Følgebrev

Kære Karen Elise Jensens Fond

Hermed vores 4. projektrapport beskrivende foreløbige aktiviteter og resultater i projektet: ”Training and support of Primary Care Providers in Rwanda: Avenues for Improvement”.

Denne gang har vi valgt at skrive rapporten på engelsk da vi tænker det er en fordel at fondens besøgskomité under projektbesøget 20.-24. september 2015 bliver bekendt med engelske termer indenfor vores felt. Endvidere kan den engelske rapport danne en fælles referenceramme for KEJ-gæsterne og vores lokale partnere under besøget. Vi laver også gerne en rapport på dansk, hvis dette er ønskeligt.

Mange venlige hilsener og på vegne af projektgruppen.

Per Kallestrup

Annex:

1: Publication Overview
2: Mid-term scientific PhD report, Michael Schriver
3: Mid-term scientific PhD report, Vincent K. Cubaka
4: Preliminary version of ExPRESS
5: Summary of activities and results

Skulle der være ønske om yderligere information om projektet udover disse vedlæg, såsom forskningsprotokollerne etc, kan det hurtigt fremsendes på forespørgsel.

Project Report

Training and support of Primary Care Providers in Rwanda: Avenues for Improvement

This twin-PhD research collaboration between Aarhus University and University of Rwanda sponsored by the KEJ-foundation involves a number of studies and publications. We kindly refer to Annex 1 for an overview of all publications that derive from this collaboration, including the 6 publications that make up the backbone of the 2 PhD theses.

In this report, we describe our 3 overall study fields:

1. External supervision in primary care
2. Patient provider communication
3. The practice of diagnosis in primary care.

We also describe other project related activities. For additional information about the study fields we kindly refer to Annex 1 (publication overview), Annex 2 (concerning study field 1) and Annex 3 (concerning study field 2). Other material such as study protocols may easily be provided upon request.

All of our research is positioned within the setting of health centres in Rwanda. This is the first point of care for patients in the Rwandan health system, and the majority of patient consultations are located here. Nurses in health centres see more than 10 times the number of patients than do doctors and nurses in hospitals.

By far the majority of health centres are placed in the rural areas. These primary care providers make up the frontline of the health system, and deal with complex medical problems. Yet, often they lack the clinical support and medical training offered by higher levels of the system. Also, the few available primary care nurses are often highly burdened with large numbers of patients each day. All this may influence the quality of the consultations that primary care providers can deliver.

Our research revolves around understanding how primary care nurses are supported through external supervision; how primary care nurses themselves feel prepared for the challenges in the consultation room, and in particular how the challenge of patient-provider communication is perceived, as well as how these aspects may be measured. We apply a combination of qualitative and quantitative study methods to achieve this.

Study field 1. Understanding and measuring external supervision of primary care facilities in Rwanda

The process of external supervision in primary care facilities is a major focus of this project. We are developing a deeper understanding of the institution of external supervision in Rwanda and the supervisory relationship through a qualitative study. The research team is in the process of finishing the qualitative data analysis from focus group discussions with primary health care nurses and their supervisors. Results will be published in two articles; one focusing on the structure of supervision, and one focusing on the relationship between supervisors and health care providers.

Also, we are developing and validating the ExPRESS tool[1]: a questionnaire in which primary care providers evaluate their external supervision. External supervision should support providers in their work (see annex 2), but before ExPRESS no tools existed to determine the quality of such external supervision. Thus, the tool is intended to empower primary care providers by affording a valid measure from which they may be able to demand better supervision.

ExPRESS is a 29-item questionnaire that has been tested by experts, supervisors and health providers, and shows promising results as a psychometric tool to evaluate external supervision of health centres. ExPRESS is now in the process of further validation through testing its regional relevance in other African countries as well as further exploring the reliability of the Kinyarwanda version. We have attached the tool in its current, preliminary version as Annex 4.

Study field 2. Understanding and measuring patient provider communication in Rwandan primary care facilities

Complementary to the development and test of the ExPRESS tool to evaluate external supervision, we found it relevant and necessary to focus on the communication between the patient and the health care provider. This key aspect of care quality has not been studied before in Rwanda. Also, external supervision of health centres is a potential avenue for providing training of health care providers in communication and interpersonal skills, and as such an indirect reflection of the quality of supervision.

Patient-provider communication (PPC) has not been explored to a great extent in Sub-Saharan Africa, especially not from the patients' point of view, and the few existing studies tend to highlight significant problems with this care aspect (see Annex 3). The Communication Assessment Tool (CAT) is a recognised questionnaire used to evaluate patients' experience of the communication and care received from the provider at health facilities, however this was never adapted to a Sub-Saharan African context. There is a need for adapting such a tool to the Rwandan context to understand how providers perform with this essential aspect of care quality. By our work the CAT has been culturally adapted and translated into Kinyarwanda, adding also additional appropriate items. The next step is to carry out a field study testing the CAT and validating the adapted Kinyarwanda version.

[1] External Supervision: Provider Evaluation of Supervisor Support

Furthermore, we want to explore nurses' views about PPC in Rwandan health centres with the use of the adapted CAT tool, and ethical clearance has been granted for that qualitative study as well.
In October 2015, Vincent Cubaka will attend the International Conference on Communication in Health Care (ICCH) in New Orleans, USA where he will present the adapted version of the CAT tool in collaboration with an international research group working with the CAT.

