

**IMPROVING THE WORKING LIVES OF
MATERNITY HEALTHCARE WORKERS TO
ENABLE DELIVERY OF HIGHER QUALITY
CARE FOR WOMEN:
A FEASIBILITY STUDY OF A
MULTIPROFESSIONAL PARTICIPATORY
INTERVENTION**

by

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degree of DOCTOR OF PHILOSOPHY

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Abstract

Over 275,000 women died of pregnancy related causes in 2015. Most occur in resource-poor settings and are preventable. This study aimed to improve the working lives of maternity healthcare workers in Malawi to enable delivery of higher quality care, using Appreciative Inquiry (AI); a positive-focused, participatory action cycle.

Following a systematic review and narrative synthesis of AI, I used an ethnographic study and Interpretative Phenomenological perspective to understand working lives. Before the intervention was implemented, I assessed working lives of staff and patient satisfaction through validated questionnaires.

AI has been used in healthcare, but little empirical evidence for its effectiveness exists. Staff wanted to do a good job, but were confined by a lack of resources, knowledge and support. The longitudinal survey of staff showed significant improvements in general wellbeing and home-work interface, and patient satisfaction improved. AI also improved staff relationships and made work easier and happier. My qualitative work suggested this was because staff were working better together, underpinned by everyone meeting together. From these findings I developed a theory of change.

AI showed great promise. However, further research, in the form of a large-scale trial, is needed to empirically demonstrate the effectiveness of AI in healthcare.

Dedication

To my husband Sam and my parents

for their unwavering support.

Without them I would achieve far less.

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Developing this complex study and producing this thesis has only been possible due to the tremendous support of a large group of colleagues, family and friends. I have been incredibly touched at how much people have given me in terms of time and expertise. But I have been particularly grateful for those people who took me into their homes and lives and enabled this study to happen.

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Glossary of Terms

AI	Appreciative Inquiry
BP	Blood Pressure
CO	Clinical Officer
CFIR	Consolidated framework for Implementation Research
CHAM	Christian Health Association of Malawi
CS	Caesarean Section
CPAP	Continuous positive airway pressure (breathing support)
DHO	District Health Officer
DMO	District Medical Officer
DNO	District Nursing Officer
HA	Hospital Attendants
HCW	Healthcare Workers
HRPNW	High Risk Post Natal Ward
IPA	Interpretative Phenomenological Analysis
MA	Medical Assistant
MDG	Millennium Development Goals
mHCW	Maternity health care worker
MKW	Malawi Kwacha
MMR	Maternal Mortality Ratio
NA	Nurse Auxiliary
NMWT	Nurse Midwife Technician
NO	Nursing Officer
OD	Organisational Development

RN	Registered Nurse
PA	Patient Attendants
SDG	Sustainable Development Goal
SNO	Senior Nursing Officer
TA	Template Analysis
WHO	World Health Organisation

Introduction

Aims and Objectives

The aim of this study was to improve the working lives of maternity healthcare workers (mHCWs) in Malawi, to enable delivery of higher quality of care for women, using Appreciative Inquiry (AI), a participatory action cycle. The main objectives were:

1. To understand the working lives of mHCWs in Malawi.
2. To review what is known about AI in healthcare and understand its effectiveness.
3. To adapt and implement an AI intervention in three district hospitals in Malawi, to understand whether AI is feasible to implement in this setting.
4. To evaluate the effect of AI on staff and patients in the three facilities in Malawi.
5. To develop a theory of change for how AI works in healthcare.

Outline of Thesis

In order to present the work performed for this thesis as a coherent ‘story’, after a general background, I have divided it into four discrete sections. Although all the sections are grounded in those that come before them, they address different areas, and therefore each has its own introduction and discussion. Each section of this thesis contributes to the building of a theory of change for AI in healthcare. I have outlined the structure below:

Section A: Working life of maternity healthcare workers in Malawi – “I do cope up with such a burden”

This section brings together two studies on what it was like to work in Malawi as a mHCW. Firstly, an outsider’s view of working life was elicited (Section A Part 1 [SAP1]). Following this, a study of mHCWs opinions of their working lives was undertaken (SAP2).

Section B: Appreciative Inquiry as a tool for Organisational Change in Healthcare

The first part of this section comprised a systematic review of the current literature about AI in healthcare (SBP1). The findings from this chapter were then taken forward into the adaption and implementation of AI in Malawi (SBP2).

Section C: Did Appreciative Inquiry work?

This section has three components: two quantitative studies, one examining staff perception of working life during the intervention (SCP1) and the other a patient perception of care study (SCP2). Following these a qualitative assessment of whether AI worked has been presented. (SCP3).

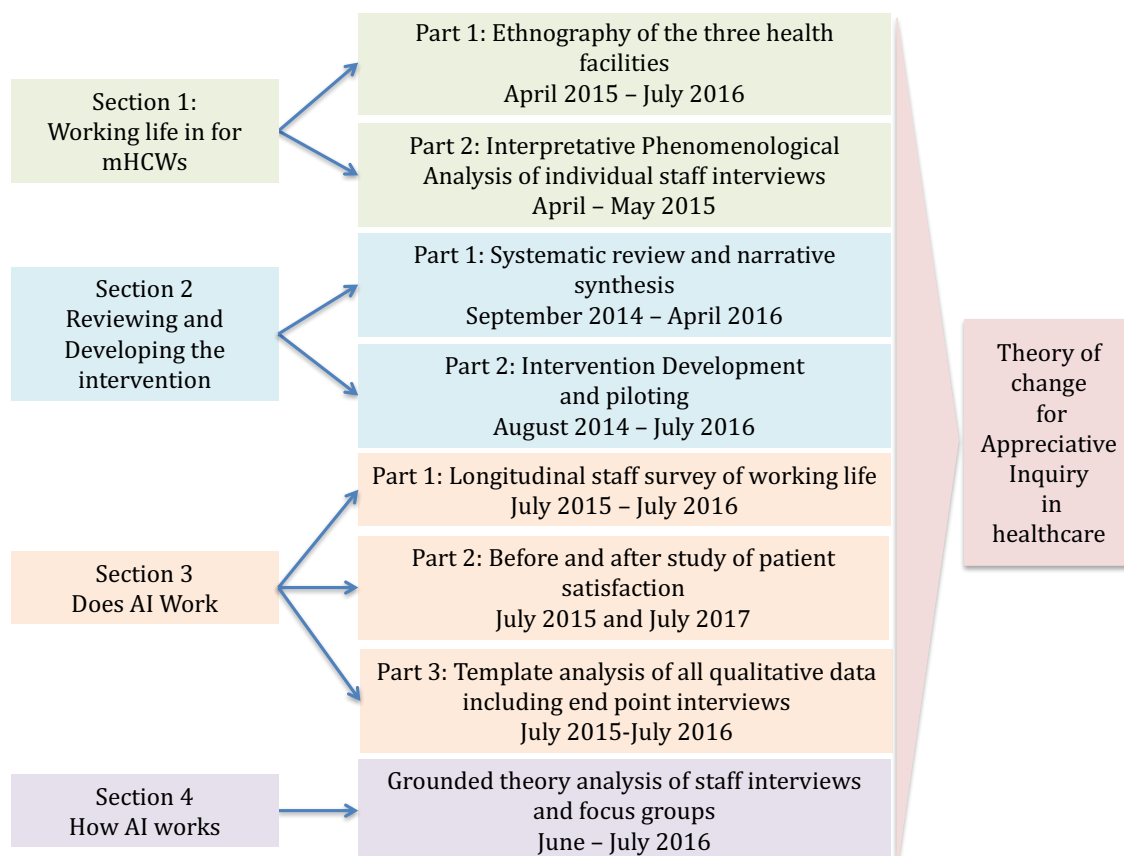
Section D: Developing an understanding of how AI works

This section contains one chapter (SD), which examines staff’s perception of how AI had its effects.

Methods Overview

I employed a mixed-methods approach throughout this thesis, which was felt to be the most comprehensive way to achieve my study objectives. I have drawn upon a variety of disciplines to produce this thesis including: psychology, sociology, anthropology, organisational development and implementation science. Figure 1 depicts each methodology, how it is situated within the thesis and when I undertook each piece of work:

Figure 1: Overview of thesis, methodologies used and timeline



Voice

Due to the mixed methods approach to this thesis, a challenge presented itself when deciding upon the voice in which to communicate these studies. Ethnographers often present their work as first-hand accounts of their observations. However, medical writing is generally from a much more objective perspective. Owing to the significant qualitative contribution, and the fact that it is a thesis, I will use an authorial voice in the first person.

Epistemological standpoint

As a clinician, I came from an instinctively positivist perspective. However, this paradigm did not provide me with the ability to consider working lives and their improvement in a way that allowed me to develop a picture of what may work, for whom and in what circumstances. Instead, critical realism resonated with both my personal view and my research aims.

As Guba and Lincoln state, this ‘basic belief system’ goes on to affect the ontological, epistemological and methodological choices.¹ Happily, some of the proponents of critical realism believe that it is ‘compatible with a relatively wide range of research methods’.² The real world nature of the research I was undertaking meant that this idea of somewhat avoiding either positivism or relativism³ has enabled me to focus on how I felt my research questions could be best answered, rather than feeling constrained by the methodological traditions of the particular epistemology.

Critical realism acknowledges that social systems are ‘complex or messy’² and focuses on the ‘mechanics of explanation’.⁴ It also recognises that what has happened in response to an intervention is not necessarily what will happen again, as there are other contextual features that may also be playing a role.² It is this pragmatic take on critical realism I have adopted as my epistemological standpoint.

Development of the research question

I developed this programme of research alongside my supervisors. I was inspired by the work of Anthony Costello’s team on Women’s Groups. This work showed that maternal and neonatal mortality could be reduced by women participating in community action cycles. Until this PhD, my personal background had been in improving quality of education and training for staff. I linked this with the community action cycles to have the idea about implementing an action cycle for staff. I then began reading about various approaches to action cycles, and saw potential in AI as a methodology. From here I developed the research questions outlined above, and with the support of my main supervisor, gathered together an appropriate supervision team.

Ethical issues and Ethical Approval

In order to gain ethical approval, it was necessary to consider a variety of issues, four key areas will be discussed here. One of the most important ethical issues for me, was the possible impact the intervention could have on patient care. Staff would be taken away from clinical duties to attend the AI meetings. To minimise this, meetings needed to be kept short and arranged outside of the times of highest clinical workload. Also, I felt that some staff would get the benefits of participating in the intervention

(refreshments and travel allowance) but be asked to remain on the ward to provide clinical care to minimise the impact on patient care.

A further ethical consideration was that if staff were asked to discuss and improve their working lives, it may make them more dissatisfied with their work. I attempted to minimise this in the way that questions were asked and actions were framed. There was however the possibility that empowering staff would result in them agitating for change and the management becoming annoyed with the process. I tried to minimise this by involving management in the intervention from the beginning and inviting them to each meeting.

Patients were to be involved in the study in several ways. Firstly, they were part of the ethnography as it was not possible for staff to be observed at work without patients also being part of this process. Patients were told about my presence by staff, and that it was not them but the staff who were being observed. In addition to this, I displayed posters in the local language explaining the study and my presence. Patients were also invited to participate in the before and after study of patient satisfaction. I anticipated that patients may believe that their care could be effected by their responses and therefore, they were only invited to participate after they had been discharged. This also had the added benefit of them being able to comment on their whole episode of care.

A final area to discuss is that of my impact as a researcher. I will touch upon this as relevant throughout this thesis, however, as a white British obstetric doctor, my presence was at odds with my surroundings, especially in the more remote two of my

sites. This could lead to possible behaviour change of the staff I was working with as they would defer to me as a clinician. However, as I will discuss more in Section A part 1, I took pains to position myself as a researcher rather than a clinician. Furthermore, I aimed to take an observational role where possible in the implementation of the intervention, so that I could focus on the evaluation aspect, but also so that control could be handed over to the local teams.

This study was reviewed and ethical approval granted by the University of Birmingham Research Ethics Committee (ERN_14-0878) and the University of Malawi College of Medicine Research Ethics Committee (P.09/14/1635-), see Appendix 1.

General Background

Every year 210 million babies are conceived and 140 million babies are born.⁵ The sheer number of women who become pregnant makes maternal health an important issue which should be high on the international agenda. During the Millennium Development Goal (MDG) era a concerted effort to reduce the number of mothers dying resulted in a 44% decrease in the number of maternal deaths globally.⁶ However in 2015, 275,288 (95% Uncertainty Interval [UI] 243,757 to 315,490) women died during childbirth or of pregnancy related causes.⁷ Furthermore, many more women experienced significant morbidity from pregnancy related causes.⁸

The MDG targets for maternity care were met in only ten countries.⁷ Unsurprisingly, the burden of maternal deaths is felt in the places that can cope the least. 90% occur in just 58 countries, which have less than 17% of the global healthcare workforce.⁹

The Sustainable Development Goals (SDGs) have succeeded the MDGs, and alongside other global initiatives are continuing to shine a light on maternity care.¹⁰ We know that 98% of maternal deaths are preventable⁵ using proven practices throughout the antenatal, intrapartum and postnatal periods.¹¹ The reasons that these improvements in care have not been made universally include; inadequate health systems and number of providers, in addition to poor training and lack of evidence based care. This results in women receiving poor quality, sub-standard care.¹¹

The Global Health Workforce Alliance estimate a shortage of 12.9 million healthcare workers (HCWs) by 2035.¹² These shortages, as highlighted above, occur

overwhelmingly in the lowest income settings. The reasons behind HCW shortage are complex and multifaceted, and include areas such as: preparing the workforce, enhancing performance and managing migration and attrition.¹³ Considerable attention has been paid to training more staff and ethical international workforce policies for some years. More recently, focus has shifted towards trying to understand other migration motivators, for example poor working conditions¹² and improving the quality of care that staff provide.¹⁴

A focus on HCWs may allow some of these issues to be addressed, including shortages, mal-distribution and migration.¹⁵ Insufficient numbers of HCWs impacts both the quality of care women receive and the working lives of staff who remain. Providers are overworked, have less opportunity for interaction with colleagues and their job satisfaction is reduced.¹⁵ Addressing issues affecting the working life experience of HCWs may identify locally appropriate strategies to improve working environments for staff, thus enabling an improvement in their performance.¹⁶

One country in which HCWs are extremely scarce is Malawi in East Africa. There are just 0.019 doctors per 1000 population and 0.283 nurses per 1000 population.¹⁷ The 2006 World Health Report highlighted that countries with fewer than 2.5 HCWs per 1000 population struggle to attend at least 80% of births.¹³ Malawi is falling far short of this number a decade later.

This thesis will focus on mHCWs in Malawi, as a subset of Malawian HCWs as a whole. This is for three reasons. Firstly, a robust high quality maternity service is of

high global priority. Investment in care around the time of childbirth, according to the new WHO strategy ‘Survive, Thrive, Transform’, brings a triple return on investment. It can save the lives of mothers, prevent stillbirth and save newborns.¹⁸ Secondly, it was necessary to select an area of the hospital in which to pilot this approach. Maternity services are relatively well contained and therefore seemed a sensible place to start. Finally, my clinical background and area of interest is in maternal health.

In Malawi mHCWs are often working under high pressure in some of the most challenging circumstances. Seeking to improve their working lives is one way of beginning to address the remaining maternal deaths and reduce the morbidity women experience during pregnancy and childbirth.

Maternal Health in Malawi

Malawi is a small, landlocked, densely populated country of 17.2 million people.¹⁹ It is a low income country and it is one of the least developed countries in terms of human development, ranking 173/188.²⁰ Over 80% of Malawi’s population is rural.²¹ It is on this background that the health system attempts to provide high quality maternity care.

The healthcare financing is largely dependent on donor funding with 68% coming from outside Malawi in 2013.²² One important system level shock Malawi has experienced in the last 3 years is the ‘Cashgate’ scandal. Millions of dollars were embezzled from the Government. As a result, donors pulled out their general budget support to Malawi, meaning that the health system lost much of its funding.^{23,24}

Prior to the Cashgate scandal, which the Government is still struggling to grapple with, Malawi's healthcare system moved towards an Essential Healthcare Package, which was defined in 2004 and has been free to all throughout the 2011-16 sector wide planning period.²⁵ This included interventions to prevent adverse maternal and neonatal outcomes.²⁵ Staffing Malawi's healthcare system are nurse-midwives, clinical officers (CO), and physicians along with nursing auxiliaries (NA), hospital attendants (HA) and patient attendants (PA).

In 2015 there were 665,000 births in Malawi²⁶, but 1462 (95% UI 597 to 2932) women in Malawi died as a result of their pregnancy.⁷ The number of women dying per 100,000 live births (Maternal Mortality Ratio (MMR)) was 219.7 (95% UI 89.8 to 440.0). This compares to a global MMR of 195.7 (95% UI 173.4 to 224.2).⁷ These deaths are despite a significant investment both by the government and donors, in improving maternal health in Malawi.^{25,27}

Lack of staff is likely to play a role in these deaths, as mHCWs are uniquely placed to take immediate action to prevent adverse outcomes.²⁸ In 'The State of the World's Midwifery' report in 2014 it was postulated that Malawi's met need for maternity care was just 20%, indicating just how significant the lack of maternal healthcare workers has become.⁹

The people delivering care

MHCWs are the backbone of the maternity service and the number of staff available particularly effects maternal outcomes.²⁸ This supports the global consensus that in

order to improve maternal outcomes, a skilled provider should be present during childbirth.²⁹

However, both globally and in Malawi, there is a shortage of mHCWs.⁹ This was so acute in Malawi at some points that there were just 30 nurses to look after 1000 patients.³⁰ This shortage not only means that women do not receive the care they need, but it also makes staff unhappy. Globally, it has been shown that staff who have to treat more and more patients are likely to experience burnout and job-dissatisfaction.³¹ Many HCWs globally are experiencing these stresses and finding a way to alleviate this is important. The healthcare workforce must be properly trained and motivated, otherwise, healthcare systems cannot be strengthened sufficiently to provide high quality care.¹³

Much research has been carried out into the reasons why staff migrate to a different healthcare system or leave healthcare altogether. Broadly these have been divided into 'push' and 'pull' factors. 'Push' factors include poor management, no prospects and high pressure of work. 'Pull' factors include better pay, gaining experience and safety.

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These issues need to be addressed in the context of the local health system to retain staff. A recent health systems analysis identified possible constraints and responses on the health workforce table 1.³² Introducing some of these, such as increasing staff numbers, into healthcare systems such as those in Malawi may seem simple, but it is unlikely to be enough. A systematic review of motivation and retention of HCWs indicated that although financial remuneration is important to HCWs, alone it is not enough. Other areas must also be addressed, for example management issues and career

development. Furthermore, having access to the resources required to deliver care is important in satisfaction with work.³³

Table 1: The constraints and responses on health care systems in low and middle-income countries³²

Constraints	Responses
Shortage and poor distribution of appropriately qualified staff	Increase numbers of health workers, implement task shifting, increase allowances for working in remote areas
Low staff pay and poor motivation	Increase pay, improve supervision
Weak technical guidance, programme management and supervision	Strengthen training and supervision, contract management

Bringing about change in working lives

To address these issues there needs to be a comprehensive approach at both health systems and workplace level. A recent systematic review of burnout among physicians suggests that it is possible to reduce the burden of this specific problem with either individual, structured or organisational strategies.³⁴ If it is possible for physicians, it is likely that it would be possible to improve the working lives of all HCWs.

Organisational development (OD) has an important contribution to make to enable organisations to be the best they can be. OD is founded in action research, and provides a huge range of possibilities, which can be used to facilitate change.³⁵ The traditional or ‘Diagnostic’ approach to OD was to ground the intervention in data gathered from the

organisation, enabling a diagnosis of what was going on in an organisation in order to ground the proposed change.³⁵ Another form of OD has been developing– a ‘dialogic’ approach to OD. This arm of OD has focused more on accomplishing change rather than focusing on a theoretical basis, seeing change as a unique process of joining sense-making within an organisation.³⁵

Both forms of OD are firmly based in what is happening in the organisation. The diagnostic approach espouses the concept of living systems, whereas the dialogic approach focus less on this and more upon the idea that organisations are meaning-making systems.³⁵ These dialogic approaches tend to be less rooted in theory. Several of these dialogic models exist, for example ‘Search conferences’,³⁶ open space³⁷ and AI.³⁸

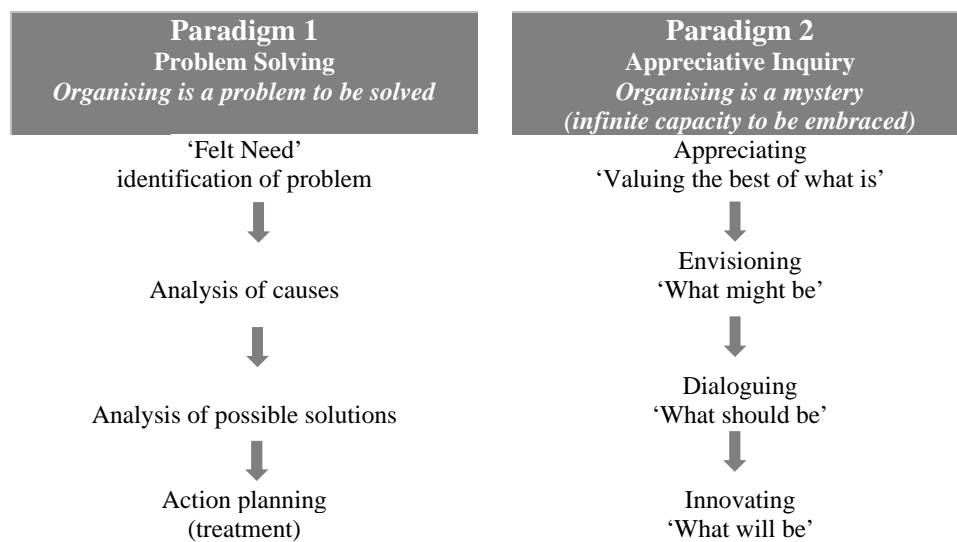
Dialogic approaches in general have relatively less published literature about their use.³⁵ Of all the approaches, AI has the most available literature and a strong theoretical underpinning, developed over three decades. For this reason, and the fact that the focus on the positive elements of working life rather than the problems resonates with the idea of trying to improve working lives in a challenging situation, AI will be used as the basis for the intervention in this study.

Appreciative Inquiry as a participatory method for improving working lives

AI is a strengths-based approach to enable organisations to evolve by heightening their positive potential.³⁹ At its foundations, the appreciative approach believes that every organisation has something that works well.⁴⁰ This is a different standpoint to many

organisational change initiatives, which focus on identifying problems to solve. This problem solving approach became synonymous with action research and this is one of the factors that lead Cooperrider and Srivastva to propose an alternative paradigm (figure 2) in their seminal AI paper ‘Appreciative Inquiry in Organizational Life’.³⁸

Figure 2: Cooperrider and Srivastva’s proposal for a new Paradigm, adapted from the Appreciative Inquiry Handbook⁴⁰



The proponents of AI argue that perhaps the time has come to move away from paradigm 1 and instead view organisations as being ‘alive with constructive capacity’.³⁹ They came to this view through the realisation that problem solving can lead to slow change, lacking in new visions and are likely to generate defensiveness.³⁹ Instead, they take a sociorationalistic perspective whereby social order is unstable and therefore it is open to indefinite revision.³⁸ This is in keeping with the metaphysical basis for AI, that ‘social existence is a miracle that can never be fully comprehended’.³⁸

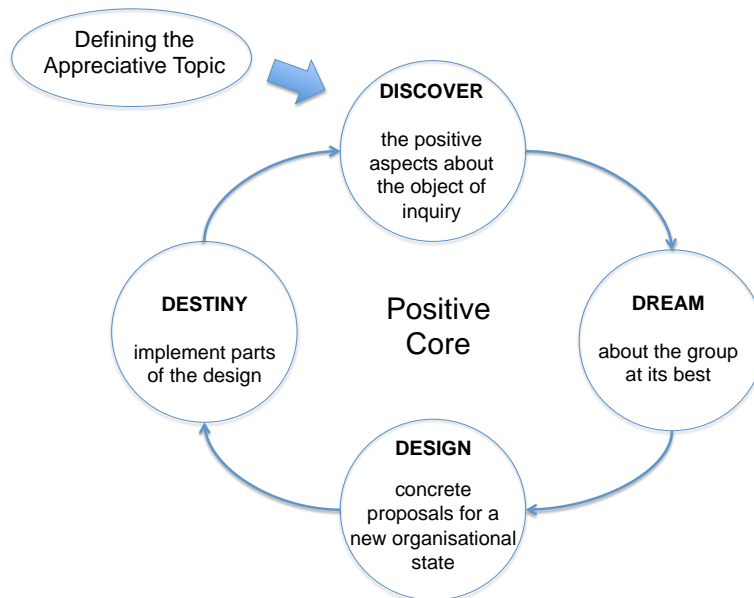
Further arguments for AI are built through the lens of positive psychology. Fredrickson argues that positive emotions have been under-investigated due to a gravitation towards problem solving. However, she believes ‘positive emotions broaden attention, thinking and action and build physical, social and intellectual resources’.⁴¹ In short, positive emotions are reinforcing and likely to facilitate further positive feelings.⁴² In the most dramatic sense, people who feel good live longer.⁴³ The Pygmalion studies of 1965 help create the case for this positive revolution in change.⁴⁴ In a series of experiments in schools, teachers were informed which pupils had potential to be ‘growth spurters’; they were told this was based upon a test, but it was in fact at random. This experiment showed that the expectations of teachers was a self-fulfilling prophecy; with those who were destined to do well doing well, and those not favourably identified showing less intellectual development.

