in this process we were engaged, it is our contribution, this is our brain.'

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Photograph pg5: Health service delivery in rural Papua New Guinea. © Flickr/DFAT
https://auspng.lowyinstitute.org/article/challenges-delivering-health-services-remote-areas-australia-and-papua-new-guinea/

Photograph pg11: Community health worker dispenses medicine at a clinic in Port Moresby: ©Mick Tsikas/AAP Image
https://insidestory.org.au/the-hard-headed-case-for-helping-png-eliminate-tb/

Photograph pg12: Tuberculosis patient at Daru Hospital in Papua New Guinea ©ABC News
https://www.abc.net.au/news/2013-06-19/an-png-under-strain-to-tackle-drug-resistant-tuberculosis-infec/4766896

APPENDICES

Appendix 1: Formulation of values and criteria

Appendix_1_Values
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Appendix 2: Priority Ranking Exercise

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Appendix 3: Key priority areas (KPAs)

Appendix_3_KRAs_A
DEPPt_prioritization

Appendix 4: Thematic analysis of interviews

Appendix_4_Intervi
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Appendix 5: Pre-workshop KPA situation reports

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Appendix 6: Collated KORAs

Appendix_6_Collate
dKORAs_ADEPPt_pri

Appendix 7: Research question scoring

Appendix_7_Resear
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