

Iceland and development aid in the era of the MDGs: a case study of an Alma Ata inspired primary healthcare project in southern Malawi

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ABSTRACT

The monitoring of relevant health indicators is important in the examination of work that aims to improve health, not only globally, as for example, through the Millennium Development Goals 2000–2015, but also at the national, regional and/or sectoral, level. During the period 2000–2011, the Icelandic International Development Agency (ICEIDA) supported the strengthening of the primary healthcare system in the Monkey Bay area of Mangochi District, Malawi. Based on data collected through several evaluative approaches and the use of commonly used health indicators, we explore the overall performance and constraints of the services provided by ICEIDA during project implementation. Structural and diverse process indicators provided evidence that access to governmental services improved during the project period. The population expressed satisfaction with the ongoing improvement of the healthcare services they felt were of good value and quality. During the MDG era, Malawi succeeded in decreasing the under-5 mortality rate by 2/3 (MDG4 target), and maternal mortality by 66% by implementing evidence based interventions similar to those ICEIDA supported in the Monkey Bay area. Albeit small, ICEIDA's support was a relevant, effective, and efficient approach to strengthen primary healthcare services in the Monkey Bay area, resulting in tangible and sustainable benefits for the Monkey Bay communities, that may also be applicable in other settings.

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Introduction

In September 2000, the Millennium Summit gathered world leaders in New York to adopt the UN Millennium Declaration for the period 2000–2015, from which the eight Millennium Development Goals (MDGs) were derived (UN Millennium Project 2000). Three out of the eight adopted MDGs were concerned with the improved health of the population, that is, reduced child mortality (MDG4), for example by immunization against measles, improved maternal health (MDG5), and actions to combat HIV/AIDS, malaria and other infectious diseases (MDG6). Of these goals, the one on maternal mortality and reproductive health, was the least successful, while progress was made in reaching MDG4 and MDG6, although with much inter-country variability (United Nations 2015). The implementation of the MDGs paved the way for the Sustainable Development Goals (SDGs) 2016–2030, adopted in 2015 by the General Assembly of the United Nations (Sustainable Development Knowledge Platform 2015). In contrast to the MDGs, only one out of 17 SDGs addresses health directly, that is SDG3: 'Ensure healthy lives and promote well-being for all at all ages', and one of its targets is universal health

coverage. This ambitious goal reminds of the slogan 'Health for All by the Year 2000' of the Alma Ata Declaration for Primary Health Care (PHC), adopted by the World Health Organization (WHO) in 1978 (WHO 1978). The declaration was widely assumed to address healthcare needs in low-income countries, although it influenced the implementation of PHC in industrialized countries as well (Gillam 2008).

In short, PHC, as spelt out in the Alma Ata Declaration (WHO 1978, 2008), is composed of three main dimensions of healthcare services. The first relates to the eight principal elements of healthcare delivery: access to essential medicines, treatment, preventive services, immunizations, focus on services for mothers and children, including family planning, food and nutrition, and water and sanitation. The second dimension of the PHC model addresses the functioning of the healthcare system, including administration, human resources, physical infrastructure, research, and the collection of health data. Finally, community participation and a proper line of referral is emphasized; that is, people play an active role in the development and delivery of health services where they live, and seek care at the most appropriate level of the healthcare system. All three dimensions of

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the PHC system need to fit together for efficient and effective performance. Despite controversies regarding the implementation of the Alma Ata Declaration, it is still as relevant today as it was in 1978 (Lawn et al. 2008; WHO 2008), exemplified for example in preparatory work for a revised version (Almaty Declaration 2.0) to be adopted in October 2018 to commemorate the 40th anniversary of its predecessor (Lancet 2018).

In this paper, we first address appropriate set of indicators for monitoring and evaluation of healthcare services. This is followed by a discussion of the importance of global partnerships to improve healthcare services inspired by the Alma Ata Declaration and how donors, albeit small ones, can constructively contribute in the era of the SDGs. A case in point is the PHC services in the Monkey Bay area of Mangochi District in southern Malawi, supported by the Icelandic International Development Agency (ICEIDA) in the period 2000–2011. Finally, the results will be discussed and synthesized to address the core question: how can international support facilitate the delivery of different components of PHC in the spirit of Alma Ata to poor rural populations in a sub-Saharan country?

Evaluation and monitoring of health services

Evaluators of development projects and official assistance face increasingly complex situations, mainly related to the current architecture of aid following the Paris Declaration on Aid Effectiveness in 2005 with the centrality of the concepts ‘alignment’ and ‘harmonization’ (Conlin and Stirrat 2008; Segone 2008). The focus is on strategies, resource allocation and measurable impact, as well as the consequences of development assistance for social equity and the enhancement of empowerment. The evaluation procedures are complex, and the contribution of particular donors has become increasingly fluid; for example, support through sector-wide approach (SWAp). Another significant trend in evaluation has to do with the MDGs – and now the SDGs – and the corresponding indicators, and moves away from project-orientated interventions to a wider approach, in which factors other than the intervention alone are to be taken into consideration (Conlin and Stirrat 2008).

There are several approaches available to monitor healthcare and the delivery of services. Daily registration routines permeate all healthcare systems, and, in sub-Saharan Africa, most systems are based on paper records. This paper-based collection of data often includes information such as the name, sex, age, and address of the attendee, and often, diagnosis and treatment. Such information is then transferred manually to summary sheets

that are sent to the next level of the healthcare system for compilation across the respective health area/sector/district, and then to national health authorities for a trimestral, biannual, or annual reports. Increasingly, the higher-level analysis uses data from the health centers that are manually computerized. The data collection is often not given sufficient attention, and those who produce the data, the frontline health workers in the healthcare facilities, get no feedback (Gerrets 2015). The outcome is that the data collection lacks focus and over-burdened staff pay less than desirable attention to detail and the quality of the information provided.

