The Art of Writing: Using Diaries for Action Research in Ghana, Tanzania and Uganda

Introduction

The lack of an adequate and well-performing healthcare workforce is the single biggest barrier to scaling up the necessary healthcare services for addressing the three health-related Millennium Development Goals for countries in sub-Saharan Africa (SSA). The deficit in healthcare professionals needs to be addressed by training more new healthcare personnel, and, improving the performance of the existing and future workforce. Most development and research emphasis has been on the first aspect with a serious neglect of initiatives to address the complex area of workforce performance. At the same time, public health systems in SSA are decentralising, with authority for human resource (HR) planning, management and evaluation being devolved to district health management teams (DHMTs); thus opening up opportunities for such teams to take control of such functions to more effectively meet local health needs. Given this increased authority of DHMTs, top down HR initiatives of central government become less relevant. Bottom up, locally engaged and locally owned initiatives are needed that will have immediate practical use to DHMTs.

In this context Action Research (AR) can be a potentially effective form of performance 'on the job' training in human resource management and development (2013a). In AR, researchers and practitioners continuously work through systematic cycles to describe and analyse the changing human resource and health system situation that they face; identify and plan strategies to improve the situation or problem; implement changes needed; observe and record the effects of doing so; and reflect on the processes and effects of such changes (2001c). Diaries are one out of a number of ways for busy DHMTs to record their journey through these learning cycles in order to identify ways to quickly improve performance. Other ways of recording that have been used in AR studies include learning diaries as described by Reason and Bradbury (2007) as well as learning histories as described by Roth (1998).

The purpose of this paper is to reflect on the use of diaries to record the process of implementation and learning throughout the AR learning cycles conducted by DHMTS in Ghana, Tanzania and Uganda. It focuses on a practical AR question that we encountered early in the project - what is the most effective way for busy district health managers to reflect on the 'action' for enhanced learning? We needed to know who should be recording, what, how, when and for how long. Substantial guidance is given in handbooks on the use of diaries, learning histories and other forms of recording of AR cycles (e.g. 2001a; 2001b; 2001c). However, these overwhelmingly focus on high income countries (HICs) and we found little similar guidance for LMICs where supportive technologies are less available, workloads can be higher, and health workforce is with lower education and very poor continuous professional development available to them. A literature review was undertaken to seek empirical exemplars from other AR projects in LMICs. We were surprised to find that most documentation has been undertaken by academics, with the non-academic co-researchers seemingly fulfilling passive or semi active roles of data providers. Only one article fully explored the issues we were dealing with; the authors noted that "very little has been written on diaries as a tool in AR"(2007). We fill this gap in the literature by describing and reflecting on our experience of introducing and using diaries for AR by DHMTs operating within the public health systems of Ghana, Tanzania and Uganda.

The paper is structured as follows. First, background on the HR challenges in Ghana, Tanzania and Uganda s presented. Next, the PERFORM project and how the project arrived at a decision to use diaries is explained. Thereafter our methods for this paper are described before reporting on the

experiences of local practitioners in using diaries and discussing the key lessons learned to share with other AR practitioners working in LMIC settings.

Background

The PERFORM project (Supporting decentralised management to improve health workforce performance in Ghana, Tanzania and Uganda) was a four-year EU project (2011 – 2015). It aimed to enhance understanding of how, and under what conditions, AR could strengthen district health management, ultimately leading to improvement in healthcare workers' performance.

Ghana, Tanzania and Uganda were selected for this project because they face problems of health workforce shortage and mal-distribution, are actively trying to address these problems through their health policies and plans and have sufficiently decentralized management structure to support and make use of the action research approach.

Overview and Human Resource Challenges in Ghana, Tanzania and Uganda

Situated in West Africa, Ghana covers approximately 238,500 km2, with an estimated population of 25,905,000 and children under 5 years constituting 14.5% of the total population. 53.4% of the population now reside in urban areas (2015a; 2015i). Ghana is officially classified as a lower-middle-income country (2015f). Health services are provided by the Government (c.65%), Christian Health Association of Ghana (CHAG), private Islamic missions, private for profit, quasi-governmental and non-government organisations. There are several languages spoken in Ghana but the official language is English.

Tanzania is situated in East Africa. The mainland covers 947,300 km2 and the population is estimated to be 49,253,000 and children under 5 years constituting 17.9% of the total population. 30.9% of the population now reside in urban areas (2015b; 2015j). Tanzania is officially classified as a low-income country (2015g). Health services are provided by the Government (74%), Christian Social Services Commission (CSSC), private Islamic missions (BAKWATA), private for profit (3%), and non-governmental organizations. English is recognized as the official language in Tanzania however, Kiswahili is widely spoken and has recently been adopted as the language of instruction in all schools in the country (2015d).