In addition to the unconditional focus on the positive, there was another central tenet around which AI was developed. It was that theory, as well as practice, can be ‘among the most powerful resources human being has for contributing to change’.³⁸ Cooperrider and Srivastva argue strongly that theory and research should be central to rather than detached from AI and all its processes. They developed an action research model (figure 3) which forms the basis of the four or five ‘D’ cycle that is used worldwide today (figure 4).

Figure 3: Action Research Model, adapted from Cooperrider & Srivastva 1987³⁸

Appreciative Inquiry Action Research Model			
Is scientific and theoretical	Is metaphysical	Is normative	Is Pragmatic
Seeks sociorational knowledge (interpretative)	Seeks appreciative knowledge of miracle of organising	Seeks practical knowledge	Seeks knowledgeable action
Grounded Observation	Vision Logic	Collaborative dialogue and choice	Collective experimentation
Best of 'What is'	Ideals of 'what might be'	Consent of 'what should be'	Experiencing 'what can be'

Figure 4: The Appreciative Inquiry Action Cycle adapted from AI Handbook⁴⁰



Over the last three decades the use of AI has burgeoned and success has been reported in a variety of private and public organisations. For a summary of organisations in which AI has been successfully used see table 2. The successful track record of AI and the powerful potential to highlight and harness the positive in individuals and the workplace, led to the selection of AI as the action cycle with which to try to improve working lives of maternity healthcare workers in Malawi.

Table 2: Some organisations implementing AI and their successes⁴⁰

Organisation	Success
United Nations	Development of a ‘Global Compact’ through a leaders summit which created action plans
World Vision	Worked to develop ‘collaborative alliances’ with 300 organisations to improve assistance to orphanages in Romania
NASA	Designed a strategic plan for one of its divisions which led to a more participatory culture
British Airways	Staff created improved ‘excellence in customer service’
Group Health Cooperative	Reduced cost, improved quality and service
Rodway Express	Reduced costs and increased business
Nutrimental	600% increase in profits, 75% reduction in absenteeism
Newark Beth Israel Medical Centre	Increased patient safety and improved patient satisfaction

Complexity in implementation and evaluation

Implementation science is at the heart of this thesis. It encourages investigation of any factors that influence the implementation, the process itself and the results.⁴⁵ This area of research facilitates the investigation of how to scale up proven interventions, which is all too often challenging, especially in low and middle-income countries.⁴⁶ In these

settings, interventions often fail due to a lack of focus on how they could be best implemented in the specific circumstances.⁴⁷

The need to consider the complex area of implementation for roll out means that one needs to delve into a messy set of activities. There are fewer linear processes, and research designs need to be adaptable to emerging issues.⁴⁵ Like action research, implementation research puts the users at the heart of the process of research, and as such they are involved throughout the investigation.⁴⁵

AI is considered a complex intervention. A complex intervention is one which has several interacting components,⁴⁸ which means that it is often difficult to standardise the interventions. Causal chains can be tortuous,⁴⁹ so starting with a clear theory and including an assessment of the process is important.⁴⁸ For this reason effort must be put into reporting the implementation itself so that the factors which effect the evaluations can be fully understood.⁵⁰ Furthermore, taking a variety of approaches to the evaluation of these interventions, including a qualitative approach, can offer insights into the evaluation beyond those of just quantitative studies.⁵⁰

The rationale for this thesis

The aim of this thesis was to implement and evaluate a feasibility study of an AI intervention across three district hospitals in Malawi. To do this, it was necessary to understand the working life of mHCWs (Section A) in order to appropriately design the intervention and to understand the baseline situation. The development and implementation of AI then required an in-depth understanding of the process of AI. As

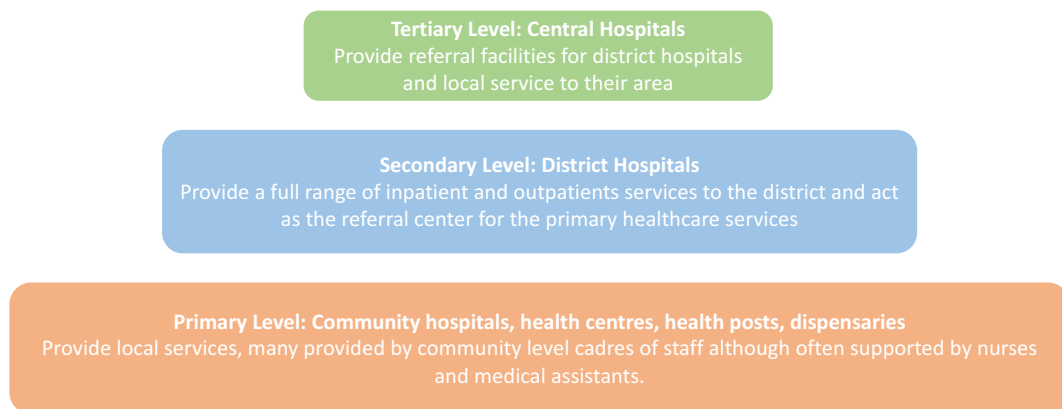
discussed above, a detailed reporting of the intervention is vital for evaluation (Section B). A comprehensive assessment of the AI intervention was then undertaken (Section C). A final qualitative study was performed to try to identify how AI's effects were mediated (Section D). The thesis will culminate by identifying whether AI worked or not in this feasibility study and also by proposing a theory of change for how AI works in healthcare settings.

Study Setting

Healthcare in Malawi is delivered through government facilities, the 'CHAM' (Christian Health Association of Malawi) not-for profit private facilities and private for profit facilities. This study is based in the publically funded facilities.

For the purposes of delivering healthcare, Malawi has five 'Zonal Offices' which support the 28 district health management teams. The daily delivery of healthcare is undertaken at a district level. Each district has primary and secondary facilities (Figure 5). The tertiary referral centres are called 'Central Hospitals' and function at a supra-district level.⁵¹

Figure 5: The Malawian health system⁵¹



At a district level, the District Health Officer (DHO) manages a District Health Management Team who together coordinate all the services in the area. Each hospital is assigned an in-charge. In the case of a district hospital this is the District Medical Officer (DMO), but in the case of the smaller facilities this may be a CO or Medical Assistant (MA). Each ward is then also assigned an in-charge who is usually the most senior nurse on the ward.

This study took place across three government hospitals in Malawi, in and around the Capital City Lilongwe (Figure 6). To distinguish them they will be named the Referral, District and Community Hospitals. Although strictly speaking the referral hospital is in fact just a large district hospital.

Figure 6: A map of Malawi and the locations of the three sites.



These sites were chosen for several reasons. The partner non-governmental organisation for this project was based in Lilongwe. Therefore, it was important to have sites close by. They were also chosen because there was a critical mass of staff at each site, and they represented different levels of the government system. Each of the sites will now be briefly described in turn.

District Referral Hospital

This hospital has approximately 15,000 deliveries per year. It is a large district hospital in the capital city of Malawi. The main business of the hospital is providing maternity services. The hospital campus does house other services including a general outpatients' department, and internationally renowned research projects. This hospital is in an interesting situation as a district hospital because it does have obstetricians and other medical staff who provide some care to patients. Furthermore, there is a Central Hospital close by which delivers a full range of medical and surgical services and tertiary level obstetrics.

This maternity hospital was built in 2009 with the support of donors, in the main catalysed by an ex-patriot midwife. Because this hospital is quite new and had committed staff involved in its design, there has been an attempt to make it both functional and, where possible, a respectful place for women to deliver.

There are several inpatient departments in this maternity hospital: Gynaecology, antenatal, labour ward, theatre, nursery and postnatal. In addition to this there are outpatient sections which address issues such as HIV testing and treatment. The DHO requested that AI was tested at this site as it is the facility in which staff were often the most desperate to leave, therefore it may be the most important place to try it. It was also the biggest and busiest hospital in his district. Due to the size of this maternity hospital, the intervention was focused in the high risk postnatal ward (HRPNW). The HRPNW receives women into 10 rooms who have had complex deliveries (e.g. Caesarean Section [CS] or instrumental delivery) or poor outcomes (e.g. stillbirth or baby admitted to the nursery).

Figure 7: Part of the High Risk Postnatal Ward at the District Referral Hospital



The HRPNW is supervised by a matron/Senior Nursing Officer (SNO) and is run on a day-to-day basis by the in-charge who is a nursing officer (NO). She then supervises a team of nurses (NO), Registered Nurses (RN's) and nurse midwife technicians (NMWT) and a team of NA's, PA's and HA's. They also have contracted cleaners on the ward, whom the in-charge can provide direction to, but who operate independently of the other staff.

Two ward clerks are based permanently on the ward and report informally to the in-charge, as their reporting structure is more within the administration rather than clinical arm of the hospital. The CO's are assigned to the HRPNW for four weeks at a time and the obstetric registrars and consultants attend the ward as necessary to review patients.

District Hospital

These maternity services are set in the context of a full district hospital. They are the highest-level healthcare providers for the district. They provide comprehensive inpatient and outpatient services and are the referral centre for the district.

Consequent to this, they have a doctor who provides some clinical care (DMO) in addition to COs, nurses and auxiliary staff. The maternity department has approximately 3,700 deliveries annually. The department is divided into antenatal clinic, antenatal waiting home, maternity ward (antenatal, labour and delivery) and the postnatal ward.

The site for this study was the labour and postnatal wards. Staff flowed frequently between these two departments and most patients begin their inpatient journey at the door of the labour ward.

Figure 8: The District Hospital and its labour ward



The labour ward has seven delivery beds and then extra beds for high risk patients. The postnatal ward is made of up of a high-risk end (approximately 8 beds) and a low risk end (few beds, mainly mattresses on the floor) and then a kangaroo care ward and a nursery ward.

Community Hospital

This hospital delivers comprehensive care to the whole community. The two main differences for community hospital are they have no control over their own budget, and there are no doctors. However, they are very busy with approximately 4,500 deliveries a year.

There is an antenatal outpatient department and a maternity ward, which comprises all inpatient care for mothers and neonates.

Figure 9: The Community Hospital and its labour ward



The intervention was focused on the maternity ward (including theatre staff), which had a labour ward with just three beds. An antenatal area that was used as a staff resting space and room for discharge talks then a ward and a kangaroo care ward. The number of beds in both the high risk and low risk end varied daily as things were moved around. Patients were often cared for on the floor.

Section A: Working life of maternity healthcare workers

in Malawi – “I do cope up with such a burden”

Section A Introduction

In Malawi, approximately 80% of the mHCW time needed to provide women with their basic care throughout their pregnancy journey is not available.⁵² This is despite the fact that in 2010 an evaluation of the Emergency Human Resources Programme for Malawi declared that Malawi was beyond the emergency stage in terms of their numbers of HCWs.⁵³ Comparing the figures presented in the 2010 report, where there were 0.02 doctors and 0.37 nurses per 1000 population, with the latest figures there has been a slight decrease in nurses to 0.283 although doctor numbers have remained stable.¹⁷ This was notwithstanding a 39% increase in graduates from Malawi’s four main medical/nursing/CO training institutions between 2004 and 2009 and a 52% top up in the wages of staff in 2005.⁵³

It is on this background of a chronic shortage that mHCWs perform their daily duties. The latest Demographic Health Survey in Malawi reported 89.8% women were delivered by a skilled provider and 91.4% of women delivered in a healthcare facility.⁵⁴ This compared to 73.2% delivering in healthcare facilities in 2010,⁵⁵ representing a significant increase in the workload on mHCWS. Furthermore, approximately 65% of positions remain unfilled.⁵⁶ To add pressure, in early 2016, the government announced that it was unable to employ new nursing graduates due to funding shortages.⁵⁷

The low density of healthcare workers is an important contributor to women not receiving the care they need and the Malawian government have been trying to address this issue for a decade.⁵⁸ The improvements that have been made are fragile,⁵³ as demonstrated in a recent service provision assessment, where a skilled birth attendant was available onsite or on-call 24 hours a day in less than 90% of hospitals, and only one-third of clinics.⁵¹

The available mHCWs must cope in poorly resourced facilities. For example during a large nationwide survey of health facilities, benzylpenicillin and injectable sodium chloride were the only two priority medicines widely available.⁵¹ Furthermore, staff in less than one third of these facilities had received appropriate in-service training within the previous 2 years.⁵¹

Although in general terms the pressures on mHCWs in Malawi are well known, it is important to understand more specifically the working lives of mHCWs in the facilities involved in the study. This will provide an insight into the people who were to be involved in the AI, and enable the local structures and physical setting to be examined to inform the development of the intervention. This will be achieved in two ways. Firstly, an ethnography provides the opportunity to observe staff, their surroundings and their interactions both with each other and patients. The second chapter in this section asks mHCWs about how they view their lives. Together these approaches provide a comprehensive picture of working life in the studies' three sites.

In addition to meeting the core aim of this section of understanding working lives, there are two other aims. Firstly, to begin to understand the important contextual areas for the theory of change of AI in healthcare. This will facilitate the contribution of important low income setting contextual features into the final model. Secondly, consideration of what elements within working lives will be recorded when evaluating the effect of the AI intervention, this will feed into the template for the analysis in Section C.

Part 1: The social order of the hospital: An ethnography of three Malawian Government Hospitals.

Introduction: 'Eclampsia!'

At 8 am on a busy day on the maternity ward, Loveness is at the end of a queue of women waiting on the floor outside the labour ward. None of the women waiting have been assessed. In the late morning, Loveness is the last lady remaining to be seen. She is lying down, has wide eyes, no health passport (patient notes) and cannot communicate with Joshua, the nurse looking after labour ward. He therefore sends for her guardian (patient relative) from the shelter whilst he heads back in to labour ward to wait.

Moments after Joshua leaves her, Loveness starts to have an eclamptic fit. He sees her and shouts 'eclampsia'. He immediately gets a cannula and by the time he is at her side two HA's, Kelly and Chimwemwe, have arrived to help. The CO, Giles, is on the ward and steps out of the office whilst Emily, the nurse doing the discharge talk continues with her task. Joshua cannulates the patient with the help of the HA's. He takes Loveness's blood pressure (BP) and finds it to be high.

He asks for the eclampsia tray and draws up magnesium sulphate, a drug to treat eclampsia and injects it into a litre of fluid. The guardian arrives, looking meek, and Giles, who has until this point been looking on whilst Joshua works, asks the guardian for the health passport.

A non-maternity nurse, Destiny, arrives to help and decides Loveness should be on a bed. They interrupt Emily and get her help. Once the bed is in the corridor the maids, nurses and guardian work together to lift Loveness onto the bed. Destiny then leaves to find a catheter. Joshua gives the second dose of magnesium sulphate. He then cleans up his mess, disposes of the sharps and goes to write in the notes.

Destiny soon returns to insert the catheter but Loveness is confused and so Chimwemwe and the guardian help by pinning down Loveness's legs. As she struggles, the giving set gets pulled out of the magnesium sulphate infused fluid and it pours onto the bed. Kelly quickly fixes it; however it soon happens again. This time Joshua comes and replaces it more firmly.

This is all made more difficult by the fact that Loveness is in the corridor and there's a black-out so it's dark. Destiny tells me that she is from the outpatient department but heard that they were busy here in maternity so came to help.

Giles returns and tells me that now the thing to do is a CS. But they can't do one because there is no sterile equipment. They'd like to refer Loveness to the central hospital, but there is no fuel for the ambulance and the family can't afford to rent a car, so they will have to wait for the CS packs.

Sometime later, Joshua is writing his notes and completing a drug and observation chart. He tells me that he'd like to give hydralazine, but there is none to be found anywhere. He does find nifedipine and decides to give that instead.

Thirty minutes after the nifedipine, Joshua goes to recheck the BP. He comes to me and shows me that the electronic BP machine is not working as it has been drenched by the fluid. He hunts and finds a manual cuff and stethoscope to take the BP. It is almost normal and Joshua smiles because she is now stabilised. He tells me that 'I hate registering MD[maternal death]' so he's glad that it's improved. I ask him what his plan is. He decides that she only needs hourly observations, as she is now stable, whilst she is waiting for her CS.

The following day I arrive in the morning and see that Loveness is still in the corridor. She looks much more alert and able to communicate, but still very pregnant. I head into the labour ward to speak to Joshua. He tells me that once the packs arrived, there was then a blackout and they were unable to deliver the baby. But now he has to prepare Loveness for theatre as there are now packs, power and people.

The anaesthetist arrives and walks into the nurses station with a raised voice. He says that this eclamptic patient should be referred to the central hospital and that they do not have the facilities here to monitor her after delivery.

Joshua tells me that Loveness will have to travel by public transport as there is no fuel and she cannot afford to hire a private car. Giles comes to the ward to write the referral approximately 24 hours after her eclamptic fit. He asks Joshua for Loveness's notes and paper to write on, he is given paper from a cotton wool packet. He writes the referral note and this gives me the opportunity to note that since the normal BP yesterday

afternoon the patient had not had another BP taken overnight, until this morning. After this the patient and her guardian leave to find the public transport.

Loveness's story (names changed) is a powerful example of many of the different aspects of working life which I observed during my ethnography. Ethnographic fieldwork provided me with the opportunity to observe the social world and culture at the three hospitals in Malawi.⁵⁹ This enabled an in-depth understanding and interpretation of the working lives of mHCWs at this hospital. I will discuss the variety of factors which effect their daily lives. This case of Loveness, witnessed in the community hospital, illustrated many of the issues staff face.

Methods

My position

At this point it is important to understand my position, because neither data gathering nor analysis can be seen as a neutral activity.⁶⁰ I am a PhD student, medical doctor and obstetrics and gynaecology trainee who has practiced exclusively in the UK. This meant that I have up to date clinical knowledge and training in the methods of obstetrics practiced in high-income settings, and in the National Health Service in particular. I have also worked on quality improvement projects in Zimbabwe and spent some time observing obstetric practice in Nepal.

Prior to commencing this study, I considered the impression of myself I would provide to the HCWs.⁵⁹ I decided to position myself as a professional with knowledge, but who was unable to practice in Malawi due to not having a medical license in the country. I

believed that this minimised the effect I would have on the working lives of staff, as my being there as a clinician was incongruous with the normal working environment where there were no doctors. However, it did bring with it ethical issues including whether I would respond to clinical questions and when I would step in to help clinically. I discussed this with one of my supervisors prior to beginning my field work. I decided that I would enter in to discussions around clinical situations when approached by staff, but that I would not routinely provide clinical support. The exception to this would be in a life-threatening emergency, when I would provide active clinical support within my capabilities.

Access

As Hammersley and Atkinson⁵⁹ outline in their book, there were multiple layers to address when negotiating access to the field. First, ethical approval in Malawi was obtained, which involved getting the relevant DHO's to agree in principle to the study taking place in their district. Once the official consent forms were signed at the district and hospital level, I negotiated access to the wards. Due to the hierarchical structure of Malawian workplaces, the fact that the DHO's had given me permission to work guaranteed me the most basic form of access. That I was a clinician and a 'Muzungu' (white person) worked to both help me gain access, but also hindered what people would initially discuss with me. I was seen initially either as a 'donor' to request resources from or a 'researcher' who would take from the staff and not return.

I managed this situation by performing individual interviews in April and May 2015 and then returning as promised with feedback in July 2015. This began building trust

with the staff, who were surprised I kept to my word. In the district hospital, it was also fortuitous that I provided some early, accurate, clinical advice, which gained me the respect of the junior clinical officers. As it became clear that I would be a regular feature rather than a passing visitor staff allowed me to learn more about them, their work environment and their working lives.

Collecting and Managing data

I undertook my observations between July 2015 and July 2016; observing interactions on the wards and having informal discussions with staff. Because this ethnography formed a foundation for the study, it was important to understand working life across the three sites. The need to fit around other project activities, meant that I resided in town and travelled to sites, which reduced the time I could spend at sites for practical reasons. When travelling with other members of the project team, they had to leave town at the beginning of the working day and be home at the end. When travelling by myself, I was uncomfortable staying after dark due to the dangers of travelling when the sun went down. I also divided my time between the UK and Malawi.

Whilst I was at the sites, I observed activities, took photographs and made jottings in a notepad. With the aim of understanding working life, I concentrated these activities on staff and on their interactions with each other and with patients. After leaving the field I made more detailed electronic notes based on my brief field notes.^{59,61}

Coding and developing themes

The data analysis proceeded in an iterative fashion, and as recommended by Hammersley and Atkinson, started alongside the data collection. However, owing to the practical constraints I was able to undertake only a limited amount of analysis during the fieldwork.⁵⁹ Each time I left the field and returned to the UK I reflected on the data I had collected and further developed the emergent themes. This guided my data collection to concentrate on issues of interest. On returning from my final trip, I revisited all of my reflections and original data in order to develop the final domains presented here. Initially I coded the data in NVivo 10 qualitative data analysis software, using the broad base of the emergent themes from my ongoing analysis.^{59,62} I subsequently worked with some of the ideas from Miles and Huberman's qualitative research source book to develop patterns and cluster concepts.⁶² I used the techniques outlined by Bazeley, namely that of description of possible themes before comparing cases within the themes within and between sites and then relating this theme to the others.⁶⁰ This allowed me to identify the four domains for working life which operate within the conceptual basis for my analysis: the order of the hospital.

The social order of the hospital

Throughout my observations and analysis, I was struck by the inter-relatedness of staff with their context, their health systems, their clinical duties, each other and their patients. Although their working lives and these interactions often appeared to be disordered, when considering them more deeply there did seem to be underlying structure. Drawing on Claude Levi-Strauss' argument that finding order helped to

decipher meaning, identifying this structure underpinned analysis of the meaning of these interactions.⁶³

I propose that there was an overarching concept to the way the hospital worked; the *social order* of the hospital. This underpinned by a *social structure of the hospital* and a *set of rules* that governed the workplace and meant that HCWs followed the *precedent* of those that came before them. These three concepts have been illuminated by Bourdieu's theories of capital⁶⁴, fields⁶⁵ and habitus⁶⁶ respectively, and his theory was drawn upon during this ethnography.

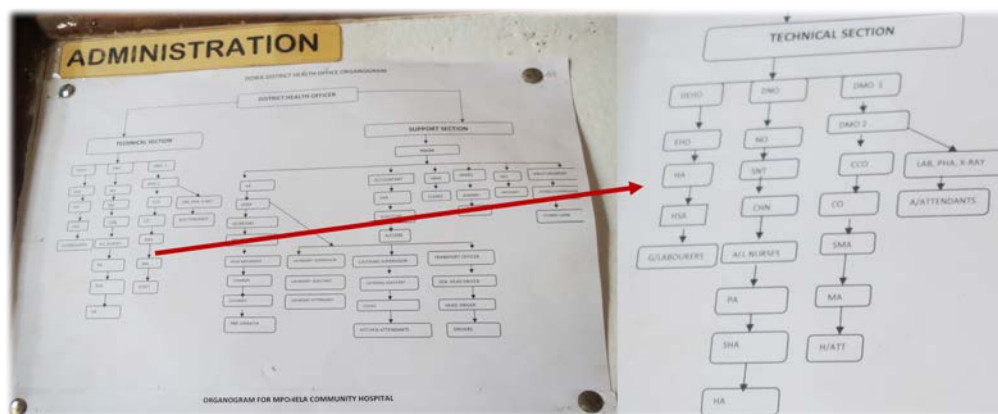
Social structure of the hospital: Malawi is an inherently hierarchical society. These hierarchies were clear within and between families,⁶⁷ and at the workplace. The way individuals interacted and the basis on which this hospital hierarchy was constructed was essentially defined by a person's social, cultural and economic capital.⁶⁴ However, with access to any form of capital, so came a sense of entitlement. For example, the expectation was that a lower member of staff carried your bag or cooked your lunch at work, further cementing this capital.

The activities within, and related to, the hospital take place on the structured background, the capital each group provided, and can be considered part of the social structure of the society. This has been discussed at length in various ethnographic studies.⁶⁸⁻⁷¹ Two explanations were particularly illuminating. In his introduction, Anders described the huge social privilege that was associated with having even the lowest ranking civil service job.⁷¹ Perhaps in Bourdieu's terms these jobs, which

included those of HCWs because in Malawi they were members of the civil service, gave them access not only to economic capital, which sets them apart from many Malawians, but also access to the social capital of membership both of the civil service and hospital staff. Sikstrom illuminated the social capital that hospital staff were given, and the social order through her story of a family who were attending hospital for an emergency. They delayed their trip to the facility to bathe and put on their best clothes in order to give the best impression to staff.⁶⁸

The activities of the hospital staff were nested within this wider social structure. However, the hospital had its own, clearly organised social order – which was often discussed in terms of hierarchy.⁷⁰ In Malawi this was not only made clear through deference to those members of staff further up the hierarchy, but also was displayed clearly for people to see in the form of ‘organograms’ figure 10.

Figure 10: A photograph of an organogram in one of the hospital



Rules of the hospital: In addition to the underpinning social order, there seemed to be a set of rules that governed the workplace. Bourdieu has extensively considered the social

world, and his field theory was particularly helpful when considering the rules that governed how these hospitals worked. He argued that our social world was made up of 'fields', where 'agents' had coalesced to form identifiable groups (conforming to the social order discussed above and therefore interacting with his idea of capital). These different 'fields' recognised each other and struggled for power.⁶⁵ He postulated that our social interactions were made of different 'fields'. Perhaps in a hospital the fields were comprised of different staff groups and the agents within the fields were the individual staff. Within these fields were the rules that governed membership to the group known as 'doxa'.⁷² These unwritten rules dictated the hierarchical situation in which staff interacted both with each other and patients. In order to remain a member of the group staff had to follow these rules, as it disrupted the social order, and put at risk their membership of their group if they did not.