Another monitoring approach to healthcare services, is conducting different types of surveys in the population being served. As there is no existing central population registry available in low-income settings, several approaches have been developed. Commonly known surveys are the Demographic Health Survey (DHS) (The DHS Program 2015) to monitor health and population trends, and the Multiple Indicator Cluster Survey (MICS) on the health and well-being of children and women (UNICEF 2015). In such surveys, the household with its ‘head’ is the point of departure, despite household’s complexity as a social unit to measure where its members live (Randall, Coast, and Leone 2011; Kriel et al. 2014). Another well-established method is the cluster sample technique initially developed to monitor vaccination coverage, but which has also been applied to address other healthcare issues of interest to healthcare services and policy makers (Bennett et al. 1991).

Mixed methods and qualitative approaches are also of importance in gathering information on the healthcare services from the viewpoint of providers as well as users. Despite the fact that a qualitative methodology does not allow for a great number of participants, it can give valuable insights into the functioning of healthcare services, as well as the healthcare needs of the population (Bamberger 2012).

Global partnership for development

Most low-income countries, particularly those in sub-Saharan Africa, are characterized by an underfunded health sector. Common problems include lack, or deficient maintenance of, physical infrastructure, lack of adequately trained human resources, communities that are difficult to reach, sporadic ambulance services, uncertain delivery of medicines and medical supplies, lack of appropriate laboratory services, and other critical components of well-functioning PHC services. Thus, MDG8 addressed the need for countries to develop a global partnership for development (UN Millennium Project 2000). In the case of Iceland, this was partly achieved

through the work of ICEIDA, that has, in recent years, been an active donor in three countries – Uganda, Mozambique, and Malawi (ICEIDA *n.d.*).

ICEIDA became involved in development assistance with Malawi in 1989 when, as part of Nordic aid to the Southern African Development Community (SADC), it provided advice on fisheries in Lake Malawi. In October 1999, a feasibility study for engagement of ICEIDA within the health sector was conducted by one of the authors (Gunnlaugsson 1999). Subsequently, in the year 2000, ICEIDA expanded its activities in the country through collaboration with the Ministry of Health and Population, to improve health services in the Monkey Bay area by Lake Malawi, one of five health areas in Mangochi District in southern Malawi. At the planned termination of the activities in the Monkey Bay area in 2011, and based on achieved experience and results, in 2012 the Agency expanded its development support to improve basic services in all of Mangochi District (ICEIDA 2012).

This paper aims to describe and analyze the activities of the Monkey Bay Health Care Project through the lens of several methods for monitoring and evaluation, with an emphasis on indicators as defined by Donabedian (1988). The main question asked, is how international support can facilitate the delivery of the different components of PHC, in the spirit of Alma Ata, to poor rural populations in a sub-Saharan country.

Materials and methods

Setting

Malawi is situated in south-eastern Africa. It has a rapidly increasing population with 9.8 million in 1998 and 15.4 million people in 2011, with a population density per sq. km that increased from 99 to 159. Poverty is pervasive; in 1999, the GDP per capita in US\$ (inflation adjusted) was 391 compared to 479 in 2011 (Gapminder *n.d.*). The population is mostly rural (86% in 1998 and 80% in 2011), with almost half of the population being younger than 15 years of age.

The burden of disease was, and still is, overwhelmingly due to communicable diseases, and, in 1998, at the outset of project activities, up to one-quarter of children died before reaching five years of age. The causes of total mortality were similar to that found in other low-income sub-Saharan countries, with malaria (13%), lower-respiratory infections (10%), diarrhea (9%), and measles (<1%), compounded by malnutrition (4%) (Global Burden of Disease *n.d.*). HIV posed a particular threat and contributed to about 25% of the disease burden. Of particular interest, is that at the turn of the century, in the age-group 15–19 years, infected females

out-numbered infected males ten times, and four times in the age-group 20–24 years. Tuberculosis follows in the footsteps of HIV, with 2–3% of the population infected. Life expectancy was about 40 years and maternal and reproductive health indicators bleak, with high maternal mortality (620 per 100,000 live births) and multiple pregnancies in combination with young age at the start of sexual activity, and subsequent teenage pregnancies.

In May 1999, the '4th Malawi National Health Plan for 1999–2004' was published together with the document 'To the Year 2020: A Vision for the Health Sector in Malawi'. One of the key strategies of the new plan was to offer a Minimum Package of Health Services with a focus on the poor, mothers, and children. It emphasized the provision of a cost-effective package of promotive, preventive, and curative PHC services that were, both scientifically and in practice, proven to be those services that would have the most significant impact on the health status of the Malawian population. This was to be achieved through improvement, strengthening, and expansion of the health services, to provide better access and better-trained health staff. In particular, the National Health Plan included plans to construct 11 community hospitals to offer more diverse services than were available in rural hospitals.

The District of Mangochi is in the Southern region with a population that was estimated to be about 640,000 at project start, and about 830,000 in 2010. The health services were provided by the government, that did not apply user-fees in 15 health centers and one district hospital; health facilities that were run and funded by the Christian Health Association of Malawi (CHAM) charged user-fees in its 14 health centers and two rural hospitals. There were also 12 identified private providers of health services in the district. Several NGOs were working in the district as well, the most important ones being Save the Motherhood Initiative, and Save the Children. All health-related activities were coordinated by, and reported to, the District Health Management Team (DHMT) in Mangochi, the administrative center, under the leadership of the District Medical Officer, and the District Nursing Officer. The DHMT, in turn, reported its activities to the Southern Region Authorities in Zomba, and the Ministry of Health and Population in Lilongwe. At the outset of project activities, the Health Management Information System (HMIS) was rudimentary and inefficient, staff did not share the data, and some programs had vertical data collection for their specific projects.