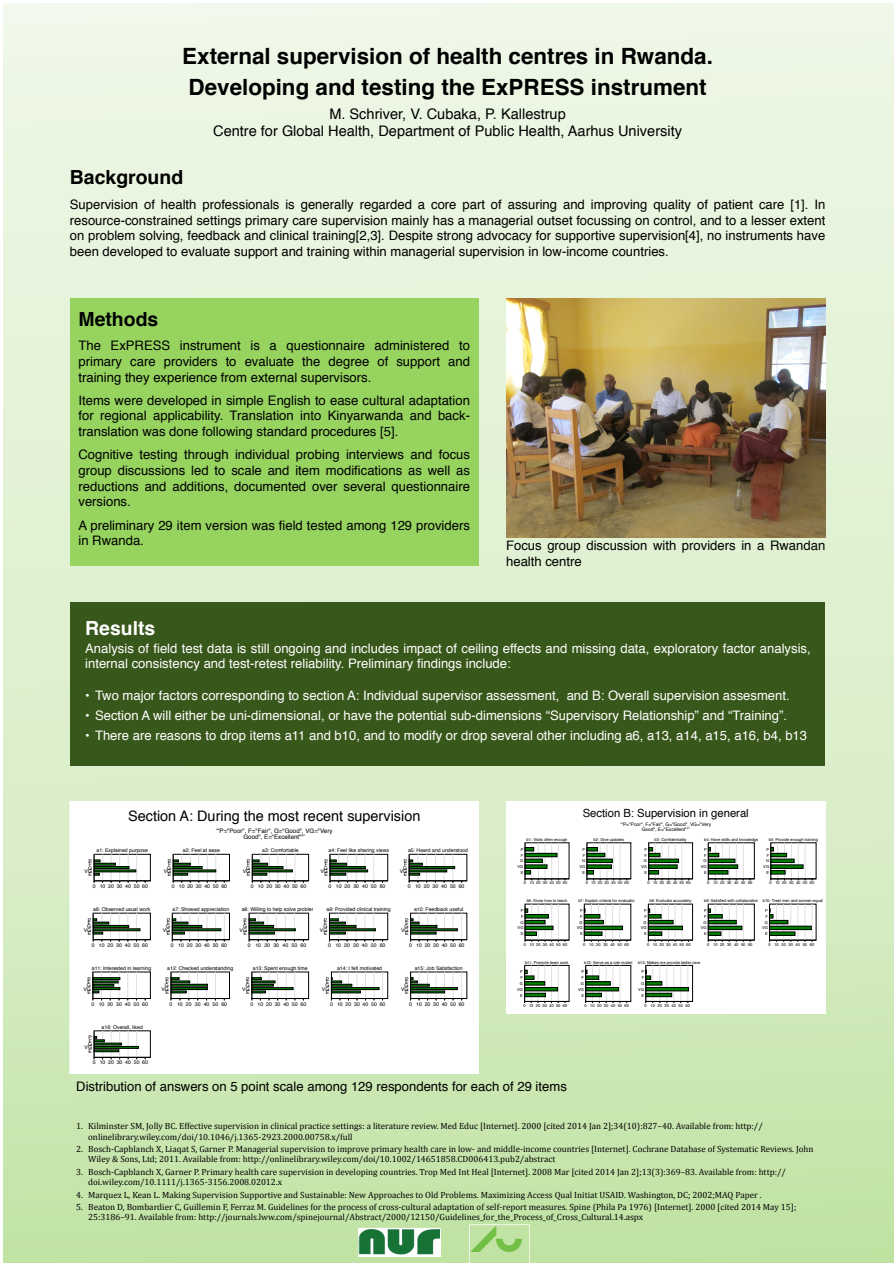
Study field 3. The Practice of diagnosis in Rwandan primary care facilities
Although a lot of international research has gone into developing and applying clinical guidelines and training courses for primary care providers, only very few studies seek to understand how providers themselves perceive the task of providing consultations within primary care. In primary care facilities, it is normal that nurses perform tasks that would normally be associated with medical doctors such as finding the correct diagnosis, prescribing tests and treatment and referring, as doctors are not available at this level of the system. Primary care providers often perform these tasks with no or very little clinical support.
There is a need to know if primary care nurses at their different levels of education are well enough prepared for these diagnostic tasks, which is the overall aim of a qualitative case study we are in the process of conducting.

Collecting data at a health centre for the above mentioned case study

The research team in Rwanda
The two PhD-students are still situated in Rwanda working in close collaboration on all project aspects. Vincent Cubaka is mainly focused on patient communication and the CAT tool, whereas Michael Schriver's main focus is the ExPRESS tool.

When PhD-student Michael Schriver went to Denmark November 2014-February 2015 (in connection to the delivery of his daughter) he attended several meetings with co-supervisors with expertise in biostatistics and questionnaire development from Aarhus University, as well as attending a PhD course about questionnaire development at Aarhus

University. Also, he presented a poster about his research at the yearly PhD day at Aarhus University.



External supervision of health centres in Rwanda.
Developing and testing the ExPRESS instrument

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Background

Supervision of health professionals is generally regarded a core part of assuring and improving quality of patient care [1]. In resource-constrained settings primary care supervision mainly has a managerial outset focussing on control, and to a lesser extent on problem solving, feedback and clinical training[2,3]. Despite strong advocacy for supportive supervision[4], no instruments have been developed to evaluate support and training within managerial supervision in low-income countries.

Methods

The ExPRESS instrument is a questionnaire administered to primary care providers to evaluate the degree of support and training they experience from external supervisors.

Items were developed in simple English to ease cultural adaptation for regional applicability. Translation into Kinyarwanda and back-translation was done following standard procedures [5].

Cognitive testing through individual probing interviews and focus group discussions led to scale and item modifications as well as reductions and additions, documented over several questionnaire versions.

