



Final Report

Final Evaluation of Hepatocellular Carcinoma (HCC) in Western Kenya: Risk Factors, early Diagnosis and Surgical Management (HepWek) Project

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Abbreviations

AMPATH	Academic Model Providing Access to Healthcare
CHMT	County Health Management Team
DHMT	District Health Management Teams
FGD	Focus Group Discussion
HCC	Hepatocellular Carcinoma
HepWek	Hepatocellular Carcinoma (HCC) in Western Kenya: Risk Factors, early Diagnosis and Surgical Management (HepWek) Kenya
HIV	Human Immunodeficiency Virus
INEN	Instituto Nacional de Enfermedades Neoplasicas (Peruvian National Cancer Institute)
KII	Key Informant Interview
MOU	Memorandum of Understanding
MTRH	Moi Teaching and Referral Hospital
NCCP	National Cancer Control Program
NCDs	Non-Communicable Diseases
OECD DAC	Organisation for Economic Cooperation and Development - Development Assistance Committee
TOT	Training of Trainers
WHO	World Health Organization

Executive Summary

This report presents the findings of the final evaluation of Hepatocellular Carcinoma (HCC) in Western Kenya: Risk Factors, early Diagnosis and Surgical Management (HepWek) Kenya. The project sought to identify people at high risk of developing hepatocellular cancer (HCC) due to their exposure, screen them and establish monitoring for early intervention. The project also sought to equip the reference laboratory and train technicians to perform new tests for early and reliable diagnosis. This was to ensure better referral to both medical and surgical care. People with hepatic masses that were previously inoperable due to advanced disease and delayed medical attention would, under this arrangement, be offered surgical resection.

The evaluation used a mixed methods cross-sectional design that involved the concurrent collection of quantitative and qualitative data. Quantitative data was generated from purposively sampled healthcare workers who had undergone training under the HepWek project. The selection was done from the four implementation sites, namely Moi Teaching and Referral Hospital (MTRH), Uasin Gishu, Elgeyo Marakwet and Baringo. Interview formats included a blend of face-to-face interviews in Eldoret, Elgeyo Marakwet and Baringo counties, complemented with virtual interviews on Zoom or Google Meet. The evaluation assessed the effectiveness, efficiency, relevance and coherence, and sustainability and impact of the intervention.

On the measurement of effectiveness, HepWek was fairly effective in the implementation of work-plans and activities. The core activities critical to project success included training of healthcare providers: clinical officers, nursing staff, sonographers, radiographers, anaesthesiologists, and oncologists at MTRH and in the three counties. This was accomplished, including the training of two surgeons in Peru, which was complemented with further a training visit at MTRH by the Peruvian team. This too was accomplished. Equally, a female engineer from MOI University attended a six weeks training in advance molecular diagnostics at the Pasteur Institute (Paris).

The frontline healthcare providers trained by HepWek recruited patients from Elgeyo Marakwet and Baringo, but in Uasin Gishu County, this was comparatively less effective. Roughly 200 patients were processed through the lab, and those diagnosed with hepatocellular carcinoma or large liver masses underwent surgery. The project also instituted biobanking of cancerous and non-cancerous tumours. The MTRH team combined supportive supervision to the frontline healthcare providers with patient recruitment meetings in the counties. This approach was only successful where specific healthcare providers worked at the county referral facility or Marigat and were in fact available during the visits by the MTRH team.

In terms of efficiency, the project inception coincided with the 2022 Kenyan elections, which had disruptive effects on the activities that were to be undertaken with county governments. However,

the project improvised by combining activities, thereby saving on time and resources – a remarkable measure of efficiency and judiciousness on the part of the project implementers. The project made similar innovations by undertaking cost-saving measures, such as the purchase of two retractors from Peru, instead of buying the surgical equipment from the market. Similar improvisations by the surgical team enabled them to perform surgeries in the face of procurement bottlenecks and delays of surgical kits.

It may be too soon to measure impact and sustainability but early indications of impact include accomplishments such as the 8 liver surgeries done so far for patients, two of whom had HCC and the other 6 benign lesions. The outcomes from this project have the potential to trigger system-wide change that could lead to investments for more aggressive and coordinated responses to the factors that lead to HCC. Such a preventative approach has the potential for greater impact beyond the project's activities.

Another plausible impact will be the skills and capabilities built through the project. These are likely to outlast the project, and if peering learning and support through continuing medical education is sustained, it is to be expected that these skills will be diffused amongst healthcare personnel, considering that different cadres of staff were trained as part of this initiative. Moreover, if plans to create a community of practice within MTRH materialize, a wider group of health professionals might eventually create a ripple effect that leads to system-wide change reflected in ways of working, development of guidelines and operational manuals, and standards of practice in the response to chronic liver diseases.

Recommendations

1. Strengthen county government capacity to respond more effectively to HCC and its causal drivers

County governments need to have targeted hepatitis B vaccination campaigns for the most at risk groups in the population. They also need sustained campaigns in combating the myths and misconceptions that impede timely health seeking for individuals with chronic liver diseases. Finally, it might be more cost-effective for counties to be able to handle chronic liver conditions that do not require surgery in order to ease pressure on MTRH, once community awareness awakens and triggers improved health seeking among those with chronic liver illnesses. These will require investments in capacity strengthening for county health systems through training, equipment purchase and improvements in diagnostics and treatment for chronic liver conditions.

2. Establish and support a community of practice on HCC

To diffuse skills and spur further innovations in the diagnosis and treatment of HCC, MTRH should consider establishing a community of practice among the specializations that were assembled for the

implementation of HepWek. This community of practice should be linked to the two collaborating institutions in Peru and France, and to potentially more other institutions and networks of medical and other health professionals locally, nationally and internationally.

3. *Consider funding another phase of HepWek, but with more resources, and over a longer duration*

HepWek has successfully passed the proof of concept stage as an innovative and effective way of responding to hepatocellular carcinoma. A second much broader phase should be implemented, drawing from the lessons learnt from HepWek, and building on the outcomes achieved through HepWek. The duration of the project needs to be long enough, to allow iterations of implementation strategies and approaches to be tested across a longer periods of time to ascertain their scalability.

1. Background

The overall project objective was to improve diagnostic and therapeutic services for chronic liver diseases in Western Kenya in order to improve the wellbeing and health of the population in line with the WHO agenda to eliminate chronic hepatitis by 2030, the Kenya National Cancer Control Policy (2019), and the Non-Communicable Disease Prevention and Control Strategy (2013, 2021). The project sought to identify people at high risk of developing hepatocellular cancer (HCC) due to their exposure, screen them and establish monitoring for early intervention. Based on the project design, identification was to be done from the local health care level by empowering clinicians at this level through awareness raising and training, and by linking them to an appropriate referral system.

The project also sought to equip the reference laboratory and train technicians to perform new tests for early and reliable diagnosis. This was to ensure better referral to both medical and surgical care. People with hepatic masses that were previously inoperable due to advanced disease and delayed medical attention would, under this arrangement, be offered surgical resection. The project included a training of Kenyan surgeons in a Peruvian hospital with surgeons specializing in high-level liver surgery. This skill and technology would be partially transferred to the MTRH surgical team through the training of a local surgical team in Eldoret by the Peruvian team.

Project objectives and sub-objectives

- Capacity building of health professionals through awareness raising and training to acquire clinical skills for early diagnosis of chronic liver disease and HCC in the three counties of Elgeyo-Marakwet, Uasin Gishu and Baringo.
- Transfer of liver surgery skills and technology from Peru to Kenya
- Establishment of new laboratory activities to improve epidemiological surveillance and diagnostic capabilities of chronic liver diseases at the Moi Teaching and Referral Hospital, Eldoret (MTRH).