The District of Mangochi is divided into five health areas, of which Monkey Bay is one. In 2000, there were two governmental health facilities in the Monkey Bay

area; that is, one in Monkey Bay town, and another in Nankumba village. There was also a non-functional dispensary in Chilonga village. There were also four privately run health facilities in the area. Of these, CHAM ran three facilities, (in Nkopé, Malembo and Nankhwali), and an Irish NGO ran one in Cape Maclear. The '4th Malawi National Health Plan 1999–2004', included upgrading of the worn-down health center in Monkey Bay town to a community hospital within five years.

When ICEIDA considered expanding its activities within the health sector in collaboration with the government of Malawi, the choice of project setting was a natural expansion of the on-going ICEIDA engagement within the fisheries sector by Lake Malawi. Following a feasibility assessment in October 1999 on the situation of the health sector in the area (Gunnlaugsson 1999), the subsequent project document (PD) for the period 2000–2003, built on the '4th Malawi National Health Plan 1999–2004', and laid the foundation for collaboration in the area that lasted for 12 years. Thus, from the outset, ICEIDA has aligned its project to national priorities to strengthen Malawi's PHC services.

In the first years of the healthcare project in Monkey Bay (2000–2003), the emphasis was to build a new structure that was to become Monkey Bay Community Hospital (MBCH), as well as to strengthen PHC services, logistics, and communication (ICEIDA 2000). The second part of the collaboration (2004–2008), built on gained experience, and aimed to consolidate the work achieved in the first four years (ICEIDA 2004). Particular emphasis was laid on the quality of the health services in MBCH and the health centers in the area, outreach activities, and training of traditional birth attendants (TBAs), community-based distribution agents, and health surveillance assistants. Training of human resources was an essential activity, and included upgrading and short courses and seminars for several categories of staff. Further, more physical structures were renovated and constructed for the governmental run services in Monkey Bay and Nankumba, including laboratory, surgical theater, pharmacy and staff houses. In the third and last part of the collaboration (2009–2011), infrastructure was improved in MBCH, including a new and spacious maternity ward and laundry (ICEIDA 2009). Further, the out-patient department (OPD) and the under-five clinics were expanded and renovated. Four more staff houses were also built in Monkey Bay. During this last phase of project activities, the health dispensary in Chilonga was transformed to become the third governmental health center in the area, with the construction of a new maternity wing. Further, three staff-houses in Chilonga were renovated, and two new ones constructed with contribution from community

members. During project implementation there was continuous dialogue with traditional leaders and community representatives.

During the three phases of the collaboration, ICEIDA gave logistical support through ambulance services and motorcycles for outreach activities. The internal administration and management were supported as needed, and radio communication improved between the health centers and MBCH, particularly important before the era of general access to mobile phones. Further, during this period, upgrading of staff was a high priority, including both in- and out-of-country training, and most of the support was directed to governmental structures within the Monkey Bay area. At the same time, ICEIDA facilitated the inclusion of health service providers in the area, organized within CHAM, including participation in health zone meetings that discussed the performance data of the healthcare services and local training, as well as a provision of motorcycles and radio communication. During project implementation, ICEIDA recruited Icelandic technical assistants (nurses, midwives, and medical doctors) who were placed in Monkey Bay in the period 2000–2008, one or two at a time.

In line with Icelandic law, all funds to development project activities were to be controlled by Icelandic public officials and audited by the Icelandic National Audit Office. Budget support was not an option until the law on international development assistance was revised in 2008. Thus, project funding was outside the direct control of the DHMT, while it took part in elaborating the PDs and annual plans on all aspects of the project and its implementation. Following the change in Icelandic national legislation on development assistance, during the last period of project implementation in 2009–2011, increased responsibility was given to national health staff in charge of the area to administer funds for recurrent costs and other expenses.

Methods

The data presented in this paper are based on published and unpublished documents related to project activities. These include, for example, official documents, PDs, summative evaluation reports from annual field visits by one of the authors (Gunnlaugsson 2011), and two external evaluation reports. Data of the performance of the healthcare services are taken from the national electronic HMIS in place in Malawi since 2002, including the MBCH (Ministry of Health 2009), based on daily registration routines in the health facilities that fed into monthly reports to MBCH, and later to the DHMT in Mangochi. The data were the basis for the creation of different process indicators for routine monitoring of the services, and their

evaluation. It was enriched with data from research assignments and published results of Icelandic and Malawian university students, and both authors, who applied diverse evaluative and research methodologies in their studies, including quantitative and qualitative approaches. Further, these data were put in the context of published international literature on the health situation in Malawi.

Ethical considerations

One of the authors (Gunnlaugsson 2011) served as a permanent consultant for ICEIDA during the years of project implementation. He annually visited Monkey Bay and wrote summative evaluation reports to the Agency. These included real-time data on the progress of the PHC services in the area, as registered in the HMIS by staff, on-going project activities, and problems encountered. As a consultant he had only an advisory role, with no decision-making power.

Being an internal evaluator has its strengths and limitations (Markiewicz and Patrick 2016, 176). One strength is the familiarity with the program and its context. This advantage may, however, come at the cost of objectivity. Consequently, to complement annual summative evaluations, two external consultants were recruited for the evaluation of project activities (Murru and Mkandawire 2007; Chigwedere 2015). The conclusions drawn in this paper build on both these two reports, as well as other available and published material.

Results

Structural indicators

Physical infrastructure

In short, physical infrastructure for healthcare delivery in the health facilities, communities, and staff houses, was expanded and improved during project implementation (Gunnlaugsson 2011; Chigwedere 2015). However, the objective to have MBCH become a community hospital, in line with national standards, was not reached. There was no national definition of what services should be provided in a fully-fledged community hospital, which caused some friction among the partners. This was resolved in the last phase of project implementation when the Ministry of Health finally defined the concept. In the case of MBCH, at the termination of project activities, it lacked specialized pediatric and isolation wards, a kitchen, an X-ray department, and a Nutritional Rehabilitation Unit.