Uganda is also located in East Africa. It covers 241,038 km2 and has an estimated population of 37,579,000, and children under 5 years constituting 19.4% of the total population. 84.2% of the population lives in rural areas, largely practicing subsistence agriculture (2015c; 2015h). Uganda is officially classified as a low-income country (2015e). Health services are provided by government (63%) and non-state providers, including faith-based and private practitioners. English is the official language in Uganda however, in 2005, the Ugandan parliament designated Swahili as the country's second official language (2008).

The public healthcare systems in these countries are hierarchical with districts (the lowest level of the healthcare system) reporting to a regional department of health in Ghana and Tanzania, and the region to the central Ministry of Health (MOH). With decentralisation, some of those previously centrally or regionally held responsibilities and authorities are being devolved to DHMTs.

Table 1 provides a summary of the main health and human resource statistics for each country.

Table 1: Key statistics for each country

Indicators	Year	Ghana	Tanzania	Uganda
Total number of districts in the country		216 (2012)	169 (2012)	136 (2015)
Under-five mortality rate (per 1,000 live births)	2013	78	52	66
Maternal mortality ratio (per 100,000 live births)	2013	380	410	360
Health worker density				
• Per/1000 population	Doctors	0.11 (2008)	0.01 (2006)	0.12 (2005)
• Per 1000 population	Nurse/ Midwives	0.97 (2008)	0.24 (2006)	1.31 (2005)
Births attended by skilled health personnel	Latest year available	67%	49%	58%

Data sources: Country statistics and global health estimates by WHO and UN partners

At the district level in each country, a District Health Management Team (DHMT), typically chaired by a District Medical Officer (DMO), is responsible for planning and management of health services. The number of healthcare professionals in such teams and their professional composition varies between the countries. In addition to the DMO, the DHMT consists of at a minimum, heads of nursing, pharmacy, dental, human resources and finance and/or administration. The terminology and location of DHMTs within local government structures varies between the countries. In this paper, we will use the term DHMTs to mean a decentralised health management team responsible for planning and managing health services provision within a health district (including sub-district health facilities) as well as the implementation of national and regional plans and policies.

The DHMTs typically cope with several challenges. Finances, equipment and infrastructure is usually scarce; implementation of national policies, may not have been fully delegated to regional/district levels; teams can be overwhelmed by workload due to insufficient staff or ad-hoc duties passed down from central MOH and different aid projects. Healthcare providers feel discouraged, overworked, and undervalued resulting in low motivation, high absenteeism, and poor retention (2013b).

In each country, three districts were selected to participate in the project using three broad criteria. First, owing to the collaborative nature of the project, it was important to have a motivated and reasonably staffed DHMT. A second criterion used in Uganda and Ghana was the district's level of performance based on a national performance league table. It was broadly intended that one well and one less well performing district be included so that differences in project effects in these different settings could be examined. Finally, districts with broadly differing characteristics including a mix of rural and urban were sought. The selection of districts was undertaken under the guidance and with the approval of the MOH in each of the three countries. No 'control' districts were selected in any of the countries, because the project did not seek to attribute potential changes in management processes exclusively to the AR approach.

Table 2 summarises key characteristics of each district.

Table 2: Key characteristics of the study districts in the PERFORM project at the beginning of the study

Feature	Ghana			Tanzania			Uganda		
	Akwapim North	Upper Manya Krobo	Kwahu West	Iringa Urban	Kilolo	Mufindi	Jinja	Luwero	Kabarole
Population	134,590	75,152	199,604	172, 130	233,727	317,760	501,300	472,300	415,600
Area (km^2)	450	658	414	162	7,881	7123	768	2577	1,844
Setting	Mostly rural	Rural	Mostly rural	Mostly urban	Rural	Mostly rural	Mostly rural	Rural	Rural
Number of Doctors/1000 people (district)	0.07	0.03	0.09	0.02	0.01	0.01	<0.05	<0.05	<0.05
Number of core DHMT members	8			8			6		

PERFORM Consortium partners and their roles

The PERFORM Consortium is made up of six partner institutions- three from Africa and three from Europe. Each partner from an African country is paired with a partner from a non-African country. The table below shows the paired partners.

Table 3: Paired partners

Country	African research partner	European Paired partner
Ghana	School of Public Health, University of Ghana	Swiss Tropical and Public Health Institute, Switzerland
Tanzania	Institute of Development Studies, University of Dar Es Salaam, Tanzania	Nuffield Centre for International Health and Development, Leeds University, United Kingdom
Uganda	School of Public Health, Makerere University, Uganda	Liverpool School of Tropical Medicine, United Kingdom

Each of the African partners, known as the Country Research Teams (CRTs) was located in one of the participating countries and was responsible for three districts. Each partner from Europe was referred to as a European Partner (EP). As part of the paired partnership, the EPs provided support and offered research advice to their respective CRT. The EPs also attended all national workshops held by their paired CRT.