A preliminary 29 item version was field tested among 129 providers in Rwanda.

Focus group discussion with providers in a Rwandan health centre

Results

Analysis of field test data is still ongoing and includes impact of ceiling effects and missing data, exploratory factor analysis, internal consistency and test-retest reliability. Preliminary findings include:

- Two major factors corresponding to section A: Individual supervisor assessment, and B: Overall supervision assesment.
- Section A will either be uni-dimensional, or have the potential sub-dimensions "Supervisory Relationship" and "Training".
- There are reasons to drop items a11 and b10, and to modify or drop several other including a6, a13, a14, a15, a16, b4, b13

Section A: During the most recent supervision

Section B: Supervision in general

Distribution of answers on 5 point scale among 129 respondents for each of 29 items

1. Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: a literature review. Med Educ [Internet]. 2000 [cited 2014 Jan 2];34(10):827–40. Available from: http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2923.2000.00758.x/full
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Poster about ExPRESS presented at the PhD day at AU

The Danish research assistant, Ditte Lystbæk Andreasen, arrived in Rwanda in March 2015 and will stay till March 2016. She is working with Michael and Vincent full time assisting in different project tasks. Her main focus is conducting the complementary qualitative case study exploring health centre providers perception of their preparation for diagnosing patients. The ethical committee in Rwanda has approved the case study, and the first phase of the study has been carried out.

Besides having Ditte joining the research team in Rwanda, a new local research assistant, Janvier Bananeze Kayitare has been affiliated to the project. Janvier is a final-year Journalism and Communication student, who provides excellent interpersonal skills necessary for collecting qualitative data for the case study, as well as assists with transcriptions, translations and analysis. We are also still in collaboration with our former local assistant Sylvere Itangishaka although he was obliged to leave for another assignment.

Vincent, Janvier, Michael and Ditte working in the office

Per Kallestrup is in Rwanda approximately every 6 months to supervise and guide the project, as well as assisting with the strategic networking.

Project supervisor Per Kallestrup with his twin PhD students

Additional studies

We are happy to inform that a number of papers have been published or accepted for publication (for details, see Annex 1). One is an overview article about the Twin-PhD structure, accepted for publication in the journal "Education for Primary Care". Also, a systematic review about the effects of supportive supervision in primary health care settings in Sub-Saharan Africa, written together with health researchers from Switzerland and UK, is in the final steps of review for the International Journal of Gynecology and Obstetrics.

The research team is also in the process of doing a systematic review about psychometric tools to evaluate educative and supportive aspects of supervision and mentorship of health professionals.

Teaching activities

Complementary to project-related activities, the two PhD-students are teaching medical students in community health related topics, and the whole research team is continuously assisting in developing the new community medicine curriculum for medical students in the University of Rwanda. In collaboration with the curriculum development team the two PhD-students have written two articles about this work, already accepted for publication.


Teaching medical students at University of Rwanda, here in the town of Butare

The team has also participated in two conferences. At the WONCA-Africa (World organisation of Family Medicine) in Ghana Vincent and Michael gave an oral presentation of the ExPRESS tool, as well as a workshop together with Per around the experiences from twinning individual PhD students from south and north.

Presenting at Ghana conference

At the other conference held by the EAHPEA (East African Health Professional Educators Association) in Kigali, Rwanda, Michael and Vincent were asked to give a keynote lecture around the Twin-PhD as a model for equitable research collaboration as well as for improving the PhD education.

Michael and Vincent giving a keynote lecture on the Twin PhD model

Also, Ditte held a workshop and gave a poster presentation both around aspects of student learning methods.

Ditte facilitating a workshop, and presenting a poster at the conference in Kigali

Upcoming activities

The upcoming activities besides the above-mentioned are to carry out the remaining part of the data collection for the CAT and ExPRESS as well as for the case study, analyse data and publish results in scientific articles. The writing of nearly all articles is already in progress. Furthermore, we have an ambition to publish a more elaborated description of

experiences from the PhD twinning, which is a collaboration model we have not found portrayed anywhere else in the literature. Especially issues around the nature and advantages of the collaboration as well as potential limitations of equity in such collaboration would be the main focus. The study will apply the so-called duo-ethnographic method, in which the major part of the data will be interviews of both PhDs conducted by Ditte Andreasen.

A summary of activities is attached as annex 5. We are all looking very much forward to the KEJ-visit September 20-24 2015, where we will present the activities in more detail, and have an opportunity to get input on and discuss all aspects of the work.

With Kind Regards

Per Kallestrup
Vincent Cubaka
Michael Schriver
Ditte Andreasen

ANNEX 1

PUBLICATION OVERVIEW FOR THE KEJ-FUNDED PROJECT

Training and support of primary care providers in Rwanda: avenues for improvement

PHD PUBLICATIONS			
	Vincent Cubaka **Preliminary PhD Title:** **From provider supervision to patient communication. Exploring provider training and patient experience in the Rwandan primary care setting**		**Michael Schriver** **Preliminary PhD title:** **Understanding and measuring external supervision of primary care facilities in Rwanda**
Title 1	**Structure and training in external supervision of health centres in Rwanda. A qualitative study**	**Title 1**	**The relationship between health center providers and their district supervisors in Rwanda. A qualitative study**
Authors	Cubaka; Schriver; Laetitia; Kallestrup	Authors	Schriver; Cubaka; Laetitia; Kallestrup
Title 2	Measuring health provider communication skills in Rwanda: Adaptation and validation of the communication assessment tool (CAT)	Title 2	Development and testing of ExPRESS – a tool to evaluate support in external supervision of Rwandan primary care providers
Authors	Cubaka; Schriver; Kyamanywa; Kallestrup	Authors	Schriver; Cubaka; (Kyamanywa) Vedsted; Kallestrup
Title 3	Providers' experiences with patient communication in a Rwandan primary care consulation room. A qualitative study	Title 3	Regional relevance assessment and further validation of ExPRESS
Authors	Cubaka; Schriver; Kyamanywa; Vedsted; Kallestrup	Authors	Schriver; Cubaka; Kyamanywa; Vedsted; Kallestrup