Financial aspects

In the period 2000–2011, the total costs for project implementation were estimated to be just under

\$7.5 m, excluding costs for technical assistance in the period 2000–2008. The construction and renovation of national infrastructure in Monkey Bay, Nankumba and Chilonga, was the most costly component (51%), followed by staff training, per diems, and travel costs (14%), assets such as vehicles and furniture (8%), and recurrent costs (7%). In real terms, the investment over 12 years was about 54 US\$ per capita in the Monkey Bay area, or about 4 US\$ per capita, per year. Evaluation of total costs and different cost lines need to take into consideration the deplorable situation of governmental healthcare services in the area at the start of project activities that impact highly on over-all costs for constructions.

Logistics

At the start of project activities in the year 2000, there was no ambulance in Monkey Bay except one in Nankumba health center, with difficulties in running it and funding recurrent costs. Until recently, two ambulances, bought and run by ICEIDA funds, have been stationed in MBCH, with two drivers who are government employees. In addition to the ambulances, one utility vehicle was purchased to service MBCH to alleviate some of the minor tasks of transport within the area. In addition, ICEIDA funded nine motorcycles for outreach activities in the Monkey Bay area (Nankumba, Chilonga, Malembo, Nankwhali, Nkopé and four at MBCH), and all were functional with appropriate maintenance funded by ICEIDA.

Staff

As a general rule, ICEIDA applied a policy of no topping-up of salaries of health professionals. Yet, one Malawian health professional was recruited in 2004, recruited and paid by the government while ICEIDA topped-up his monthly salary, to function as a coordinator of project activities and later, in 2009, to be in-charge of disbursement of ICEIDA recurrent funds. Further, two to three other Malawian health professionals with vital functions within the services were, for a limited period, paid a minor top-up by ICEIDA. At the time of the feasibility study in 1999, there was a staff of about 30, working in Monkey Bay health center, with medical assistance and midwives as the leading professional cadres, compared to about 110 in 2011, including doctors and clinical officers.

Process indicators

Out-patient department (OPD)

At the time of the inauguration of a new hospital building in Monkey Bay in June 2002 in a newly assigned and vast area reserved for health services, the worn-down

health facility in the center of town had functioned more as a health center (including skilled birth assistance) than a proper hospital, and data collection on its activities was deficient. A study, conducted by a Malawian medical student, concluded that the HMIS was not functioning optimally to provide timely, valid, and accurate, information (Salimu 2004). Improvement in data collection was continuously in focus, and in the period 2003–2011, the registered number of monthly attendees was 5199 (median 4842, range 2232–10,702), and attendance in public health facilities increased annually. Diverse indicators built on the HMIS, indicate that government structures bore the main burden of delivering health services to the population in the area with no user-fees, compared to the application of user-fees in CHAM facilities. In the year 2010, the staff at MBCH had about 140,000 patient contacts, and those at Nankumba, about 80,000 contacts, compared to about 70,000 in the three CHAM facilities (Figure 1).

One Icelandic medical student was given the task of registering the age of attendees and the diagnoses of children less than five years (Ragnarsson et al. 2006). In the two governmental health facilities, about 3/5 of the attendees were adults, compared to about 2/5 in CHAM facilities. It was 1.22 times more likely (RR 95% CI 1.18–1.16) that children 0–4 years old were taken to a CHAM facility, compared to older children (RR 1.46, 95% CI

1.42–1.51), while adults were 1.16 (RR 95% CI 1.12–1.19) times more likely to attend health facilities run by the government. About 4/5 of all diagnosed disease groups were part of the IMCI (Integrated Management of Childhood Illness), with half being malaria, 28% respiratory infections, 6% pneumonia, 5% diarrhea, and the rest with diverse ailments (Ragnarsson et al. 2006).

Antenatal care (ANC)

Data in the HIMS indicate little changes in ANC attendance in 2002–2010 with on average 2.85 (range 2.46–3.08) visits during each pregnancy. In 2003, by applying a cluster-sample technique, inquiries were made to 215 randomly selected mothers regarding their antenatal care (ANC) card for their last pregnancy (or history, if a card was not available) (Fjalldal 2004). All except four had attended ANC at least once, and the average number of visits was 4.1 during the pregnancy, in line with the national recommendation. The first visit was on average at 24 weeks of gestation, contrary to the recommended within 12 weeks. In general, the mothers felt it was important to attend, in particular, to have a physical examination, and see that all was well with the growing foetus. A recent study in Mangochi District found institutional barriers to early ANC attendance that need to be addressed in order to improve coverage (Mamba, Muula, and Stones 2017).