The CRTs were responsible for facilitating the study in their respective countries by supporting the use of AR cycles in each of three districts. The CRTs were to be a critical friend to the DHMTs through repeated contact by scheduled visits, inter-district workshops, email, skype, telephone calls and texting. Each CRT was made up of at least three researchers. In Tanzania, a focal CRT member was assigned to each district. However, in Ghana and Uganda, all members of CRT oversaw activities in each district.

The DHMTs were regarded as co-researchers in the project. They collected data, took part in the analysis of that data and led each phase of an AR cycle. Since the specific capabilities and strengths differed from one DHMT to the other, there was room to negotiate the roles and levels of participation between the CRTs and DHMTs. The DHMTs from the three districts in each country came together in three separate national workshops to share learning and progress on the project activities. Apart from the workshops and meetings mentioned in the paper no specific arrangement was made for regular inter-district collaboration as part of the project.

No monetary payments were made to DHMTs for their participation in the project. However, they were reimbursed for the participation in workshops. DHMTs were assumed to benefit from participation in the project through improved capacity to systematically identify strategies to address HR and health system challenges albeit with limited resources. Payments were made to all CRTs and to EPs. We return to this small but important point on payments later in the paper.

The DHMTs identified and selected HR and Health System (HS) strategies (for the purpose of PERFORM, these strategies were referred to as HR/HS bundles) which were feasible to address within project timeframes, decentralised responsibilities and DHMT budget. Together, the DHMTs and CRTs were to work through at least two action research cycles as they developed (plan),

implemented (act), measured the outcomes of the implemented interventions (observe) and reflected on the outcomes (reflect) of these HR/HS bundles over a period of 12-18 months. The paper by Mshelia et al (2013a) provides further detail on the PERFORM project methodology. This paper specifically focuses on recording the action, outcomes, reflection and learning during AR cycles.

Substantial discussion within team meetings and by email between EPs and CRTs preceded the decision to use diaries. Early in the project, recording during AR cycles was expected to be undertaken through the use of learning histories, as set out in Reason and Bradbury (2001c) and Roth (1996). Learning histories were identified as useful because they potentially support the learning capability of an organisation. They also promised to capture informal processes of reflection, learning and change that may be happening within the DHMTs anyway, for example at their weekly management meetings - learning histories would merely formalise those processes. The learning history approach, however, relies on a learning historian - the person who has primary responsibility for the development of the learning history. The partners decided that it would be more practical if the learning historian was a member (or members) of the DHMT because they would be continually present in district locations and could capture the dynamics of action, reflection and learning that was required. In addition, no partner had experience in the use of learning histories hence a (presumed) simpler choice of diaries was made by the lead EP. Diaries were still seen as a means to both record activity taking place when implementing the HS/HR bundles and be a vehicle for encouraging reflection and learning experienced by the DHMTs.

Before describing how diaries were introduced, used and whether project expectations were met, we report on the methods that underpin this paper.

Methods

The data for this article came from a review of ongoing project documentation; a peer reviewed literature review; and semi structured interviews carried out in the three participating countries.

The project documents reviewed included minutes from monthly project management meetings on the topic of documenting AR cycles; the AR handbook prepared by the lead partner on methodology; and the visit reports prepared by the CRTs after they visited the districts. We sought instances where EPs and CRTs discussed how recording was carried out and whether local learning had been captured.

A literature review was undertaken to identify published literature on studies in which local practitioners or the community participated in recording AR cycles. Criteria for inclusion of literature for the review were: academic articles, which gave sufficient detail on methods to indicate how active participants had been in data collection and analysis for action research taking place in LMICs; reflection on methodological issues encountered and how they were overcome was a highly desirable second criterion. Searches were undertaken in 2013 in the Web of Knowledge database using various combinations of key word search terms: learning history; diary; record*; document*; recording learning; reflect*. The search was restricted to English-language articles from LMICs. The research results were cross referenced for continent and random LMIC (Africa, India, Asia, South America, Vietnam, Brazil, Pacific, Cambodia, Costa Rica, Ghana, Tanzania, Uganda) to check that relevant articles has not been missed. The citation and abstracts were downloaded into Endnote.

Abstracts were scanned for indications of recording by local participants, and where this was the case, the full article was scanned. 8 articles were retained and reviewed.

Given the paucity of the literature base on the use of diaries, we undertook interviews to understand how diaries were used to guide reflection and learning in the PERFORM project. 13 semi-structured interviews with four CRT members and nine DHMT members were undertaken between October 2013 and April 2014. All interviews were conducted in English and undertaken by researchers in one EP. The key questions were how the interviewees perceived the purpose of the diaries; whether and if so, how, diaries were used in general, for reflection and learning; and whether the diary was perceived to be making a difference to workforce management practices. The interviews were audio-recorded, transcribed, double-coded and later thematically analysed by two researchers, one of whom conducted the interviews using NVivo (version 10).