Evaluation objectives

Purpose of the evaluation

The evaluation of the project was aimed at meeting the following specific objectives:

- Preparing a comprehensive assessment of the project
- Assessing the relevance, coherence, effectiveness, efficiency and sustainability of the project

- Identifying the conditions of success of this project (based on results, strengths and weaknesses) and analyzing to what extent it can be replicated

Key parameters examined included:

- The appropriateness between the main goal and objectives set in the initial project and the activities conducted to reach them
- The objectives' level of achievement
- The proper use of funds
- The satisfaction of project beneficiaries and project partners

2. Methodology

The evaluation used a mixed methods cross-sectional design that involved the concurrent collection of quantitative and qualitative data. Quantitative data was generated from purposively sampled healthcare workers who had undergone training under the HepWek project. The selection was done from the four implementation sites, namely Moi Teaching and Referral Hospital (MTRH), Uasin Gishu, Elgeyo Marakwet and Baringo. The structured questionnaire interviews with healthcare workers were administered via telephone calls. A quantitative survey tool was similarly administered in face-to-face interviews with community members in Elgeyo Marakwet and Baringo counties across selected sites.

All quantitative interviews were administered via a structured survey tool with mostly closed-ended questions. The questionnaire was formatted on an internet enabled platform from where trained enumerators administered the tool. Informed consent was obtained from each respondent, and none of the respondents approached declined to be interviewed. Interviews lasted 15 minutes on average.

Besides the quantitative methods, key informant interviews (KIIs) were conducted with MTRH staff; and with directors of health in Baringo and Elgeyo Marakwet counties. KIIs were conducted in either face-to-face meetings, or in virtual sessions (Zoom). Furthermore, focus group discussions (FGDs) were conducted with healthcare workers at MTRH, and in Uasin Gishu, Baringo and Elgeyo Marakwet counties. Other than one face-to-face interviews with healthcare workers in Baringo county, all focus group discussions with healthcare workers were held virtually on Zoom, or on Google Meet.

The table below summarizes interview types by site:

Type of interview	Mode of interview	Number and type of participants	Venue
FGD with community	Face-to-face	1 Female, 7 males	Chebyemit, Elgeyo Marakwet
FGD with community	Face-to-face	4 Female, 2 males	Kapchelal, Elgeyo Marakwet
FGD with community	Face-to-face	5 females, 1 male	Cheptongei, Elgeyo Marakwet
FGD with community	Face-to-face	5 females, 2 males	Msesekwa, Elgeyo Marakwet
FGD with community	Face-to-face	5 female, 11 males	Kapkurui, Marigat (Baringo)
FGD with community	Face-to-face	3 female, 18 males	Lororok, Marigat (Baringo)

FGD with community	Face-to-face	5 females, 1 male	Cheptongei, Marigat (Baringo)
FGD with community	Face-to-face	8 females, 6 males	Loboi, Marigat (Baringo)
FGD with community	Face-to-face	7 females, 7 males	Kaptombes, Marigat (Baringo)
FGD with healthcare providers	Face-to-face	3 females, 1 male	Baringo Referral Hospital
FGD with healthcare providers (HCP)	Virtual	Baringo (2M, 1F); Elgeyo Marakwet (2M, 3F), UG (3M, 2F)	7 male and 6 female healthcare providers interviewed virtually
Key Informant Interview	Face-to-face	2 females, 3 males	MTRH Investigators
Key Informant Interviews	Virtual	1 male, 1 female	MTRH Investigators
Key Informant Interview	Face-to-face	2 males	Directors of Health Baringo & Elgeyo Marakwet
Key Informant Interview	Virtual	1 male	HepWek Project Coordinator
Structured Questionnaire	Face to face	Community members (18 Females 13 Males)	Baringo & Elgeyo Marakwet
Structured Questionnaire	Virtual	HCP (33 females, 13 males)	EM, UG, MTRH, Baringo

Face to face focus group discussions (FGD) were held in 19 sessions with a total of 115 participants (46 females, and 56 males) across 8 interview sites in Baringo and Elgeyo Marakwet counties; and one additional FGD session with four healthcare providers (3 female, 1 male) at Baringo County Referral Hospital.

The methodology employed ensured that a broad cross-section of people who either designed the project or those it was intended to benefit were interviewed. The approach used entailed obtaining a before-and-after portrait of the project, its activities and outcomes. The evaluators sought to understand what could have changed between the project baseline and at its completion, and the extent to which some of these changes could plausibly be traced back to the project's activities. This was done to enable making a judgement on whether it can be inferred that the project made any contribution to the observed changes.

Study limitations

It was not possible to conduct interviews with beneficiaries in Uasin Gishu. The study team visited Burnt Forest, one of the areas where the project intervened but could not secure interviews either with healthcare providers, nor community members. It did, however, conduct virtual focus group discussions with healthcare providers from Uasin Gishu County.

It was also not possible to interview all investigators. Some team members were out of the country, and others either did not respond to requests for interviews, or were busy and could not grant interview opportunities. However, the evaluation team reached an adequate number of the core team, and is convinced that the data obtained provides a robust basis for making informed inferences with regard to the project's activities and contribution.

It would have been good to reach more community members with the structured interview tool. However, the evaluation team found out that richer information was obtainable from the FGD

sessions, than from the structured survey questionnaire, partly because of the flexibility and adaptability afforded by a semi-structured interview guide.

In sum, the limitations do not in any way substantially affect the quality and comprehensiveness of the data obtained. The evaluation team is therefore convinced that this report provides a balanced, objective view of the project, its activities, achievements, challenges and lessons that can be learnt from its implementation.

3. Findings

The project was fairly effective in executing its activities, in spite of the fact that its commencement coincided with the electoral period of the August 2022 elections. The elections period ushered in new county government leadership, effectively slowing down the signing of MOUs with the counties. Once the county governments came on board, however, the project picked up pace and most activities under each of the three objectives were carried out. The sections below describe activities carried under each of the three objectives, and the outcomes.

Objective 1: *Capacity building of health professionals through awareness raising and training to acquire clinical skills for early diagnosis of chronic liver disease and HCC in the three counties of Elgeyo-Marakwet, Uasin Gishu and Baringo.*

Major activities carried out under this objective included planning workshops and the initial training for core project team. The core team was trained on how to train the frontline healthcare workers. Alongside this, training materials, a training curriculum, TOT manual and a trainee booklet were developed by the project, as well as brochures. The project had planned to train 120 healthcare providers, but by the end of the project it had trained 114.

Healthcare provider training was conducted at the Moi Teaching and Referral Hospital (MTRH) and at the teaching and at the referral hospitals in each of the 3 counties. The training for MTRH was done in Eldoret, but the team was split into two because of the difficulties of removing 28 healthcare providers drawn from casualty and out-patient departments at the same time in such a busy facility as MTRH.

Upon scrutiny of the original design for selecting the trainees, the implementation team realized that radiographers were missing from the list, yet their service would be critical to the success of the project. Consequently, from the 30 trainees selected per site, 2 slots were reserved per county for the radiographers. The radiographers were however trained in one joint session at MTRH. Effectively, the training for healthcare providers was offered in five training sessions. Interviews with respondents alluded to a further 30 nurses and a mixed category of healthcare providers from AMPATH and Moi University Health Services who were trained by the project, based on a request by MTRH.

The training in the counties was conducted in collaboration with the county health management teams (CHMTs). From interviews with respondents in the three counties, the training seemed to have been very effective in building required skills among healthcare providers. Most reported that their index of suspicion was now much higher than before, when handling patients manifesting

chronic liver disease related symptoms. They reported often making referrals for further investigation either at facilities within the respective counties, and where cases of chronic liver diseases are detected, at county referral hospitals, these are further referred to MTRH for further investigation and treatment.