ADDITIONAL PUBLICATIONS DIRECTLY RELATED TO RESEARCH FIELD	
Title	Effects of supportive supervision in primary health care settings in sub-Saharan Africa. A Review Article.
Jounal	International Journal of Gynecology & Obstetrics. SUBMITTED - IN REVIEW
Authors	Bailey; Blake; Cubaka; Schriver; Hilber
Title	Twinning Ph.D.-students from south and north: towards equity in collaborative research
Journal	Education for Primary Care. ACCEPTED FOR PUBLICATION
Authors	Schriver; Cubaka; Kyamanywa; Cotton; Kallestrup
Title	Practice of diagnosis: A case study of preparedness and challenges of Rwandan PHC nurses in the era of task shifting
Authors	Andreasen; Itangishaka;Kayitare; Cubaka; Schriver; Kallestrup
Title	Psychometric tools to evaluate educative and supportive aspects of supervision and mentorship of health professionals. A Systematic Review.
Authors	Schriver; Cubaka; Vedsted; Andreasen; Kallestrup
Title	Exploring equity in a twin research collaboration across South and North. A duo-ethnography.
Authors	Cubaka; Schriver; Andreasen; Kyamanywa; Kallestrup

OTHER PUBLICATIONS DERIVED THROUGH THIS PROJECT	
Title	Transforming health professional education in Rwanda. Contributions from Social and Community Medicine.
Journal	Rwanda Journal of Medicine and Health Sciences. ACCEPTED FOR PUBLICATION
Authors	Cubaka, Schriver, Flinkenvlögel; Ngabire; Kyamanywa; Cotton
Title	The next generation of Rwandan physicians with a primary health care mindset
Journal	Flinkenflögel M, Kyamanywa P, Cubaka VK, Cotton P
Author	Afr J Prim Health Care Fam Med. 2015 Jul 10;7(1):E1-E2. doi:10.4102/phcfm.v7i1.885.
Title	Rwandan family medicine residents expanding their training into South Africa: the use of South-South medical electives in enhancing learning experiences.
Journal	BMC Med Educ. 2015 Aug 1;15:124. doi: 10.1186/s12909-015-0405-3
Author	Flinkenflögel M, Ogunbanjo G, Cubaka VK, De Maeseneer J
Title	Forskning i primær sundhedstjeneste på afrikansk. Om at rejse ud for at finde hjem
Journal	Practicus
Author	Schriver
Title	The Desired Rwandan Health Care Provider:Development and delivery of undergraduate social and community medicine training
Journal	Education for Primary Care
Author	Flinkenvlögel, Cubaka, Schriver, Kyamanywa; Cotton, Kallestrup

COLOR CODE: PUBLICATION FINISHED AND SUBMITTED	COLOR CODE: DATA COLLECTED, DATA ANALYSIS FINISHED OR WELL UNDERWAY.
COLOR CODE: DATA COLLECTION IN PROCESS	COLOR CODE: DATA COLLECTION NOT YET BEGUN

Scientific Report, January 2015

PhD student Michael Schriver

Description of research area

Understanding supervision

Primary health care (PHC) is a crucial component in building cost-effective health systems offering equal access to appropriate health services(1,2). Health professionals in PHC settings of resource-constrained countries are likely to work in overburdened conditions, to carry responsibilities above their level of training and to receive little or no clinical training or support (3). The more remote the location of health workers undergoing skill development, the greater level of supervision is required(3).

Supervision of health professionals is generally regarded as a core part of assuring and improving the quality of patient care (4). A vast body of literature describes the tradition and practice of pre- and postgraduate supervision within the health sciences, and accounts of its positive effects are plenty (5–11). Yet, interventional studies of supervision may be difficult to compare due to the inherent complexity of the concept. There is semantic complexity as supervision has various definitions in the health sciences (4,12), and several descriptors have been combined with supervision, such as 'supportive' (13), 'facilitative' (14), 'formative'(15), 'managerial' (16), 'consultant' (17), and perhaps best known 'clinical'(4). Furthermore, supervision is related to concepts such as mentorship, preceptorship, clinical teaching and training, and often all these terms may be difficult to distinguish. This all points to the contextual complexity that supervision quality is highly determined by the social, cultural and professional framework it is applied in, as well as the quality of the supervisor-supervisee relationship (7,18). The impact of supervision in certain contexts is still debated. One systematic review could not clearly confirm positive preconceptions about clinical supervision in psychiatric nursing (19). A Cochrane review of managerial supervision in low-and-middle income countries was unable to determine its effect, and called for further research (16).

Dawson (1926) described 3 functions of supervision: a) administrative, b) educative and c) supportive (20). Supervision will normally contain elements from all. Proctor (1987) divided supervision equivalently to Dawson in a) normative, b) formative and c) restorative joint tasks. This is a more abstract tripartition assumed to apply in any co-operative supervision context, be it managerial or not (21). Managerial supervision is performance-oriented, and as such prone to inspective, control-based approaches, as opposed to clinical and consultant supervision placing the personal and professional development of the supervisee at the center of rotation. The relationship between clinical and managerial supervision is not straightforward, and has been debated (22). It has been suggested that the appraising (normative or administrative) function of management line supervision may create incentives among supervisees to hide their training needs in attempts to achieve positive evaluations (23). Therefore, some publications warn against mixing a supporting role with an appraising in supervision(22).