Precedent is how I considered Bourdieu's 'habitus' worked in the hospital. Habitus can be considered akin to a 'modus operandi', where the way people act is dictated by a complex set of products of historical practices. It can be constantly redefined by events and actions. Whilst a particular reaction to an event cannot be predicted, there is a limited diversity to the possible reactions as common sense/reasonable behaviours ensued. There was no conscious determination of these behaviours, despite them appearing to be ordered, and they tended to be taken for granted. Bourdieu believed that the habitus within groups was in fact relatively homogenous, far more so than people realised. This was perhaps rooted in the 'capital' theory discussed above, as members of a group were more likely to be exposed to similar experiences, which created their habitus.⁶⁴

Members of each group within the hospital had a set of ingrained behaviours that seemed to be expected of them. This occurred at least in part from observing those before them. Unlike a social setting, staff were often introduced to a hospital in an apprenticeship role, whilst they trained to work. This exposed all staff to the behaviour of those already in their group within the hospital. By following this precedent, staff adopted the habitus of their group. Bourdieu believed that this habitus provided a barrier for movement between social groups however, in hospitals, it was often possible to move between these groups. For example, there was a natural progression to move from student nurse, and from nurse to matron. Therefore, staff were able to undertake a personal study of their seniors, in the group to which they wanted to become members this ensured that they slowly evolved into those that came before.

The social structure (capital), rules (fields) and precedent (habitus) interacted together and formed the social order (practices) of the hospital. It was quite clear when considering these concepts that they were intimately linked and that they affected each other. Bourdieu⁶⁴ himself explained this quite simply:

$$[(\text{Habitus}) (\text{Capital})] + \text{Field} = \text{Practices}$$

translated for this analysis

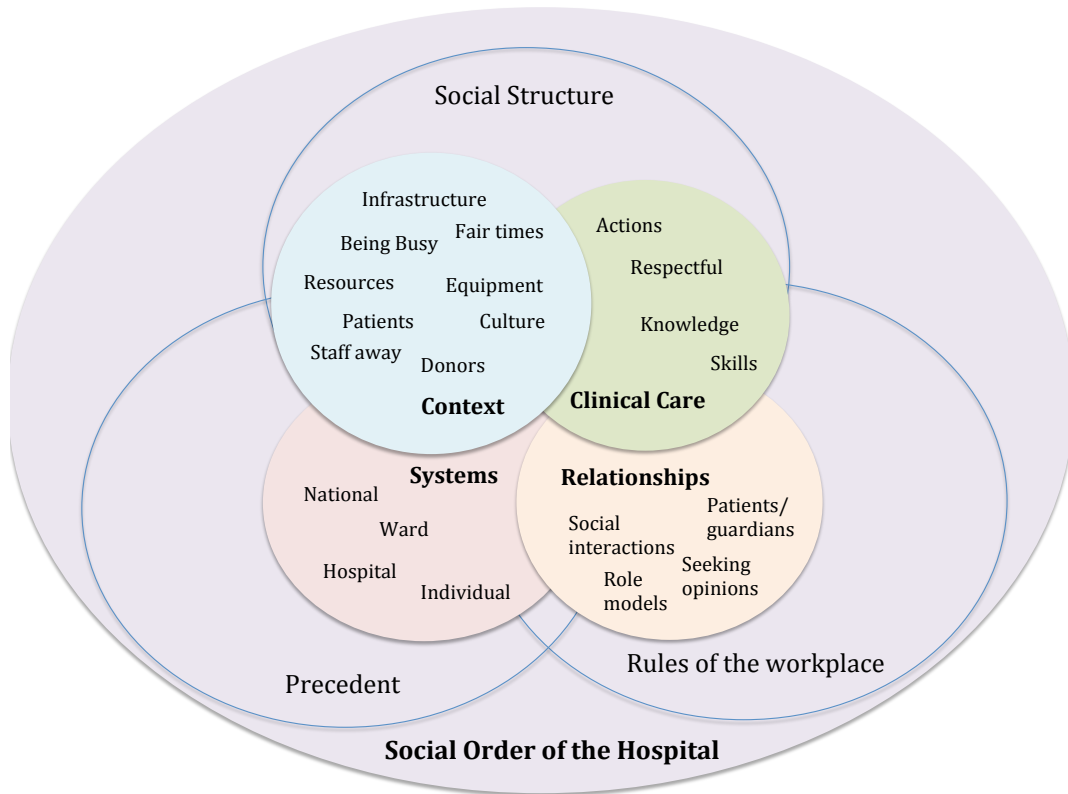
$$[(\text{Precedent}) (\text{Social Structure})] + \text{Rules} = \text{Social Order}$$

As I went on to explore the four domains of hospital life, I drew upon this idea of the social order of the hospital, with its three core concepts, to illuminate how staff interacted and behaved at work almost pre-determinedly due to the historically rooted precedent, the capital that belonged to each group within the social structure and how these combined with the rules of the workplace to ensure that staff and patients remain fixed within the social order of the hospital.

Analysis

Four main domains of hospital life emerged from the data when considering the working lives of staff. These domains were set within the social order of the hospital and briefly outlined in figure 11 Each of these domains have been discussed in turn and the effects of the social order of the hospital outlined for each one.

Figure 11 The social order of the hospital and the domains identified from this ethnography



Whilst the experience at work of each member of staff was individual, the general working life was remarkably homogenous between the groups. Although there were some issues specific to sites, the domains have been discussed in general terms across the three sites with specific examples used from individual sites.

The realities of working in a government hospital: the context

This domain was central to understanding the working life of mHCWs. It illustrated their daily lives. Working in a government hospital in Malawi was not easy as there was inadequate *infrastructure*. This meant they were unable to provide respectful care to women, for example in the community hospital there were not enough beds for women

to labour and deliver on. They were unable to see properly due to blackouts and often did not have adequate water for them or their patients to perform basic tasks like hand-washing. Although there were tarmac roads to each of these hospitals, there was inadequate access to fuelled ambulances in emergencies.

There was also a lack of *resources*, for example basic equipment like blood pressure machines and the batteries to keep them going. Staff dealt with shortages of drugs, fluids and other supplies on a regular basis. In the community hospital, a lack of fluids led to women being referred (in the difficult to access ambulances) to the central hospital for their CS.

Even if there were readily available resources, there were *not enough staff*. Nurses reported a 'shortage' and I was told repeatedly about them being on shift alone. One community midwife at the district hospital emphatically told me one morning "I'm on my own and very tired". *Staff were busy* because of these understaffed rotas, along with an increasing number of patients. This was in part due to a new initiative whereby Village Chief's fined women for not delivering in hospital. Furthermore, staff were often away at training courses, performing other administrative duties or at funerals. This increased pressure on the remaining staff who felt unable to cope with the volume of work.

In addition to their clinical workload, staff interacted frequently with *donors*, on whom they relied collectively for resources and equipment. As individuals, the donors provided the opportunity for gaining knowledge and skills, and time away from work

for meetings and courses. What became clear was that the actions of donors did not always improve life for staff. They received equipment they were not trained to use, for example thermometers in the Fahrenheit rather Celsius, or they had to sacrifice clinical work to meet the needs of donors.

Finally, the staff worked within the Malawian *cultural context* which frequently left women disempowered in making key decisions about their or their baby's health.

Having provided this flavour of working life in Malawi, I considered some of the contextual issues for staff through the lens of the social order of the hospital.

One of the most interesting sources of considering the social order, was when it was disrupted. Machines to help unwell babies breathe were introduced into the newly re-opened nursery ward at the district hospital. It had been equipped, through a donor-supported government programme, to deliver oxygen and breathing support to neonates (Continuous Positive Airway Pressure [CPAP]). During the study, blackouts occurred regularly, the CPAP was electricity dependent and there was no access to a generator on the postnatal ward. Staff found this extremely distressing, and were unsettled during the whole blackout if they had babies who needed this support. They believed that because of blackouts and no generator, babies were dying. The downstream effect of this was that staff were reluctant to commence CPAP on all but the neediest babies, as it was harder for babies who had CPAP to suddenly be without it compared to babies solely on oxygen.

This story was notable because staff were distressed by this situation. This was at odds with when they did not have enough water to wash their hands or pain relief to give to women, where staff although frustrated expressed little emotion or distress. This lack of reaction may be because the event was so frequent, and staff understood that these events were essentially normal. This new intervention disrupted their environment as they knew it and there were neither the rules nor the precedent to dictate the reaction they should have. Instead they fell back on their instinctive habitus, and were upset and distressed by the situation.

There were many examples of the social order of the hospital in relation to the context for example staff being resourceful (Box 1) and resources being wasted (Box 2). A brief focus on when the hospital staff were away from work provides a further illumination of this concept. Sometimes staff were away on Ministry of Health business; for example, supervision of health centres. However, much of the time away from work was for training courses or funerals. The funerals were very important in Malawian culture, where everyone was expected to attend funerals of people from their village. The training courses/workshops/campaigns were often run by donors according to their particular agenda. Their impact was significant. For example, in the community hospital on one occasion the COs were out at workshops, largely unrelated to their actual roles. This meant that women could not have a CS and were referred to town, even though there was insufficient fuel for the ambulance. Staff wanted to attend these courses because they provided them with new skills, but also generous allowances. Staff higher in the hospital structure attended more of these lucrative workshops. Staff lower in the structure aspired to attend them in the future and often shared a discourse around

unfairness of selection and lack of opportunity. The workshops helped mHCWs to cope as they were seen as necessary to support meagre salaries. In addition, the precedent of attending workshops and coping when staff were away had been set.

Box 1: Being resourceful

When there are no catheter bags

Staff were used to improvising. They saved old fluid bags and would make them into catheter bags. This seemed to be a relatively standard thing to do, especially in the district and community hospitals. Staff at both sites would sometimes take me to see women with these makeshift catheter bags and proudly tell me 'see we are improvising'.

Box 2: Being wasteful

Gloves as a central part of every task

Two pairs of gloves were donned for every task. This was seen as necessary because the quality was perceived to be poor. Generally, non-sterile gloves were used but staff regularly wore sterile gloves if they had run out. These might be used to hold the floor mop or push a bed. Due to the sheer number of gloves that were worn, the wards regularly ran out. Often this left patient's without care as nothing could be done without gloves.

However, staff should not be criticised for this practice. It was an expected behaviour when at work. The underlying motivation for this was to protect healthcare workers from contracting HIV/AIDS, which has ravaged Malawi. Staff followed the expectations of the hierarchy within the hospital and felt they were required to wear gloves (a nurse once admonished me for touching a bin lid with no gloves on). They also followed the precedent of their peers. Like many of the other actions at the hospital, this was socially ingrained and to not wear gloves for some of these non-clinical tasks would be quite upsetting to the social order of the hospital.

I have shown how the social order of the hospital was intimately related to the way staff interacted with their environment. Loveness's case provided an important window into these contextual issues. She was acutely impacted by staff being busy, and the lack of infrastructure to refer her or resources to adequately treat her.

So many systems: From the health system to an individual's way of doing things

This domain outlined how the hospital worked. As with all organisations it operated through a variety of systems. At the *health systems* level, the Ministry of Health created systems which impacted on the working lives of staff. For example, the system of staff rotations, 'supportive supervision' initiatives and national registration systems. Staff were expected to adhere to these systems to ensure that resources continued to flow towards their hospital. These systems put pressure on staff, especially if they were poorly implemented.

Systems existed at a *hospital* level, such as hospital level meetings (morning reports and neonatal mortality meetings), emergency response (Box 3) and referral systems (Box 4). Staff found the emergency response and referral systems particularly pressurising as they were already in a potentially stressful situation with a patient and these fragile systems did not necessarily facilitate them to provide the best possible care.

Box 3: Emergency Systems

Out-of-hours at the district hospital

At night, there was a NO or RN on call from home. For a woman to be taken to theatre, one of these staff had to be called in to review the patient before calling the CO. This meant that there was a process to follow which could delay the calling of a CO. The CO's do not sleep at the hospital, often living far away and needing the ambulance to bring him to the hospital. This could mean long delays waiting for the ambulance (if there was even fuel available), resulting in delays in getting an emergency into theatre.

Another system related to this was the system of calling switchboard to mobilise the theatre team. Whilst this on the surface made sense, often they didn't understand the urgency of the situation and failed to call people in a timely manner. Furthermore, the switchboard closed for lunch and was not staffed in the evenings and nights, which meant that the system broke down out of hours.

Box 4: Referral Systems

Receiving a referral at the Community Hospital

A lady arrived with her guardian as a referral from a health centre. She had not received any treatment at the health centre and arrived barely able to walk and with very little in the way of medical notes. There was no documentation that she had had an eclamptic fit.

As a result, the nurse didn't treat her immediately for eclampsia. Soon after her arrival she then went on to have a further eclamptic fit before being treated by the nurse.

At a *ward* level systems were developed to support daily work. For example in the community hospital the staff collected the discharges and the ward clerk re-checked the delivery recording, because nurses were so busy. Another robust ward system was that

of daily task-allocation. However, there were ward systems which were less functional. Their systems for tracking patients and patient notes were often inadequate and resulted in much time spent hunting for notes. Another issue were the handovers during the patient's journey. Often women just turned up on wards with no handover, which hindered continuity of care.

The final area for discussion was *individual* systems. Each person had their own methods which interacted with the systems outlined above. For example, staff had different systems for preparing and undertaking a drug round. In the referral hospital, mHCWs tended to prepare lots of drugs and then went around using a trolley. This led to problems if leftover drugs were not labelled. Others then spent time deciding what to do because according to the deputy in-charge "it's a waste" to throw them away, but she also noted "this is dangerous".

I have provided a flavour of the various systems at play in the hospitals. These systems were steeped in the social order of the hospital. I considered two examples as illustrative: Firstly, individuals developed their personal system through the apprenticeship model of learning. This was based upon the precedent of those that they learnt from and the rules of the group to which they had come to belong. One example was in the district hospital where staff wrote their notes at the nurse's station. There was a lack of a systematic approach to assessment. This meant nurses spent time going back to the labour ward to perform further parts of the examination. To an outsider, this makes little sense as it results in much wasted time to do unnecessary (although short) journeys, taking away precious time. This was, however, a widely exhibited behaviour

and therefore likely due to the way staff expected to work, rather than a conscious choice.

Another example of the social order was one in which the ward-clerks in the referral hospital were left to cope with the introduction of a new system for registering births. Women, many of whom were illiterate, were expected to complete relatively complex forms. The ward clerks had to help them with this and input data into the computer. Because of these new tasks women were waiting hours to receive their birth registration numbers before they could go home. As a result, the ward clerks often went home late. Sometimes women had to remain in hospital an extra night, occasionally leading to the clerks being threatened by the patient's families that if they left before discharging their relative they would "beat me". This new system, whilst giving important national level information, had unintended effects on the ward, women and clerks. However, because the clerks were relatively low in the social order of the hospital, there was nothing done to mitigate these issues and no wider ward systems were altered to improve their ability to cope with this extra workload.

There were many systems within which staff worked and that were effected in some way by the social order of the hospital. Two systematic issues were seen in Loveness's case. Firstly, the lack of a well-attended handover meeting meant that the decision was made to refer her to the Central Hospital in a confrontational way on the ward, instead of in a collaborative way privately. Another example of a somewhat functioning system was the need for the CO to return to the ward to write the referral letter to the Central

Hospital. In the social order of the hospital, he was in-charge of her care, despite never having provided care to her, so he had to write the letter.

Delivering Respectful Clinical Care

Healthcare workers performed a huge number of clinical actions every day. Staff battled with their context to provide the best care they could. Taking appropriate *clinical action* was difficult if they were too busy, or didn't have the skills or resources. This resulted in unwell patients not being appropriately identified and prioritised due to lack of systematic history taking, examination and monitoring. An example of this was when a woman in the district hospital fainted whilst she was walking to the postnatal ward. A nurse moved to catch her. After briefly checking her conjunctiva for pallor, he sent an HA to get a wheelchair and then sent the patient to the PN ward with no further examination or observations. Although the most likely diagnosis was a simple faint, there were also other possibilities to consider.

Even if staff did not perform all of the clinical tasks required for a given situation, they generally *knew what they should do*. For example, staff in the district hospital explained to me how to deal with various obstetric emergencies. However sometimes, as in the case of the CPAP machines discussed above, staff didn't have the training they needed to do a good job.

Whilst these observations about the mismatch between clinical actions and knowing what should happen appear to be evaluative in nature, they speak to the heart of how staff worked. It is important to recognise at this point, that I am able to move towards a

somewhat evaluative stance at this stage owing to my personal experience. I was able to observe not only the social world to which the staff belong, but also, due to my obstetric background, assess the quality of care provided as I am aware of what constitutes good practice. Whilst this brings with it the positives of moving into this evaluative space, this knowledge must be used with caution in order to focus on the social world in these settings.

I saw that mHCWs have the skills to take appropriate clinical actions. However, the context in which they work, due to resources and time in addition to the expectations they had for the care they should provide, means that quite often patients receive poor care.

When there were enough staff on the ward, the *skill mix* was often not appropriate. For example, newly qualified nurses or community midwifery assistants found themselves working alone. This was usually due to there being no senior staff available, however these junior staff were often treated as an experienced member of the team by other cadres and management decisions were based on their opinions and examinations. This has a profound effect on both the individual staff and the ability of the team to deliver good quality care. The isolated junior staff can be out of their depth with respect to patient care. This sets a precedent of needing and being expected to cope in inappropriately isolating situations. Furthermore, due to the high regard with which their, as yet not well developed skills, are placed, owing to the social order of the hospital, poor clinical care can be provided to patients.

Some HCWs identified a need for support, or were clear on their personal scope of practice. A helpful example of this was a case of twins being delivered at the community hospital. There was a delay in the delivery of the second twin, but the senior nurse was unwilling to start the hormone drip required without the CO coming in to review the patient, as he felt the decision was beyond his skills. This shows the interdependency that is needed within the team, and also the respect that does exist for the different skills of team members. However, it also links to the previous domain of systems, whereby at a national, district and local level, there is not a prioritisation of getting the right group of staff in the right place to provide quality care.

Staff knew they were expected to provide respectful care. In the wards there were suggestions boxes, although they were largely left unused. Having said this, my impression was that where possible staff tried to give respectful care. For example, in the district hospital when the curtains on the labour ward were clean and up, staff used them. In the community hospital, they used the portable screens to cordon off the labouring women from view. That said, not all clinical care was truly respectful all the time. The main thing that disturbed me was the approach to minor procedures on patients, which caused pain. I saw incidences in all sites of cleaning of wounds, suturing or suture removal where staff seemed to show little regard for the pain women were in. However, this was likely to be effected by their context. There was often no pain relief they could provide to women, and therefore little that the mHCWs could do to alleviate the suffering of their patients. Having said this, I did not witness care in which staff were treating patients in an abusive way.

I have described how staff were knowledgeable about the care they should provide. However, these staff were not always appropriately supported by seniors, or given all the training they needed. In addition, because of the lack of equipment and resources they were not always well positioned to take the correct clinical actions. Having said this, clinical need was poorly identified due to lack of basic examination. This way of doing things was likely to be based in the apprenticeship training staff received and therefore in precedent from those more senior to them.

There were two more examples I'd like to share of how the social order pervades the clinical care patients received. The first is related to the task-allocation, mentioned previously in the systems domain. One day I asked a member of staff at the referral hospital about how to treat the high BP she had just recorded. She explained the required drugs, but went on to explain someone else was doing the drug round according to the task-allocation, and therefore did not treat the woman. This is a clear example of the social order of the hospital taking priority over the needs of the patient. At the referral hospital mHCWs followed this idea of sticking strictly to their tasks. It became evident that this was a normal way of working, so it was one of the precedents set within the team and by those who had come before them.

Another example was in the community hospital. A CO came to review patients. He was told by a very junior nurse that the woman in the corner, a multip (a woman who has had more than one birth), had failed to progress and needed a CS. Together with the nurse, he looked at her partogram and decided to take her to theatre. I decided to ask him about it. He told me that the woman had been pushing for an hour, but had not

delivered. I asked him if he had examined her, as I had been there for over an hour, and I had not witnessed her pushing once. He decided to examine her and coached her to push and decided that she would likely deliver and left the nurse to deliver her. Five minutes later, after two pushes, the woman had her baby. This revealed how CO's do not usually question the judgment of nurses. There may be several reasons for this. But here, within the rules of the workplace, if a nurse, who had been with a patient, decided she would not deliver, a CO should listen to her. Furthermore, CO's learn from their seniors, that it was normal to take the word of the nurses and do whatever was requested. In changing the decision, as described in this case, the CO caused surprise and upset to the nurse.

I have illustrated here that staff were making clinical decisions on the background of what they knew but also the social order of the hospital. Much of the clinical practice of staff was based on the rules of the workplace, which over time had facilitated staff being able to cope with their environment. The case of Loveness showed that staff knew how to deliver respectful clinical care. The clinical team all knew what they were doing, and took appropriate clinical action in the immediate phase of Loveness's admission. However, they missed the opportunity to prevent the eclampsia by not being able to take the appropriate clinical action when she arrived. When the eclamptic fit did occur the whole team reacted well together as a cohesive unit.

Working 'hand in hand': Relationships in hospital

One of the clearest elements of relationships in the hospital was that of *hierarchy*, based on cadre/educational level. Whilst this was obvious between HA's and nurses, it was

also the case that an experienced NMWT immediately deferred to an NO just out of nursing school. The NMWT/NO divide was illustrated by the desire of the NMWT's to upgrade. However, the level of this ingrained divide was perhaps best illustrated in a conversation I had in the referral hospital with a NMWT about the degree level student nurses. She was telling me how important it was to teach students, but how some of them questioned why they should listen to her because 'you're just a NMWT'.

Elements of whether staff *sought clinical opinions* were related to hierarchy too, for example NO's sometimes felt reluctant to ask CO's for their opinion so they waited until they had 'failed' with a patient first. Having said this, there were also lots of occasions where staff sought help from their colleagues, as with the 'twins lady' discussed above.

In addition to the clinical relationships, there were *social relationships*. At the district and community hospitals these were particularly important, as staff lived out of town. Socialising at work was central to the working day and on each ward a social area had been carved out. Staff laughed, chatted and rested together and helped each other if they could by lending money or sharing food. In all the hospitals, there were regular visits to the ward from off duty staff. There were lots of reasons for this but often, especially in the district and community hospitals, it was just for a chat with colleagues.

Relationships with patients and guardians were a cornerstone of hospital life. However, the social divide in society, resulted in patients showing deference to staff. This undoubtedly meant that staff felt respected at work.

It is important to explain that the guardians played a central role in the hospital. Nurses provided clinical care (e.g. administering drugs), guardians provided all other care (e.g. feeding and washing). Guardians were often close family members for example mothers, grandmothers or sisters. But they could also be anyone who happened to be from your village if you were living away from your family a 'village sister'. The relationship with the guardians was vital as they essentially formed part of the clinical team, emptying bedpans and checking if a woman was bleeding after birth on the postnatal ward. Many nurses valued guardians, had good relationships with them and shared their resources appropriately (e.g. allowing guardians access to gloves). However, other nurses did not like the guardians on the ward as they hindered nurses performing their tasks. This strained relationships, and meant that much of the energy of the staff was directed at keeping the guardians off the ward.

These relationships within the hospital on the surface looked good, with staff laughing and chatting together. However, they are tied into the social order of the hospital. One example of this was at the referral hospital when they had a communal lunch. It was the HA's who were expected to cook the lunch and ensure that the senior staff had the best food. This illustrated how despite the laughing and joking, the social structure of the ward mimicked that of society in general.

The social order of the hospital was well illustrated when considering the relationships between nurses and CO's. Nurses, in particular NO's, often discussed calling CO's only when they had failed. This was particularly the case in the district hospital, nurses often

felt that the CO's had less expertise in obstetrics than nurses had. Nurses felt that because they spent more time with the patients they were better placed to decide whether women would deliver. Some nurses and CO's discussed the divide between them in terms of their qualifications. CO's being diploma holders were less qualified and therefore lower down the social order of the hospital than some of the degree holding nurses. This was one of the reasons why they were reluctant to change the plans that the nurses had decided upon for patients.

In the case of Loveness there were elements of the social order which were clearly operating. Firstly, there was the fact that the guardian was meek, she generally behaved in a deferential manner. There was also the interaction between the anaesthetic CO and the nurse, which was confrontational and revealed the social order in that ward at that moment.

Discussion

This ethnography provided a window into the difficult working life of healthcare workers in Malawi. Staff had to navigate a health system which was ill equipped to deliver the care they wished to provide. In terms of the everyday working life, the findings of this ethnography were not out of keeping with other studies in Malawi and Sub-Saharan Africa: where staff battled with the context in terms of resources⁷³, too few staff^{16,74,75} and fragile systems.⁷⁶ These things coalesced to form the staffs' experience of working life.

However, alongside this I have provided examples of how the daily life of mHCWs is affected by the social order of the hospital. They have little power to change the social order, and often when they were at work, unknown to them, they perpetuated it by following the rules of the workplace and precedent. Bourdieu described, how social structure was determined by access to capital, especially if there was little transmission of capital between groups.⁶⁴ This argument was also applicable to the idea that if the rules of the workplace and precedent continued to be followed without disruption, access to capital would become further cemented within the social order of the hospital.