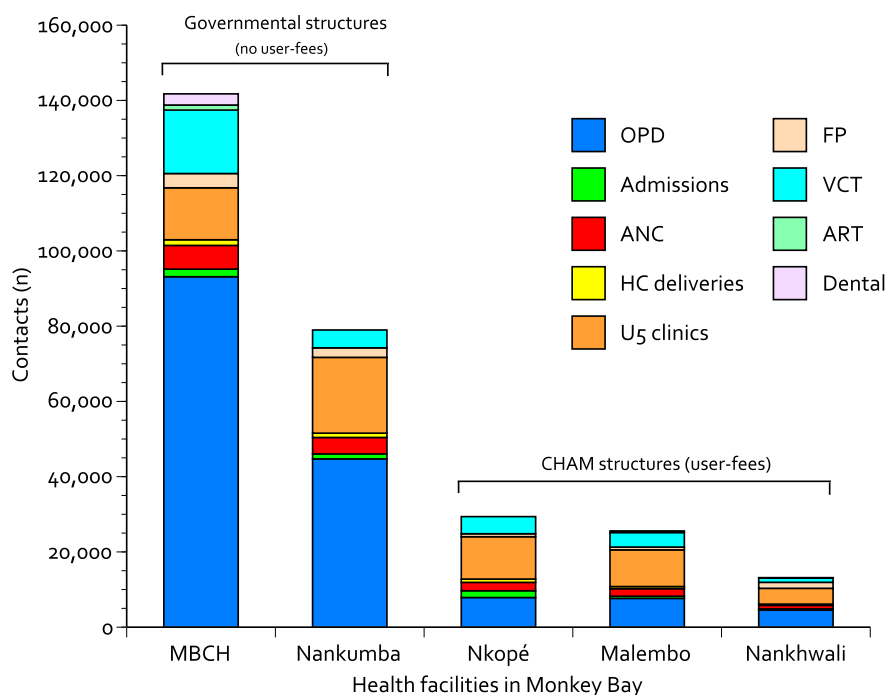


Figure 1. Number of attendees to the different health structures in Monkey Bay area in 2010 by activity*. *OPD: Out-patient department; Admissions: wards; ANC: ante-natal care; HC deliveries: deliveries in health centers; U5 clinics: preventive child health services for children under-5 years of age; FP: family planning; VCT: voluntary counselling and testing for HIV; ART: anti-retroviral treatment for HIV; Dental: attendees for dental problems.

Deliveries

One of the targets of MDG5 was to have at least 75% of deliveries attended by skilled birth attendants. The first requisite to achieve that number is to have pregnant women attend the ANC services; this has not been a problem in Monkey Bay health area (Fjalldal 2004). The second is to offer services that are attractive to them and where they feel secure to deliver, preferably with their mothers. One study was conducted to analyze deliveries in the hospital during one month in 2005 (Jónsson 2005). In total, 87 women came to deliver, but 19 were referred to the Mangochi District Hospital (MDH) because of an impending Caesarian section, at the time still not available in Monkey Bay. Out of the 68 deliveries in MBCH, one had been referred to MBCH from other health facilities in the area. The outcome of four pregnancies was still-birth, including two with a breach presentation. Since July 2008, there has been a functional surgical theater operating in MBCH, and at the end of June 2014, 1154 (29%) surgical operations were Caesareans, out of a total of 3970 operations, or on average, 16 sections each month.

Newborn care

In March 2006, 34 newborns were admitted, thereof 22 within the first week of birth (Guðmundsdóttir 2006). Most were suspected to have sepsis (74%), and about one in five with birth weight <2500 g. The administration of two important drugs (gentamicin and benzylpenicillin) was not according to guidelines with most of the newborns given too high (or too low) doses. Further, nursery routines were found to be deficient, for example regarding weighing and registration in clinical records. These findings are reflected in a recent study from Malawi that recommends increased investment in training and availability of health staff who attend deliveries and provide newborn care (Carvajal-Aguirre et al. 2017). Efforts in Malawi to improve access to services for mothers and newborns and subsequent improvement have been taken as an example of the successful outcome of the partnership of policy makers and partners towards building strong community health systems (UNICEF 2018).

Community services

During project implementation, work with community members was given a high priority, in particular, the training of TBAs. At the peak of this activity, in 2006, about 140 TBAs and 167 community-based distribution agents worked in the area, all of whom were either newly trained ($n=20$) or had attended refresher courses, and this activity reached deep into the

communities in the health area (Gunnlaugsson and Einarsdóttir 2009). Through qualitative interviews it was found that they were, in general, older women who had had children themselves and had learned the trade from family members (Stefánsdóttir 2006). They were respected in the community, considered to possess important life-skills for its members. One out of every three TBAs had her own birth shelter and those without one attended births in the home of the delivering woman; this was considered an essential constraint in their work. They appreciated their training, but felt the lack of proper supervision. In their opinion, the most useful things for the job were gloves (initially not distributed to the TBAs as a national policy), umbilical thread, cotton and anti-infective, lamp and tray, all provided by the project. Abruptly, in October 2008, the Government of Malawi banned all deliveries by TBAs (Gunnlaugsson and Einarsdóttir 2009). Such a change in policy was intended to result in an increased number of deliveries with skilled birth attendants, as aimed for in MDG5. Despite improved government facilities for delivery, a comparison between the number of women delivering in MBCH and the number of those who attend ANC services for the first time, show that about a quarter of expected deliveries were still unaccounted for in 2010.

Immunization coverage

Immunization is one of the important components for the improvement of child survival, and was included in MDG4. To generate baseline data, a study was conducted in 2003 on a random sample of 217 children who were selected through cluster-sample technique (Bennett et al. 1991; Thórdarson et al. 2005). The results show that the coverage of the Bacillus Calmette-Guérin vaccine against tuberculosis (BCG) for children 12–23 months of age was 97%, most vaccinated with three doses of vaccine against diphtheria, pertussis (whooping cough) and tetanus (DPT) and polio, indicating good access. There was, however, a drop-out trend for children in the vaccination program with increasing age; 78% were vaccinated for measles, and 70% of the children 12–24 months of age were fully vaccinated. One indicator in the HMIS was the proportion of fully vaccinated children by the age of one year, as recommended in national guidelines. In the year 2002 data indicate that 35% were fully immunized compared to 58% in the year 2010.