Supervision in developing countries

Supervision in PHC in low-and-middle income countries is generally characterised by supervisors from central (district) facilities visiting PHC providers, thus serving as a link between these system tiers. It appears to mainly have managerial purposes focussing on administration and checking (inspective), and to a lesser extent on problem solving, feedback and training (16). As such, there is an inherent hierarchical structure to this managerial approach, suggested to stem from supervisory practices in a top-down colonial past (18). Supportive supervision is a concept commonly described as an alternative to traditional inspection-based supervision in developing countries, and claimed to improve quality of care (13). It seems to maintain a performance-oriented approach, and may as such be characterised as managerial. It remains unanswered to what extent combining the potentially opposing functions of management line performance-evaluation with support and training under one role is appropriate in resource-constrained settings, where authoritarianism and strongly hierarchical governance structures are common. Might supportive supervision be an inappropriate attempt to "kill two birds with one stone", as management line supervision structures are already in place? If not, what are the requirements to install support and training within a managerial supervision structure?

Methodological challenges

There are methodological difficulties in demonstrating causal relationships between a supervision intervention and health outcomes, the latter being a rather late step in the imagined causal chain (13). A common indicator is thus improvements according to the documented delivery of service, but such may merely reflect changes in documentation practice rather than quality of care(24).

A Cochrane review found the effect of supervision on the quality of PHC services in low- and middle income countries to be uncertain (16). The quality of the evidence from studies was graded as low or very low, and commonly a worryingly large number of indicators or non-validated scoring systems were used (12,16).

In a systematic review in-writing about instruments for evaluating supervision, no instruments were found to fit the context in resource-constrained settings, where supervision is usually characterised by a managerial approach from external tiers.

Status of research project
This project is structured as a partnership between 2 PhD-students under a common overall research project but with different underlying fields of focus. It twins a Ph.D-student from Denmark (the undersigned) with a Ph.D.-student from Rwanda (Vincent Cubaka).

One of the initial intentions of the study was to use existing indicator data from Rwanda to evaluate a supervision intervention in Rwanda. Early in the study we determined that the available data was not of sufficient quality for our intended supervision research. Moreover, work on a systematic review about supportive supervision in Africa (to be published) did not reveal any consistent methods for evaluating supervision in resource-constrained settings. For example, no instrument has been validated to measure the effect of supervision in a low-income country on 1) supervisees' own experience of supervision, 2) patients' experience of consultation quality, and 3) experts experience of consultation quality.

We have now - under guidance - decided to re-orient our overall study to a) (as originally planned) explore qualitatively how health center staff and district hospital supervisors perceive supervision of health centers in Rwanda; b) (a re-orientation) to develop a question-based instrument (called ExPRESS) appropriately measuring key aspects of support and training in external supervision of health facilities, and c) (a re-orientation) explore the usefulness of the above-mentioned and another instrument (patients' evaluation of care) as impact indicators in a small scale supportive supervision intervention study to establish the responsiveness of those tools.

The expected 3 main PhD thesis publication titles of undersigned (and apart from this, the undersigned will be co-author on publications of Vincent Cubaka).

- The relationship between health center providers and their district supervisors in Rwanda. A qualitative study.

- Development and construct validity of the ExPRESS tool to evaluate supportive and educative aspects of external supervision of providers at health centers in Rwanda.

- Testing the ExPRESS instrument in an exploratory supervision intervention in Rwanda

Apart from these and those of the other PhD-student Vincent Cubaka, there are a number of other expected publication from these PhDs, including about the Twin-structure for collaborative research; Systematic Review on effects of supportive supervision; Systematic Review of instruments to evaluate supervision.

Research plans for remaining study period

The undersigned has 2 full paternity leaves during this PhD, extending the deadline for thesis submission to January 19th 2017 (with possible further extension of 26 weeks due to postponed leave).

Currently, the ExPRESS tool has been developed and data from a field test of 134 participants of this tool is under analysis. Also, a tool for patient-evaluation has been selected through systematic review, and has been translated into Kinyarwanda following international standards (25). The tool will go through field testing, and results will be one of the main

articles of Dr. Vincent Cubaka.

Upcoming activities are:

1. To finalise the analysis of the qualitative studies exploring supervisors and supervisees perceptions of the relationship between them, and write a publication.

2. To finalise the analysis of psychometrics tests and field test of the ExPRESS tool, and their subsequent changes to the tool based on this analysis, and write a publication of this.

3. To explore the responsiveness of ExPRESS in a small scale supervision intervention.

4. To do psychometrics tests to validate an adapted version of the Communication assessment tool (CAT) to measure interpersonal and communication skills from a patient perspective(26); and to test the responsiveness of the tool. Primarily by Vincent Cubaka.

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Scientific report for Midterm evaluation, March 2015

PhD Student : Vincent K. Cubaka

PhD project :

Original project title: Health effects of context-sensitive physician-assisted training and supervision of frontline health personnel in Muhanga district.

Updated project title:
Supervision and Communication in Primary health care settings in Rwanda: Development and adaptation of contextualized assessment tools.

State of the Art description of the research area

Supervision of Primary health facilities in Low-income countries.

Supervision is one of the suggested approaches to support Primary Health Care (PHC) settings and to continuously improve the quality of care provided to people(1). It is expected to increase performances of health workers, to boost motivation of staff and to some extent to increase retention of health workers, especially in underserved areas (2–4). Supervision becomes even more pertinent in challenging contexts where staff is isolated in remote areas, with limited opportunities for professional development, often with insufficient human and economic resources(2,5).