Working within the social order had a profound effect on everything that happened to staff and patients. Over many years, it has developed into a mechanism which ensured that patient care remained at its most basic, and that staff at work were often overstretched. However, the social order dictated that this was the norm and therefore staff were reluctant to disrupt it. Disruption was not only difficult but logically, by altering the way staff worked it meant more work for them. An example of the motivation levels on the ward occurred in the case of Loveness when Joshua discussed why he was happy her blood pressure was normal. His motivation to improve her outcome was to avoid the extra work that a maternal death brought. In order to move staff away from their learned behaviours there needed to be something to motivate them to move towards making new rules and setting new precedents.⁷⁷

Although concepts akin to social order have been widely discussed in ethnographies from Malawi^{68,70,71} I could not identify an ethnography of the working life of maternity

workers. So identification of some similar concepts across ethnographies based around the Malawian health system more generally was reassuring.

This ethnography took place across three sites. Whilst this brought its challenges in terms of depth, it allowed ideas to be considered and ‘tested’ in the different settings. It was interesting to observe that many of the findings about daily working life were broadly comparable across the sites, with more similarities between the out of town community and district hospitals being evident.

As I have portrayed, there were several contextual issues, many of which needed to be addressed at a health systems level in order to improve the working lives of staff and the care women received. However, even if the contextual issues were resolved there would still be issues in terms of inadequate clinical care, dysfunctional systems and relationships because of the difficulty of disrupting the social order of the ward as ingrained behaviours do not change quickly.⁷⁸ For changes to be made a comprehensive approach at health policy level will be required. This needs to affect the context staff work in and more fundamentally, the training they receive to do their jobs, both at college/university level and then on the wards. Senior staff must be expected and empowered to set new precedents through positive role modelling so that the next generation of Malawian HCWs are happier at work and better able to provide respectful, comprehensive, good quality care to patients.

I would like to revisit the case of Loveness. She provided a lens into the world of a maternity unit in Malawi. She was unable to receive the care she needed due to the

context – lack of an ambulance, lack of equipment to perform her CS and lack of the appropriate drug. Her case was allowed to get so complicated because she was not seen promptly due to the hospital being so busy. This was exacerbated by the fact that there was no system to identify her level of clinical need. Once there was an emergency, the team worked together to stabilise her, but she had minimal ongoing clinical care overnight. Once she had waited all night in the corridor, the anaesthetist, who had not been previously consulted, declared that he would not anaesthetise her. This forced her to get a minibus to town nearly twenty-four hours later.

I never did find out the outcome for Loveness or her baby, but she was certainly at high risk of poor outcomes for her and her unborn child. Her case was not unusual, and I saw other similar patients. Cases such as Loveness's were undoubtedly difficult for staff. However, within the system and social order they had little power to change these outcomes. To improve their working lives, staff needed to disrupt their social order and set new rules and precedents. Redefining the social order of the hospital is no easy feat, but staff must change their working lives in order for them to enjoy work and for patients to receive the best possible care.

Part 2: Learning from the experience of maternity healthcare workers in Malawi: Ten low-cost recommendations to improve working lives and quality of care.

Introduction

An enabling environment was a key factor in improving women's, children's and adolescent health, as identified in the new Global Strategy: Survive, Thrive, Transform.

¹⁸ The health system and the workers within it are a vital part of this environment.¹⁸

However, as discussed previously, there is a shortage of mHCWs in the places that need them most. Availability of skilled providers (doctors, nurses, midwives) reduces maternal mortality.²⁸ The World Health Organisation (WHO) predict that good quality care at delivery would reduce the number of maternal deaths by over one-third, decrease the number of stillbirths by over 500,000 and lower neonatal deaths by 1.3million.¹⁸

This study aimed to understand the working life experience of mHCWs at district level facilities in Malawi, allowing a better understanding of both the positive elements of their working lives and the challenges healthcare workers face. These insights will enable me to suggest relevant solutions.

Methods

Study Design

In order to understand the working life experience of HCWs, I used a qualitative approach to explore each individual's perspective through semi-structured interviews. I

undertook the analysis from the standpoint of Interpretative Phenomenological Analysis (IPA) because it allows the development of a powerful picture of an experience.⁷⁹

However, because the aim was to understand working life from the perspective of all cadres of mHCWs, the sample was too big to use IPA alone, given it can cope with a relatively small number of cases.⁸⁰ Template Analysis (TA) was therefore selected to complement the IPA as it offered a flexible way to scale up and develop the coding structure devised during the IPA analysis.^{81,82} TA can cope with a large amount of data as it requires focussed coding of text into a template rather than close line-by-line analysis of concepts as required for IPA.

Piloting

The interview guide was designed and piloted on one participant in the UK. Following this feedback was sought from my qualitative supervisor and the way I approached some questions was altered.

Context

As previously described, the study took place in and around Lilongwe, Malawi's Capital. Participants were recruited from three hospitals; a large district referral centre, a district hospital and a community hospital.

Sampling

To undertake an IPA analysis, participants must have a shared experience as this allows investigation of a single perspective and facilitates understanding of the common or conflicting ideas within and between cases.⁸³ In this case the common perspective was

working in a district hospital in Malawi. A sampling technique of convenience was used as it was necessary to access those staff who were available when the researcher was on site. This was complemented by a purposive approach to ensure that a variety of cadres of staff were represented.

Participants

HCWs of all cadres were invited to participate in the study and were provided with a participant information leaflet (Appendix 2). Staff engaged enthusiastically in the interview process, with all available staff wanting to participate in the study. They were recompensed 2,300 Malawian Kwacha (£3.50) to cover transportation costs to attend the interviews, which took place in their free time.

Data Collection

After obtaining written informed consent (Appendix 3), interviews were arranged with staff at a time convenient to them. I carried out semi-structured interviews lasting 30-90 minutes using a topic guide with prompts (Appendix 4) to guide the conversation. These interviews were recorded and transcribed. As these were my first qualitative interviews I rapidly transcribed them and sent the transcripts to my qualitative supervisor for feedback on improving my interview technique. Participants were offered the opportunity to receive a copy via email, and several requested their transcript; although only one participant made alterations to grammar and phraseology. All transcripts were anonymised prior to data analysis, and pseudonyms were used to present the data below.

Data Analysis

IPA has two key theoretical standpoints drawn from its philosophical underpinnings of phenomenology, hermeneutics and ideography.⁸⁰ Firstly, the analysis needs to be rooted in the participant's experience, and secondly that people make sense of their own experiences. Therefore as researchers we interpret the participants' account of their experience⁸⁰ and we cannot fully understand the insider's perspective as each person brings their own prior beliefs and experiences to the dynamic process of interpretation.⁸³

TA is a flexible and pragmatic technique⁸¹ that facilitates the ongoing development of a template from an initial code.⁸⁴ Themes are derived from theory, research evidence, interview guides or prior analysis.^{85,84} Interviews can then be categorised and the themes further developed.⁸¹ Any un-coded text are considered as potential unexpected themes to explore.⁸⁴ Having categorised the text, it is then possible to investigate relationships in more detail within and between themes.⁸²

I decided to use TA rather than another form of thematic content analysis for example framework analysis, because IPA and TA have been used together successfully in several previous studies. It is possible to join IPA and TA in various ways; directly using a template to undertake an analysis aligned to IPA^{86,87}, developing a template analysis further using IPA⁸⁴ and developing a template using IPA and then refining it further on a larger dataset using a template analysis approach.⁸⁵ This final approach was taken in this study, as the intent was to understand the healthcare workers experience of their working lives.

As IPA required a detailed analysis of a small number of cases,⁷⁹ nine cases with the richest experiential data, spread across sites and cadres of staff, were selected for IPA analysis. These transcripts were read and re-read before I coded them by hand. They were partially coded by my qualitative supervisor, an expert in IPA, Michael Larkin, a psychologist, to ensure that themes were adequately extracted and important experiential aspects were identified. This allowed more than one opinion of the data set, which may lead to the drawing out different themes.⁸⁸ Following this, we consulted my other supervisors, a gynaecologist, a maternal health specialist and a midwife to review and refine the emerging themes, drawing on their subject expertise. These themes were then fed back to participants before becoming the 'template'.

This template was then applied to a further set of nine interviews using the qualitative software NVivo version 10. The sub-themes were modified to incorporate new ideas identified by participants. The working version of the template was subsequently applied to the entire dataset to bring together the relevant text for each theme.⁸²

Each coded theme was collated and explored further. The data was analysed first by understanding the distribution of codes across the data, particularly pertaining to cadre and facility. The relationships between themes were then explored considering corroborations and polarizing factors within and between cases and themes.^{80,82}

Additionally, we used diagrams to identify interlinkages and develop the stories within each super-ordinate theme.⁸⁰

The position of the researchers.

I undertook the interviews and analysis. As a medical doctor with a background in obstetrics and gynaecology, I brought a clinical perspective to the analysis. ML provided supervision and triangulation on the developing analysis from the perspective of phenomenological psychology.

Results

Interviews were carried out with 31 healthcare professionals across the three sites with a mix of cadres participating (table 3). All professionals approached agreed to participate.

Table 3: Interview participants by Site, Cadre and Sex

	District Referral Hospital		District Hospital		Community Hospital	
	Male	Female	Male	Female	Male	Female
Patient/ Hospital attendant	No male PA/HA	1	No English speaking available		No English speaking available	
Nursing Auxiliary	No Male NA	1	Male NA away	1	No NAs at hospital	
Nurse midwife technician	No male NMWT	4	1	1	Male nurse away	5
Nursing Officer	No male NO	2	2	1	1	1
Clinical Officer	1	2	4	No female CO	2	No Female CO
Doctor	No male doctor on ward	1	No doctors		No doctors	

The development of the sub-themes and how they related to the super-ordinate themes are displayed in table 4, which also shows how many of the participants contributed evidence to each theme/ super-ordinate theme. No themes were discounted, however as the template evolved minor themes moved between superordinate themes until the eight themes shown in Table 4 were developed.

Table 4: The thematic structure of the initial IPA and final IPA/TA hybrid analysis indicated the super-ordinate and minor themes in addition to the number of participants contributing to each super-ordinate theme.

Initial IPA Template	Final IPA/TA Template (number of participants contributing to evidence for theme)																																
<p>Support to do the job Calling for help from clinicians Conflict between cadres Coping Strategies Feedback from colleagues Teamwork Inadequate facilities Leadership Management Night time worst Common goals Communication No control Nurses with the patients Resources Senior support Supervision Referral Food Important</p> <p>Being a healthcare worker is hectic but good outcomes are enjoyable Clear responsibilities Enjoy job Pressure of work high Outside of work Quiet times Motivation for doing job Feedback from patients</p> <p>Treating all patients well; Physically, socially and spiritually. Quality Improvement Want to do good Whole person care Respectful Care Caring about patients Not properly doing duties</p> <p>Continuing development to increase independence and recognition Experienced worker Career history Hierarchical system Learning from experience Learning from experienced colleagues Learning from other cadres Personal ambition and achievement On the job training Role Models School hoping to go Motivation for becoming HCW Picked for school</p> <p>Incentives motivate, meet needs and encourage implementation Absent from work Training Incentives embedded in the system Pay Selection for training Training motivating Incentives Training motivating Knowledge Training motivating Rest Training Needed</p>	<p>Wanting a culture of respect, support and praise: Systemic issues (31)</p> <table border="1"> <tr> <td>Absent from work Training</td> <td>Calling for help from clinicians</td> <td>Feedback from colleagues</td> </tr> <tr> <td>Communication</td> <td>Conflict between cadres</td> <td>Clear responsibilities</td> </tr> <tr> <td>Good working environment</td> <td>Hierarchical system</td> <td>Inadequate facilities</td> </tr> <tr> <td>Incentives Embedded</td> <td>Leadership</td> <td>Management</td> </tr> <tr> <td>Food Important</td> <td>Night time worst</td> <td>No control</td> </tr> <tr> <td>Not properly doing duties</td> <td>Nurses with the patients</td> <td>Patients agency</td> </tr> <tr> <td>Pay</td> <td>Poor clinical assessment</td> <td>School hoping to go</td> </tr> <tr> <td>Pressure of work high</td> <td>Quiet times</td> <td>Referral</td> </tr> <tr> <td>Resources</td> <td>Selection for training</td> <td>Senior support</td> </tr> <tr> <td>Supervision</td> <td></td> <td></td> </tr> </table>			Absent from work Training	Calling for help from clinicians	Feedback from colleagues	Communication	Conflict between cadres	Clear responsibilities	Good working environment	Hierarchical system	Inadequate facilities	Incentives Embedded	Leadership	Management	Food Important	Night time worst	No control	Not properly doing duties	Nurses with the patients	Patients agency	Pay	Poor clinical assessment	School hoping to go	Pressure of work high	Quiet times	Referral	Resources	Selection for training	Senior support	Supervision		
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	Resources	Selection for training	Senior support																														
	Supervision																																
	<p>Passionately, determinedly fulfilling a dream: Staff Motivations (31)</p> <table border="1"> <tr> <td>Career history</td> <td>Caring about patients</td> <td>Common goals</td> </tr> <tr> <td>Conflict between cadres</td> <td>Enjoying</td> <td>Experienced worker</td> </tr> <tr> <td>Feedback from colleagues</td> <td>Feedback from patients</td> <td>Good working environment</td> </tr> <tr> <td>Teamwork</td> <td>Hierarchical system</td> <td>Inadequate facilities</td> </tr> <tr> <td>Personal ambition and achievement</td> <td>Food Important</td> <td>Motivation for becoming HCW</td> </tr> <tr> <td>Leadership</td> <td>Responsibility</td> <td>Outside of work</td> </tr> <tr> <td>Patients agency</td> <td>Pay</td> <td>Role models</td> </tr> <tr> <td>Senior support</td> <td>Supervision</td> <td>Training</td> </tr> <tr> <td>Want to do good job</td> <td></td> <td></td> </tr> </table>			Career history	Caring about patients	Common goals	Conflict between cadres	Enjoying	Experienced worker	Feedback from colleagues	Feedback from patients	Good working environment	Teamwork	Hierarchical system	Inadequate facilities	Personal ambition and achievement	Food Important	Motivation for becoming HCW	Leadership	Responsibility	Outside of work	Patients agency	Pay	Role models	Senior support	Supervision	Training	Want to do good job					
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It is important to understand the context in which these HCWs are delivering care, in order to situate their experiences. The context has been described in detail in SAP1, however it will be briefly revisited using the voice of staff. The healthcare workers described a difficult working environment with too few staff, resources and poor facilities with an increasing number of patients (Box 5). This was compounded by low wages, which were paid late. This was especially the case for overtime leading to staff refusing to work extra shifts. The super-ordinate themes around the experience of working lives of HCWs was discussed with this context in mind.

Box 5: Context of working environment

Working life in the words of mHCWs

TOO FEW STAFF: *“In maternity we are only six nurses. Six nurses to cover during the day, the same six nurses to cover during the night. So most of the times we work, we are, something like we are punished.” (Ellen, NMWT)*

NOT ENOUGH RESOURCES: *“A crisis of no delivery packs, no forceps, wherever there is a tear you have to run to the theatre to check for the needle in order to repair the tear. So that is our nice working place.” (Chiso, NMWT)*

INADEQUATE FACILITIES: *“The three beds assisting 400 women [in a month]. It’s, it’s, it’s a lot and ee I feel so bad because the space is so small and then, some of patients may be delivering on the floor.” (Kingston, NO, in-charge)*

INCREASING WORKLOAD: *“The president announced that no one should be delivering to them [traditional birth attendants] so more are coming. And when they deliver at home they give penalty to the chief so in fear of giving penalty to the chief so they are forced to come to the hospital.” (Aubrey, CO)*

LOW PAY: *“The salaries are not enough to take us for thirty days.” (Paul, CO)*

LATE PAY FOR OVERTIME: *“You find that you work. Instead of going home to rest, you know this, there’s a shortage, let me cover the shortage at the end you agree that at the end you will have such amount they don’t give you. Then it’s an embarrassing and you are discouraged to work in extra hours, eh, which makes the people who are on normal duty to feel the work because for example yesterday, yester night I was alone.” (Alile, NMWT)*

Before moving on to discuss each of the themes in more detail, I would like to highlight one interesting area. Whilst I expected to identify divergent themes during this analysis, the results were surprisingly congruous. This was especially the case within staff groups. It was therefore not possible to report divergent themes or groups.

Wanting a culture of respect, praise and support: Systemic issues

HCWs worked within a complex system of interpersonal interactions. One of the most divisive of these was the hierarchy which Alile, a NMWT, felt resulted in a “demarcation” between staff groups, “*so the relationship between these cadres is not good at all*”. This demarcation existed not only between groups of staff, for example COs and nurses, but also due to the levels of qualifications, which Paul a CO believed “*play some some role in um actually weakening the teams*”.

This hierarchy resulted in some staff feeling that they were inferior and did not have any input into their jobs, “*we don’t have any due to tell them what, what can we do*” (Alile, NMWT). Moreover, they felt uncared for; “*they don’t regard us they don’t look at our welfare*” (Alile, NMWT). Many staff did have insight into the flaws this rigid hierarchy brought. For example Victor, a CO, felt that “*sometimes I may not be humble enough to take their suggestions and maybe err listen to them*”.

Moving up this hierarchy through upgrading took staff into a position of leadership, which tended to translate into spending less time on the ward. This left remaining staff with all the work to do without the on-the-ground leadership they desired, although this approach was not universal, as expressed by Rhoda a NMWT:

“Sometimes they can come in the morning, they just walk walk then they go out...the in-charges, but lucky enough here our in-charge I think is not like that but the matron eeh is so difficult...yeah, she come here but she don’t work. She just stay, then she go, she come at lunch eat, go.”

Staff valued being able to consult their senior colleagues, however *“some places if you are a clinical officer you will be the overall boss so you will have no one to consult”* (Marshall, CO). When discussing supervision mHCWs generally felt that it was problem focused with little opportunity for praise:

“They usually will always come to ask for something or to probe more if a problem comes in. That’s when they would like to know more but on the good things that we do, no.” (Cynthia, NO)

The hierarchy within the system was further cemented by the lack of control over transfers. This left staff struggling to cope at ward level as in Alile’s case; *“they can choose me, to remove me from here to work somewhere regardless of my feelings and how can I cope with the other ward”*. At a hospital level, staff can be transferred to anywhere in the country; *“They do transfer us from one place to another and it’s up to them to decide who goes where”* (Fanny, CO). All of which can leave wards with inexperienced staff, as described by Kennedy, a NO and deputy in-charge, *“as for maternity, we don’t have lots lots of those experienced ones it’s just a youthful generation”*.

Passionately, determinedly fulfilling a dream: Staff Motivation

Despite the challenges, many HCWs felt that *“the dream I had, I have fulfilled”* (Ellen, NMWT). Becoming a healthcare worker was often motivated by a desire to help people, as described by Victor, a CO:

“I wanted to be to develop an interest, to be one of the people that could be helping other people”

Wanting to help people underpinned the enjoyment mHCWs got from interacting with patients and saving lives. When a mHCW saved a life *“you are able to see the impact right there that am working because the results, they come directly”* (Chester, CO, hospital in-charge). This instant, satisfying feedback motivated healthcare workers. This motivation within the team was enhanced when staff were appreciated either from staff as described by Roshin, a NMWT *“even just appreciating, oh you are working hard, you are a hard worker you feel better”*, or from patients: *“I feel motivated because of like the feedback that I get from people yeah cos I could meet some people maybe a mother and her baby...she will come to me and say this is your child you delivered me during that time so I feel like wow this is great.”* (Vincent, NO, in-charge)

Commitment, communication and taking responsibility: Professionalism

MHCWs wanted to do the best job they could as they were responsible professionals. For example, when there was a shortage of staff the ward in-charge got called and they *“come and make sure that care of the patient is not compromised”* (Kingston, NO, in-charge).

Kingston also recognised that *“there’s a lot of things in our facility that are supposed to be changed”*. Staff worked together to *“improve on health care where maybe something went wrong”* (Ash, CO). However, he described the importance of reflecting together in a constructive rather than critical way:

“The goodness that it doesn’t pinpoint on the fingers that you are the one who did this thing no but it’s like a general consensus agreeing on what went wrong in the management of the patient.”

Professionalism is further displayed when staff reflected on their own professional practice. One CO, Aubrey, described how an incident *“touched me”* and how *“since then I do communicate”* in theatre after an incident where communication broke down: *“So he did spinal anaesthesia and I think it went high, then when I was cutting the abdomen, I saw dark blood but I didn’t communicate to the anaesthetist that the patient’s blood is deoxygenated and the patient died.”*

Other staff had more positive communication experiences, when they have addressed issues of lack of professionalism in an open way:

“I learned that if you communicate with your people properly, things will actually run smoothly. Because, in the beginning, I saw that people would give so many excuses for not coming to work. That was when we were all new in this ward. Then we had a meeting. We sat down, they told me their problems, we sorted it out. And now when

someone gives me an excuse I know that it's genuine cause you can see that there are less absenteeisms" (Leoni, NO, in-charge)

Relationships in the team became strained when people did not behave in a professional manner and, despite trying to address issues, *"nothing seems to be changing"*

(Kennedy, NO, deputy in-charge). As the matron Violet reported, the COs *"get missing"* after the ward rounds. Perhaps it was because *"they go to another department but most of the time they are out of the hospital"*. This meant that *"when you have got a an emergency, or you have got a very sick patient you have to search for them"*.

Violet's sentiments were echoed almost universally by the nursing staff. Chiso, a NMWT, felt *"that's how the bad teamwork comes with the clinicians"*. He described how relationships became more strained when nurses called the clinicians to no avail; *"we jot down like a graph on how we called the clinician he said he is coming. After thirty minutes we called him again he did not come; so they hate those things."*

However Kaia, a HA, described that despite these conflicts, people working together *"can't agree on everything"* but they needed to behave in a professional manner and *"concentrate on the positive things and meeting the goal for our jobs"*.

Treating patients well; physically, psychologically, spiritually

Theresa, a NMWT, described how, as a professional, *"you need to care psychologically, socially, physically....spiritually"* for your patients. This total care meant being with them *"when they sorrow when they stress when they doubts"*. This also meant providing high quality, respectful care was sometimes a challenge for staff, especially

when “*the women sometimes they irritate you*” (Alile, NMWT). Natasha, a CO in-charge, recognised that this was challenging for some staff as “*they will come with their own problems at home*” but still she didn’t “*think you can just come here and start shouting at everyone it’s not on*”. Alile described how instead “*you just make your heart to calm*” and “*just go there and help her*” when it was time to deliver.

Revisiting the conflict between nurses and COs described in the professionalism section, this had an impact on the quality of care for patients who, according to Francis, an intern CO, could “*overstay at the hospital*” due to “*our absence*” because “*there is no one to work on them*”. Furthermore, this absenteeism forced mHCWs to work outside of their scope of practice, which resulted in not only more work for nurses but also poorer care for patients as described by Rachel, a NMWT, “*patients rush to the wards. Can you please assist us, the clinician is not there. So we are the ones maybe admitting the patients, prescribing drugs...clinicians are the ones who know more about drugs than a nurse*”.

Patients didn’t always receive the quickest treatment because according to Vincent, a NO in-charge, “*the midwives are the ones that are good at managing the obstetric complications*”. Therefore “*they[COs] usually come when there are maybe issues maybe we have failed that’s when they do come*”. Waiting to admit failure before mobilising the required team led to additional delay in women receiving the treatment they needed.

Perhaps because as Brenda, a NMWT, describes the “*clinician is not there, he is not coming*”, nurses feel the need to make clinical decisions, for example to perform a CS. Victor, a CO, describes how “*we never trained to just ok have a diagnosis from a friend and take patient. You have to examine the patients...but probably we do not do it just because I don’t know the patient’s aww is already there*”. This can result in inappropriate operations or COs being ill prepared for the operation they are about to perform, and consequently worse patient care.

Continuing development to increase independence, recognition and prospects

Many HCWs like Kingston, an in-charge NO, felt they “*need to go back to school to further my education*”, so he can become “*a lecturer at one of the nursing schools*”. This motivation might have been driven by a desire to help patients, but in many cases, upgrading provides the opportunity to improve job prospects, “*there are better salaries than what I am getting here now*” (Rhoda NMWT). Some staff, particularly COs, were “*a little bit frustrated with the systems*”, like Paul, a CO, who felt the career development pathway was not clear.

Whether a nurse or CO, progress was not easy. Before “*going further with my with my education*” staff like Theresa, a NMWT, often had to go “*back to school*”. Following school, going to university to get a first degree was a ‘*challenge*’ but according to Marshall, a CO “*after first degree the world is open here in Malawi*”. These difficulties were compounded for women, as according to some COs like Natasha, women were considered “*an inferior and even in class you can see out of fifty men you are just two*”

they found that *“men can be interacting or discussing on their own and they can sideline us”*.

The competition for places to upgrade was fierce and many like, Alile a NMWT felt that *“the chance is very low just ... most of people up there they just say this is my niece this or is my neighbour oh I know this one let me take this one regardless of qualifications. So if you don't have someone above there they just leave you”*.

As discussed in regards to professionalism and motivation, staff did want to do a good job and they recognised that *“experience is a good teacher”* (Pricilla, NMWT, deputy in-charge). They appreciated learning from each other both within and between cadres. Learning something from a lower cadre was particularly pertinent for staff; *“suturing itself I was taught by a maid...He was the one who I will do this for you he sutured for me and it was nice and I still remember that suturing even though the patient attendant doesn't know suturing but since they have been there for years...I still remember”* (Natasha, CO).