Initial results from each of these methods were shared with all co-authors through several stages of reflection to confirm, challenge, and feedback into a cycle of reflection and learning on diary use for AR initiatives in LMICs. The views presented here are those of researchers, because the DHMT members were not directly involved in the analysis of interview data or the writing of this paper.

Using Diaries in Action Research

To introduce diaries to the DHMTs, the EPs prepared guidelines that were emailed to each CRT on the content and format of diary keeping in February, 2013. The guidelines emphasised that the DHMTs were free to adapt the formats for their diaries but provided instructions on content (see Figure 2). All DHMTs agreed to create diaries; fill them in routinely; and to share their diaries with the CRTs, either in person during CRT visits to the district or via email. The DHMTs started filling out the diaries in March 2013 in Ghana, and August 2013 in Tanzania and Uganda. In Tanzania, the diary was kept in Kiswahili while it was filled in English in Ghana and Uganda.

The CRTs introduced the diary to DHMTs in their country. While the CRT received the same guidance on how to create and use the diary, the CRTs introduced the diary differently in each country, and the participating DHMTs took a unique approach to keeping their diary. To capture these unique differences, we next describe the evolution of diaries in each country, focusing on how the diaries were introduced, the purpose and value of diary keeping from the perspective of the DHMTs, how their format/structure and process of diary keeping changed over time, and last, how the diaries were used in reflection and learning within the participating districts.

Whenever you do some work on the PERFORM project please write in the diary and **put the date of the entry,** for example:

- meetings such as DHMT meetings which include PERFORM, have meetings with facilities about PERFORM, meetings with Country Research Team
- selecting HR/HS strategies to address your problem trees
- implementing HR/HS strategies
- monitoring (observing the effects) of the HR/HS strategies

The diary should include what you have done and some reflections on what was done or what happened (i.e. what you are thinking). The following are prompts that may help you fill the diary:

- How we chose this bundle of strategies -describe the bundle of strategies
- How we implemented a bundle of strategies
- Why we implemented in this way
- How we have selected the strategies
- How we have observed the effects of the strategies
- What were the effects (and unintended effects) of the strategies
- What worked well
- What worked not so well
- What we would change next time
- Any changes in the environment that may affect the process and results

Any member of the DHMT can write in this diary.

Please share the diary with the Country Research Team when they visit.

Figure 1: Instructions for keeping the diary

During their visits to the districts which took place at least once every two months), the CRTs discussed the entries in the diaries with the DHMT members. The CRTs asked questions for clarification and made suggestions on how to improve the content of, and the frequency of recording, in the diaries.

Ghana

The CRT introduced the diary to the three participating DHMTs during an inter-district workshop which was held in February, 2013. All DHMTs opted for a paper-based diary and used a ruled notebook, separated into weekly segments. Each DHMT met once a week to review the recorded

activities of the previous week, and plan for the week ahead. Each participating DHMT had one diary and any member of the DHMT could write in it. Initially, each member of the participating DHMT kept individual diaries as well as a common team diary. DHMT members recorded activities in their individual diaries, and then transferred the details into the communal version during DHMTs' weekly meetings. This system however, meant that DHMT members often did not have ample time to transfer entries from their individual diaries to the communal diary. To deal with this, the CRT and DHMTs agreed during a monthly CRT visit in April 2013 to choose a focal person amongst the DHMT members to ensure the transfer of entries between the individual and communal diaries. However, on occasions when the focal person was away from the district health directorate office, and therefore not available to make the transfers, other members of the team felt it was not their responsibility to make the transfers. This meant the communal diary was left unfilled. After this, in June 2013, all DHMT members agreed for each member to promptly transfer individual diary's recordings into the communal diary. The structure of the diary did not change during this time.

When introducing diaries, the Ghana CRTs emphasised to DHMT members that they would need to reflect on the management processes they went through during the implementation of PERFORM bundles, and that such reflection was a key aspect of learning within AR. The DHMTs acknowledged the diary approach to recording management processes and activities as appropriate, since it helped them to reflect on their activities. Though reflection did take place, it was not recorded in the diary. Some DHMTs reflected as a group and some as individuals as they undertook an activity or wrote about it in the diary:

> *'We meet every Monday morning as a team to consider issues which definitely might include PERFORM… so, as we sit down, if there are PERFORM objectives, there was an issue, and we look at it; in addition to other issues. And if the issues are so pertinent, that it can't sleep over and wait till Monday, immediately we take a decision on it. And then on Monday, we look at it and see if our decision was okay; our ideas were exactly what we needed, and so forth… whether the appropriate action has been taken as well.' [DHMT member]*

DHMTs discussed their activities within the team, how they had been undertaken and whether they had achieved desired outcomes – but this was not recorded in the diary. CRTs and DHMTs recognised that the diary was rarely used as a means to record reflection.