In Sub-Saharan Africa (SSA) the term supportive supervision is often used to describe a process that strengthens relationships within the system, focusing on the identification and resolution of problems, and helping to optimize the allocation of resources, promoting high standards, teamwork, and better two-way communication(6).

In SSA there is still a paucity of the literature analyzing supervision of PHC settings. Several studies analyze supervision of PHC settings by attempting to demonstrate its effectiveness. However most of them failed to strongly demonstrate the impacts of supervision (7–10). Therefore, there is still a need for good quality studies that would help to understand supervision in PHC settings, its role, determinants and outcomes.

Supportive supervision with its variants (mentoring, coaching…) is currently recommended as an alternative to the traditional supervision style centered on faultfinding, control, inspection and punitive measures with no or not enough educative, emotional and social support of the staff(6,11).
Supportive supervision emphasizes on improved relationships between the supervisor and the health provider through improved interpersonal skills, 2-way communication, mentoring and improved on-site teaching methodologies grounded in problem-based learning strategies(6). All this should happen in an optimal environment, favoring a supportive climate. The current HC's supervision environment and structure is unknown.
Just like the success of the supervisory relationship depends on the communication between the 2 parties, so does the patient-provider relationship.

Patient-provider communication (PPC)

Effective communication is generally accepted as essential to high-quality medical practice(12). It enhances the accuracy of the diagnosis, boosts mutual trust between the health provider and his client, improves the patient adherence to the therapeutic plan and increases patients' satisfaction with care (13–15).

Different factors and background variables have been found to influence the PPC. Some of them, like demographic attributes and socio economic status of patients are difficult to change (16). Others can be modified through interventions to

improve communication, such as the provider's communication style (17); the power balance between the provider and the patient(18). Finally the provider–patient demographic concordance can affect PPC, including age, gender and culture of both provider and patient.(17,19–22)

Many styles of patient-provider communication have been described, including on one hand the paternalistic or physician-centered and on the other hand consumerist/patient autonomy based. Between them, the patient-centered model is the most commonly suggested (13). A study of physicians in Nigeria found that more than 90% used a physician-centered communication style(23) despite a growing literature supporting patient-centered care. In Egypt, a study found that patient-centered models are likely to produce better outcomes than provider-centered(24).

Literature exploring PPC in SSA is scarce and scarcer when considering the patient perspective(25,26). In the rare studies done, patients consider communication as an important component in their interaction with health providers(27). However, biomedical models of care inherited from the colonial period seem still to be the standard, and poor communication rather the rule in public health settings (28,29). Another issue is that curricula in the education of health professionals rarely reflect patient centered care perspectives, and have little or no focus on interpersonal and communication skills in the programs(28). This weakness in the health providers' education suggest poor patient compliance and satisfaction, and poor quality of care(25,26).

In Rwanda, health centers represent the PHC structures. There are around 400 health centers in the country. They are led by nurses with limited formal education, and often no or not enough focus on communication. Nurses from the secondary level - the districts hospitals - supervise them, sporadically assisted by physicians.
There is no clear national policy on supervision of PHC settings, however supervision is expected to provide training and support to providers. This may make the supervision institution an acceptable and effective platform for interventions to upgrade communication and interpersonal skills among nurses who are already practicing in health centers in Rwanda.

Status of this research project

This PhD research project is part of a North-South collaboration between two academic institutions, Aarhus University and the University of Rwanda. It is also a twinning of two Phd-students, Dr Michael Schriver from Denmark and Dr Vincent Cubaka (the undersigned) from Rwanda. They are sharing the same ambition of strengthening PHC services to improve health care provided to the Sub Saharan population, particularly that of Rwanda. The two students are materializing this through different but interlinked objectives and thesis.

At the beginning of this project, one of the purposes was to use existing health indicators from the Rwandan District Health Management Information System (DHMIS) database to evaluate a supervision intervention. Quickly, we realized that the quality of the data was not adequate for this research project. We thus reoriented the overall PhD to a) (as originally planned) explore the structure of the supervision institution and its capacity to deliver training, through qualitative, discussion-based methods; b) (a re-orientation) to translate and culturally adapt the Communication Assessment Tool (CAT) in Kinyarwanda, and do a validation test through a field study (30) c) to explore nurses views about PPC in health centers through a qualitative study applying the adapted CAT, and additionally explore the potential role of supervision as a platform to train providers' in communication and interpersonal skills.

The resulting publications, and their division between the 2 PhD-students (the undersigned and Dr Michael Schriver) is available in the PhD-planner.

Expected PhD thesis Publication Titles of the undersigned

1) Structure and training in supervision of health centers in Rwanda. A qualitative study.

- Explore the concept, structure and process of PHC supervision in Rwanda.
- Barriers and Facilitative factors of good supervision; systemic barriers?
- Is training part of the current supervision objectives?
- If yes what is its purpose and how is it done?

2) Identification, Kinyarwanda translation and validation of the Communication Assessment Tool (CAT)

3) Providers' experiences with patient's communication in a primary care consultation room in Rwanda. A qualitative study

Apart from these publications, the undersigned will be co-author on publications of Michael Schriver and there are a number of other expected publications from

these PhDs, including a paper about the Twin-structure for collaborative research; a systematic review on effects of supportive supervision, a systematic review of instruments to evaluate supervision and a case study about Rwandan Health centres' staff work perceptions and faced professional challenges.

Research plans for the remaining study period

The undersigned has a paternity leave during this PhD, extending the deadline for the thesis submission to 25 May 2017.