Outreach clinics

Preventive health services to mothers and children are delivered both in clinics in the health facilities (static clinics), and outreach in the rural communities. In the

period 2006–2014, there were on average each year 52,471 children under five years of age who attended out-reach clinics in the Monkey Bay area (median 53,637, range 39,159–62,264). In a quantitative study, the implementation of outreach clinics in the MBCH health area was investigated in the period January 2005 to March 2006 (Jónsdóttir 2006). There was a good calendar for out-reach clinics that offered a range of evidence-based services, for example, vaccination, growth monitoring and distribution of vitamin A. The implementation was irregular, at times shortage of vaccines and vitamin A, monitoring of growth routines left room for improvement, and storage and quality of registers inadequate. Other structural problems identified to execute outreach clinics according to the plan were heavy rain, bad roads, lack of transport, and lack of staff.

Prevention of malaria

A study found that malaria was about half of all diagnosis of children less than five years of age (Ragnarsson et al. 2006). A quantitative and qualitative study on malaria and its prevention in the Monkey Bay health area found that 32–46% of about 200,000 annual attendees were given a malaria diagnosis in the five health facilities, most during the rainy season (Snæbjörnsson 2007). Government officials gave insecticide-treated bed-nets free of charge, and data indicate that the distribution was effective compared to many other low-income countries, as the coverage of bed-net use increased from 3% in 2001 to 66% in 2013 (United Nations 2015). There is no reliable data on either the subsequent general use of the bed-nets or if it lowered the incidence of malaria in the area, which would be notoriously difficult to ascertain.

HIV/AIDS

In April 2005, a Voluntary Counselling and Testing clinic, now called HCT (HIV Counselling and Testing), was installed in MBCH to serve HIV infected patients, their families, as well as pregnant women. It was the first one outside MDH and was initially placed in one small room in the administration building (Gunnlaugsson 2007). In December 2005, another HCT was established in Nankumba health facility. Further, in June 2006, improvement occurred when an ART (anti-retroviral treatment) unit was established in MBCH. HIV-positive patients who fulfilled specific clinical criteria (as defined by WHO) received medical treatment to hamper the progress of the disease. In light of the demand, a new facility was constructed for this service component, taken into use in October 2007. In the period 2005–2014, a total of 53,635 patients were seen in VCT/HCT-clinics, an average of 5977 patients per year (median 6807, range

2389–10,924). A study conducted in 2007 concluded that 1257 (25%) were HIV positive out of 5043 attendees, since its establishment (Arnardóttir 2007). About half of those who attended were pregnant women, and 15% of whom were HIV positive.

A qualitative study was conducted on the VCT in the area to explore young women's vulnerability towards HIV infections, thought to arise from harmful gender norms and cultural practices (Pétursdóttir 2010). Nurses who were interviewed and involved in the VCT clinic emphasized that it was not compulsory for pregnant women to attend the clinic, but highly recommended. After initial hesitation, the women began to participate freely in all the health facilities. This was facilitated by the fact that the test was a prerequisite for access to Prevention of Mother-to-Child Transmission (PMTCT) services to limit the spread of the disease to their newborns. The social relations of women were found to be more complicated than indicated by stereotypical ideas of women as defenseless victims with little or no agency vis-à-vis HIV/AIDS.

Outcome indicators

Outcome indicators are costly and difficult to obtain for population and area of the size of Monkey Bay. At the start of project activities in 2000, in the Monkey Bay area, the infant mortality rate (IMR) in Malawi was estimated to be 135, and under-five mortality rate (U5MR) was 234 per 1000 live births. In 2011, these rates were estimated to be 69 and 110, respectively, a significant decline. Maternal mortality rates (MMR) are notoriously more difficult to evaluate. In the year 2000, MMR was estimated to be 750 per 100,000 live births and 530 in 2011 (Gapminder n.d.); in 2013 it was estimated to be 510, a decrease of 66%, and short of the MDG5 target of 75% reduction (Requejo, Victora, and Bryce 2015).

Results from the baseline study in 2009 can also serve to measure outcome (Gunnlaugsson and Einarsdóttir 2009). In contrast to the situation in 1999, in 2009, MBCH was considered as a good hospital that had lifted the burden for people to travel to MDH for health care. For the population, distance was an important factor, and access and ambulance services were appreciated. Some argued that MBCH worked almost like a district hospital and was, in some aspects, even a better hospital than MDH. Health center staff in all the facilities, government-run as well as CHAM, were also pleased with the hospital and argued that it helped with transport vehicles, supervision, and technical assistance in the care of patients. Community members called attention to overcrowding at the OPD in MBCH, with long waiting times – a complaint responded to in 2011, with new and expanded OPD and waiting area. In all

the corners of the Monkey Bay health area visited, villagers claimed that MBCH served the communities, and that ‘they all come to Monkey Bay when seriously sick’ (Gunnlaugsson and Einarisdóttir 2009). In 2015, three years after project termination, general satisfaction of services was maintained with 96% of all participants in exit interviews expressing their willingness to recommend attending the MBCH to others, and claiming that it was comparable to the Mulibwanji hospital, recognized as one of the best in the country (Chigwedere 2015). It was also noted that it attracted patients outside its defined catchment area.

External evaluations

Two external evaluations were conducted during the lifetime of the project. The first, in 2007, concluded that the project had ‘produced positive results, and benefited the population ... [and the new structures] have made available and accessible to the people a wider range of services of reasonably good quality within the zone’ (Murru and Mkandawire 2007, 2). Further, it was concluded that ‘most objectives set out at the start of the project have been met while others, as in most projects, have only been partly achieved, probably because the timeframe planned to achieve them was not sufficient’ (Murru and Mkandawire 2007, 2).

In 2015, an external evaluation was conducted to evaluate the services three years after project termination (Chigwedere 2015). The evaluation concluded that access to health services had improved remarkably in the area, including, for example, improved infrastructure and staff houses, access to ambulances; training of health workers had resulted in better services and increased demand, with less workload at the MDH. Further, it was concluded that the health staff demonstrated ‘[c]apacity in clinical management of different health conditions like complicated pregnancies and deliveries etc., as observed during the 2012 evaluation, was still professional and in line with national norms’ (Chigwedere 2015, 8). Community engagement, including traditional leaders, was also observed. In addition, it was concluded that one of the externalities of project activities was the creation of job opportunities for some members of the community (Chigwedere 2015).