> *'As a group, (the DHMT) may have had a meeting and discussed a few things then, on reflection, taken some decisions… but then when we go into their diaries, nothing shows. We realised that the diaries were only capturing major activities and training'* [CRT *member]*.

The CRT decided to revise the format of the diary and changed the name to 'documentation template' in July 2013. The revisions were undertaken by the CRT and DHMTs together. The changes were focused on the inclusion of specific prompts which were intended to encourage reflection on causes and reasoning behind recorded activities. Each DHMT member still kept individual diaries on a daily basis. The documentation template replaced the communal diary into which transfers were made weekly or fortnightly depending on DHMTs' workload. The DHMT saw the documentation template (with prompts) as a more convenient approach to recording and reflecting as a team. The individual diaries were useful for monitoring and daily tracking of activities. Between July 2013 and

August 2014, the documentation template had been filled on average 39 times in each of the three study districts.

In PERFORM, the learning was understood as a continuation between the information derived from experience and suggestions for change, that is, for indications that the DHMT has considered alternative ways of acting that were different to what had happened before. The diaries did not capture this reflection and progression of considering options to an existing activity and reaching a decision to change.

An example of this lack of alternatives was cited during the interviews when the interviewee described a request to repair a refrigerator.

> '*So let's say, we went to a facility, (and) found out that their cold chain system was down. Immediately, we have to report on that. For that one, we wouldn't wait till the following Monday to take action on that. Immediately when we come back, we have to write and send a request to the regional office for them to also forward to the headquarters for the fridge to be repaired [DHMT member]*

Tanzania

The CRT in Tanzania introduced the diary to the DHMT members in the three districts during an inter-district workshop in August 2013. All DHMTs decided to keep the common diaries as a Microsoft Word document on their office computer and each appointed one or two people to act as 'focal persons'. These focal persons were responsible for updating the diary and were the Health Secretaries in two districts and in the third district, jointly between the Council HIV and AIDS Coordinator (CHAC) and District Nurse Officer (DNO). All DHMT members met with the focal person(s) and the entry was made together with the focal person. All DHMTs used a table format, with each column having a different prompt at the top. The format has not changed since the introduction of diaries, although the CRT and DHMT agreed to give an additional template to respective district health officers dealing with HIV in the Council (local government) to record any relevant information related to the PERFORM HR/HS bundles. During their monthly visits, the CRT noted challenges in the way the information was recorded. For example, there was confusion on how to complete two columns related to effect of bundles and reflection. Following discussions, both agreed that the effect column should contain information on the outcome of the activity conducted while the reflection column should contain information on circumstances that influence an activity to be successful or unsuccessful.

The diaries were kept either in the focal persons' offices or the District Medical Officer's (DMO's) office where they could be easily read by all the DHMT members. The diaries were usually emailed to the CRTs in Dar es Salaam on a monthly basis for review and comments. The CRTs used these diaries as monitoring tools for the implementation of the bundles and also formed the basis for discussion with DHMTs during the next field visit to the districts.

Over time, the CRT and DHMT noticed that they were not recording all their PERFORM related activities and so it was agreed towards the end of 2013 that PERFORM would be added to the agenda of the routine weekly DHMT meetings as a means of improving recording in the diary. Each district averaged about eight entries in their diaries per month.

The diary was seen as a tool to record "*and report activities which are being done*" [DHMT member] as part of the PERFORM project. To the CRT, it appeared that the DHMT members did not have a habit of reflection in writing at initial stages:

> *'(*they*) are not used to thinking, to observing in a reflective way. Normally they just do….'* [CRT member]

However, some other DHMT members appreciated the importance of the diaries. During a focus group discussion between the CRT and DHMT, DMHT noted that using diaries:

> *'...helps us in keeping records, data and other activities that we implement in the month, week, etc. ...it can make us succeed in self-assessment as to how we are supposed to move ahead, what are the chellenges, so the benefits are immense...' [DHMT member]*

Some DHMT members went further to propose that the tool should be used in other aspects of their work:

> *'...we must use the diary in the implementation of the [Comprehensive Council Health Plan] CCHP in order to track the day to day implementation of the plan. If a person comes now wanting to know what we did yesterday, we can show that we did from here to there. Therefore as DHMT we feel that we will go on using it[the diary], and it is something that we have learnt very well..' [DHMT member]*

Regular monthly CRT visits to the districts were used to discuss and reflect on diary entries. However, this did not appear to have initiated a culture of reflective practice in the three districts, partly because the different DHMT members stated they were too busy with many ad-hoc activities and had little time to reflect on the effects of the implementation of the bundles during their weekly management meetings.