Healthcare providers expressed satisfaction with the training. Out of the 45 healthcare providers who responded to the quantitative survey administered for this evaluation, 44 had attended the training on hepatocellular carcinoma organized by HepWek. Forty three (97.73%) out of the 44 who attended the training found the course very relevant, with only one person stating that it was somehow relevant. All the 44 trainees rated the trainers as highly competent. These findings were mirrored in FGD sessions with healthcare providers. In these group interviews, respondents agreed that the training was highly relevant, because chronic liver disease was common in the three counties, and there had been no prior interventions to address it directly. They also concurred that the trainers were well versed with the content of the courses offered, and that the mode of delivery was suitable. In the quantitative survey, 39 (88.64%) out of the 44 respondents observed that the method of course content delivery was highly suitable. The table below presents respondents' perspectives on the skills acquired from the training conducted by HepWek.

Impact of training on trainees' ability to detect, accurately diagnose, and offer appropriate treatment of liver cancer

Variables	Attributes	Frequency (N)	Percentage (%)
Additional skills gained from the training on detection, diagnosis, and treatment of liver cancer			
	No	1	2.27
	Yes	43	97.73
Extent of expansion of the existing skillsets from the training on liver cancer diagnosis, treatment, and detection			
	To a minimal extent	4	9.3
	To a very great extent	39	90.7
Extent of utilization of skills gained in daily routine			
	To a minimal extent	9	20.93
	To a very great extent	34	79.07
Operational efficiency and effectiveness acquired after the training			
	To a very small extent	4	9.3
	Very much so	39	90.7
Level of confidence on ability for accurate liver cancer diagnosis, detection, and treatment			
	Somewhat confident	8	18.18
	Still too early to tell	3	6.82
	Very confident	33	75
Extent to which training has incentivized you to mobilize community on liver cancer awareness			
	Not at all	2	4.55

To a minimal extent	4	9.09
To a very great extent	38	86.36

As part of strengthening the capacity of healthcare providers, the investigators at MTRH were meant to be providing supportive supervision during field visits to the health facilities where the trainees came from. This eventually became untenable. In Elgeyo Marakwet county for instance, the trainees were drawn from diverse areas of the county, with health facilities being very far from the county referral hospital. At times, a facility was just represented by one trainee. Covering huge distances just to go and offer supportive supervision for one healthcare provider would have been both difficult and uneconomical. It was also not possible to bring all the trainees to the referral hospital regularly over the project period, because this would have paralyzed service provision at these health facilities.

This could have been remedied through quarterly meetings with the County Health Management Teams (CHMTs), but there was lack of fidelity in adhering to these meeting schedules – partly because assembling all CHMT members in any one quarter in a county became difficult. Besides, the MTRH team also had other teaching and patient care responsibilities which made it difficult for them to adhere to the quarterly DHMT meeting schedules. In the end, only 2 DHMT meetings were held in Elgeyo Marakwet and Baringo, and 1 in Uasin Gishu. Investigators at MTRH indicated that there was continuing engagement between the trainees and the project research assistant, with a linkage and referral system set up. This was not immediately obvious in interviews with healthcare providers at county levels. Very few of them mentioned these links, and even on further probing, respondents mentioned patient referrals as the most frequent contact between them and MTRH.

Additionally, the project signed MoUs with the three county governments. The MoU envisaged building the capacity of frontline healthcare providers to identify individuals at risk of developing hepatocellular carcinoma by enabling them to apply preventive measures. Those trained would be enabled to make early diagnosis of HCC and take appropriate action for early treatment of either medical or surgical, or both. Likewise, those trained were expected to refer patients identified with chronic liver conditions or those with liver masses to specialist care as soon as possible. The first batch of the healthcare providers trained were also expected to act as trainers of trainers (TOT) by passing on the knowledge and skills acquired to their colleagues at their health facilities. There was similarly an expectation that they will mobilize and recruit patients, who would in turn be seen by the HepWek team from MTRH during routine monthly visits.

Under this objective, HepWek also worked in collaboration with the CHMTs in creating awareness among the public to improve health seeking behavior. A number of platforms were used, including posters, radio talk-shows, TV as well as an awareness walk. The evaluation team came across

posters at health facilities on HCC, and some community members did in fact mention listening to messages on liver cancer on radio. Very few community members could remember hearing a health talk about liver cancer from a healthcare provider at a facility or in public forums. There were exceptions in Marigat in Baringo where some community members mentioned having heard promotional messages at health facilities, or at chiefs' *barazas* (public gatherings organized local state officers). In Marigat, a lot of information on liver cancer came from funerals where either relatives of the deceased, or other opinion leaders would sensitize the community on liver cancer.

Objective 2: *Transfer of liver surgery skills and technology from Peru to Kenya*

The second objective aimed to facilitate surgical excision of large liver masses skills transfer from Peru to a team of surgeons based at MTRH. Peru was chosen because its demographic and economic conditions somehow mirror those in Kenya, and because the surgeons from the Peruvian National Cancer Institute (INEN) have developed unique expertise in the world regarding the surgery of substantial HCC (more than 10 cm in diameter) frequently diagnosed in low and middle income countries. This made the involvement of Peruvian partners essential for technology transfer to the Kenyan team. The training was to be conducted by first, two Kenyan surgeons attending a training at the Peruvian hospital, and then the Peruvian team would do a follow up visit to Kenya. This model would allow expertise to be passed on to a larger number of local Kenyan surgeons and nurses.

Two Kenyan surgeons from MTRH went to Peru between October and November 2022. The two surgeons had a chance to participate in 8 liver resections as part of their training. The Peruvian team subsequently visited Kenya for three weeks in September 2023. The training at INEN also enabled the two surgeons to participate in surgeries of the stomach, pancreas and laparoscopic resections of the colon, as well as other complex retroperitoneal surgeries. When the two Kenyan surgeons returned, they successfully performed their first surgery in January 2023, and by the time the Peruvian team visited, the Kenyan surgeons had done about two other surgeries. Moreover, the Kenyan team mentored two other surgeons, 8 nurses and some medical students. The skills imparted by the Kenyan surgeons were reinforced by the Peruvian doctors when they visited MTRH.

Apart from the training, the exchange between INEN and MTRH enabled the latter to acquire liver surgical equipment. The Kenyan team made orders for two retractors, a special equipment needed to perform operations of very large tumours of the liver. On their return to Kenya, the MTRH team came with one retractor, and the other one was brought when the Peruvian doctors visited Kenya. The on-site training also enabled the Kenyan surgeons to identify specific surgical consumables needed to fully transfer the technique to MTRH.