Discussion

In this paper we present data from the implementation of the PHC project by ICEIDA in the Monkey Bay area of southern Malawi for the period 2000–2011. It is the biggest development project the Agency has undertaken within the health sector. The evaluation of project activities

presented rests on several monitoring and evaluation principles, specific research conducted by university students and the authors, regular consultative work by the first author (Gunnlaugsson 2011), and two external evaluations. Based on data presented, the conclusion is that the collaboration of ICEIDA with the government of Malawi has strengthened and improved the healthcare services in the Monkey Bay area. Numerous internationally recognized indicators on the structure and process of healthcare services provide evidence of the overall improvement of the services. In addition, qualitative data indicate acceptance and favorable views of the population on the progress in service provision in the area.

PHC services in the spirit of the Alma Ata Declaration (WHO 1978, 2008) require that a diverse array of services need to harmonize and fit together to improve health outcomes. In short, the principal eight elements of healthcare delivery need functional management and proper patient referral lines as well as community participation. To avoid the segmentation of services (Murray and Frenk 2000), the fundamental approach of ICEIDA in Monkey Bay was to align its involvement with national priorities. Three years after project termination, an external evaluator concluded that the adopted approach was relevant in: (1) channeling resources where they were most needed; (2) applying participatory approaches with stakeholders; (3) allowing the government and its constituent bodies to lead the development process; and (4) having an exit plan (Chigwedere 2015). The health services were claimed to progress fairly well, although not without financial problems caused by general poverty in Malawi, and resulting in some compromising in the quality of health services provided, compared to the period before. It is also recommended that a similar approach be applied to future programs.

The program theory of the health work in Monkey Bay builds on the general position that health services contribute to the improved life and wellbeing of the population. With enhanced health comes socioeconomic development, effects that, however, take a long time to develop. Outcome indicators (Donabedian 1988) are the most important ones, for example, IMR and U5MR. These are difficult and costly indicators to regularly monitor for an area the size of Monkey Bay. Malawi is, however, one of the few countries in sub-Saharan Africa that achieved MDG4 already in 2013, i.e. regarding IMR and U5MR (Kanyuka et al. 2016). The decline in U5MR in Malawi and some other low-income countries has been taken as proof that low income need not impede the saving of children’s lives (United Nations 2015). On the other hand, Mangochi District is among those districts with least progress (U5MR decreased from 161 to 107 per 1000 live births) (Requejo, Victora, and Bryce 2015), an indication of the difficulties encountered in this

setting and inter-district variability. This general positive outcome in Malawi vis-à-vis MDG4 would not have been possible without international support. The success of Malawi is explained through the effective scaling-up of programs to improve the treatment of major childhood diseases associated with high mortality (malaria, pneumonia and diarrhea), with the reduction of mother-to-child transmission of HIV, and the enhancement of the quality of care provided to women around birth and their newborn (Kanyuka et al. 2016). These are interventions that ICEIDA supported during the years of project implementation in the Monkey Bay health area. Albeit its contribution was small in scale, it fitted with the overall national health policy to improve access and quality of PHC services in the project area, and contributed to economic development (Chigwedere 2015).

All through the project implementation in the Monkey Bay health area, there were continuous efforts to monitor and improve the quality of the HMIS (Gunnlaugsson 2011). Recent national assessment in Malawi concluded that to improve data quality there was a need to avoid missing data from health facilities, correct major errors and improve the source (Haugen and Roll-Hansen 2017). Despite similar difficulties in Monkey Bay, the system included numerous process indicators that show general improvement, and the attraction of governmental services for the population (Figure 1). Of particular interest, is the fact that there is a policy of health services free of charge in state-run facilities (compared to the application of user fees in CHAM facilities), with evident impact on attendance. This public policy harmonizes with the current emphasis in SDG3 on universal health coverage (Sustainable Development Knowledge Platform 2015). Qualitative improvement in the services can, for example, be seen in the sheer number and variety of surgical interventions in MBCH, an activity introduced in the area with ICEIDA's support, in which are services that particularly address the needs of pregnant women. Process data also indicate improved access to ART for HIV in the area, which is a qualitative improvement similar to the one experienced in Karanga District in northern Malawi. There, four years after the introduction of ART, all-cause mortality of adults showed a dramatic decline with no evidence of an increase in deaths due to non-communicable diseases (Chihana et al. 2012).

Structural indicators are the easiest to monitor and register (Donabedian 1988). These may not be as relevant in high-resource settings, while being crucial indicators for the monitoring of the development and strengthening of health services in low-income countries, such as those in sub-Saharan Africa. Numerous structural indicators in the Monkey Bay area provide evidence of improvement with ICEIDA's support (Chigwedere 2015).

The quality of collected health data is often of uncertain value (Gerrets 2015; Haugen and Roll-Hansen 2017). Usually, little feedback is given to those who produce the data, that is, the frontline health workers in the health-care facilities, but this is a problem that is not only restricted to low-income countries. During the project implementation in Monkey Bay, data was continuously analyzed, presented, and discussed with staff, and ways sought to increase its quality. Analysis of OPD attendance books, and admissions, for example, gave reasons to believe that the quality of the registration was at least of reasonably good quality (Ragnarsson et al. 2006). Despite these efforts, there is a continuous need to train staff in its use and application, exemplified for example by incomplete data from the area for the period 2012–2014; that is, after termination of project activities. One explanation given is a change to a new HMIS (Chigwedere 2015). Available data on the services, however, give evidence to how deeply the PHC services reached into distant rural communities characterized by pervasive poverty. In addition, hundreds of community health workers were trained and supported for preventive health work in their respective villages.