Uganda

The CRTs introduced the diaries to DHMTs during a workshop in February, 2013. All three DHMTs opted for paper based diaries using a ruled notebook. Two DHMTs kept their diary in a specific (usually the District Medical Officer's) office and then any team member could write in it as desired by visiting the designated office to make an entry. One DHMT decided that the diary should physically move between DHMT members and, also, to the sub-districts. All DHMTs selected a focal person to be responsible for the safekeeping of the diary and to coordinate entries. Keeping the diary in one place meant that DHMT members knew where the diary was at all times and knew how to gain access to it. On the other hand, those who worked at a different location (e.g. in the sub-district) could only write in it when they came to the DHMT headquarters. When the diary moved locations, it was easier for the DHMT and sub-districts to gain access. However, it also meant waiting for a long time (usually at least one week) before the diary came to their location. When this happened, there was a time lapse, especially when the diary was in another team member's office or in a different location, so not readily accessible:

> *'(Filling in the diary) is not as immediate as when I do an activity today, I will record it today. I will wait for their diary to come from where ever it has gone and record it in there… in your head you keep remembering 'I did this activity, when the diary comes, I will record in it.'* [DHMT member]

The diary in Uganda was therefore not seen as a complete record of activity, since as well as forgetting, workload could mean the diary was not filled in.

'Sometimes the people write the reports after the work is done, sometimes they forget to record here from their work, and anyway I ask them have you updated book, the 'PERFORM book' and they say 'eh, I've forgotten'. [DHMT member]

Over time, the communal diary evolved into duplicate copies. When DHMT members went for supervisory visits to sub-district health facilities, they used the diary to document the conversations they had with heads of those facilities, and to note the actions and changes that sub-district health facilities needed to make before the next DHMT visit. However, it was not possible to leave the communal diary with any one health facility so the DHMT members decided to start filling in the diary in duplicate, using carbon paper, so that they could give the head of the health facility a copy of the entry and retain the original. The DHMTs also experimented with using a Facebook group as a diary format, where they could share their experiences of using diaries and implementing the HS/HR bundles. This was not taken up because the costs of accessing the Internet were laid on DHMT members, and many of the DHMT members had never used Facebook before and were not confident in using it.

The written diary often acted as a checklist for activity monitoring in Uganda - as a DHMT member read an entry, s/he could check off activities undertaken from the annual district plan. DHMTs perceived the value of the diaries to be in focusing on monitoring and implementation issues, particularly prioritising activities and improving accountability to pre-planned objectives:

'…we initiated a district health disciplinary committee…to look through the issues that are affecting human resources performance issues like late coming, absenteeism, planning and discipline. So when we establish that committee we started summoning the staff, …we summon that person, who comes to the committee, we discuss and make this person commit himself or herself to improving on his area of service and it has had an effect' [DHMT member]

While DHMTs appreciated that the written record was not complete, they felt the diary did allow a new form of sharing that promoted learning:

'It gives a learning experience from one health sub-district to another, from a district headquarters to the lower (health system) levels. So basically, it is there to help us run our day to day activities and keep referring to what worked and see whether what worked can work again.' [DHMT member]

Although DHMTs noted that they were unfamiliar with a 'diary culture':

'*Our reading and writing culture, documenting culture is poor*' [DHMT member]

The guidance and support from CRTs was seen as essential to facilitate diary use and overcome some of the constraints of time, workload and culture mentioned above.

' (the CRTs) *give us guidance throughout, even if it's just through their responses because sometimes we get stuck how do we go about this and we then discuss with DHO* (District Health Officer) *and then he* (DHO) *calls and sometimes they* (CRT and DHO) *mail each other like that… so that information and even the regular meetings with them have helped us so much'* [DHMT member]

Table 4: Comparison of diary process and structure in the three countries

Question	Ghana	Tanzania	Uganda
When was the diary introduced?	February 2013	August 2013	February 2013
What was the diary mainly used for?	A checklist for activities undertaken and to a lesser extent for reflection	A record of activities undertaken	A checklist for activities undertaken and to a lesser extent for reflection
How frequently did the CRT review the diaries (visit to the district)?	Weekly and fortnightly depending on workload	One visit every two month	When visiting the district and as the need arose
What format did the DHMTs keep the diary? (paper, computer)	DHMTs kept paper diaries	Kept in computers of focal persons and a hard copy was kept in the DMO's office	Book
One communal copy or individual copies or both communal and individual?	Both individual and communal copies were kept	A communal copy	A communal copy
How did the format of the diary change over the lifetime of the project?	Though individual diaries were kept (without prompts), the communal diaries (with prompts) was later replaced with a "documentation template" (with prompts)	The format slightly changed towards the end of 2013 by adding a column linking activities recorded in the dairy with Comprehensive Council Health Plan (CCHP) activities	Format did not change but way and what to write where improved.