There are also things we learnt from our Peruvian colleagues which are innovative, and you'll not see them in standard textbooks, like the retractor that we got because it was designed by one of the Peruvian surgeons and is made by the artisans in Peru. It's a very good handy and hardy retractor. It's a useful piece of equipment which makes liver surgery possible because it enables you to expose the liver properly. **MTRH Liver Surgeon**

In their way of working, they were not using the high-tech Western world methods. Even where they had some of those, they still tried to simplify things: they would say, "if you don't have this, you can use this". There was one specifically I can talk about. It is called a tissue link, which would cost something like \$750. Once you remove the liver, that part of the liver you cut off, you stop it from bleeding. Tissue Link uses just the ordinary instruments we have like diathermy and saline, and we're able to stop the bleeding using that. The things we use probably cost less than 30-40 dollars. It was a really good experience. **MTRH Liver Surgeon**

The Kenyan surgeons ordered other surgical equipment, but these were yet to be delivered by the time the interviews for this evaluation were being conducted. The team indicated that they had expected the equipment to have been bought before the team of Peruvian doctors arrived. However, this never materialized. The liver surgery team improvised by borrowing equipment from other surgical teams:

We continued with the instruments available in MTRH used by our colleagues who do kidney transplants and cardiothoracic surgery. So, looking around in different sites to get the instruments we need. It's a bit inefficient because you have to open, for one surgery, like three sets to get the instruments. That's why we wanted our own liver set. So that that perhaps has been one of our biggest challenges. **MTRH Liver Surgeon**

Objective 3: *Establishment of new laboratory activities to improve epidemiological surveillance and diagnostic capabilities of chronic liver diseases at the Moi Teaching and Referral Hospital, Eldoret (MTRH)*

As part of capacity building under this objective, a female engineer from MOI University attended a six weeks training in advanced molecular diagnostics at the Pasteur Institute (Paris). The training had been planned for 8 weeks, but was shortened to 6 weeks due to administrative delays. The trainee acquired new knowledge and skills in various molecular techniques such as specimen management, virus extraction, amplification, DNA and RNA product control and quantification, detection and sequence analysis using web available tools. She also acquired various skills in trouble shooting methods in molecular science as well as attending four symposiums on different biology themes and topics.

Patients are recruited at the county level health facilities and at the MTRH. MTRH was said to handle most of the referrals. At MTRH, patients would be recruited from the outpatient, liver clinic, oncology clinic, medical wards or at the ultrasonography room in the Radiology department. During each patient recruitment process, the clinician attending the patient explained the objective of the research and obtained informed consent from patients who qualified for the study. If a patient consented, a phlebotomist took samples from the patient for testing.

Tests were mainly done at the AMPATH Reference lab and MTRH main lab, with health facilities in the counties being used preliminarily for pre-processing samples (centrifuging and storage in a fridge awaiting shipment to Eldoret at the end of the day). Some of the tests done included liver function tests, biochemistry tests (alpha fetoproteins), and imaging (ultrasound/ Multiphasic CT scan).

Once the surgeons determined that a patient had HCC, they would schedule the patient for surgery. After liver resection had been done by the surgeons, the histological lab would harvest fresh tumour and non-tumour samples for biobanking, freezing and to enable a more definitive analysis. However, the evaluation team was told that the need to do biobanking of fresh tumour and non-tumour samples came in a little later in the project. The lab team recognized the need for more specialized diagnostics, particularly immunohistochemistry on patients having liver masses to rule out mistaking malignant liver lesions for hepatocellular carcinoma.

At the county health facilities, the MTRH medical team made monthly visits on specified days per county. The CHMTs would recruit the patients ahead of the MTRH team visits, normally one month in advance of the visits. The visits were organized for Baringo County Referral Hospital, Marigat sub-county hospital and Iten County Referral Hospital. The MTRH clinician would see the patients and determine if they were eligible to be enrolled in the program or not. Healthcare providers interviewed in FGD sessions mentioned the MTRH team drew blood samples and performed ultrasound tests when they visited the health facilities at county level.

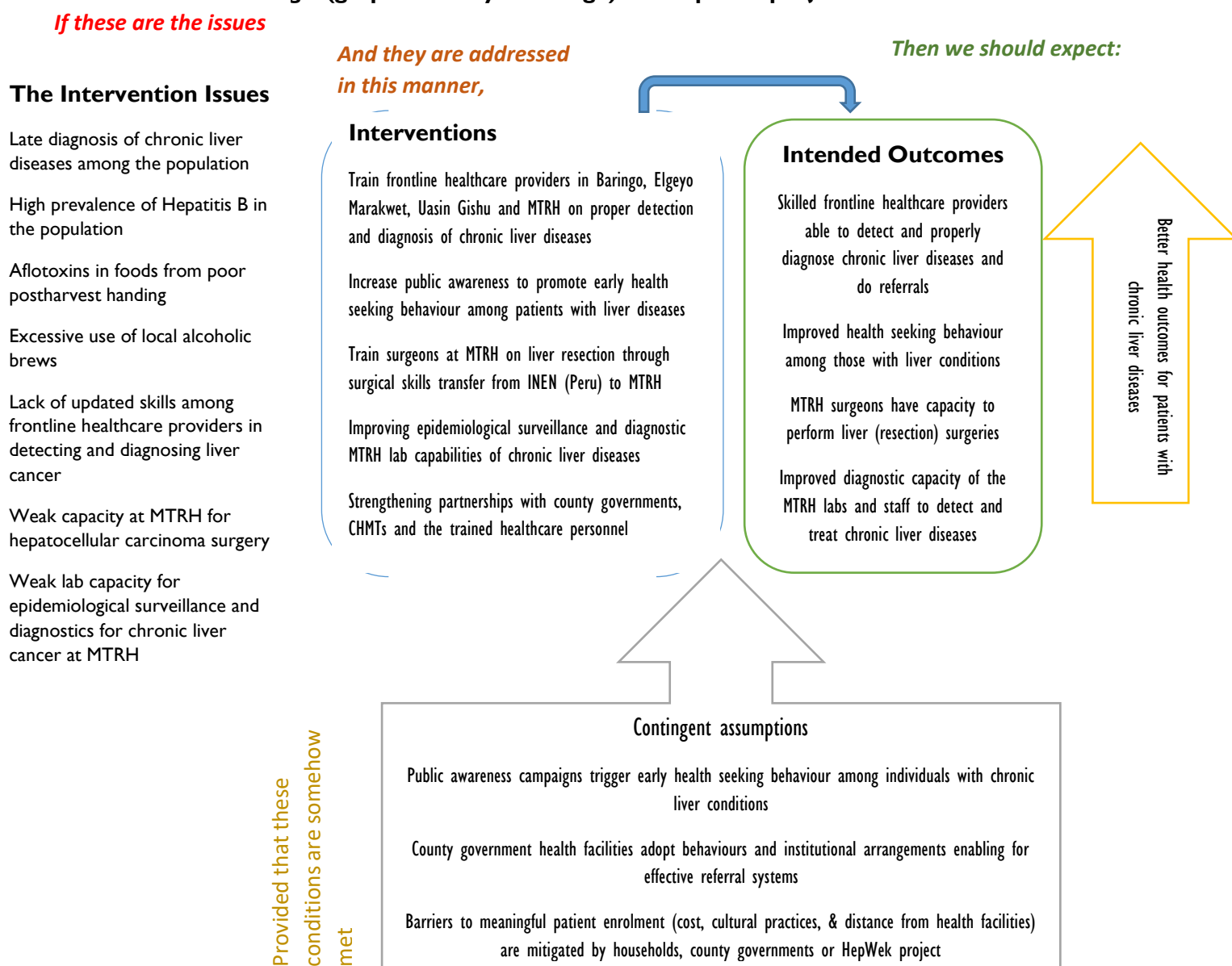
Collection of samples from the county hospitals was at times fraught with difficulties. In particular, Marigat posed a major challenge to the team because the samples obtained from patients needed to be taken to the lab at MTRH and be run the same day, but getting to Marigat and back to Eldoret, a distance of 130 km posed a major challenge. The MTRH team had to carry cooler boxes that would preserve the specimens at minus 80°C. In any case, the samples had to reach the lab the same day, with sample collection and transportation happening within a window period of 6 hours.