Currently, the Communication Assessment tool has been selected through systematic review, and translated into Kinyarwanda following international research standards (31). Also, qualitative data for publication 1) has been collected; a codebook has been developed.

The upcoming activities are:

1. To finalise the analysis of the qualitative study exploring the supervisors and supervisee's perceptions of structure of and training in supervision of health centers.

2. To do cognitive tests and a field study to validate the Kinyarwanda version of the Communication Assessment Tool (30).

3. To finalise the design, collect and analyse data for the qualitative study for publication number 3(Providers and patients communication experiences).

4. To write the 3 publications.

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Evaluation of Supervision

This questionnaire is about **your experience with supervision from the district hospital**. In this questionnaire the word 'supervision' includes both training and evaluation from all health professionals from the district hospital (nurses, medical doctors, midwifes etc.) who visit your health centre.

Please answer all questions truthfully. Your answers will in no way affect your current position or situation, nor that of the supervisors. All your answers will be kept confidential.

Date of answering questionnaire: |__|__| |__|__| |__|__|
D D M M Y Y

C:_____

A. YOUR MOST RECENT SUPERVISON EXPERIENCE

This section is about your experience during **the most recent supervision** you received from the **district hospital**. Think about the **one** supervisor you had most contact with during that supervision. If you spent equal time with 2 or more supervisors, think of the **one** who supervised your usual tasks.

Name of supervisor: _____

This is not a test, and your answers are completely confidential. Please take the time to give **truthful** responses**.**

For each statement select **one response** that best reflects your most recent experience with supervision.

	Poor	Fair	Good	Very good	Excellent
During the most recent supervision…					
A1. The supervisor explained the purpose of the supervision visit	a□	b□	c□	d□	e□
A2. The supervisor talked to me in a way that made me feel comfortable	a□	b□	c□	d□	e□
A3. The supervisor made me feel comfortable sharing my opinions	a□	b□	c□	d□	e□
A4. The supervisor listened to me attentively	a□	b□	c□	d□	e□
A5. The supervisor made me feel at ease	a□	b□	c□	d□	e□
A6. The supervisor observed how I did my work	a□	b□	c□	d□	e□
A7. The supervisor talked with me to better understand what I was doing	a□	b□	c□	d□	e□
A8. The supervisor seemed interested in learning from me	a□	b□	c□	d□	e□
A9. The supervisor showed appreciation for my work	a□	b□	c□	d□	e□
A10. The supervisor provided clinical training	a□	b□	c□	d□	e□
A11. The supervisor's thoughts and advice were useful to me	a□	b□	c□	d□	e□
A12. The supervisor and I collaborated to solve a problem at work	a□	b□	c□	d□	e□
A13. The supervisor checked to make sure I understood everything we discussed	a□	b□	c□	d□	e□
A14. I learned something I can use in my care for patients	a□	b□	c□	d□	e□

Comments:

_____

_____

_____

B. YOUR OVERALL SUPERVISION EXPERIENCE

This section is about your **overall experience** with supervisors from the **district hospital**.

This is not a test, and your answers are completely confidential. Please take the time to give **truthful** responses.

For each statement select **one response** that best reflects your overall experience with supervision.

	Poor	Fair	Good	Very good	Excellent
In general…					
B1. Supervisors visit my facility often enough	a□	b□	c□	d□	e□
B2. Supervisors spend enough time with me	a□	b□	c□	d□	e□
B3. Supervisors announce the date of a supervision well in advance	a□	b□	c□	d□	e□
B4. Supervisors follow up on discussions from previous visits	a□	b□	c□	d□	e□
B5. Supervisors have sufficient clinical skills and knowledge	a□	b□	c□	d□	e□
B6. Supervisors meet my needs for clinical training	a□	b□	c□	d□	e□
B7. Supervisors know how to teach	a□	b□	c□	d□	e□
B8. Supervisors clearly explain their evaluation criteria	a□	b□	c□	d□	e□
B9. Supervisors evaluate my performance accurately	a□	b□	c□	d□	e□
B10. Supervisors maintain proper confidentiality of work-related information	a□	b□	c□	d□	e□
B11. Supervisors help me identify problems and their causes	a□	b□	c□	d□	e□
B12. Supervisors promote a sense of teamwork at our facility	a□	b□	c□	d□	e□
B13. Supervisors serve as role models for my work	a□	b□	c□	d□	e□
B14. Supervisors collaborate closely with me	a□	b□	c□	d□	e□
B15. Supervision makes me provide better care	a□	b□	c□	d□	e□

Overall, what do you think could improve supervision?

_____

_____

_____

FURTHER INFORMATION ABOUT THE MOST RECENT SUPERVISON

1. **When was the most recent supervision you received from the district hospital?** (check only **one**)
   - a□ Less than 1 month ago
   - b□ 1 - 3 months ago
   - c□ More than 3 months ago
   - d□ Don't know/remember

2. **Which service(s) were you supervised in during the most recent supervision visit?** (Indicate with numbers: 1 for the service you were mainly supervised in; 2 for the second most supervised service; 3…; 4... etc.)