Incentives motivate, meet needs and encourage implementation

In terms of continuing development, training sessions were somewhat of a special case. They were inextricably linked to the allowances that staff received when they attended. Rachel a NMWT described just how integral these allowances were:

“It's the same like when you train your child to eat breakfast every day before he goes to school he is needs to take breakfast. When he is at home he takes breakfast. The other

day when you are not going to prepare breakfast for that child that child won't be happy...we got used already to get an allowance after a training. So that grew into us."

Staff felt that when they were away at training courses, they needed incentives because, they *"could have been at home, doing some other things that could have brought us some monies"* (Sasha, NMWT). Furthermore, training sessions often resulted in more work. Ellen a NMWT explained *"when you come back it means you need to implement that"*. She felt if staff *"are given allowances when they come back they try to work as much as possible so that you can see the impact of the training but if they don't receive anything they say I haven't received anything I will work as I am supposed to work so they don't even implement those things"*.

Before even getting to this stage of implementing, if staff attended a session where only expenses are available they *"say we will not do this we are going back; we are not going to attend the whole session... it becomes difficult some will say ah let's all just close this and those conducting the training they don't have any choice"* (Chiso NMWT).

Training sessions that did continue to happen, were supported by incentives, and were valued by staff. However, much like with education, there was a feeling of unfairness, according to Aubrey a CO *"they don't balance chances of attending meetings"*.

Theresa a nurse midwife technician described how nurses feel similarly *"most of the time they consider the registered ones so you are always on duty always on duty you*

can't go out, you are always on duty so that makes us down". This fed into staff being demoralised.

Superdiversity of healthcare staff

Staff approached their jobs from a variety of different perspectives and backgrounds. This multi-layered complexity within the population of mHCWs can be considered to be superdiversity.⁸⁹ Some, like Cynthia a NO, were motivated by *"that feeling of helping others"*, whilst others were motivated by personal experience. For example, when Francis, an intern CO, was being a guardian to his father, he found he *"wasn't much convinced"* with *"the way they were attending to the, to the to the patients, including my father"*. For others, being a mHCW was just a job *"I wanted to become an accountant that was my dream, even when I was at secondary school. But uhh upon been applying to University of Malawi and been left out I had no choice"* (Ash, CO).

As well as their motivations, staff also had a diverse range of prior experiences. For example, Francis said; *"professionally, earlier on I was a teacher myself"*. Memory, a NMWT, had a wealth of experience, having *"qualified in 1986"* and since then worked in *"different kinds of nursing"*. Staff saw the importance of the diversity of experience. Violet the matron described how new staff brought *"new ideas maybe how, how they were doing things in their departments, in their various hospitals"* this could *"assist us to change"* and *"learn new things"*.

In addition to different experiences, staff also had different challenges to address at home. This was especially the case for women; *"the child is sick, it becomes a*

challenge, you we come here thinking how's my kid at home so sometimes being a working mother...that's a challenge especially when there's a problem" (Roshin, NMWT).

Positivity, teamwork and improvisation: Resilience

Despite the challenges staff faced in their daily lives, they displayed incredible resilience. This might have had its roots in the motivations and professionalism of staff, but for some their self-belief undoubtedly played a role as in the case of Kennedy a NO and deputy in-charge *"I always believe I could be I could be that person, that single person that could bring change"*.

In addition to self-belief there were some practical things that helped staff in their working lives. Marshall a CO described another aspect of the team's resilience. He talked about how *"you should do cover"* when *"my friend has going out"*. Whilst the negative aspects of absenteeism were undeniable, having supportive workmates to rely on when you needed to *"it really helps"*. Cynthia a NO described, how the in-charges put *"experienced people and working with inexperienced"* so that the ward *"does not want"*.

Cynthia described another important coping mechanism, teamwork, whereby *"all the resources are put to where it's busy"* so once *"they've finished doing their work in postnatal ward, they have to assist in labour ward as well"*. This idea of building resilience through working with experienced staff extended to clinical staff, learning

from more senior clinicians allowed mHCWs to build more personal resilience to cope in future as Yvonne a doctor described:

“I always try to not be a superhero when am not sure I would rather a consultant watch while I do...So next time I’m faced with that situation I know exactly what to do...it’s a good feeling because you know you always have a safety net.”

Personal resilience had been built outside of work too, for example by diversifying income as described by Natasha a CO; *“I have a shop in town”*. Whilst undoubtedly some staff had extra jobs that resulted in absenteeism, others like Natasha were able to manage their extra earning around work; *“When I’m free I can go and visit her[store keeper]...most of the time is her who takes care I just go there for stock taking and everything”*.

Having a family built personal resilience further as family commitments forced staff to take time away from work as Paul, a CO described *“generally in our culture, well, you should actually find some time to go visit the family”*. Staff also ensured that they coped by *“sometimes you can choose to just ask for an off to rest”* (Rhoda, NMWT). The general ebb and flow of clinical work also helped as sometimes it’s quiet as described by Kennedy a NO: *“yesterday we only had a single patient, so I was just seated there”*.

Finally, according to Kingston a NO, in-charge, HCWs were *“socially people who are respected”* so he thought, *“being a nurse, it’s good”*. This positive reception bolstered the morale of staff and strengthened their capacity to cope.

Discussion

My analysis has painted a picture of how mHCWs in Malawi delivered care within a challenging environment, whilst navigating the complex interpersonal relationships throughout the system. These factors were often not conducive to a good experience of being at work, nor did they equip them with the ability to provide excellent patient care. Despite this, staff seemed intrinsically motivated and drew on their resilience as a person and a team to care for their patients.

The relationships between people were just one part of the system; there was also the health policy environment and resources to consider. A functioning health system required all of these interdependent components to work effectively.

Figure 12: The Health Systems Bicycle with the people and relationships wheel enlarged

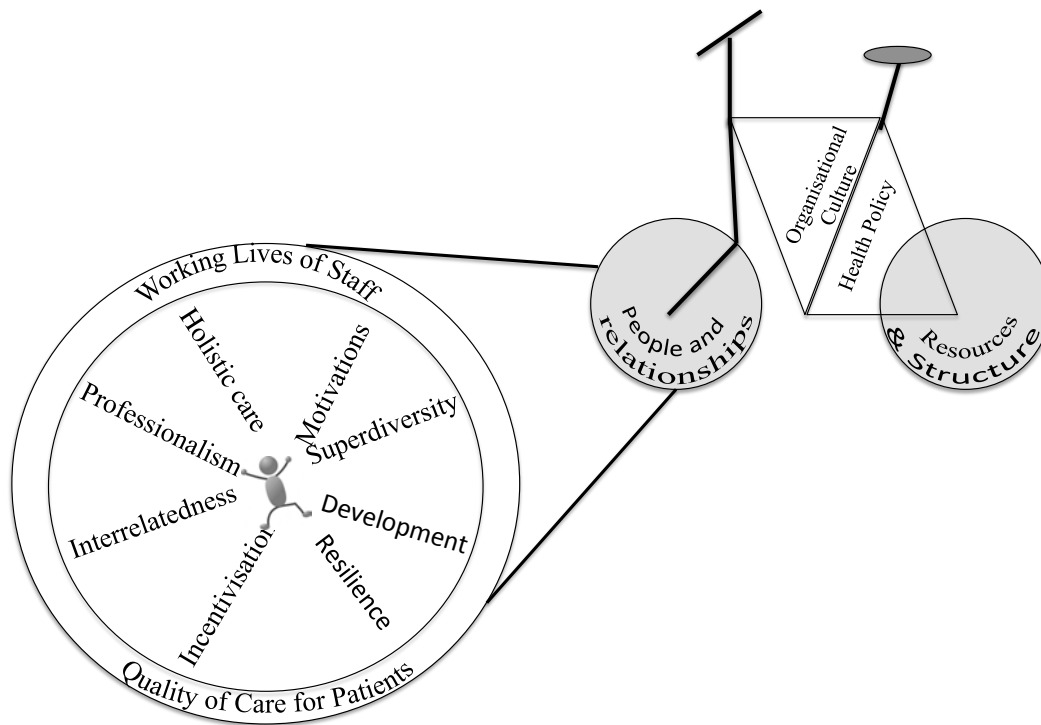


Figure 12 is my depiction of the health system as a bicycle. In order for the health system to have momentum in the correct direction of high quality care, all of its parts must be functioning well. When considering this study, and the focus on the interrelationship aspects within the health system, each ‘spoke’ is important to ensuring the wheel can keep turning, as is each element identified in this study important for HCWs. Learning from each element and developing positive solutions to strengthen each ‘spoke’ can allow for better support for working lives and patient care. Unlike the ‘health resources’ wheel, many of the solutions to improve interrelatedness require no

additional resources, but instead personal commitment from healthcare workers and a supportive framework of health policy. Some of the possible solutions developed from the results of this study are presented as recommendations in table 5, with extra data to further illustrate the need for these solutions, and references to other studies that support these findings in low-resource settings.

Table 5: Ten low cost recommendations to improve working lives of maternity healthcare workers and quality of care for women.

Recommendation	Evidence from the data	Studies with related findings
All Staff Should...		
1: ...show respect towards all colleagues regardless of their educational background and gender	<i>the qualifications also play some some role in um actually weakening the teams. Because people think ah why should I be taking knowl, i mean ideas from you, why should I be taking decisions from him? I think I'm more superior in terms of qualification. Paul, CO</i>	Chimwaza 2014 ⁹⁰
2: ...express appreciation to their colleagues of all cadres	<i>if he sees that you have done something great on the patient, he says you've managed patients very well. He used to say that...It makes me feel happy. You feel encouraged that I should do even more than this. Fanny, CO</i>	Mathauer 2006 ⁹¹
3: ...be available to perform clinical duties as per their job role	<i>I think it's being selfish yea because sometimes when they are on call let's say during the night, you phone them, they can't even res respond to their phones. Rachel, NMWT</i>	Chodzaza 2010 ⁹²
4: ...perform systematic clinical assessments when indicated	<i>maybe you want to examine the patient thoroughly but say ah am tired. Just take out your tongue I just want to see if you are pale or not. Ah she's fine and you continue writing something instead of doing thorough examination Fanny, CO</i>	
5: ...communicate clearly about clinical issues to each other	<i>they don't allow to go together to see patients so they just let you to go alone. Writing your plans in the files of patients. Then they just do it what you have written so come tomorrow the same thing, nothing has happened. So you again write may be take, check a full blood count. Come tomorrow, no sample taken so that's what happens Aubrey, CO</i>	Bhattacharyya 2015 ⁹³
Leaders should...		
6: ...take a supportive approach to all education and supervision with a focus on highlighting the positives and providing constructive criticism	<i>if the management would be flat out encouraging and if in like there's this like with performance appraisals if you have done, done a good job you get appraised, not with money, but just maybe just somebody patting you at the back' well done' you continue. Or ok you have done better but what if you'd do it this way next time so you'll be much more better than this. I think that kind of comment, of spirit is lacking in the management. Victor, CO</i>	Mathauer 2006 ⁹¹ Bradley 2009 ⁹⁴
7: ...lead by example	<i>They[leaders] are not supposed to be staying in the office the whole week, the whole month without going to the ward and seeing what's happening there. Cynthia, NO</i>	Mathauer 2006 ⁹¹
The system should...		
8: ...have a transparent and fair process for selection to upgrade or attend training sessions/workshops/seminars/	<i>when it's saying that everyone, eve every nurse should be trained, we do. But it's when they say we need only two nurses to be trained on this, then there is also favouritisms. Alile, NMWT</i>	Songstad 2011 ⁹⁵ Manafa 2009 ⁹⁶ Mathauer 2006 ⁹¹ Wurie 2016 ⁹⁷ Chimwaza 2014 ⁹⁰
9: ...ensure that any training offered to staff is driven by the skills and knowledge staff need and desire, rather than attendance being motivated only by the incentives	<i>I was supposed to be to train people for tubal ligation and other family planning methods. And they were booked in a hotel they said everything is being paid for what they will be given back is their transport so the same day the people said we cannot just be staying here, this is like away from home it's like we are having now two houses we have to manage our home there we are here so they said not giving you are not going to give us anything it will not be possible so the training was cancelled the same day everybody goes back. Natasha, CO, in-charge</i>	Manafa 2009 ⁹⁶ Mathauer 2006 ⁹¹ Thu 2015 ⁹⁸
10: ...carry out rotations or relocations of staff according to clinical need rather than any other agenda	<i>like currently the the labour ward has no HTC[HIV testing and counselling] provider and the all the nurses all of us that are working there we are not trained in doing HIV testing and counselling...yeah so, it's always a challenge, there are some women which we are missing yeah...it's almost a year now...they are usually a dispersed to other departments during the time they are doing the rotation Vincent, NO, in-charge</i>	

Staff felt that whilst they were operating in a hierarchical system which demoralised them as individuals and weakened teams, treating each other with greater respect would go some way to improving this (recommendation 1). This could be taken further by openly appreciating colleagues - which staff find motivating (recommendation 2).

Being available when other members of staff needed you may be more challenging as HCWs are operating within difficult personal circumstances too. However, it would improve relationships between staff and care for patients (recommendation 3). Once with a patient, performing a systematic clinical assessment allows for better clinical decisions and more awareness of the potential complexities faced with each individual patient (recommendation 4). Furthermore, communicating clearly and in a timely fashion to colleagues ensures that everybody is given the best opportunity to act to improve patient outcomes, and can receive the instant positive feedback associated with good outcomes (recommendation 5).

To achieve all this, there needs to be excellent leadership. Leaders need to take a motivational rather than belittling approaches to supervising their staff (recommendation 6) and perhaps most importantly, they should lead by example (recommendation 7). If they consistently stay away from the wards, staff cannot be expected to have any ambition other than escaping clinical work too. A generation of excellent clinical leaders provides a foundation for positive change within the health system.

There needs to be some shifts in the system too. There is conflict and disheartened staff because they feel the system of selection for training and further education is unfair. Creating a transparent and fair system for this could at least alleviate some of these feelings (recommendation 8). As illustrated in the incentives theme, staff value allowances more than the training. Ensuring training is driven by staff needs could begin to address this issue (recommendation 9). For this to change staff, the government

and donors will need to develop an open dialogue. A final systemic issue to address is at both a hospital administration and government level. The relocation of staff should be driven by clinical needs of the hospital and district, but should also take into account staff's personal needs (recommendation 10). HCWs are not generic, they have different specialist skills and different levels of experience. Appreciating this could ensure that the correct skill-mix of staff is present to provide good patient care and good clinical support.

As illustrated in table 5 many of these observations were not new or confined to Malawi. For example, studies from Malawi^{90,92,94,96,99} and elsewhere^{33,91,97,100} showed that HCWs wanted access to training opportunities, supportive supervision and appreciation from their colleagues. However, the opportunities available to them need to meet their needs, as irrelevant training can be demotivating.⁹⁸

A strength of this study was that it provided insight into a cross section of district level hospitals in Malawi. The complementary IPA and TA approaches allowed an in depth understanding of the data to be developed but still enabled the breadth of responses to contribute to the overall themes.

Whilst these facilities were based only in two districts, which may not have been representative of the country as a whole, mHCWs of all cadres were invited to share their views. Due to time and resource constraints, no ward clerks and only a few doctors and auxiliaries participated in the interviews despite their being integral to the maternity teams. The general findings of this study were in keeping with similar studies in low-

resource countries, therefore the recommendations could be considered useful in other comparable settings.

This study provided an insight into the working lives of mHCWs in Malawi at an important time. The international community is shifting its focus onto Sustainable Development Goals and the new Global Strategy for Women, Children and Adolescents.¹⁸ The ten low-cost strategies identified in this study could be used to address two of the strategic priorities for ending preventable maternal and newborn mortality and stillbirths; strengthening care around the time of birth and strengthening health systems.¹⁰¹

Section A Discussion

This section has provided two perspectives on the working life of mHCWs in the three study facilities in Malawi, and in this discussion the general lessons learned will be highlighted. In addition, the contribution that this section can make towards building a theory of change for AI in healthcare will be discussed. Finally elements which would be usefully kept in mind when evaluating the effectiveness of AI are highlighted.

In both parts of this section, overarching concepts emerged that pointed to mHCWs behaving in the way they do due to the system in which they trained and worked. The ethnography (SAP1) highlighted that there was a social order within the hospital, rooted in Malawian culture. This dictated the way staff interacted with each other and patients, and also much of the way they performed their jobs. Each person's expectations were set when observing and then abiding by the social order of the workplace.

The IPA/TA (SAP2) also highlighted that staff worked within a system which effected their working life. It was identified that a vital part of the system was the relationships between people. Keeping this element of the system healthy by concentrating on improving the elements which effected relationships at work underpinned the health system as a whole in delivering good care.

Interestingly many of the areas of relationships that were identified in SAP2 were areas that could also be linked to the social order of the hospital outlined in SAP1. Staff wanted a culture of respect, support and praise. This was directly linked to the idea that staff lower in the social order felt less empowered, and underappreciated. They perhaps

did not show appreciation to their peers or juniors because it was not what they had observed before them (precedent). Treating patients well also linked into the fact that patients were often lower in the social structure of society than staff and therefore at the bottom of the social order of the hospital. Staff wanted to treat patients well, but sometimes the other relationships in the hospital took precedence over relationships with patients.

The professionalism of staff seemed linked both to their ability to be reflective practitioners, and to how they acted with the rest of the team. There were narratives around the idea that blame should not be attributed, but lessons should be learned. However, the social order still shone through in the fact that there was disagreement between different members of staff at different points in the social order. In terms of resilience, this seemed to align well with the idea of building and enjoying capital. Some of the narrative that fitted with this was that staff at similar levels in the social order supported each other to gain more capital, for example through covering for each other when absent. Furthermore, staff seemed to gain resilience due to the respect they were given from being a HCW.

Staff were determined to fulfil their goals. They were highly motivated to become HCWs and this was often because they wanted to help people. However, the social gains made from being a member of the civil service⁷¹ undoubtedly had a role to play; as did the increase in cultural and economic capital⁶⁴ associated with continuing professional development and attending courses to get incentives.

So the relationships in the hospital were intimately related to the social order of the hospital. Implementation of the ten recommendations to improve working lives will need commitment and leadership, as disrupting the social order is challenging. To disrupt the social order, economic, social or cultural capital needs to be transferred between staff.⁶⁴ Furthermore, staff are required to be willing to rewrite the rules of the workplace and let new precedents be set. Achieving this will be a challenge, however it is one worth addressing due to the severe shortages in the health workforce that Malawi is suffering,⁹ which is now coupled with an attended delivery rate of nearly 90%.⁵⁴ It is therefore essential to address the working lives of staff who are currently in the system. This will help them to be less likely to leave and happier and more productive when they are at work.

Developing a theory of change for appreciative inquiry in healthcare

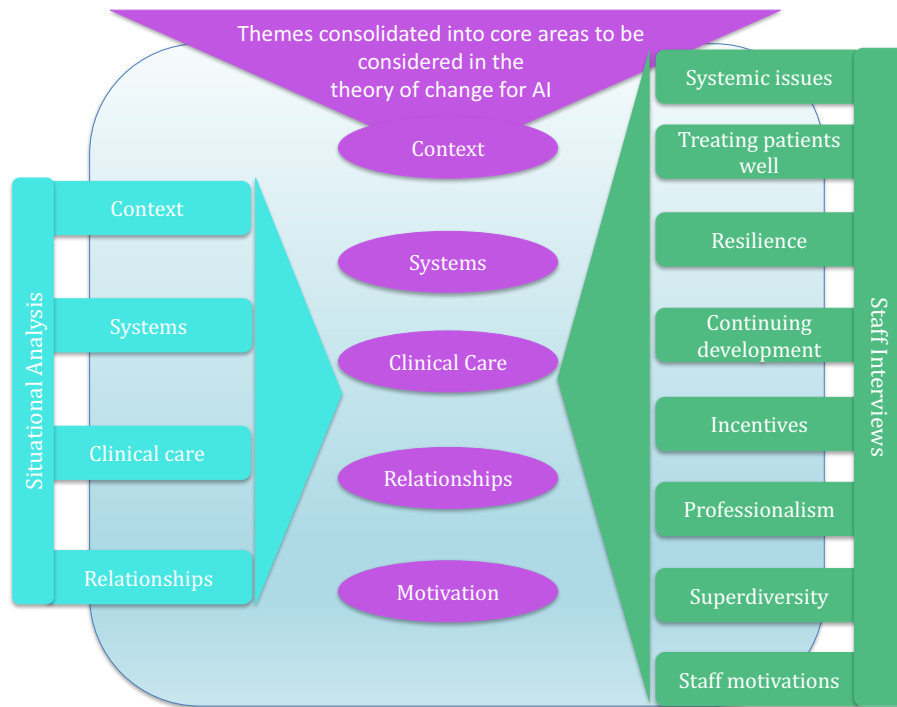
As outlined in the introduction, one of the aims of this thesis is to develop a theory of change for AI in healthcare. In order to do this it is important to learn from each element of this thesis to ensure that the theoretical model is grounded in the data. Section A provides the first opportunity to ground this model in the working lives of mHCWs in a low-income setting.

Starting first with the ethnography, where the ideas of ingrained rules governing the social order of the workplace came through clearly; elements of each of the themes could usefully contribute to a theory of change of AI in healthcare. The context was important as it created an enabling environment for change. Relationships between staff governed how well staff worked and coped with the challenges they faced, for example

how they managed when they were very busy. Their knowledge and skills to deliver clinical care, interacted with systems and relationships to enable good respectful care. Whilst systems allowed individuals, wards and hospitals to achieve what they were aiming to do.

In terms of the staff's own opinion of their working life experience, identified in SAP2 the eight themes mapped well onto the general themes from the ethnography. However, an additional area to consider in the theoretical model was revealed, that of motivation. Figure 13 shows how the themes from the ethnography (SAP1) and the staff interviews (SAP2) could be combined in order to contribute some core concepts to the theoretical model being built for AI in healthcare.

Figure 13: Concepts to consider from the situational analysis and staff interviews when developing the theoretical model of appreciative inquiry in healthcare.



These core areas of context, systems, clinical care, relationships and motivation were identified as important in both elements of this section. Ensuring that these areas are incorporated into the theoretical model for AI can useful provide a platform from which to ensure that important areas of working life are considered.

Assessing the effects of Appreciative Inquiry in Malawi: developing a template

To assess the effects of AI TA of qualitative interviews and ethnographic data will be used in part three of this thesis. The situational analysis and staff interviews have provided the opportunity to consider what was important to staff and some possible

outcomes to utilise when developing the template were drawn from this. These are shown in table 6.

Table 6: Possible areas to incorporate into the template analysis in SCP3

	Sub themes		Proposed areas for template
Themes from situational analysis	Hierarchy	Skills	Hierarchy Teamwork Feedback Support
	Social interactions	Knowledge	
	Role models	Ward Systems	
	Seeking opinions	Individual Systems	
	Actions		
Themes from staff interviews	Calling for help from clinicians	Common goals	Communication
	Feedback from colleagues	Enjoying	Training
	Conflict between cadres	Teamwork	Individual systems
	Clear responsibilities	Responsibility	Ward systems
	Good working environment	Role models	Goals and responsibilities
	Hierarchical system	On the job training	Role models/ leaders
	Communication	Training	Enjoyment
	Poor clinical assessment	No control	Empowerment
	Not properly doing duties	Leadership	

Section A Conclusion

This section of the thesis performed two roles. Firstly, it highlighted that mHCWs had a difficult environment to work in. Not only did they lack resources, but also they had little control over their daily working lives. Instead, life was driven by the social order of the hospital, and the other constraints of their health system. Being happy at work is a valuable consideration in the quest to recruit and retain staff, and ensure that they work as productively as possible. Addressing the inter-relatedness aspects within the healthcare system could improve working life for mHCWs. Secondly, it has provided a platform from which to build the AI theory of change and the template analysis to analyse what changes occurred during AI.

Section B: Appreciative Inquiry as a tool for organisational change in healthcare

Section B Introduction

Healthcare organisations are under-pressure to improve the quality of their services and their productivity. There is no single, clear way to achieve this goal. Options include ‘naming and shaming’, centralised regulation and change initiatives by frontline staff. All of these methods have been variously employed in recent years.¹⁰²

In the context of healthcare, change initiatives are often focused on improving quality by encouraging a group of people to alter their behaviour or practice. This group can be a small team, a service or a whole organisation. Because the target for change is at the group level, these initiatives aim to improve quality through organisational change, and can employ many different methods.¹⁰³

One such initiative is AI. Whilst it has received much attention in the business and not-for profit world,¹⁰⁴ it has not been a central change mechanism in healthcare. Instead initiatives such as ‘Plan-Do-Study-Act’, ‘experience based co-design’ and ‘lean’ have received more attention.¹⁰³

As outlined in the general introduction, AI is a motivational, organisational change intervention born out of the idea that action research needs to be a generative paradigm, rather than limiting itself to being a problem-solving tool. It encourages organisations to

be creative through focusing on the positive and investigates the best of ‘what is’ before thinking of ‘what might be’, deciding ‘what should be’ and finally experiencing ‘what can be’.³⁸

The positive power of AI has great potential to support change in healthcare organisations. This potential has been identified by numerous practitioners and many have shared stories of their AI processes.^{105,106} Before moving on to discuss this in detail, a further introduction to the guiding principles of AI may be useful, as this will illuminate the foundation of the approach that has been taken for implementing AI in healthcare.