An estimated 200 patients were recruited. The majority of these came from Marigat, Baringo. Out of the 49 patients recruited from Baringo county, 37 came from Marigat. Uasin Gishu proved to be more difficult – the CHMT for Uasin Gishu was the last to be on-boarded, only one meeting was held with the CHMT, and the frequency of visits to the health facilities in the county was much less compared to Baringo, or Elgeyo Marakwet. In light of this, the HepWek team made adjustments in the patient numbers to be recruited from each county, so that Baringo and MTRH had a slightly higher number allocated to them. Part of the reason was also because the original allocation had been based on figures from laboratory diagnosis, because most people came to Uasin Gishu for testing, but were not ordinarily resident in the county.

4. Discussion

This section focuses on the extent to which the project can be perceived to have been effective, efficient, relevant, coherent and having the plausibility that it will contribute to the intended impact in a sustainable manner. To understand this, it is important to review the original project design logic. The project as designed worked with an implicit theory of change, which was not explicitly stated in the project documents nor reports. The evaluation team have attempted to reconstruct the theory of change, based on the information available. For purposes of the evaluation, an intervention logic summarizing the theory of change is presented below.

Intervention Logic (graphic theory of change) for HepWek project



The intervention logic makes it possible to examine the effectiveness, efficiency, impact and sustainability of the project. To some extent, coherence and relevance can also be

tested through the intervention logic, because an assessment of behaviours – organizational and individual – at MTRH and the county governments can be illustrative of demonstrable ownership and commitment. Other than testing the OECD DAC evaluation criteria, the intervention logic enables an assessment of the soundness of the project design, i.e. how plausible it is that if implemented as designed, the project would have contributed to the expected outcomes (short to medium term) and the impact (over the long term). The section below is dedicated to discussing the issues highlighted above.

- a) *Soundness of the intervention logic* – the basic causal assumption was that training frontline healthcare providers at county level would equip them with skills and incentives for accurate detection of chronic liver conditions, and they would have the incentive to mobilize and refer patients who qualified for further examination and treatment at MTRH. The project took measures to actualize this causal assumption by training different cadres of healthcare providers who interact with patients on a routine basis, instituted a supportive supervision mechanism, and sent two of its surgeons to Peru for training on hepatocellular carcinoma. Additionally, laboratory staff at both the MTRH and in the counties were trained in Kenya generally, and one staff in Paris, including the purchase of an elastography ultrasound machine at MTRH. The intervention logic to a large extent led to the intended results: 8 liver resections were performed by the surgeons at MTRH.

A major contingent condition was improved health seeking behaviour among patients. There was a noticeable increase of patients with chronic liver diseases presenting themselves at health facilities across the three counties, and at MTRH. While this was evident to the MTRH team, it was not so obvious to the frontline healthcare providers trained through the project. Interviews with healthcare providers indicated a mixed picture where there was a spike in the numbers at Marigat (Baringo) while other healthcare providers at other facilities reported normal flow of patients.

Furthermore, two other factors contributed to patients with chronic liver conditions still presenting themselves too late at health facilities: first, cultural beliefs, and secondly, affordability and accessibility of treatment. The latter was foreseen and to some extent mitigated by the project through subsidizing the costs of tests for patients who could not pay for the services. However, in Marigat and parts of Elgeyo Marakwet, the cost of accessing healthcare was cited as a major barrier why people present themselves late, when their condition has advanced to a point that surgical intervention might not offer any meaningful beneficial health outcomes. The former (cultural beliefs) was not adequately foreseen, even though public awareness was assumed to be able to minimize these barriers.

Since public awareness raising was a peripheral part of the core intervention strategy, cultural barriers and myths about cancer persisted as barriers to early diagnosis of patients. Most people believe that cancer is not curable, and that touching cancerous tissue or cells through medical intervention worsens, than remedies the situation. The default option is to first seek care from traditional herbalists by most patients, failing which patients visit hospitals, but at times, this might be too late in the progression or staging of hepatocellular carcinoma.

Overall, the design logic was sound. It has to be borne in mind that in a complex intervention like HepWek, it is near impossible to address all the contingent assumptions. However, some contingent assumptions are critical to project success and need to be identified earlier, be embodied in the intervention package and be continuously addressed as part of the project's implementation strategies and activities.

b) Effectiveness

Effectiveness can be evaluated as a function of fidelity and rigour employed by the project staff in executing project plans and the attendant tasks. It is also a function of the plausibility of causal assumptions, i.e. whether it is true indeed that project activities led to expected outputs and outcomes. Failing to meet the first condition is the result of implementation failure; while failing to meet the second is theory (of change) failure. The second of these conditions has been addressed above. This section will focus on implementation fidelity and rigour. It is important to note that in a complex project like HepWek, a singular focus on activity completion rates might not be very useful, and could even be misleading in certain respects. What is important to assess is whether, on balance, the tasks accomplished furthered the achievement of expected outcomes, and whether indeed the project staff exercised thoroughness and/or rigour in executing those tasks, including reach and coverage.

HepWek was fairly effective in the execution of different tasks. There was also relatively a high level of fidelity to work-plans and activities, even though some may have been executed past the original stipulated timelines due to various reasons outside the control of the project. The core activities critical to project success included training of healthcare providers: clinical officers, nursing staff, sonographers, radiographers, anaesthesiologists, and oncologists at MTRH and in the three counties. This was largely accomplished. The next critical activity was the training of two surgeons in Peru, and the subsequent follow up support to the surgeons and other staff at MTRH by the Peruvian team. This too was accomplished. One additional essential component was training of laboratory personnel in Paris, which was similarly accomplished.

The other critical activity was recruitment of patients by the frontline healthcare providers trained by HepWek. In Elgeyo Marakwet and Baringo, this was fairly successful. In Uasin Gishu, this was

comparatively less effective. Closely related to this was the supervisory support offered by the MTRH team to those trained on HCC. The project improvised by combining meetings patients for diagnosis and sample collection with supportive supervision for healthcare providers. This improvisation had mixed results. It succeeded where specific healthcare providers worked at the county referral facility or Marigat and were in fact available during the visits by the MTRH team. Where neither of these conditions could be met, supportive supervision could not work. A similar inference can be made with regard to mentorship of the staff trained at MTRH. Other than their daily interactions with the investigators, there was no deliberate mechanism for mentoring them.

One other critical aspect was the quality of laboratory diagnostics done for patients with the potential of having liver cancer. The project purchased an elastography ultrasound with the capacity to pick liver fibrosis, invested in the training of radiographers and sonographers, and developed protocols for undertaking various tests and diagnostics. Besides, roughly 200 patients were processed through the lab, and those diagnosed with hepatocellular carcinoma or large liver masses underwent surgery. The project also instituted biobanking of cancerous and non-cancerous tumours.

Finally, establishing and sustaining cordial working relationships with the county directorates of health and the CHMTs was another important task. While there were sustained relationships with all the three county directors of health, sustaining relationships with the CHMTs was successful in Baringo and Elgeyo Marakwet, but not as successful in Uasin Gishu county.

An overall evaluative assessment is that the project met the criterion of effectiveness.

c) Efficiency

Efficiency can be measured in terms timeliness of execution of activities and tasks; judiciousness in taking advantage of emerging opportunities and mitigation of risks; and in the economic use of project resources (financial, human and equipment). The project commencement was disrupted by the 2022 Kenyan elections. Activities had to be delayed until the election period elapsed, losing in the process 3 to 4 months of implementation time. This was a totally unavoidable occurrence which was out of the control of the project. The project is implemented by a public university (Moi University) which is subject to the financial cycles of the Government of Kenya. The financial year ends in June, and in 2023, the project experienced another slowdown in its progress around June-July closure of the financial year.