   ___ Consultation services/OPD (Out Patient Department)
   ___ PCIME (Prise en charge integrée des maladies de l'enfance)/IMCI
   ___ ANC (Antenatal care) / CPN (Consultation Prénatale)
   ___ Maternity
   ___ FP (Family Planning)
   ___ VCT (Voluntary Counselling and Testing) / ARV (Anti-retroviral) services
   ___ PMTCT (Prevention of Mother-To-Child Transmission)
   ___ TB (Tuberculosis) care
   ___ Immunization/Vaccination services
   ___ Nutrition services
   ___ Hygiene services
   ___ Pharmacy
   ___ Laboratory
   ___ Eye Care Services
   ___ Community health
   ___ Other: _____

3. **What is the position of the supervisor you had most contact with during the most recent supervision?** (check only **one**)
   - a□ Nurse
   - b□ Medical Doctor
   - c□ Midwife
   - d□ Other: _____
   - e□ Don't know

4. **What took place during the most recent supervision?** (check any answers you find correct)
   - a□ Quantity supervision (PMA (Paquet Minimum des Activités), e.g. counting clients in registries)
   - b□ Quality supervision (checking service quality, medical equipment etc.)
   - c□ Clinical training / training in providing services to clients in the health centre
   - d□ Training in administrative tasks (e.g. how to fill in the registry)
   - e□ Other: _____
   - f□ Don't know

5. **Have you had supervision from the district hospital since the last time you answered this questionnaire? (**check only **one)**
   - a□ This is the first time I answer this questionnaire
   - b□ Yes
   - c□ No

When you have finished answering all the questions, please put the papers in the enclosed envelope. Then close it, and give it to the research assistant.

We are grateful for your assistance by answering this questionnaire. Thank you very much.

C:_____

Annex 5
Summary of activities and results

Participation in the Primafamed workshop and the 4th Wonca Africa conference, Accra, Ghana, May 2015 (Vincent, Michael and Per)

- 3-day Primafamed workshop (Vincent and Per)
- Presentation of the ExPRESS tool for Primafamed
- Hosting workshop on Twin-PhD model
- Networking with other primary health care specialists

Participation in the 3rd Eastern African Health Professions Educators´ Association conference "Innovation in Health Professional Education", Kigali, Rwanda, June 2015

- Key-note presentation on Collaborative Research: PhD twinning as a new South-North approach (Vincent and Michael)
- Poster-presentation on experiences from field trip to Tanzania (Ditte)
- Work-shop on the use of Forum Theatre to improve communication skills for health professionals (Ditte)

Visit to DK, November 2014-February 2015 (Michael)

- Poster-presentation, PhD-day, Aarhus, January 2015
- Meetings and discussions with biostatistics and questionnaire experts cosupervising the project.
- Course: "Questionnaire development", University of Aarhus, Denmark

Research assistant, Janvier Bananeze Kayitare,

- Hiring of research assistant with background in Journalism and Communication for approximately 1 day pr. week
- Assist in data collection,
- Facilitation of interviews
- Transcription and translation of data

Teaching

- Teaching of medical students in Social and Community medicine at the University of Rwanda
- Team-based curriculum review and development with the introduction of Social and Community medicine for undergraduate students in medicine, pharmacy and dentistry.

Project

- Systematic analysis of qualitative data; familiarization, development of code-tree, coding
- Test of different qualitative analysis programs

- Systematic review “Psychometric tools to evaluate educative and supportive aspects of supervision and mentorship of health professionals”

ExPRESS

- Cognitive testing of the translated (and back-translated) Kinyarwanda version of the tool by experts, supervisors and providers
- Field test of the ExPRESS tool by 134 providers for exploratory factor analysis and 54 providers for test-retest reliability of the initial version
- Analysis of the pilot field data (including exploratory factor analysis)
- Further development of conceptual framework from relevant literature on Supportive Supervision for further validation of the ExPRESS tool
- Questionnaire development exploring the relevance of ExPRESS in other African countries, to adapt the tool for international application for content validity

CAT

- Cultural adaptation (and validation) of CAT, including selection of tool from a systematic review, Kinyarwanda translation and back-translation of CAT (based on international scientific standards), adding additional relevant items to the CAT tool
- Test of face validity (what patients think about the CAT) and lexical test of 12 year old children to see if the broad part of the Rwandan population can understand it
- Prepare field study for cognitive test of CAT to validate the Kinyarwanda version
- Ethical clearance for the study, ”Providers’ communication experiences in a primary care consultation room in Rwanda”, a qualitative study to explore nurses views about primary health care in health centres, using the adapted CAT

Case Study

- Ethical clearance for the study, “Trained as Nurses, Functioning as Doctors: An Exploration of Rwandan Health Centre Providers Perceptions of challenges and preparedness for diagnosing patients: a Case Study”
- Finalise the pilot phase; participant observation at Rwandan health centres, and test of a question guide for in-depth interview (the main data collection method)

Upcoming activity list

- Collect and analyse data for the case study
- Collect and analyse data for the study “Providers’ communication experiences in a primary care consultation room in Rwanda”
- Finalise and publish the two articles from the qualitative data about supervision of Rwandan health centres
- Conduct a field study of the new version of ExPRESS with the purpose of conducting a confirmatory factor analysis and explore/test the responsiveness and discriminative validity of ExPRESS
- Doing further content validity of the English version of ExPRESS

- Send questionnaire about the relevance and comprehensiveness of the ExPRESS tool to 5 African countries (Uganda, Kenya, Tanzania, Ethiopia, South Africa)
- Carry out psychometric tests in a field study to validate the Kinyarwanda version of CAT, analysis of data and write the article: ”Measuring health provider communication skills in Rwanda: adaptation and validation of the communication assessment tool (CAT)”
- Finish and publish the systematic review ”Psychometric tools to evaluate educative and supportive aspects of supervision and mentorship of health professionals. A Systematic Review”
- Start evaluation process of the Twin-PhD model and write the 2nd Twin-PhD article
- Participation in the International Conference on Communication and Health, New Orleans, Louisiana, USA, October 2015 (Vincent). Presentation and workshop of adaptation and validation of CAT in collaboration with other health research colleagues