Discussion

From the results presented above, it is clear that diaries were actively taken up by co-researchers (DHMTs) which make them unusually active in recording when compared to other AR initiatives conducted in LMICs. Based on the DHMT and CRT experience of using diaries in the PERFROM project, we see 5 key learning points to share with other AR initiatives when recruiting busy local healthcare personnel to use diaries and record AR cycles.

Ownership by practitioners encourages use of diaries

There is no consensus in the literature on the best method for local practitioners to record AR cycles. For AR projects in LMIC contexts, written recording is most often undertaken by academic researchers who use standard qualitative research tools (such as interviews, field notes, personal reflective diaries, workshops) that do not appear to be significantly altered by their use in an AR project. The paper by Ahari et al (2012) provides some examples. Learning histories have, so far, not been used in LMICs while the use of diaries has been reported once (2007). In the PERFORM project, the DHMTs were not directly involved in the discussions around the choice of using diaries in the

project; rather the decision to use diaries was reached between the EPs and CRTs. It is therefore notable that diaries were actually used – DHMTs took ownership of a recording tool and brainstormed on how to make it work locally. The actual use is an important finding and contrasts with the results reported by Buchy and Ahmed who reported no such local ownership of diary use by community NGOs in their AR project, despite repeated encouragements from researchers including payments to the local practitioners as an incentive to diarise (2007). No payments for implementing activities were made to DHMTs during the PERFORM project.

A possible reason for the uptake and ownership of diaries may be the context that practitioners are operating in. The diaries were embedded into the routine practices of the DHMTs rather than being a separate 'new' mechanism. This was significant as healthcare staff operate in a text-based work culture of annual plans, health information monitoring and reporting against targets. Therefore, the diaries were similar to other recording processes familiar to the DHMTs. In Tanzania, for instance, the teams routinely read and discuss their forward plans and reports. These kind of recording and monitoring against targets are compiled typically in relation to the budget spent on each activity. Such recording is required not only by the public health system (to Departments of Health, for instance) but also by external project donors. PERFORM was one of a number of externally funded projects taking place in the participating health districts during 2011-2015. Hence, the DHMTs were familiar with recording their activity and the concept of continuous monitoring against plans. These concepts form an important part of their routine management practice. The communal diary and individual diaries were suited to the specific context and circumstance of the districts. There is then, no single best way for busy local practitioners in various contexts to keep a diary, rather the best way of recording should be context-specific and be determined by the practitioners themselves.

While the PERFORM project was successful in producing diaries that were kept by DHMTs, more detailed diary entries kept more consistently may have resulted if the DHMTs had been involved at the earliest stages of choosing and developing the ideas for the diaries.

Clear and Shared Purpose is necessary for effective diary keeping

Although the diary was intended to support recording, reflection and learning, the teams focused on recording. There are two possible explanations for this. It may be that the CRTs placed more emphasis on recording when the diaries were introduced and during their regular visits to the district thereby inadvertently relegating reflection and learning. In addition, DHMTs were less familiar with active reflection on their daily practice and preferred to default to familiar behaviour, being recording.

Our experience from the PERFORM project is that while obtaining agreement from all the parties involved, on the purpose and design of the recording (in this case it was a diary) tool is important, consistent and balanced reiteration of this message is key to allowing the original idea translate to a document which serves the intended purpose.

Allow diaries to evolve

Conspicuously, the PERFORM diaries evolved over several months of use. The format changed from being individual to becoming communal and from being kept solely by the DHMT members to copies being given to heads of health facilities. In Ghana, an additional reflection tool was seen to have

added value, while the Ugandan DHMTs experimented with the use of Facebook to support the diary. The diaries became 'live' documents with local practitioners experimenting with various formats and ways of keeping them. Allowing the diaries to evolve was beneficial because it increased ownership of the diary by the DHMTs and encouraged integration of the document into their routine practice.

The CRTs reviewed the diaries when visiting the DHMTs and by email at other times. This meant that the DHMTs received regular support and guidance on the content and format of the diaries. Feedback from the CRTs led to discussions on how the diaries were kept and their contents. This in turn led to modifications in the way the diary was kept. The DHMTs were willing to accept feedback from the CRTs and act on it. This compares to Buchy and Ahmed who reported that feedback on the field diary was sent once to community partners but no further versions of the diary were thereafter made available for review *(2007)*. This highlights the importance of not only fostering ownership of a diary but enabling a strong and supportive relationship that allows space for practitioners to respond freely to comments/feedback from academic partners without fear of damaging their relationship. In our experience, frequent face-to-face visits to the districts were a key element in strengthening the relationship between the CRTs and DHMTs.

Recording reflection & learning processes is challenging

In interviews, the DHMTs and CRTs said that the concept of 'diarising' was relatively new and that DHMTs hadn't yet "mastered the art of writing". These statements were made in reference to the mode of keeping a diary to record reflective processes and therefore to make a learning cycle explicit. From the interviews, it was clear that diaries were used to record and monitor project/plan management outputs and whether these were or were not achieved, while not reflecting on the processes for getting to those outputs per se. Again, this may have been because of the work contexts the DHMTs were operating in, as discussed earlier.