AI’s guiding principles were originally associated with ‘the miracle and mystery of being’ that believed research into an organisation should be appreciative, applicable, provocative and collaborative.³⁸ These guiding ideas have evolved into the ‘core principles of AI’, which are summarised in box 6.

Box 6: The Core principles of AI^{38-40,107}

The AI Principles

The Constructionist Principle: Our social discourse enables us to make sense of the world around us.^{39, 40, 107} Or as Cooperrider and Whitney put it ‘Human knowledge and organisational destiny are interwoven’.³⁹ Therefore, the way one talks about the topic of inquiry, generates the theory on which the action is taken.³⁹

The Simultaneity Principle: Change begins the moment the first question is asked, the processes of inquiry and change are inextricably linked.^{39, 40, 107}

The Poetic Principle: Co-authoring of an organisations story is ongoing, this means that there is the potential for ‘endless interpretative possibilities’.³⁹ Learning from past and present stories whilst visioning the future, enables organisations to ensure evolution not repetition.³⁹

The Anticipatory Principle: Being grounded in positive images allows constructive generation of the future using a collective imagination.^{39, 40, 107}

The Positive Principle: Organisational change required momentum and commitment. Creating something together can facilitate this and positivity towards these group actions, like negativity, is contagious.^{39, 40, 107}

These principles are harnessed by those implementing AI. However, each AI intervention is different and needs to be designed to suit the needs of the team they are working with.³⁹ Therefore, when adapting and developing AI for a Malawian healthcare setting, it was important not only to have the core principles in mind, but also to learn from what others had done before.

With this in mind, this section of the thesis is divided into two parts. Firstly, a narrative systematic review of AI in healthcare. This will illuminate how AI has been developed and what changes have occurred as a result. This will build upon the lessons learned

about working life of staff and contribute wider data into the building of a theory of change for AI in healthcare. With the lessons learned in the systematic review as a foundation for AI in Malawi, the story of implementing AI in the three health facilities will be shared. This will provide the information needed to try to understand whether AI was implemented appropriately and why AI did or did not work in those settings.

These two approaches will allow me to build upon the ideas from Section A and progress towards developing a theory of change for AI in healthcare, and developing a template to analyse the changes seen during this AI for SCP3.

Part 1: Appreciative Inquiry in Healthcare settings: A systematic review and narrative synthesis.

Background

The popularity of AI has been slowly growing over the last two decades, resulting in an increasing number of publications discussing AI in healthcare. The AI cycle has been used with success in a variety of different organisations, for example NASA, USAID and the United Nations.⁴⁰ Despite multiple reports of the success of AI across different sectors, there has been little empirical investigation of the approach.¹⁰⁸

Two recent systematic reviews of the literature in relation to healthcare have been undertaken. Most recently, one systematic review highlighted that AI is implemented uniquely in each healthcare setting.¹⁰⁶ Therefore flexible methods are needed to synthesise findings. A further review¹⁰⁵ revealed the breadth of issues being addressed by AI in healthcare. These included change in work practices, improving the work environment and exploring professional development initiatives. However, it also identified that there were many publications in which AI was not fully implemented or no outcomes were reported, leading to limited usefulness when the effectiveness of AI was being assessed.¹⁰⁵ Whilst both reviews revealed AI's potential, neither provided clear evidence of whether AI works.

This review will bring fresh insight in two ways.

- it will focus on the use of AI to alter direct clinical care and
- it will also seek to understand whether AI works, how it works and in what circumstances.

Objectives:

1. To understand any workplace based and patient care changes that have occurred during AI's implementation.
2. To identify any contextual features associated with the success or failure of the implementation of AI.
3. To explore the mechanisms by which workplace changes occurred
4. To identify any adaptations made to AI in order for it to be implemented in healthcare settings.
5. To understand how the AI process and changes have been captured.

Methods

AI can be considered as a complex intervention because there are several interacting components.⁴⁸ Due to the complexity of the intervention and the circumstances in which it was applied there was likely to be significant heterogeneity between studies, in terms of the intervention, study design and outcomes. It was therefore necessary to use a technique which could cope with these fundamental heterogeneities by employing a flexible method of identifying, including, recording, analysing and synthesising diverse studies.¹⁰⁹ The narrative synthesis method described by Popay et al¹¹⁰ was selected because it has the capabilities described above and because it was designed to examine

the effectiveness and implementation of interventions. The method, described in more detail below, is broadly similar to any other systematic review methodology in so far as there is a systematic search, sorting, retrieval and data extraction from the relevant texts. For the synthesis however, Popay et al describe four main areas ‘developing a theory of how the intervention works, why and for whom; developing a preliminary synthesis of findings of included studies; exploring relationships in the data and assessing the robustness of the synthesis’. Popay et al’s method resonated with the aims of this study, and at its core required a theory to be generated which was in keeping with the aims of this thesis. Other methodological approaches for example meta-ethnography or meta-study did not fit as well with the research aims, and could not cope with the wide variety of sources I wished to draw upon for this review.

Types of studies:

Due to the anticipated lack of controlled studies, there were no exclusions based on study design, but the AI intervention had to be described. This allowed the best possible theoretical model to be postulated and the research questions to be answered in their fullest terms.

Setting of intervention:

The studies could have taken place in any healthcare setting and be based in any country.

Types of Participants:

Participants were healthcare staff and allied healthcare staff of any cadre whether professionally qualified or not delivering direct clinical care. The AI included healthcare administrators, managers or allied staff. Healthcare students could participate but the intervention should not be targeted solely towards students. Similarly, patients were included where there was also involvement of healthcare staff who deliver direct clinical care.

Types of Outcome measures:

The data collected for this review included:

- The process of the intervention
- Theories of change for why the intervention did or did not work
- Contextual factors influencing the implementation and effects of the intervention
- Mechanisms by which any changes may have occurred
- Any outcome measures collected during the study (both what the measures were and their results).

Exclusion Criteria:

Studies were not eligible for inclusion if AI was being targeted solely at an audience not involved in clinical care (e.g. targeted at healthcare managers or patients only). The reason for this was because I was interested in how AI changed clinical care and improved outcomes rather than made a difference at any level more removed from patients. Studies were also excluded if there was no basic description of the intervention

or any of the outcomes of interest. This is because Studies between 01/01/1987 (which was when AI was first described) and 31/01/2016 were included.

Identifying studies to be included in the review

Data sources

An electronic search of peer-reviewed research databases was undertaken including: Medline, Embase, Cochrane collaboration, psychinfo, sociological abstracts, Allied and Complimentary medicine, British Nursing Index, Health Management Information Consortium, Health Business Elite and CINAHL. Grey literature was identified through a search of the Eldis database, UK Data Service and websites of quality improvement and development organisations involved in healthcare. Experts in the field were contacted to identify any other sources of information and on-going studies to be reported during the period of the review. Hand searching of reference lists of included studies and review papers was undertaken.

Search terms

The search strategy aimed to identify all studies using AI in a healthcare setting. The following terms, relating to AI interventions, were searched for in the title and abstract; 'Appreciative' OR '4D cycle' OR 'transformational' OR 'Non-punitive'. These limited search terms were selected as AI is a method which is usually specifically referred to, and to search for other quality improvement or organisational change terms would have added a significant number of search hits. Other than the time period outlined above, no other limitations were applied to any database search.

Data collection:

Selection of studies

I reviewed all titles and abstracts, and a second review author also reviewed each of these titles and abstracts. This was carried out either by Amie Wilson, a post-doctoral researcher in global health or Emily Smith, a foundation trainee. For studies thought to be eligible from their abstracts, full text records were obtained. A third author, Professor Coomarasamy, was consulted for any disagreements in the inclusion of studies.

Data extraction and management

A data extraction form (Appendix 5) was used to capture the information required both for the review and also to assess the quality of the study. The quality of assessment was carried out using a 'weight of evidence' assessment as described by Gough.¹¹¹ As part of this, the appropriate assessment tool for the study design was used to identify whether the study had been conducted and reported according to the recommended guidelines from the EQUATOR Network (<http://www.equator-network.org/>). Appendix 6 describes how this quality assessment was performed.

Synthesis:

The narrative synthesis included descriptive elements, however the focus was on moving towards an interpretation which was carried out in the following steps:¹¹⁰

1. Developing a theory of change for how AI works, why and for whom?

There is a lack of a clear theory of change for AI in healthcare. Developing a theory of change can enable investigators to understand how and why an intervention might work.

Owing to the real world nature of much of the AI research, a realist evaluation approach seem to be an appropriate standpoint from which to develop this theory of change.⁴

Realist evaluation

The realist evaluation framework demands that we try to understand the nature of programmes and why they work by concentrating on ‘what works, for who and in what circumstances’. This means identifying and documenting the mechanisms (M), context (C) and outcomes (O).⁴

The mechanism considers what happens to actually bring about change, and the underlying process, which is perhaps the by-product of the intervention, but is core to how it works. Understanding the context of an intervention will allow investigation of the particular circumstances that contribute to an intervention’s success or failure.

Documentation of the outcome patterns which focus not just on solid changes but also on the process of implementation will allow a broader understanding of how the intervention works.⁴

2. Developing a preliminary synthesis

An overview table of study characteristics detailing the participants, setting, outcomes recorded, methods, quality and a textual description of each study was created.¹¹⁰ The evidence from each study for every specific objective was then tabulated.¹¹⁰ An initial thematic assessment to bring together important issues for each objective was undertaken.¹⁰⁹ Following this, possible groupings of studies were considered to

facilitate further exploration of relationships including setting, study quality, methodological approaches and the outcomes and processes assessed.^{110,112,113}

3. Exploring relationships

The patterns of factors effecting the implementation and effects of AI were investigated to try to understand the intervention holistically. Several techniques including ideas webbing and concept mapping were flexibly applied to explore these relationships.¹¹⁰

The preliminary synthesis was used to develop possible moderator variables.¹¹² Usually they are used to identify quantitative moderators,¹¹² however for the purpose of this review, key possible moderators were identified and their effects across different studies examined. The questions used to facilitate this analysis included; what factors were identified by the authors, or inferred from their results? What was the effect of these factors and what relationships existed amongst them?¹¹⁰

4. Assessing the robustness of the synthesis.

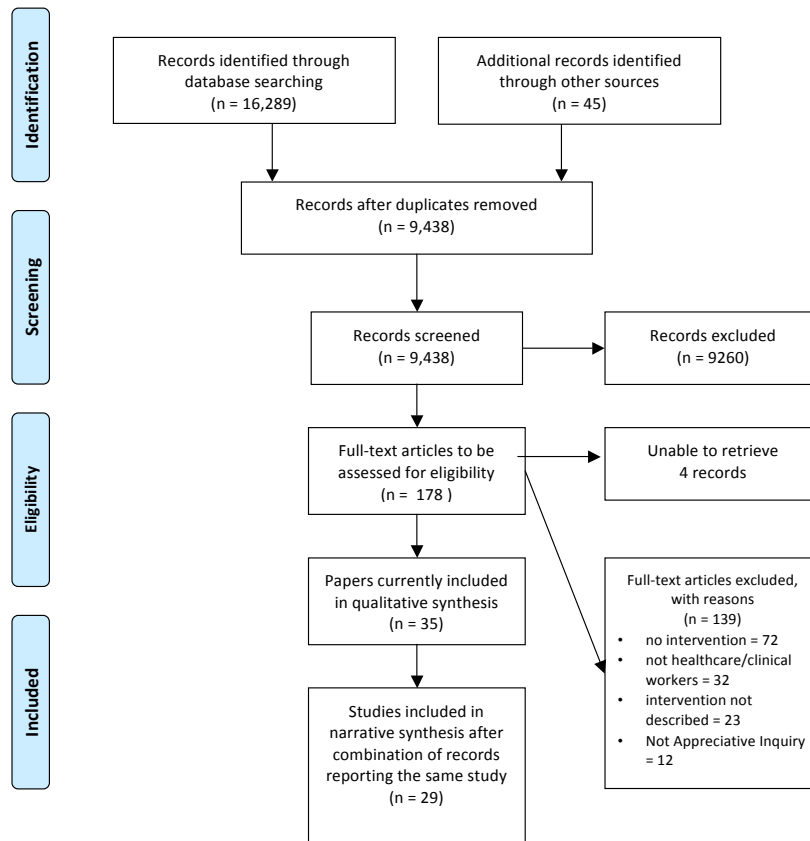
The Weight of Evidence approach by Gough was used to assess the robustness of the synthesis.¹¹¹ However, because the crux of this review was to understand how AI was implemented in addition to its effects, evidence will not be excluded on basis of quality. It may be that even poorly reported and conducted studies have findings which can illuminate this area.¹¹⁴ This process has four steps:

1. *Weight of evidence A*: What is the quality of the study (<http://www.equator-network.org/>)? What is the risk of bias in randomised (Cochrane Risk of Bias¹¹⁵) and non-randomised studies (Newcastle-Ottawa Scale¹¹⁶)?
2. *Weight of evidence B*: Is the research design appropriate for the review question?
3. *Weight of evidence C*: Does the available evidence answer the review question?
4. *Weight of evidence D*: Does the study contribute evidence towards answering the review question?

Results

16,289 records were identified and, after removal of duplication, screening of abstracts and full texts, 29 studies were identified for inclusion in this review. The process and reasons for exclusion are shown in the prisma flow diagram (figure 14).

Figure 14: Prisma Flow Diagram



The 29 studies represent a range of different methodologies, settings and clinical focuses. This information along with a short description of each study is available in appendix 7.

Quality of the studies

The weight of evidence attributed to each study is shown in figure 15. There was a lack of high quality evidence available for this review. There were no high quality randomised controlled trials of this intervention, nor were there any other high quality quantitative studies. There were however two well conducted qualitative studies.

Despite this, the 11 studies which were randomised, controlled or qualitative were highly relevant to the review and the 18 non-controlled observational studies provided insight into the review question.

Figure 15: The weight of evidence of included studies

Study ID	WoE* A (Study Quality)			WoE* B (Methodological relevance)	WoE* C (topic relevance)	WoE* D (overall judgement)
	Quality	Risk of Bias	Overall			
Randomised controlled trial (RCT)						
Ruhe 2011 ¹¹⁷				+++	+++	
Controlled Observational Studies (COS)						
Chen 2014 ¹¹⁸				+++	++	
Hussein 2014 ¹¹⁹				+++	+++	
Joshi 2007 ¹²⁰ & 2015 ¹²¹				+++	+++	
Kavanagh 2010a ¹²² & 2010b ¹²³				+++	+++	
Shendell-Falik 2007 ¹²⁴				+++	+++	
Stefaniak 2007 ¹²⁵				+++	+++	
Qualitative Studies						
Carter 2006 ¹²⁶ & 2007a ¹²⁷		n/a		+++	+++	
Dewar 2010 ¹²⁸ & 2013 ¹²⁹		n/a		+++	+++	
Trajkovski 2013 ¹³⁰		n/a		+++	+++	
Yoon 2011 ¹³¹		n/a		+++	+++	
Non-Controlled Observational Studies (NCOS)						
Aggett 2013 ¹³²		n/a		++	+++	
Alfred 2006 ¹³³ & Hobbs 2004 ¹³⁴		n/a		++	+++	
Baker 2006 ¹³⁵		n/a		++	++	
Brookes 2011 ¹³⁶		n/a		++	++	
Campbell 2013 ¹³⁷		n/a		++	++	
Carter 2007 ¹³⁸		n/a		++	++	
Challis 2009 ¹³⁹		n/a		++	++	
Clarke 2012 ¹⁴⁰		n/a		++	+++	
Clossey 2011 ¹⁴¹		n/a		++	+++	
Guilar 2001 ¹⁴²		n/a		++	+++	
Havens 2006 ¹⁴³		n/a		++	+++	
Jaccai 2008 ¹⁴⁴		n/a		++	+++	
Lazic 2008 ¹⁴⁵ & 2011 ¹⁴⁶		n/a		++	++	
Marsh 2008 ¹⁴⁷		n/a		++	+++	
Messerschmidt 2008 ¹⁴⁸		n/a		++	+++	
Reed 2002 ¹⁴⁹		n/a		++	+++	
Richer 2009 ¹⁰⁴		n/a		++	+++	
Seebohm 2010 ¹⁵⁰		n/a		++	++	

Key

High quality/low risk of bias
 Medium quality/unclear risk of bias
 Low quality/high risk of bias

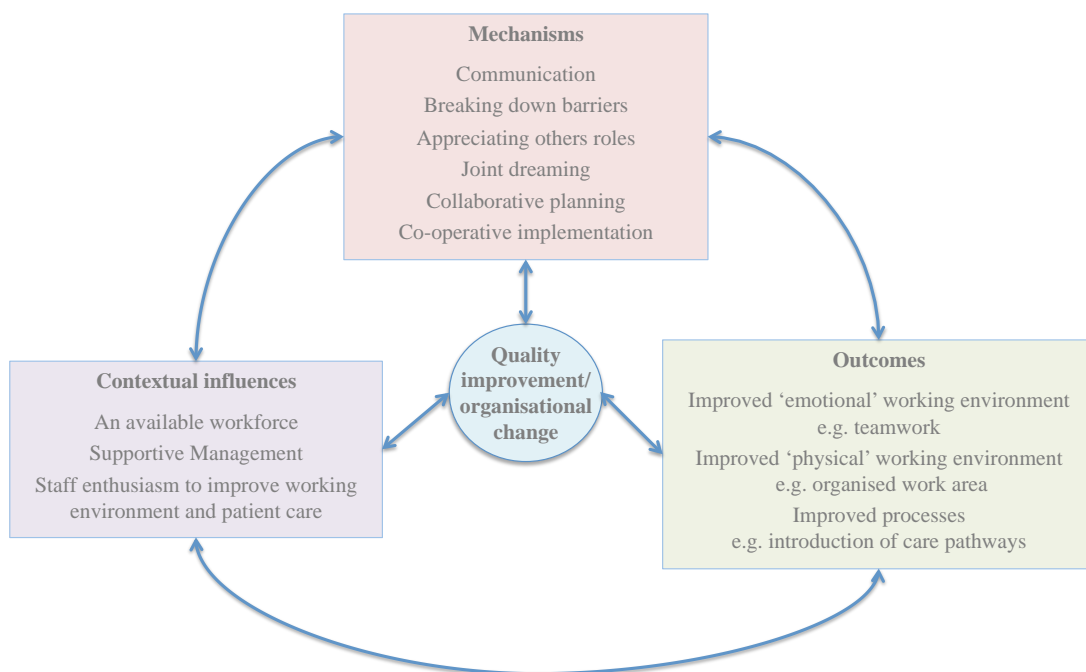
+ Weakly relevant ++ Relevant +++ Highly relevant

* Weight of Evidence (WoE) approach to allow not only the quality of studies to be assessed but also encourages the relevance of the study to the review topic to be considered.

Theory of change for appreciative inquiry in healthcare

Iterative development of the theory of change was undertaken throughout the review process. The tentative, initial theory of change used as a basis for the remainder of the review is presented in figure 16.

Figure 16: Tentative theory of change based on a realistic evaluation model



To further illuminate the elements required to develop a more robust theory of change using the realist evaluation framework, included study outcomes will be examined to answer the question 'does AI work'. The context will then be explored to answer the question 'in what circumstances', followed by an inquiry into the mechanisms to answer the question 'how does AI work/not work'. Finally, how AI has been adapted to healthcare settings and recorded will be discussed.

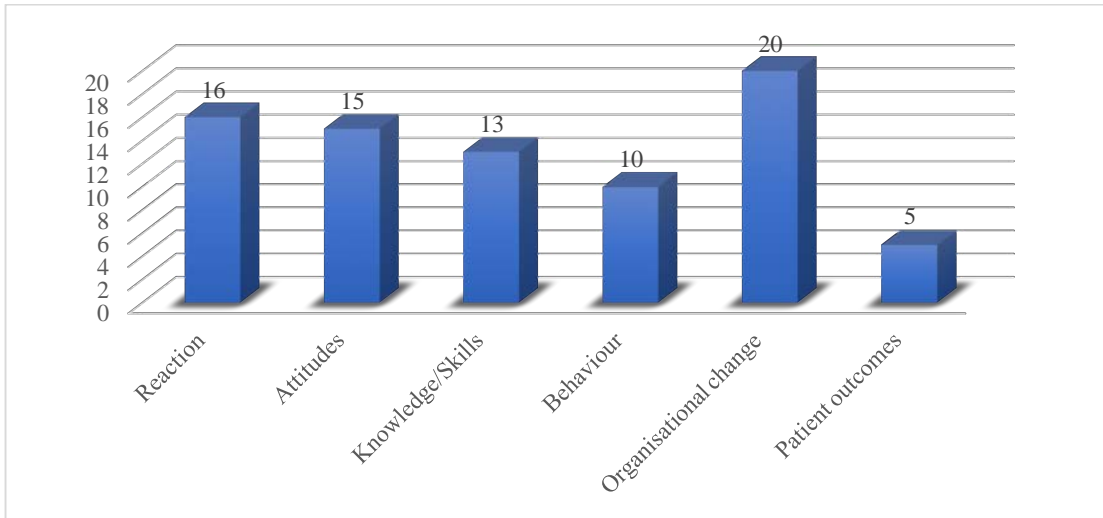
Objective 1: To understand any workplace based changes and changes to patient care that have occurred during Appreciative Inquiry implementation.

Kirkpatrick Outcome Framework

To understand the effects of AI across a diverse landscape of studies, a framework was needed. One framework which is widely used to categorise outcomes in educational interventions is the Kirkpatrick model. This framework provides a flexible model to capture a wide variety of outcomes that can be divided into reactions, learning, behaviour and results.¹⁵¹ Although not historically used in organisational change, many of the outcomes investigated in AI in healthcare settings logically fit into its categories, therefore it was considered a useful tool for classification. The version used here is as modified by Barr: Reaction; Modification of attitudes/perceptions; Acquisition of knowledge or skills; Behavioural change; Change in organisational practice; Benefits to patients/clients.¹⁵²

Twenty-eight of the included studies contributed to the evidence presented in this section. Different studies addressed different outcome areas within the Kirkpatrick framework. Figure 17 illustrates the volumes of contribution to each outcome area. The evidence for each outcome area will be presented in turn before considering the impact of quality, on the results and finally the impact of setting.

Figure 17: Number of studies contributing evidence in each of the Kirkpatrick areas



Reaction

As shown in figure 17, sixteen studies contributed to this outcome area

118,120-123,125-127,130,132,135,137,138,141,143-146,148,149 All of these studies described a positive reaction to AI. It was described as enjoyable, refreshing and lively. Staff engaged with the process; for example in one study staff felt they ‘own the dream’.¹³⁶ Four studies also reported some issues with AI in terms of people’s reaction. Some staff found it difficult to maintain attendance, especially at long sessions.^{122,123} This may fit with another report of it being difficult to find time for AI activities, cumulating in only 2 participants completing the feedback.¹³⁷ One study observed that AI did not work all of the time,¹⁴⁸ and this was reflected in participant feedback in another study where they were unsure AI was effecting change.¹⁴⁹

Attitudes

Over half of the fifteen studies that contributed evidence to this outcome focused on understanding each other better, teamwork and creating common ground.