There were measures taken to mitigate delays. Where it was possible and practical, the project combined activities, thereby saving on time and resources – a remarkable measure of efficiency and judiciousness on the part of the project implementers. For instance, as was mentioned earlier, patient recruitment visits by the MTRH team to the counties were used for mentorship and

supportive supervision. Similarly, at project inception, the training workshop was coupled with curriculum development – originally meant to be two distinct activities.

In the same vein, certain innovations had a cost-cutting effect. A good illustration is the purchase of two retractors from Peru, instead of buying the surgical equipment from the market. This saved costs. Similar improvisations by the surgical team enabled them to perform surgeries in the face of procurement bottlenecks and delays of surgical kits. This saved time, but it also saved lives.

The evaluation team is currently processing the financial details provided by the MTRH team, and a definitive determination on budget utilization vis-à-vis work-plans will be made in the final report.

d) Relevance and Coherence

The project's relevance and coherence can be evaluated based on the alignment and complementarity of the activities and the intended impact with national goals, strengthening of county health systems, and contribution to institutional capacity at MTRH.

In each of these areas, the project was highly relevant. Unlike other cancers, Kenya has not done much on liver cancer, and therefore this project filled a major gap. Moreover, the project piloted surgical intervention for patients with advanced liver cancer (> 10 cm in diameter) which was previously seen as not eligible for surgical interventions according to the staging frameworks developed in North America, East Asia and Europe. The project worked in partnership with the National Cancer Control Program (NCCP) to develop the training manuals. There has been a growing awareness both locally in the counties and nationally about hepatocellular carcinoma, based on the work done by the project. The project was equally designed to put a spotlight on the effects of high prevalence of hepatitis B among the population, and its links with hepatocellular carcinoma.

Discussions with the county directors of health and members of the CHMTs revealed that hepatitis B was a major problem in the area, worsened by HIV, excessive consumption of local alcoholic brews and exposure to dietary fungal toxins like aflatoxin B (AFBI). County immunization campaigns have not effectively covered most of the population at risk of hepatitis B, and this project highlighted the need to broaden and fast-track hepatitis B immunization for those most at risk.

This intervention is coherent with the five-year National Strategic Plan for Prevention and Control of NCDs 2020/21-2025/26 (2021), which sets out to strengthen the national health system's capacity to manage non-communicable diseases and promote a healthy lifestyle. It has contributed to health systems strengthening in the three counties through the training of human resources for health, improving the capacities of health workers to detect and do referrals for HCC, as well as strengthening the referral systems between county referral hospitals and MTRH. At MTRH, the

project has contributed to building surgical capacity for HCC, improved diagnostic capabilities for chronic liver illnesses, and MTRH's partnership with INEN (Peru) and Institute Pasteur (France).

The project was thus relevant, coherent and aligned with county level and national health systems strengthening goals for responding to non-communicable diseases and other population health challenges.

e) Impact and sustainability

It is still too early to evaluate the impact of the project, nor tell with any level of certainty what aspects of the project might be sustained beyond the project lifespan. What is possible is to assess the plausibility of the project outcomes contributing to long term impact, and by extension, their sustainability. At least 8 patients have undergone successful liver resection. This has not only improved the health and wellbeing of these individuals, but it has more significantly demonstrated that mortality arising from hepatocellular carcinoma can be averted through early diagnosis and treatment. If the requisite institutional mechanisms are triggered at MTRH, the counties, and at the national level generally, it is plausible to assume that many more potential deaths from HCC will be averted. The outcomes from this project thus have the potential to trigger system-wide change that could lead to investments for more aggressive and coordinated responses to the factors that lead to HCC. Such a preventative approach has the potential for greater impact beyond the project's activities. In essence, each intervention should provide tipping points for much broader system-wide changes. HepWek has offered such tipping points at MTRH, the three counties and at the national level.

Another plausible impact will be the skills and capabilities built through the project. These are likely to outlast the project, and if peering learning and support through continuing medical education is sustained, it is to be expected that these skills will be diffused amongst healthcare personnel, considering that different cadres of staff were trained as part of this initiative. Moreover, if plans to create a community of practice within MTRH materialize, a wider group of health professionals might eventually create a ripple effect that leads to system-wide change reflected in ways of working, development of guidelines and operational manuals, and standards of practice in the response to chronic liver diseases.

Finally, the findings from this study could incentivize the county and national governments to more aggressively tackle the downstream factors that lead to chronic liver disease, which include the low levels of hepatitis B vaccination among at risks groups in the population, non-alcoholic fatty liver disease, HIV, aflatoxins in diets, and consumption of alcoholic brews. For this to happen, sustained engagements will need to be done with relevant government agencies at the national at county

levels, and institutional mechanisms developed to motivate counties and the national government to commit resources to combatting the downstream causes of chronic liver diseases.

5. Lessons Learnt and Conclusions

A number of lessons can be drawn from the project and the way it was implemented. The list of lessons learnt provided here are not exclusive, but they are the ones that stand the most from an evaluation point of view.

- I. Multi-disciplinary teams are a promising model for tackling complex population health challenges. HepWek is a complex project in terms of the structure and composition of the partnerships and teams assembled to deal with hepatocellular carcinoma. There were teams of experts collaborating across three continents, a diversity of specializations, and three county governments working in partnership with a national teaching and referral hospital. Compounding this layer of complexity is hepatocellular carcinoma itself. It is a complex health problem with potential multiple routes of causation and impact on individual health and wellbeing. Individuals affected by hepatocellular carcinoma require to seek health services before the disease is too advanced, but individual health seeking behaviour is affected by a diverse range of factors. All these factors combined introduce a level of uncertainty, unpredictability and interdependence. In tackling such complex problems, multi – (or even trans-) disciplinary teams work the best because of the confluence of specializations, institutional complementarities and leveraging on synergies. HepWek utilized these capacities and potentials very well, and there is room for scaling or replicating this model, at MTRH or in other similar interventions in other different implementation contexts.
- II. Leadership and commitment are critical to the success of multifaceted partnerships. Assembling cross-functional teams in decentralized organizational set ups is not easy. Even more difficult is getting decentralized cross-functional teams to work harmoniously and effectively. The leadership of HepWek managed to stimulate commitment and team work across diverse teams. One recurrent answer from respondents in terms of drivers of success was the ability of the two principal investigators to pull the team together through regular review and feedback meetings, and maintaining seamless communication and a sense of mission within these diverse teams of experts and specialists.
- III. Projects should be designed with local contextual realities in mind. The commencement of the project coincided with the elections period in Kenya. Besides, it seems that in planning the project intervention strategies, particularly supportive supervision, the distances between county referral hospitals and far-flung health facilities were not factored into the design. In essence, a highly complex intervention had many activities packed within a very short timeframe of two years, part of which would be lost to lull in activity during the electoral period. The lesson here is that project designs involving work with national or

county governments should factor in delays in bureaucracy, occasional inertia arising from changing political cycles, as well as internal institutional weaknesses in systems and operations. Understanding the physical, geographic and cultural constraints of implementation sites is also important, and must inform project delivery strategies, including activity scheduling and budgeting for activities.

- IV. There are no quick fixes to intractable population health challenges. While the project succeeded in proof of concept, namely that early diagnosis and timely surgical intervention can avert preventable deaths from hepatocellular carcinoma, the project by its design and available time could not adequately address the constraint of timely health seeking behaviour among patients with liver conditions. One recurrent complaint across respondents was that most patients presented themselves too late, when the benefits of surgical intervention were no longer possible. Improved health seeking behaviour is such a central pillar of effective response to chronic liver cancer prevention, alongside other changes in behaviour on the drivers of chronic liver cancer, yet its achievement requires more time, investment of more resources, and even much broader partnerships involving community health volunteers. The lesson learnt here is that future projects will need to factor in the multifaceted nature of HCC, its causal drivers and effects, and such projects will need to be implemented over much longer durations, preferably for five years and beyond.