Buchy & Ahmed suggested that the lack of recorded learning in their project was because the NGOs and academics differed conceptually on what was meant by the term 'learning'. NGO staff felt it meant exchange of information based on field experience; the academics felt it meant a critical loop of activities in which awareness preceded engagement and hence change. These are not mutually exclusive activities, since one can inform the other.

AR was used because it was thought to make explicit a process of action and learning that already happened within DHMTs. We can see that AR did indeed capture this. Using the previous example of a fridge that broke down, the DHMT are reporting on an observation (no cold storage); a reflection (we need it); and an action (request to get it repaired). Learning here is expressed as concrete practice and expertise. However, diaries did not record wider reflection – for instance, does the cold storage often break down? Why might that happen? How could breakdown be prevented? Such wider reflection is not found in the written diaries. Without the wider reflection, there is no indication that the HS/HR bundles were modified to create new ways to achieve healthcare objectives though we acknowledge that the duration of the AR cycles recorded by the project may have been too short so that learning and change was not captured.

Regardless, the DHMTs did see an added value in the diaries, particularly in the prioritisation and focus on outputs. This in itself was different to previous monitoring conducted within the routine work environment.

Diaries are kept when inserted into supportive research relationships

The DHMTs did use the diaries for reflection however, when this happened, reflection was *around* (rather than in) the diary. The diary acted as a discussion tool but summaries of the discussions were not written down in the diary. Oral discussion as part of AR reflection process has been reported elsewhere (1972). Faure, for instance, reports that farmers and their management boards were active participants in workshops and board meetings, and interpreted that participation as being active in reflection and learning (also Buchy & Ahmed, 2007). That is to say, reflection and learning can be rendered explicit through oral discussion as well as in text form, such as in a diary.

The DHMTs undertook reflection within discussion with the CRTs. In Ghana an additional documentation template was used to encourage this. The individual diary recordings were initially transferred into a composite diary (without prompts) which did not incite DHMTs to reflect. Hence, to stir-up reflection, CRT introduced a documentation template which had prompts eliciting observations and reflection on project intervention activities and processes. CRT discussed with the DHMTs and agreed on structure and components of the template. Each DHMT met weekly or fortnightly - depending on scheduled activities – to transfer individual diary recordings into the documentation template, and reflect on the project's activities using the prompts in the template as guide. . The content of these discussions was captured by the CRT. Lessons learned across the three districts were shared through the dissemination of visit reports which were written after every visit by the CRT. Apart from CRT reflections, the visit reports also contained CRT-DHMTs reflections which enabled best practices to be shared. This implies that local practitioners require support from researchers to reflect on their activities, record reflections plus learning and use lessons effectively. For diaries to function as effective reflection and learning tools when kept by busy local practitioners, it is necessary to first have facilitators, and second that their facilitations skills in encouraging others to reflect and write down their reflections in a diary, are strong. This may require training and ongoing development for both practitioners and researchers.

Conclusion

Ongoing changes in African health systems have opened up opportunities for local healthcare managers to take greater control over health planning and management. AR was identified as a potentially effective way to strengthen human resource management. The PERFORM project pioneered the use of diaries to record AR cycles with 9 different health management teams in three different health systems in Africa. Diaries were actively taken up by DHMTs, co-facilitated by African research teams. We see 5 key learning points on the use of diaries by busy health practitioners within AR initiatives. First, it is important to foster ownership of the diary by the people who are responsible for filling it in. Second, the purpose of keeping a diary needs to be clear and shared between researchers and practitioners from the very beginning. Third, diaries should be allowed to evolve - there is no single best way for practitioners to keep a diary hence the format and structure can change over time so long as it continues to meet purpose. Fourth, it is a challenge for busy practitioners to record the reflection and learning processes that they go through. Last, diaries on their own are not sufficient to capture reflection and learning. The diary needs to be inserted into a supportive relationship to support practitioners in their reflecting and learning processes. Facilitators, whoever they may be, will need training and time to be able to fulfil such a role.

Buchy & Ahmed ultimately recommended to "find a better documenting method" (2007). We argue that busy local practitioners can take ownership of a new recording tool and can find ways to use these that are congruent with their context. The PERFORM experience suggests that when developing an AR project where practitioners are at least partially active in recording AR learning cycles, it is not the tool (diary or otherwise) that is the necessary focus. Rather, a number of tools could work so long as they are introduced in ways that encourage ownership and emphasise the importance of reflection and learning; that several tools may enhance the local practice setting. Taking account of these factors will influence the ability of local people to take it on, make it useful for their own context, and still be able to generate useable lessons to inform their practices.

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