^{117,120,121,124,133-135,143,149,150} One study described a particularly powerful image of a ‘pathbreaking experience’ for staff, especially the cleaning staff who had the opportunity to sit on the floor at an equal level with their superiors, which was a ‘highlight of their service’.^{120,121}

Other attitude changes included: desire to gain knowledge and provide consistent care¹³¹; desire to embrace change^{125,136}; feeling empowered and enthusiastic¹³⁷; increasing motivation and professional self-confidence^{145,146,148}; and being more motivated and satisfied.¹⁴⁷

Knowledge and Skills

Thirteen studies discussed improved knowledge and skills. There were two studies with quantitative measures of knowledge. Both these studies showed an increase in knowledge scores following the implementation of AI.^{118,122,123}

There were some common themes amongst the other studies. For example, increasing the understanding of the needs of patients and families.^{128-130,142,150} In one study, parents in a neonatal unit were enabled to share with the staff how they wanted to be treated.¹³⁰ Staff were also able to develop a better understanding of the system and how it worked or had the potential to work.^{126,127,135,147,149} Other studies reported new knowledge

around understanding how to perform good handovers¹⁴⁰ and increased awareness of which factors contributed to nursing longevity.¹³⁹

Behaviour Change

Ten studies contributed to evidence on behaviour change of staff.^{117,122,123,128,129,131-}

^{135,143,147,148} One study used a survey to investigate whether staff changed discussion of clinical risk after the intervention. 70% of staff surveyed felt that the discussion had improved.¹³² A teamwork survey was undertaken in another study, which showed that the teams were performing well, however, there was no comparator pre-intervention nor discriminatory questions about the changes in behaviour.¹⁴⁷ No change was observed in pain score documentation in one of the observational studies.^{122,123}

The remaining seven studies discussing behaviour change reported it in a qualitative manner.^{117,128,129,131,133-135,143,148} In one study, one team focused on developing action steps and timelines.¹¹⁷ In another, 92% of commitments to change made by four of the nine participants were implemented.¹³¹ Three studies observed that staff changed their interactions with patients.^{128,129,131,135} An example of this change was nurses increasing the frequency and consistency of oral care in a rehabilitation hospital.¹³¹

Communication was also a feature with one study reporting improved communication and appreciation of staff,^{133,134} while another discussed altered interactions with the human resources department.¹⁴³ One study reported that nurses took more initiative when doctors were not available and that cleaners worked harder to keep surroundings nice.¹⁴⁸

Organisational Change

Nineteen studies describe organisational change.^{117,120,121,124-129,131-135,138-144,147} Six studies actually measured organisational change.^{117,124,125,132-134,139}

The one randomised controlled trial showed no change in the preventative service delivery score.¹¹⁷ However, in another study there was an 11% improvement in the delivery of patient care through nutritional assessment, and adherence to cardiac enzyme regimens increased by 9.2%. There was also increased nursing satisfaction and teamwork.¹²⁴ A further study identified that 30% of staff felt that clinical decision-making had improved.¹³²

Retention and recruitment was discussed in three of these studies with decreased staff turnover of 3% and sickness of 2% in one study.^{133,134} In another, turnover decreased from 10.35% to 8.42%, with vacancy rate decreasing from 6.2% to 4.1%.¹²⁵ Finally, the vacancy rate fell from 12.1% to 8.9% in another study.¹³⁹

In addition to this quantitative documentation of change, most studies made observations about the changes that were implemented. The following areas of change were described in more than one study; morale improvement activities, for example awards for staff¹¹⁷; patient care pathways or protocols were developed^{117,124,138,140}; mechanisms for delivering care e.g. single point of referral^{126,135,138,142,147}; human resources interactions became positive focused^{125,143}; staff meetings initiated or agendas changed^{131,132,135,138,143}; improved staff education or training^{136,144,147}; development of

more user friendly paperwork^{141,147} and new patient information materials or education.¹⁴⁷

Patient Outcomes

Only five studies reported patient outcomes.^{119-124,144} One controlled study based in India with the aim of reducing puerperal infection rates showed a decreased incidence of infection in the intervention group of about 60% compared to the control group's decrease of about 53%. However, this was against a background of a decreased infection rate in both groups and a larger percentage point decrease in the control group.¹¹⁹ Another controlled study measured pain intensity scores in a paediatric ward. There was no difference in these scores pre and post intervention.^{122,123}

The remaining three studies reported patient satisfaction scores rather than direct patient outcomes. A controlled study based in India found that 89% of patients were satisfied with their care before the intervention and 96% after. They also saw a 28% improvement in patient reported attentiveness of staff and a 20% improvement in patients feeling that staff had treated them well. The control group remained stable throughout the study.^{120,121} A further controlled study measured patient satisfaction in a hospital in the USA with a focus on cardiac patients. There was an overall improvement in patient satisfaction with care of 10.2%.¹²⁴ The final study to report an improvement in patient care was a case study of a health system in the USA. Their patient satisfaction scores in the immediate care centre improved by 37%.¹⁴⁴

Table 7 summarises how each study contributes to the outcome elements of the Kirkpatrick model.

Table 7: Summary of how each study contributes to the elements of the Kirkpatrick model

Study ID	Reaction	Attitudes	Knowledge/Skills	Behaviour	Organisational practice	Benefits to patients
Randomised controlled trial						
Ruhe 2011 ¹¹⁷	X	Shared purpose and identity	X	Developing action steps and timelines	No change in the preventative service delivery score. New staff morale activities & patient care systems.	X
Controlled Observational Studies						
Chen 2014 ¹¹⁸	Highly satisfied with the programme	X	Improved scores for self-learning. Group-learning improvement not significant	X	X	X
Hussein 2014 ¹¹⁹	X	X	X	X	X	Lower infection incidence in the intervention compared with the control group
Joshi 2007 ¹²⁰ & 2015 ¹²¹	Positive reaction to content	Working together better	X	X	Better relationships with the community. Cleaner surroundings	Improved patient satisfaction in exit interviews
Kavanagh 2010a ¹²² & 2010b ¹²³	Enjoyable and refreshing but challenging to attend	X	Mean knowledge scores increased over time.	No evidence of behaviour change of staff	X	No difference in children's pain intensity scores
Shendell-Falik 2007 ¹²⁴	X	Understanding of each other's challenges	X	X	Improved adherence to guidelines. Introduction of new protocols. Increased satisfaction and teamwork	Improved patient satisfaction from 79.1% to 87.2%
Stefaniak 2007 ¹²⁵	Positive reaction and general enjoyment	Desire to spread AI	X	X	Decreased vacancy and turnover rates. New recruitment CD and exit interviews. Staff morale activities	X
Qualitative studies						
Carter 2006 ¹²⁶ & 2007a ¹²⁷	Positive sharing of practice and stories	X	Understanding of what makes things work well	X	Single point of referral system now being piloted	X
Dewar 2010 ¹²⁸ & 2013 ¹²⁹	X	X	A better sense of understanding the needs of patients	Altered interactions with patients & carers	Focus on meeting the patients non-medical needs using positive caring statements	X
Trajkowski 2013 ¹³⁰	Positive experience	X	Understanding the needs of parents	X	X	X
Yoon 2011 ¹³¹	X	Desire to gain knowledge and provide consistent care	X	Changes implemented by 4/9 people e.g. increased oral care frequency	Oral care incorporated into the agenda for regular staff meetings	X
Non-Controlled Observational Studies						
Aggett 2013 ¹³²	Useful and relevant	X	X	Better discussion of and culture around clinical risk	Regular meetings to highlight practices reducing risk. 30% feel clinical decision making improved	X
Alfred 2006 ¹³³ & Hobbs 2004 ¹³⁴	X	Improved teamwork, better interpersonal relationships, common goals	X	Improved communication and appreciation; emails and meeting agenda items	Reduced staff turnover (by 3%) reduced sickness (by 2%).	X
Baker 2006 ¹³⁵	Positive experience	Brought people closer together	Identification of key aspects for successful managed care networks	Changing individual practice for example by greeting patients.	Regular multi-disciplinary meetings. Joint clinic started with email access to the specialist center and appointed representatives in one region.	X
Brookes 2011 ¹³⁶	X	Desire to embrace change	Staff developing knowledge as a team resource	X	Six monthly basic life support introduced	x
Campbell 2013 ¹³⁷	Favorable experience but no time	Feeling of empowerment and enthusiasm	X	X	X	X
Carter 2007 ¹³⁸	Lively discussions	X	X	X	New patient pathway, changed care delivery model, monthly staff meetings	X
Challis 2009 ¹³⁹	X	X	Factors effecting nurse longevity	X	Reduction in vacancy rate	X
Clarke 2012 ¹⁴⁰	X	X	How to achieve good handoffs	X	Development and implementation of a transfer checklist	X
Clossey 2011 ¹⁴¹	Positive staff reports	X	X	X	Design of more user friendly paperwork	X
Guilar 2001 ¹⁴²	X	X	Understanding of what patients need from staff	X	Collaboration with local diabetologist, patient education support group and patient held notes developed	X
Havens 2006 ¹⁴³	Excitement and a feeling of positive insights	Transforming their approach to infection prevention and departmental vision	X	Meetings, start with the positive; improved interdepartmental communication; altered interactions with human resources	Appreciative start to each meeting in some hospitals. Use of AI to frame employee surveys and patient satisfaction feedback sessions	X
Jaccii 2008 ¹⁴⁴	Effective approach	X	X	X	Implementation of knowledge management resource and a leadership education series. No 1 performing hospital in area surgical and pneumonia care	Improved patient satisfaction by 37% and the birth centre being ranked in the 99 th percentile nationally
Lazic 2008 ¹⁴⁵ & 2011 ¹⁴⁶	High satisfaction with course	Motivation and professional self confidence	X	X	X	x
Mash 2008 ¹⁴⁷	X	Staff more satisfied and motivated	Identification of deficiencies in the system	Well functioning team	Improved patient education, patient support groups, regular team meetings, summary sheet for patients, implementation of national foot screening guidelines & retinal screening.	X
Messerschmidt 2008 ¹⁴⁸	Spirit raising, but doesn't always work	Increased social equality and self confidence	X	Nurses taking initiative; cleaners working harder	X	X
Reed 2002 ¹⁴⁹	Enjoyable but not sure if its effective	Shared organisational perspective	Understanding of the system and how it worked	X	X	X
Richer 2009 ¹⁵⁰	X	X	X	X	X	X
Seebohm 2010 ¹⁵⁰	X	Less isolation, understand need to build good relationships	Understanding of the needs and desires of patients	X	X	X

High quality studies

It was also important to consider the evidence according to the quality of the studies. As reported in figure 15 there were two highly relevant, high quality qualitative studies.^{126, 127,130} These studies represent those with robust methodology and likely to have generalisable outcomes. They reported a positive reaction to AI and an increase in the knowledge about the service and needs of patients. In one study a new referral system was being piloted,^{126, 127} the other study reported no behavioural, organisational or patient outcomes.¹³⁰

There were four medium quality highly relevant studies.^{117,119,120,122,123} Two of these studies reported reaction as positive^{120,121} and enjoyable.^{122,123} Two reported that there was improved working together.^{117,120,121} One study reported improved knowledge over time^{122,123} and another described behaviour changes within the team with a focus on action plans.¹¹⁷

In terms of measurable organisational change, neither of the two studies that objectively measured it found any difference following the intervention.^{117,122,123} But one of these studies observed the introduction of staff morale improvement initiatives and patient care systems.¹¹⁷ Another study observed better community relationships and cleaner surroundings.^{120,121}

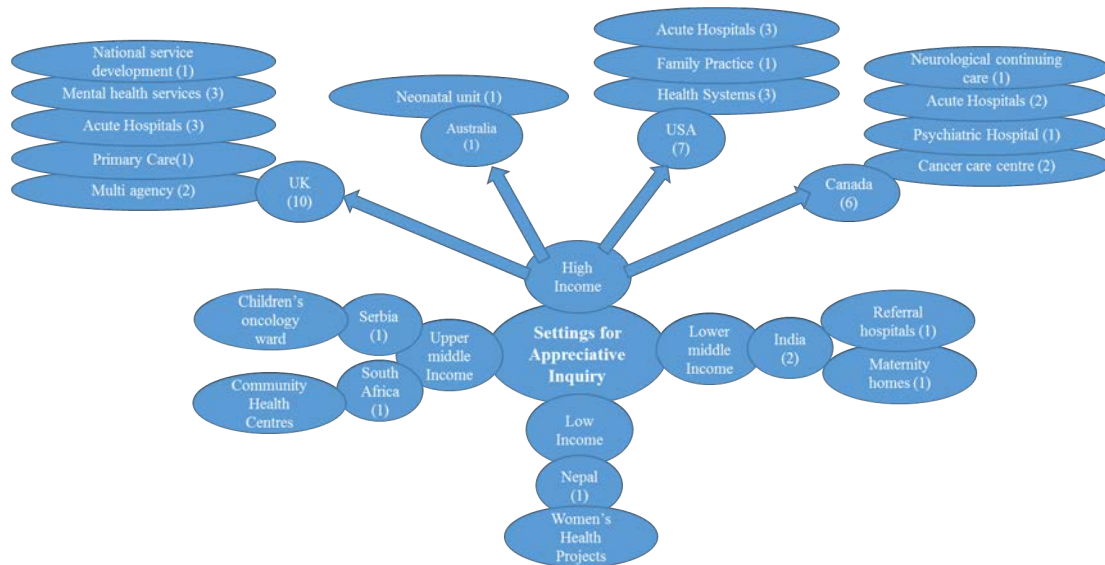
Finally, in terms of patient care, there were overall improvements in patient satisfaction^{120,121} and as discussed above there was a decreased infection rate in one study, although against a background of overall decrease in infection rates.¹¹⁹ However,

in the study of pain scores, there was no difference before and after the intervention.^{122,123}

Objective 2: To identify any contextual features associated with the success or failure of the implementation of Appreciative Inquiry.

There were two overarching contextual features. Firstly, the geographical distribution of these studies was overwhelmingly in high-income countries. Secondly they took place in a variety of clinical settings. This information is presented in figure 18. Whilst these factors in themselves did not seem to moderate the outcomes of the studies, there was one commonality between the settings. The researchers/implementers had identified a ‘need’ for the intervention.

Figure 18: Study setting according to country and clinical area



There were various contextual features that were important in facilitating or providing barriers to the success of the intervention. These were considered using the ‘COM-B’

behaviour change framework proposed by Michie et al¹⁵³ (Figure 19). The contextual factors are presented according to this model in table 8.

Figure 19: Michie's COM-B is a framework for understanding behaviour¹⁵³

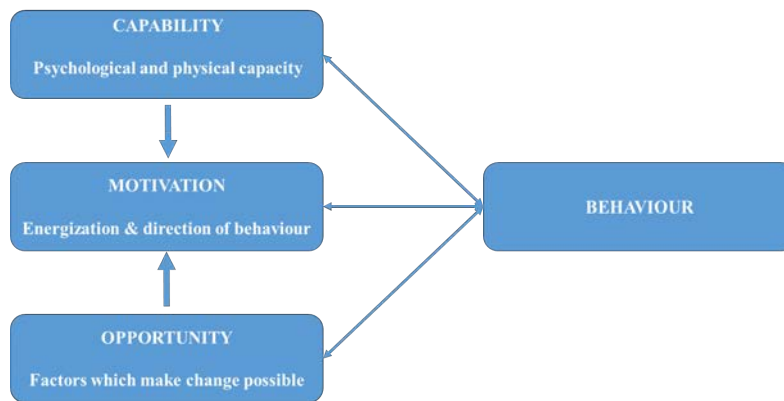


Table 8: The facilitating and challenging contextual features using the COM-B framework

FACILITATING CONTEXTUAL FEATURES		
Capability	Motivation	Opportunity
Time available (122, 130, 132, 136, 138, 143, 145)	Clear Trigger (104, 117, 118, 119, 120, 125, 126, 127, 128, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 145, 147, 148, 149, 150)	Managerial support (117, 119, 120, 124, 125, 128, 132, 133, 134, 135, 136, 138, 139, 140, 141, 142, 143, 144, 147, 148, 149, 150)
Implementation team (124, 125, 148)	Initiated from within (124, 125, 132, 136, 138, 140, 142, 144, 147, 150)	Part of a wider initiative (120, 128, 133, 134, 143, 148)
Committed champion (124, 125, 128, 139, 140, 147)		Multidisciplinary (104, 118, 119, 120, 132, 133, 134, 136, 138, 140, 141, 142, 144, 147, 148, 149)
Willingness to change (117, 138)		Stakeholder involvement (133, 134, 144, 148, 150)
High Participation (120, 125, 128, 132, 138, 139, 145, 150)		
Adequate resources (125, 138)		
CONTEXTUAL CHALLENGES		
Capability	Motivation	Opportunity
Difficult process to grasp (120, 150)	Lack of commitment (147, 149)	Competing priorities (135, 157, 139, 145, 149, 150)
No time for meetings (118, 137, 145)	No financial incentive (139)	Lack of managerial support/participation (104, 122, 133, 134, 138, 141, 149)
Lack of flexible thinking (146)	Low staff morale (132, 136)	Staff rotations (147)
Hierarchy/silos (119, 145)	Increased workload (104, 120, 146)	Political issues e.g. no pay (119, 148)
Lack of resources (120, 137)		Single staff group (128, 130, 131, 143, 145)
Too many change initiatives (122)		
Meetings in clinical areas (120)		
Low participation (130, 131, 133, 134, 137, 139, 147, 149)		

Facilitating features

Elements attributable to each of the ‘COM-B’ areas seem to be important, especially those related to ‘motivation’ and ‘opportunities’. For most of the studies (24/29) a trigger was discussed. This could be an internal trigger, for example patients identified staff attitude as a problem,^{120,121} or it could be an external trigger such as a government drive to improve multi-agency working.^{126,127}

The other category of note in the reports was of the importance of the intervention being initiated from within the organisation. This may be synergistic with another important factor, that of the management needing to be supportive of the intervention. If the management initiate an intervention, they are perhaps more likely to be supportive. A further important factor was the involvement of a multidisciplinary team. This appeared to facilitate change, as until everyone was brought on board, there were barriers to initiatives. For example, as discussed in one study, the founding clinician at a family practice was sceptical and it was not until he decided to engage in the process that changes could actually be made.¹³⁸

The capabilities of the team received less attention in the studies, but it seemed to be important to have high participation, adequate time and a committed champion to drive change.

The contextual challenges were wide ranging and showed less congruence around particular issues than the facilitating factors. The most frequently discussed were lack of managerial support, competing priorities and low participation.

The contextual factors identified in table 8 provide a selection of possible moderating factors. Perhaps the most important factors to consider as moderating factors are those which are identified most strongly in the strengths and weaknesses:

- managerial support,
- high participation of the whole team
- having enough time to commit to the AI.

In terms of managerial support eight studies did not discuss any positive managerial support.^{104,118,122,123,126,127,130,131,137,138,145,146} Two of these studies^{104,122,123} went on to discuss lack of managerial support as a factor which hindered progress. In the case of Richer et al¹⁰⁴ there were no changes implemented as a result of management prioritising other issues.

This finding was supported to a lesser degree when examining the outcomes of the other studies with lack of managerial support. Weaker changes, or changes more concentrated at the lower end of the Kirkpatrick framework rather than the end incorporating practice change were more frequent, suggesting that managerial support played a key role in the success of AI. Four further studies enjoyed limited managerial support^{133,134,138,141,149} and discussed how this was a barrier to change.

Three studies specifically mentioned that staff had insufficient time for AI.^{118,137,145,146} These studies all fell into the category of those with lack of managerial support, perhaps adding evidence to the importance of managerial support as a moderating factor.

A further moderating factor was the level of staff participation. Those studies which reported high participation^{120,121,125,128,129,132,138,139,145,146,150} resulted in more demonstrable changes than those reporting low levels of participation.^{130,131,133,134,137,139,147,149} Multidisciplinary participation seemed to be an important factor in achieving change. More of the interventions were

multidisciplinary^{104,118-121,132-134,136,138,140-142,144,147-149} than confined to single staff groups.^{128-131,143,145}

A greater proportion of interventions with weaker changes occurred when there was a single staff group. Multi-disciplinary, high participation therefore seemed to be important.

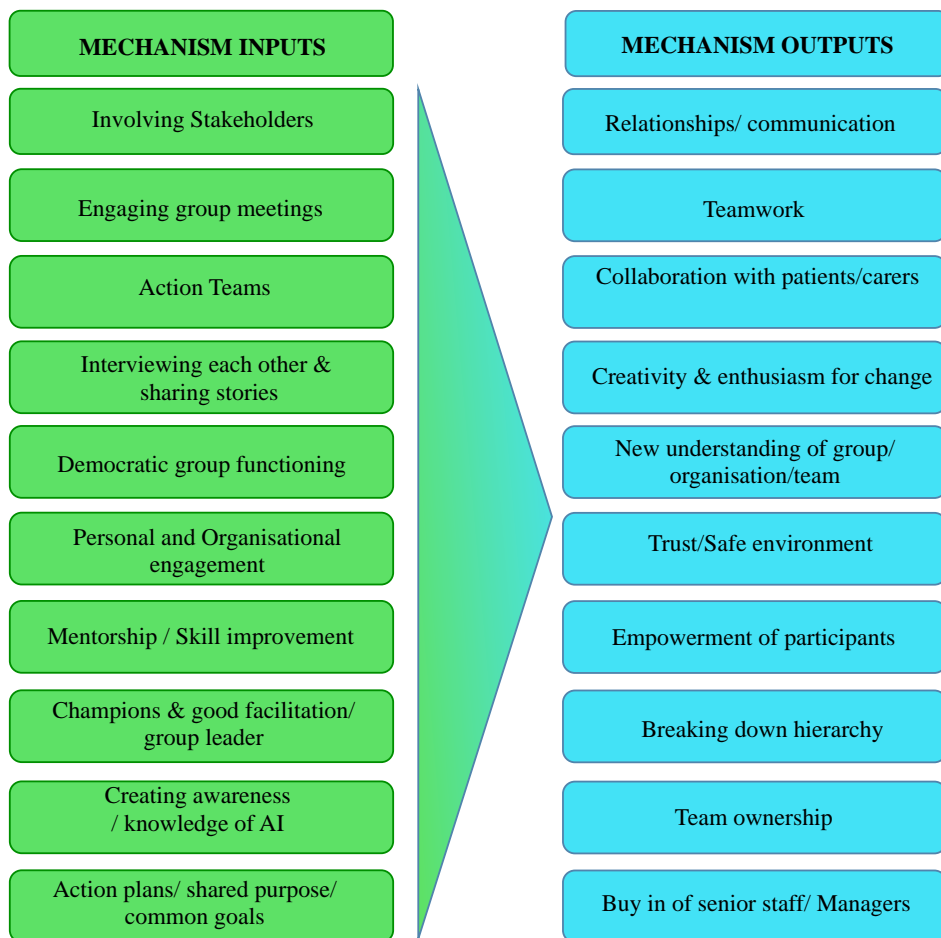
Objective 3: To explore the mechanisms by which workplace change occurs

As the analysis progressed, it increasingly emerged that mechanisms seemed to have two parts. Actions or ‘inputs’, which were part of the intervention, and ‘outputs’, in which the different elements of the intervention came together to effect change. A recent systematic review concluded that there was a lack of clarity amongst realist evaluators as to how to actually define mechanisms.¹⁵⁴ Some stuck narrowly to mechanisms as defined by Pawson and Tilley¹⁵⁵ and others gave a different interpretation including ‘actions’ which were part of the intervention as the mechanism.

For the purposes of this analysis it was vital to understand the important elements of the intervention, as not documenting these in the theoretical model would seem remiss.

Therefore, I added an extra ‘layer’ to the C-M-O framework by dividing the Mechanism element into two. The proposed mechanisms as defined by Pawson and Tilley were documented as ‘Mechanism-outputs’, however the postulated inputs to make the mechanism occur, or as some have describe it the ‘actions’ taken, were incorporated as ‘Mechanism-inputs’.¹⁵⁵ Figure 20 illustrates these core elements.

Figure 20: AI Mechanism inputs(green) and mechanism outputs (blue)



Many of the mechanistic inputs were central to the AI intervention. For example, arranging engaging group meetings and developing action plans were both considered important in meeting reports. Sharing of stories seemed to be an important mechanistic input. One of the other factors which resonated across studies was the need to engage all the relevant stakeholders, whether they were management, all staff groups, patients or those outside the organisation.

The mechanistic outputs (blue) were centred on empowering participants, breaking barriers within an organisation and thus supporting the group/organisation to work better together.

Objective 4: To identify any adaptations made to Appreciative Inquiry in order for it to be implemented in healthcare settings.

Adapting AI to suit the organisation and environment was important in these studies. Two main areas of adaptation were discussed; adapting to the limited time available and flexibility in application of the process to involve as many parts of the system as possible.

Fitting AI into the time available

This was discussed in most of these studies. Whilst this was a consideration when planning any AI meeting within any organisation, there was discussion of the particularly limited time available in health care settings. The inability to release staff from clinical duties or the busy schedules of staff were cited as the main reasons for needing to adapt AI. Two methods seemed to be used beyond just shortening the time spent on the process. Firstly, splitting the AI into multiple shorter meetings over a period of time^{104,119-121,125,128,129,137,139,141,145-147,149} and secondly, altering the AI process to combine some of the steps, for example researchers not participants carrying out discovery interviews, whilst remaining true to appreciative principles.^{117,126,127,132,138}

Being flexible with AI

Flexibility seemed to be important to enable the inclusion of as many members of staff as possible, and also to try to bring sceptical members of staff or parts of the system on board with the intervention. Several different techniques were employed for this task. Two organisations decided to hold multiple sessions of the same meeting, to fit in with the schedules of their staff.^{125,128,129} Another organisation arranged a phased approach, which meant that more staff were invited and included each time the meeting was held, giving opportunities to bring on board a particular staff group before spreading to the next group.^{133,134}

Some organisations adapted AI by including activities to undertake between meetings to move the process forwards.^{133,134,149,150} When trying to include more opinions in the process, organisations used survey instruments,^{137,139} extra meetings or interviews by designated members of the research or AI team.^{126-129,138,150} One organisation inserted best practice guidelines into the intervention to ensure that this was followed in the subsequent action plans.¹³¹

Objective 5: To understand how the appreciative inquiry process and changes had been captured

All of the studies reported in a reflective manner or through records of meetings about the implementation of their intervention and to a varying degree their outcomes. Some studies utilised a variety of methods to enhance the quality of these reports; for example detailed field notes^{104,117,120-123,128-131,145,146,148,149} and interviews/focus groups^{104,125-129,133,134,140,143,149} alongside evaluations of the intervention.^{132,135,137} Furthermore, some

studies went on to investigate the perceptions of staff in relation to outcomes of interest, such as satisfaction.¹²⁰⁻¹²⁵ Other methods to capture changes included knowledge tests,^{118,122,123} measurement of puerperal sepsis cases,¹¹⁹ systematic scoring systems for the care provided,¹¹⁷ audits of clinical care,¹²²⁻¹²⁴ hospital level staffing data,^{125,139} measurement of patient satisfaction^{120,121,124,144} and patient pain scores.^{122,123}

Discussion

Twenty-nine studies using AI to change clinical care were identified, although many others were using AI as a research tool or to alter health education. Due to the small number of studies, this suggests that AI, and the understanding of how AI may work, is still in its infancy when it comes to clinical care.

What was clearly identified for the use of AI in a healthcare setting was the need to be flexible when implementing the intervention. This was because staff were not readily able to arrange significant amounts of time away from clinical duties, and the intervention needed to be adapted to account for these competing priorities.

Does AI work?