6. Recommendations

1. Strengthen county government capacity to respond more effectively to HCC and its causal drivers

County governments need to have targeted hepatitis B vaccination campaigns for the most at risk groups in the population. They also need sustained campaigns in combating the myths and misconceptions that impede timely health seeking for individuals with chronic liver diseases. Finally, it might be more cost-effective for counties to be able to handle chronic liver conditions that do not require surgery in order to ease pressure on MTRH, once community awareness awakens and triggers improved health seeking among those with chronic liver illnesses. These will require investments in capacity strengthening for county health systems through training, equipment purchase and improvements in diagnostics and treatment for chronic liver conditions.

2. Establish and support a community of practice on HCC

To diffuse skills and spur further innovations in the diagnosis and treatment of HCC, MTRH should consider establishing a community of practice among the specializations that were assembled for the implementation of HepWek. This community of practice should be linked to the two collaborating institutions in Peru and France, and to potentially more other institutions and networks of medical and other health professionals locally, nationally and internationally.

3. Consider funding another phase of HepWek, but with more resources, and over a longer duration

HepWek has successfully passed the proof of concept stage as an innovative and effective way of responding to hepatocellular carcinoma. A second much broader phase should be implemented, drawing from the lessons learnt from HepWek, and building on the outcomes achieved through HepWek. The duration of the project needs to be long enough, to allow iterations of implementation strategies and approaches to be tested across a longer periods of time to ascertain their scalability. Design weaknesses not addressed through this pilot phase should be addressed, possibly through longer testing of the soundness project's design logic by teams of experts drawn from MTRH, county government, Ministry of Health, KEMRI NCCP, and other international partners.



MINISTÈRE DES AFFAIRES ÉTRANGÈRES
Direction générale de la mondialisation, du développement et des partenariats

Heptacellular Carcinoma (HCC) in Western Kenya : Risk Factors, early Diagnosis and Surgical Management (HepWek) Kenya, April 2022-March 2024.

Terms of Reference

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1- Context of the evaluation

The evaluation will assess the HepWek project, which officially started in April 2022 and will end in March 2024.

2- Presentation of the project

2.1- Context of the project

Hepatocellular carcinoma (HCC) is the most common type of primary liver cancer and the third most common cause of cancer death worldwide. In 2020, there were 905,667 new cases and 830,180 deaths worldwide. In Kenya, HCC is the 11th most common cancer and the 9th leading cause of cancer deaths. Over 60% of HCC cases in Kenya are associated with hepatitis B virus (HBV) infection and occur early in life. Although the universal HBV vaccination was introduced in 2003 (MOH, 2002), a large proportion of the population is still not vaccinated. Other risk factors identified, but often overlooked in prevention practices, include hepatitis C (HCV); hepatitis delta virus (HDV), a parasitic viroid of HBV; human immunodeficiency virus (HIV) infection, known to precipitate the development of liver complications and finally an environmental risk factor, aflatoxin B (AFB1), a mutagenic food mycotoxin produced by various species of *Aspergillus* is known to play a major role in liver tumorigenesis. A growing risk of liver damage, particularly in the west is the metabolic-dysfunction associated fatty liver disease, that is also coming up in LMIC countries in relation to diabetes. All these risk factors are considered preventable. Monitoring and timely detection increase the chances of a potentially curative treatment.

This project aims to address the problem of late management of cancer in general, and HCC in particular; the lack of diagnostic tools and the lack of expertise and equipment for appropriate surgery; which leads to early mortality. It is designed to facilitate prevention, improve on early detection and use surgery to improve outcomes in the management of HCC.

2.2- Project objectives and characteristics

A) Project general aims

The overall objective of the project is to improve diagnostic and therapeutic services for chronic liver diseases in Western Kenya in order to improve the wellbeing and health of the population in line with the WHO agenda to eliminate chronic hepatitis by 2030, the Kenya National Cancer Control Policy (2019), and the Non-Communicable Disease Prevention and Control Strategy (2013, 2021). The aim is to identify people at high risk of developing hepatocellular cancer (HCC) due to their exposure, screen them and establish monitoring for early intervention. Identification will be done from the local health care level by empowering clinicians at this level through awareness raising and training, and by linking them to an appropriate referral system. The reference laboratory will be equipped and technicians trained to perform new tests for early and reliable diagnosis. This will ensure better referral to both medical and surgical care. People with hepatic masses that were previously inoperable due to advanced disease and delayed medical attention will now be offered surgical resection. The project includes a training of Kenyan surgeons in a Peruvian hospital with surgeons specializing in high-level liver surgery. This skill and technology will be partially transferred to the MTRH surgical team through the training of a local surgical team in Eldoret by the Peruvian team.

B) Project objectives and sub-objectives

- Capacity building of health professionals through awareness raising and training to acquire clinical skills for early diagnosis of chronic liver disease and HCC in the three counties of Elgeyo-Marakwet, Uasin Gishu and Baringo.
- Transfer of liver surgery skills and technology from Peru to Kenya
- Establishment of new laboratory activities to improve epidemiological surveillance and diagnostic capabilities of chronic liver diseases at the Moi Teaching and Referral Hospital, Eldoret (MTRH).

Beneficiaries of the project:

Direct beneficiaries: Five institutions are benefiting from the project in terms of training and equipment donations: Moi University, Moi Teaching and Referral Hospital (MTRH), and the three counties of Uasin Gishu, Elgeyo Marakwet and Baringo.

The people who will benefit directly are the primary health care workers in MTRH and the three target counties who will be empowered, and those they will continue to train and mentor. At the university and MTRH level, the beneficiaries will be surgeons, laboratory technicians, research officers and researchers. They will benefit from the skills they acquire through laboratory and surgical specialized training, which they can then pass on through mentoring. The knowledge gained will be passed on mainly to health workers through formal training and professional mentoring. One third of the beneficiaries are women and one third are young professionals.

Final beneficiaries: The final beneficiary population is the entire population of the three target counties, i.e. 2,284,400 people (2019 census), including 1,140,500 women and 1,183,100 young people under 20 years of age, especially the segment of the population that are at higher risk of liver cancer.

2.3- Project progress and last known status before evaluation

A) Project governance

A steering committee has been formed to monitor the project. All partner institutions are represented at high level, ensuring that the project's actions are in line with their respective strategies.

The steering committee has already met Three times . The first meeting aimed to approve the project's roadmap, the second was intended to follow-up on the actions undertaken, and eventually to re-adapt some aspects of the project. The third meeting was to follow-up on project progress and to consider any challenges encountered, A fourth meeting, scheduled between 15th of January and the 15th of February 2024, will be the opportunity to review and assess the actions carried out.

At the end of the first year of the project, an intermediate report, jointly prepared by Moi University, IRD, the French Embassy and project partners, was sent to: the *Direction Générale de la Mondialisation* (DGM) of the Ministry of Europe and Foreign Affairs, the different partners, and the members of the steering committee.

The minutes of the steering committee meetings, other meetings and the intermediate report will be sent to the evaluator.

B) Project implementation and assessment of activities conducted

All the activities of the three components of HepWek have been, and still are, carried out simultaneously.