All through ICEIDA's involvement in the health sector in the Monkey Bay area, it was acknowledged that the government would have no means to cover, by itself, all the costs associated with PHC delivery, either in Monkey Bay (Gunnlaugsson 1999) or elsewhere in the country (Kanyuka et al. 2016). In total, ICEIDA contributed \$7.5 m or about \$4 per capita and year to the health services in the Monkey Bay health area, less than 10% of the estimated cost of \$44 per person per year, that is needed to provide basic, life-saving services (WHO 2012) in areas such as Monkey Bay. While the contribution by ICEIDA was small, it contributed to the overall improvement of services (Chigwedere 2015). Implementation of PHC is neither cheap nor easy (Chabot and Waddington 1987; Baldursdóttir 2018), and external support is needed in settings of poverty. With a change in Icelandic legislation in 2008, ICEIDA could gradually let more funds be administered by Malawian collaborators, a positive development while the Agency was phasing out its activities in Monkey Bay in line with the PD. Based on its positive experience in Monkey Bay area, in 2012, ICEIDA embarked on ambitious district-wide development assistance to improve basic services across Mangochi District, including public health, education, and water-and-sanitation (ICEIDA 2012). This partnership has recently been extended to 2021, with an emphasis on maternal and child health and family planning, primary education, water and sanitation, and community development in rural Mangochi District (ICEIDA 2017).

Several aspects of the collaboration of ICEIDA and the Ministry of Health in Monkey Bay health area merit discussion. First, the lack of a formal definition of a community hospital was a constant source of friction, and it was only in the last phase of the collaboration that the ministry first provided guidance on this issue. Second, Monkey Bay health area was well funded by ICEIDA compared to other activities of the DHMT in Mangochi District; at the same time, ICEIDA continuously expressed worries that Monkey Bay was not given sufficient attention in the annual district budget with sector-wide approach (SWAp) funds to the area, considering ICEIDA's planned later withdrawal. It was felt that without integration the risk was imminent that MBCH might become a 'white elephant' without a defined budget line or a sufficient number of qualified staff. Third, supply lines of drugs to MBCH did not change much, despite upgrading from a former health center status to a community hospital, but ICEIDA did not fund drugs. Four, Icelandic TAs had different educational backgrounds and experience that, at times, created tension both within ICEIDA and with national collaborators. Finally, after the bank collapse in Iceland in October 2008, ICEIDA had to scale down and exclude components in formerly agreed plans, which is proof of the delicate relationship of donors and recipients.

ICEIDA activities in Monkey Bay fall under the definition of a project, rather than being integrated as part of basket funding to be disbursed by the DHMT. The main reason was Icelandic national legislation, that demanded control by ICEIDA of all funds used. This approach had the inherent risk of MBCH becoming an 'Icelandic' hospital, with no ownership by its contracting partner. To avoid that, during the implementation, ICEIDA aligned its activities with national policy and priorities. After the termination of ICEIDA support, the services in Monkey Bay have been expanded, for example with an X-ray department (Chigwedere 2015). The alignment of project activities to national priorities and national health plans bear lessons for other settings. With universal health coverage high on the SDG agenda (WHO 2015), such a strategy may effectively be implemented despite periods of fluctuating policies, and known herding behavior of international organizations regarding policy and implementation (Einarsdóttir and Gunnlaugsson 2005, 2016). Projects, like the one in Monkey Bay, that address the burden of daily lives of poor people, are needed if universal health coverage is to be realized by 2030.

Conclusions

In 2000, the MDGs were launched and addressed the needs of mothers, children and important infectious

diseases that affect them and are associated with high mortality (MDG4-6). At that time, the state of the governmental health services in the Monkey Bay area was deplorable. In this context, the collaboration of ICEIDA with national health authorities was highly relevant, and in line with national priorities and emphasis of MDG8 for international collaboration. Project activities addressed the basic needs of a poor population and effectively succeeded in transforming the health services, to the extent that the beneficiaries judged it to be of good value and good quality (Chigwedere 2015). For various reasons, the objective of building a fully-fledged community hospital in Monkey Bay was not reached. With limited funds, the infrastructure of PHC services in the area was improved and gradually expanded; for example, for surgery and HIV/AIDS. Although Icelandic legislation was an obstacle in giving national counterparts more responsibility to administer project funds, funds were efficiently used. Malawi was one of a few sub-Saharan countries that achieved MDG4, that is, reduced child mortality by more than two thirds during the MDG era. While the contribution of project activities in the Monkey Bay area to this outcome was humble, it included collaboration and support in implementing activities that are considered to be key interventions in lowering child mortality rates, and attendance to diverse services gradually increased over the years. Finally, as an illustration of project sustainability, after its termination and despite problems, the population enjoys ongoing benefits of project activities through improved clinical management and expanded service provision in the area (Chigwedere 2015).

At the outset, the question was raised of how international support could facilitate the delivery of different components of PHC, in the spirit of Alma Ata, to poor rural populations in a sub-Saharan country. Following the devastating Ebola epidemic in West Africa, the call for health system strengthening in the spirit of the Alma Ata Declaration has once again become urgent (WHO 2008; Moon et al. 2015). The Ebola epidemic in areas characterized by fragile health systems is a sober reminder of the importance of effective and efficient comprehensive PHC systems and universal health coverage. Thus, support along similar lines as the one ICEIDA applied in the Monkey Bay area, now expanded to cover all of Mangochi District, is relevant, 'now more than ever'.

Disclosure statement

The first author (Geir Gunnlaugsson) served as a permanent consultant for ICEIDA during the years of project implementation.

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