Under the first component, the following activities were conducted:

- a) Coordination and training office set-up, including a data management office
Outcome: Working office; 2 full time staff employed, data manager on a part-time basis
- b) In August 2022, Planning Workshop, and Train the Trainer (TOT) for investigators.
Output: Revised Workplan, 9 trained investigators
- c) August 2022: Curriculum development workshop where we developed a training tools
Outcome: Training Curriculum, Training Manual, Trainee booklet and brochure
- d) Meeting with County Health Management Team (CHMT) of the 3 counties to provide project overview;
Signing of MOU's with the 3 counties, clear roles and responsibilities
Signed MOUs with the 3 counties', Elgeyo Marakwet, Baringo and Uasin Gishu
- e) Training workshops for healthcare providers (HCPs) from MTRH, Elgeyo Marakwet, Baringo and Uasin Gishu were held from 15th September to December 2022 for HCPs coming in first contact with patients – Clinicians, Nurses, Radiographers; each provided with Trainee booklet and brochure
Trainee Impact assessment due from 1st December 2023 to 15th January 2024

Outcome: Certified 114 trainees out of planned 120
- f) Obtained necessary approvals from the regulatory bodies; started patient recruitment and enrolment
Obtained IREC & NACOSTI approvals for participant recruitment, these have since been revised twice.
- g) Monthly visits to the counties for patient enrollment, trainee follow-up, supportive supervision and Continuous medical education (CME). This activity ends on 30th November 2023
Outcome : Continuous mentoship for trainees
- h) County meetings with CHMT on 6 monthly basis. 2 meetings each in Elgeyo Marakwet and Baringo ; 1 meeting in Uasin Gishu
Exit meeting due from 1st December 2023 to 15th January 2024

Outcome : Feedback reports both ways

Under the second component, the following activities were conducted:

- a) The surgical procedures currently in use, skills and equipment needs at MTRH were identified
- b) 2 Kenyan surgeons were trained in Peru
- c) A one-month mission of two Peruvian surgeons and a nurse anaesthetist to Kenya for assessment and training was organised

Under the third component, the following activities were conducted:

- a) Participant recruitment started October 2022; and to end November 2023.

Outcome: 192 participants recruited so far out of the planned 200. Tests for the same have been done except where pooling of samples is required, and for aflatoxin where obtaining of test kits has been a challenge

- b) Travel to France by 1 technologist in November to December 2022. 2nd technologist due to travel in January to February 2024.
Outcome: Molecular diagnosis and gene sequencing training
- c) Travel to Eldoret by 1 scientist from Institute Pasteur done twice February and October 2023
Outcome: Support with the project execution and CME at Grand round
- d) Travel by Peru and IRD Scientists to Eldoret in October 2023

Management:

- a) Public communication : Awareness activities started in October 2022 through brochures, banners, 3 radio talk-shows and liver cancer awareness walk in October 2023
- b) Stand display during the Governors' meeting in Eldoret for NRF ; Similar display in Iten Elgeyo County during World Diabetes Day
- c) Scientific Communication: Attendees in Cancer Summit in Nairobi, 2 presentations in Surgical Society conference in Mombasa and NACOSTI 2nd Multi Sectoral Conference in Science, Technology and Innovation in Nairobi; Attendance in NRF Grant writing Workshop in Nairobi
- d) Internal project evaluation by KEMRI in Dec 2022, 2nd one due end of Nov 2023
Outcome : Written report

3- Purpose of the evaluation

The evaluation of the project will meet the following specific objectives:

- Preparing a comprehensive assessment of the project
- Assessing the relevance, coherence, effectiveness, efficiency and sustainability of the project
- Identifying the conditions of success of this project (based on results, strengths and weaknesses) and analyzing to what extent it can be replicated

It will be focused on:

- The appropriateness between the main goal and objectives set in the initial project and the activities conducted to reach them
- The objectives' level of achievement
- The proper use of funds
- The satisfaction of project beneficiaries and project partners

4- Expected analysis

4.1 Comprehensive assessment

Based on interviews and the documentation provided, the evaluator will be required to prepare a comprehensive assessment of all the activities implemented for each sub-objectives. It will include a brief description of the activities carried out and a timeframe of their realization.

4.2 Questioning

The evaluation questions outlined below will need to be further developed:

1. Was the project relevant to the needs identified?
Were the intervention logic and proposed solutions adapted to the needs of the beneficiary country and the context?
Was the scope of the project (available means, forms of application) relevant to the objectives and needs identified?
2. To what extent has the project been coherent and complementary to other similar initiatives funded by France or other donors?
3. To what extent has the project built capacities of health professionals to acquire clinical skills for early diagnosis of chronic liver diseases and HCC in the three counties of Elgeyo-Marakwet, Uasin Gishu and Baringo?
4. To what extent has the project allowed transfer of liver surgery technology from Peru to Kenya?
5. To what extent has the project allowed the establishment of new laboratory activities to improve epidemiological surveillance and diagnostic capabilities of chronic liver diseases at MTRH?
6. What is the level of efficiency of the project? Are the results commensurate with the money spent?
Is the level of management costs justified?
7. To what extent is the project sustainable?
How have sustainability conditions been taken into account in the design and implementation of the project activities?
What is the level of ownership of the proposed activities by the beneficiary populations?
8. What is the level of satisfaction of different project partners?

4.2 Conclusion and main findings of the evaluation

The evaluation report will include a conclusion section which will be structured around two parts:

- Main conclusions on the evaluation questions and main findings
- Recommendations

5- Monitoring of the evaluation

Access to all documentation and people involved in the project will be ensured. A representative from the French Embassy in Kenya will follow up the evaluation process. At least three meetings will be organized: one evaluation kick-off meeting (early January 2024) with representatives of all project partners; one just before the last steering committee meeting; and a last one for the delivery of the final report. These meetings can be held online. Intermediate meetings may be organized upon request by the evaluator or the French Embassy.

6- Phasing of the evaluation

The evaluation will be conducted in **three phases**.

6.1 Framing note

Based on the terms of reference and available documents, the evaluator will produce a framing note intended to:

- Finalize the methodological approach and the evaluation framework,
- Finalize the methodology used to answer the evaluation questions.

The framing note will state the context and objectives of the evaluation, present the evaluation questions, the methodological approach and the tools/means used to collect information.

6.2 Provisional report

During the second phase, the evaluator will travel to Nairobi and in the three counties involved to meet all project partners and beneficiaries, in order to produce the provisional report. It will include:

- The consolidated statement
- The first answers to the evaluation questions
- Hypotheses still to be confirmed
- Remaining investigations

The provisional report should be submitted for the last steering committee meeting, scheduled between the 15th of January and the 15th of February.

6.3 Final report

The evaluator will conduct necessary analyses to provide a final report (50 pages maximum) which will include:

- A table of content
- A 2 pages executive summary following the template provided by the French Embassy
- A summary of the project's consolidated statement
- Final answers to the evaluation questions
- Conclusions and recommendations

In annex: the list of signs and acronyms used, the list of people met, the documentation used.

7- Provisional calendar of the evaluation

The provisional calendar for the evaluation is as follows:

Steps	Provisional dates
<i>Beginning of the evaluation</i>	<i>15th December 2023</i>
<i>Delivery of the framing note</i>	<i>8th January 2024</i>
<i>Delivery of the provisional report</i>	<i>Last steering committee, between 15th January and 15th February 2024</i>
<i>Delivery of the final report</i>	<i>1st March 2024</i>

8- Budget

The maximum budget to be spent for the evaluation is 15 000€.

9- Additional information

The following documents are available :

- Presentation of the project, as accepted by the FSPI commission
- Project intermediate technical and financial report
- Financial agreements between the French Embassy and the National research Fund and IRD.
- Reports of the steering committee meetings
- Reports and annexes presented during the steering committee meetings
- Reports of partners meetings
- Brochures, leaflets and other communication products created
- Project media coverage