In the studies identified in this review, AI was reported in a largely positive light, with few negative findings presented. This might be because the whole ethos of AI is to consider things in a positive light, and therefore those writing the study reports, often synonymous with the implementation team are focused on the positive aspects of their implementation. This reporting and possible publication bias might have significantly influenced the seemingly positive results of AI.

Another element of these positive findings was that AI was often instigated as a quality improvement tool rather than within the context of a research study. Most of the studies captured qualitative data with few studies systematically collecting outcome data.

Whilst this might mean the organisation was committed to change, it also brought with it the difficulties of interpretation of the impact of AI, as most of the available literature was in the form of these case studies. Nonetheless, from the limited evidence available, AI seemed to bring about change within organisations and the Kirkpatrick framework helped in illuminating this.

There was no convincing evidence for improvement in patient outcomes using AI interventions. The patient satisfaction element of outcomes seemed to be a promising area with which to measure change in AI. This is a plausible change due to AI as the intervention fosters changes at an interpersonal level, which could improve patient experience.

In terms of patient outcomes, there was some promising evidence for the use of AI from an infection control study,¹¹⁹ although against the background of the control group results, this evidence remained unconvincing. The only other study looking at patient outcomes reported no change during the study.

There were two issues when it came to patient outcomes. Firstly, whether AI effected change at the patient level, and secondly whether investigators chose to measure patient outcomes. In order to identify changes they have to be measured, but because of the difficulty in getting large enough sample sizes to demonstrate change or then attributing

changes to the intervention, investigators sometimes chose not to measure patient outcomes. Instead, some reported process measures which could be considered surrogate markers for change.

A further challenge is that in order to effectively measure patient outcomes, clear clinical questions have to be set for the AI. But this may remove the ability of the team to decide what they wanted to work on, which in turn might reduce the effectiveness of the AI. What was important to the researcher may not have been the priority of the staff at that time. Some interventions worked with this by allowing the team to work on its own ideas first¹¹⁷ and another took the opportunity to introduce the best practice guidelines.¹³¹

In addition to this, interventions needed time to work and take hold, and therefore might have required a longer time period than most studies were able to work within. Whether AI brought patient outcome changes was therefore a mainly unanswered question. The indications seemed to be that it was not likely to cause harm to patients, and there was some promising evidence for its use.

There was more convincing evidence for the effectiveness of AI at an organisational change level. There were measurable changes of reduced staff turnover and sickness, and in some studies change in practice was measured in terms of altered adherence to protocols. However, the success in this regard was not universal and two of the higher quality studies^{117,122,123} showed no measurable change in organisational outcomes, although there were changes within the organisation that were not quantifiable.¹¹⁷ Many

of the studies identified in the review reported organisational level changes in terms of introduction of protocols, morale improvement activities, altered human resources policies and new patient care pathways. Whilst these were perhaps not quantifiable, their introduction was likely to impact on organisational practice and logically, because they could be considered process measures, might have gone on to effect measurable outcomes.¹⁵⁶

In terms of staff behaviour change there was some evidence to suggest that behaviour change was possible in the context of AI. There were few studies which actually measured behaviour change, but more reported that it happened. Whilst the evidence was not strong, AI certainly showed promise in this regard. AI seemed to produce positive outcomes in the realms of knowledge and skill development, with the two studies which measured this outcome quantitatively showing improved knowledge, along with other reports of changed behaviour. There were also reported changes in attitudes following the introduction to AI, particularly focusing on teamwork, understanding each other and communication. These changes were perhaps felt most by those staff who were previously least empowered.^{120,121}

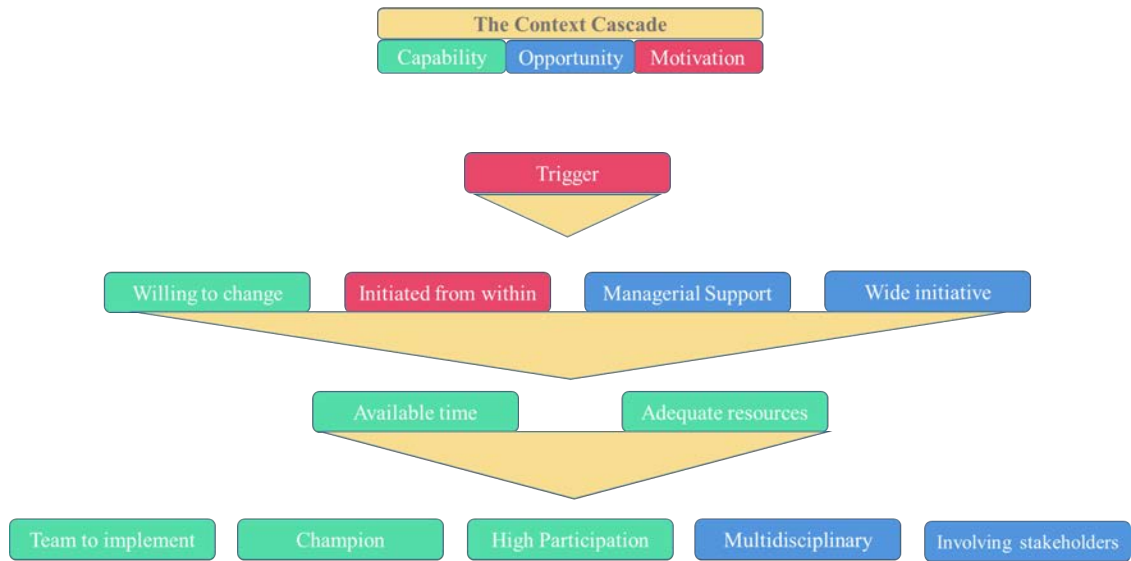
Whilst the evidence pointing to the effects of AI was far from strong, there was certainly a mounting body of research that suggested AI was a promising organisational change technique, which brought about changes within the healthcare team and for patients. One thing which was missing in the reporting of many of these studies was the implementation fidelity, i.e. how well the intervention was implemented. This is considered in the quality assessment when using the SQUIRE guidelines for quality

improvement studies, however it is not considered in the other guidelines (STROBE and CONSORT). Therefore this data was collected separately and thus has been identified as a weakness in reporting.

In what circumstances does AI work- context?

Despite the majority of these studies being carried out in high-income countries, there were some contextual issues which transcended all settings. They were largely interlinked factors which reached to the core of ensuring organisations were able to change their behaviour: their capabilities, motivations and opportunities.¹⁵³ When I examined the contextual features, they seemed to me to operate as a cascade – and either facilitated or hindered organisational change. Figure 21 shows my suggested model for how this cascade worked. First came a trigger that stimulated organisational change, which was then driven by management. This created desire to change and therefore the mobilisation of some of the necessary ingredients. When staff were given the support, time and resources to change, they were able to participate across disciplines and drive change forward as a team.

Figure 21: The COM-Context Cascade



Whilst this context cascade may be a useful way of considering the elements required to change behaviour, it is important to note that the COM-B¹⁵³ framework was not designed with organisations in mind. Therefore, on its own it does not provide the overarching view of the elements necessary to ignite organisational change. However, if it is nested within another framework, as in this case within the realist evaluation framework, it can contribute to the understanding of complex interventions.

Whilst this particular contextual cascade may seem plausible for AI, when taking a step back, one can see that it may be relevant to any organisational change initiative and therefore the mechanisms AI ignites may be the most important element of this intervention.

How does AI work- mechanisms?

The mechanisms are the most nebulous element of the realistic evaluation model. They require insight into the intervention and interpretation of the study's results. They are also the elements which need to be postulated upon the most because there is no objective way of measuring them, perhaps leading to them being the weakest element of the model. The position for this review of mechanism inputs and outputs leads to greater objectivity at least around the inputs to the mechanisms. This links the realistic evaluation framework to the most important ingredients of the intervention.

The mechanistic inputs centre around the relational aspects of AI, with a focus on team meetings, relationship building and joint actions. These inputs seem to ignite the mechanisms, which alter the way staff interact with each other and create the space for better team functioning, collaboration and creativity. This results in a team being more empowered. Some of the most powerful mechanisms of AI may be related to breaking down hierarchy, which allows all team members to feel valued.

The interrelatedness between Context and Mechanisms

The context and mechanisms are inextricably linked. They interact to deliver the mechanistic outputs leading to the outcomes discussed above. The recognition of this lack of clarity between context and mechanisms is not new.¹⁵⁴ The level of overlap between context and mechanisms is likely to be affected by the definitions of mechanism and context adopted by evaluators. In this review, the mechanisms are broken down into two as discussed. Therefore, there is likely to be little overlap between context and mechanistic outputs. However, because the context (which cannot

be easily altered) can have a significant effect on what mechanistic inputs can be made, there is likely to be some overlap between mechanistic inputs and context.

Strengths and weaknesses

This review provided a comprehensive overview of the available evidence of the use of AI in healthcare. It incorporated unpublished studies and some not available in academic journals. This was appropriate for this review, because AI has mostly been embraced by organisations and quality improvement enthusiasts rather than academic clinicians. Having said that, this was also the weakness of the study as there was little high quality evidence on which to base the conclusions.

Due to the lack of clear reporting guidelines, the disparate way the data was collected and the fact that many studies were not testing or developing a theory of change, it was necessary to extrapolate findings from the studies to fit into the models used in this review. This inherently involved some degree of interpretation during the review. I was able to lead a multidisciplinary review team to try to ensure a broad perspective for this interpretation including doctors, midwives and a psychologist.

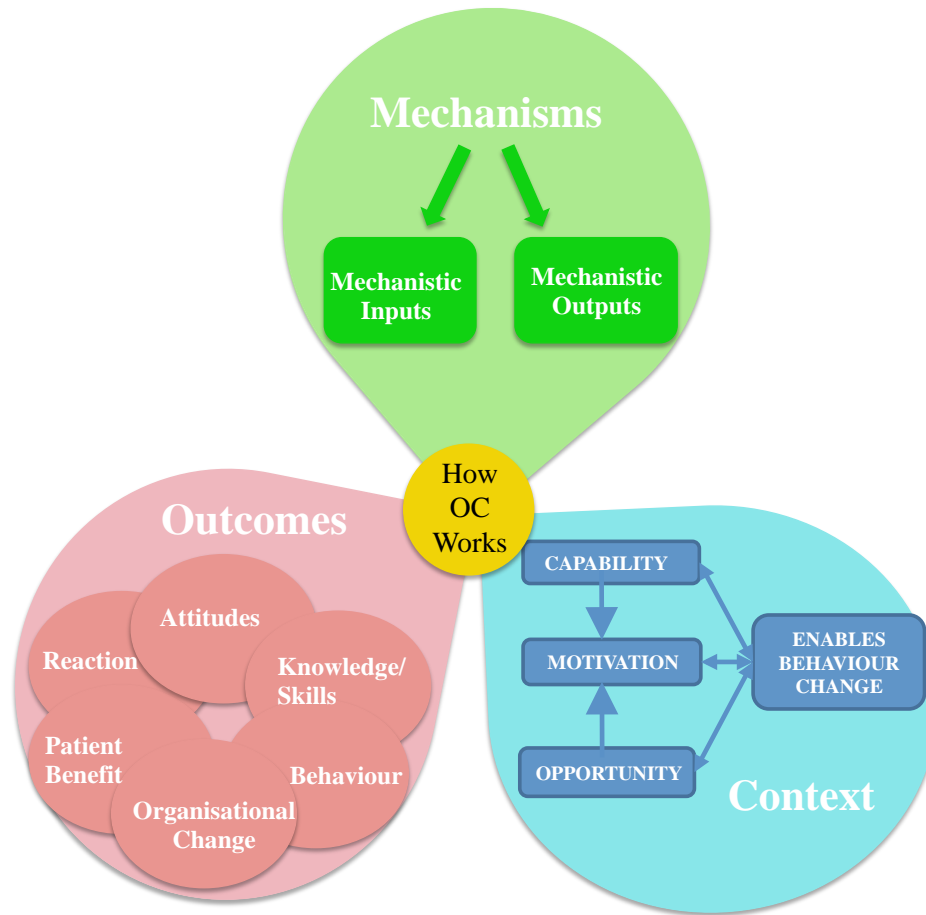
This review was focused on clinical care changes as a result of the AI intervention. However, as the organisational outcomes from the review became evident using the Kirkpatrick model, it became clear that there is case for including studies on managerial level interventions without a clinical component as well as those with a clinical component.

Proposed theoretical model for complex organisational change interventions.

This review has been focused not only upon whether AI worked, but also how and why AI worked. What became increasingly clear during the process of the review, was that there was no single theory of change which explained how AI worked. In order to make the best sense of how AI, as a complex intervention, may work, I have amalgamated several different frameworks. This generalised theory of change I have developed for complex organisational change interventions is shown in figure 22. It is based upon a realist evaluation framework,¹⁵⁵ incorporating a COM-B model of behaviour change¹⁵³ and a Kirkpatrick framework of outcomes.¹⁵¹

In order to use this new model throughout the remainder of this thesis, it needed a shorter name. Because the way it is pictorially depicted, like a flower, along with the idea that organisational change initiatives are meant to sow the seeds for a group to grow, I have named it the ‘blossom model’.

Figure 22: The ‘Blossom Model’: A theory of change for complex organisational change interventions



The blossom model was needed to join these frameworks as individually each of them had limitations for explaining how organisational change using AI worked. The realistic evaluation framework provided a useful outline framework for this endeavour, however within it there were limitations in terms of lack of clarity over mechanisms and the potential overlap between mechanisms and context. The modification of this framework allowed a deeper clarity regarding how to develop the mechanisms, and importantly encouraged a focus on identifying the core elements of the intervention.

The mechanisms were the most difficult elements of the framework to discuss, and beyond dividing them into inputs and outputs no further analysis was suggested. For the context, however, I found 'COM-B' useful. COM-B was designed as a framework for understanding behaviour,¹⁵³ largely perhaps focused on individual behaviour change, but with room to apply it to organisational behaviour. It enabled me to classify contextual features into the area of behaviour change each effected. This facilitated a more structured consideration of each possible contextual element and allowed consideration of possible gaps in the enabling environment of AI (and other organisational change interventions) going forward. Based on the behaviour change 'COM-B' theory, it was important to address each of the areas it discussed. However, on its own, COM-B did not fully explain the theory of how/why AI works.

The remaining area of the realistic evaluation framework was outcomes, a particularly difficult area as there was no comprehensive framework with which to categorise outcomes in organisational change interventions. Indeed there has been significant debate about which outcomes should be considered important.¹⁵⁷ The Kirkpatrick framework was borrowed from the training/education sphere. Considerable time has been spent developing and debating this tool. Whilst imperfect, it was developed for medical education and the areas measured resonated with those measured in the AI studies.¹⁵² It provided a useful starting point with which to categorise outcomes.

Conclusion

AI has potential to effect positive change in organisations, however the evidence for it working was not sufficiently compelling from the studies identified in the systematic

review. To develop these conclusions further, high-quality studies of AI need to be undertaken. However, the studies should be developed using a theory of change. This will help to understand how the intervention worked and also enable delivery of the best possible AI intervention for investigation in a research context so ensuring optimum use of resources. Despite this, there were overwhelmingly positive accounts of AI from all staff who participated in the process, in countries from all income brackets, and therefore, in this era of increased pressure and expectations on clinical staff worldwide, AI seems like an important avenue to pursue.

Part 2: Developing and implementing Appreciative Inquiry in maternity wards in three Malawian health facilities

Introduction

The systematic review showed that AI has huge potential in healthcare. However, despite generation of theory being centrally important to the development of AI, few studies have this grounding.³⁸

Realistic Evaluation,¹⁵⁵ introduced as part of the systematic review is used in this chapter in an attempt to understand AI in terms of what worked, for whom, and in what circumstances. The ‘blossom model’ of organisational change presented in the previous chapter will be employed to discuss the implementation of AI and facilitate a more specific generation of the Theory of Change for AI in healthcare.

One of the elements of this model was context, which represents an important component when considering implementation research.⁴⁵ For this study, the general setting of working life has been described in Section A and the AI intervention is built upon this and information identified in the systematic review. This chapter is a full report of the implementation of AI. It provides the opportunity to contribute further to the theoretical model through reports of additional contextual features as well as further discussion of the mechanisms. Outcomes will be mentioned but they will mainly be discussed in Section C.

The information in this chapter will contribute to a realist analysis of the intervention, and help to take steps towards using the ‘blossom model’ to develop an AI specific theory of change. To do this, it was necessary to report implementation features to fully understand the intervention and its successes.

However, in addition to considering the way AI worked, it was important to understand some other key areas of the implementation process for example: acceptability, adoption, appropriateness, feasibility, fidelity, strength/intensity, cost, coverage and sustainability.^{45,46} This helped to assess whether the AI was systematically planned and delivered. The ‘Consolidated Framework for Implementation Research’ (CFIR)¹⁵⁸ provided a helpful guide to what implementation elements were important and it was used to consider how well the AI was implemented.

Before moving on to report on the process of implementing AI, it became essential to understand more about various ways to implement AI. The AI process is not prescriptive. Instead, it is the appreciative element that is important. An appreciative approach can be used within a variety of different interventions, for example ‘Lean’ and ‘Six Sigma’.¹⁰⁷ There are also tools which have been embedded within an AI, for example SOAR (Strengths, Opportunities, Aspirations and Results).¹⁵⁹ Finally, the process of bringing people on board with the core principles and enabling them to experience AI’s potential was often carried out using the AI cycle (Figure 4), described briefly in the introduction to this thesis. There are other ways to guide teams through this process, for example the ‘Four-I Model’ (Initiate, Inquire, Imagine, Innovate).¹⁰⁷ In

this study, the ‘traditional’ AI model was used, with the addition of the 5th D for ‘Define’ enabling staff to define their topic of inquiry (Figure 4).

The definition of the affirmative topic is a strategic choice.³⁹ AI was initially designed so that participants chose their topic, however there has been success with the affirmative topic being pre-selected too.³⁹ Here, we opted to encourage all team members to participate in topic selection to remain true to the participatory nature of the process.

Following this, we moved on to the Discovery, Dream, Design and Destiny phases. The core elements to each one of these areas is presented in box 7. This process can be facilitated in a variety of ways, however, the ‘usual’ approaches are the ‘AI Summit’ and the ‘Whole System Inquiry’. The AI summit is generally four days long and goes through all the aspects described in box 7, whilst the whole system inquiry takes place over a longer period, with people often being interviewed for the discovery phase over several months.³⁹ From the systematic review reported above, it was clear that in healthcare AI had been ever more flexibly implemented. There were often shorter sessions, sometimes with repeated meetings in order to incorporate all views or utilising surveys or phased approaches to try to involve more people. These lessons, along with the principle that AI is a philosophy, rather than a process,³⁹ were taken forward into the development AI for this study.

The stages of AI

Discover: Identifying the best of what is happening, by asking unconditionally positive questions and focusing on learning from the highpoint experiences.

In this phase discovery interviews are carefully crafted and staff use this process to share stories. This dialogue is an important foundational element on which to build the rest of the inquiry.

Dream: Rooted in the positive core of their organisation's stories, staff envision their organisation and challenge the status quo with the help of various 'dream questions'.

Design: Co-construction of the future of the organisation takes place through development of provocative propositions to realise the vision of the ideal organisation.

Destiny: Staff work together to plan, commit and develop momentum towards creating the future as the team envisioned it.

The approach to implementation

In order to implement AI, the intervention needed to be formally acceptable at a management level and attractive and feasible for staff. Whilst doing this, the intervention needed to be participatory, reflexive and responsive and also develop local staff capacity.

For this study it was necessary to develop a small AI implementation team to enable delivery of the intervention in Chichewa, the local language, and also ensure resilience of the study. This team comprised three people but became two towards the end of the

study. I was the research lead was responsible for planning the sessions and providing the resources. A local AI facilitator/project manager oversaw the project locally, helped to plan and deliver the sessions. Finally, a project assistant took care of the practical elements of the meetings and the meeting minutes, but he was reassigned to other duties half way through the project.

Gaining permission and support from management

After gaining consent for the study from each DHO, support for the study was gained from local management structures. At the referral hospital, the matron on the ward was briefed prior to meeting the in-charge and deputy in-charge. At the district hospital, the DHO introduced us to the District Nursing Officer (DNO) who facilitated introductions to the in-charges of the labour and postnatal wards and arranged a meeting to present AI to all of the staff. At the community hospital, the Hospital In-charge was enthusiastic about the project. He arranged for the SNO and the acting in-charge for the labour ward, to meet with the project team to learn about the study. At each site all members of maternity staff were offered a leaflet about the study (Appendix 8) and the opportunity to ask questions.

Making the intervention acceptable to staff and management

In order to develop an acceptable intervention staff, management and the implementation team discussed how it would work. It was decided unanimously that the meetings should be short so as not to disrupt clinical care. Each site then chose to proceed differently.

The Community Hospital staff felt that they should have the meetings in the afternoons starting at 2pm, as most hospital activities were in the mornings. The Referral Hospital and District Hospital both wanted to have their intervention meetings early in the morning, so that the night staff could attend before they went home. We therefore designed the meetings to last approximately 60-90 minutes and held them at the times of day requested.

Incentive payments

During the initial meetings with staff, it became clear that there was a culture of attendance allowances for meetings in Malawi. The intention of the project had never been to pay staff incentives for attending meetings as they were held at their place of work, during working hours. In discussion with the teams it was agreed to provide them with a transport allowance and some refreshments. At the Community Hospital, they insisted that they would rather have the money allocated to refreshments instead of having snacks during the meetings.

At each site the transport allowance was set at 1000 MKW (equivalent to about £1.50). The staff at the Referral Hospital, which is in town, soon raised the fact that the transport allowance was not sufficient for them to get to work and back if they were on a day off. The payment per person per meeting was therefore negotiated up to MKW1500. We made a further adjustment at the Community Hospital because with no refreshment break, the staff did not concentrate as effectively throughout the session. Therefore, after the first session, refreshments were provided instead of money and after the facilitator explained this to the team there was no resistance.

Inclusion of the whole team

The aim was to include the whole team in the AI from the hospital attendants through to doctors. Management were also invited to attend, in particular the ward level leadership such as the in-charges and matrons. This drew both on the AI recommendations of involving everyone⁴⁰ and on lessons from the systematic review in which there were ‘pathbreaking’ experiences of the lower cadres of staff when they were involved in the intervention.¹²¹

The main language in Malawi is Chichewa. Although most people speak some English, not all members of hospital staff are fluent, especially those of the lower cadres. This meant that it was important to run meetings in Chichewa, as this was the language staff were most comfortable speaking.

Developing local capacity

One of the key elements in implementing AI was that it needed to be owned and run by the team if it was to have any lasting effects. Therefore, a participatory approach was encouraged throughout. Because of this teams sometimes anticipated challenges and planned to overcome them, for example at the referral facility they highlighted the January staff rotation, and strategised to incorporate new members.

Once action plans had been formed, it emerged that there were some people in each team who were particularly enthusiastic. They were mentored to become AI meeting facilitators. Despite engaging the AI facilitators from each site in the contents of the agenda, they never quite designed the whole meeting by themselves.

The Research team and the AI meetings

The AI meetings were initially arranged by the research team. Later in the process, they were arranged by the on site champions for AI. As the research team, we attended every one of the formal AI meetings (11 in each site). This allowed us to provide the basic stationary and refreshments for meetings. It also enabled us to collect accurate attendance records, collect the questionnaires associated with the research study and take accurate minutes of the meetings.

This attendance of the research team may have influenced the effectiveness of the meetings, as people may have been more likely to attend when there were visitors coming to the hospital. My presence, as the research lead and white doctor, may have had a significant influence on this. This was evident when at the district hospital, they decided to host additional AI meetings. The research team did not attend these meetings, instead staff reported back on them at the monthly AI meeting. They had far fewer staff in attendance.

When considering the role of the research team, the first meeting at the referral hospital, was led by me, and translated by the AI facilitator. This occurred for training purposes, to build the confidence of the AI facilitator. Following this, the meetings were led by the AI facilitator until AI champions emerged at the sites.

At the outset, we were transparent that this research study was for my PhD thesis, and therefore staff knew I was invested in the results. I did however, try to remove myself, except for the first meeting, from facilitating or participating in the meetings. Generally

this was easy to do and I was able to fade into the background as an observer – the staff were used to my presence as an observer from all the time I spent on the wards for the ethnographic elements of the study.

A possible barrier to accurate understanding of the meetings for analysis was that they were mostly in the local language, which I did not speak. As discussed above, this was to facilitate inclusion of the whole team in the AI process, as many of the lower cadres of staff struggled to communicate easily in English. This did however present a challenge for me to understanding what was happening in the meetings. This was somewhat mitigated by the fact that when the facilitators wrote on flip charts, they wrote in English (by their choice) so I was able to follow the meetings. Furthermore, the minutes for the meetings were taken by the AI team, and we would discuss and debrief in the car on the return to the office. This ensured that I had a good understanding of the meetings as we went along.

Reflexive Approach

Following each meeting staff were asked informally how they felt the meeting went. The implementation team held debriefing discussions and individually wrote reflections on the process. This led to a negotiation with the district hospital about the need to move their meetings from mornings, where they were interfering with patient care, into the afternoons. It also resulted in a reduction in the amount covered at each meeting, because by the time people turned up late, the meetings ran on too long. There was also a need to come up with ways in which we could stress the positive element of AI as people continued to return to a problem-focused approach.

The AI Meetings

Attendees

At each site 11 meetings were held over the year-long intervention period. Table 9 shows meetings in each site and which cadres they were attended by. The number of staff eligible to attend the meetings varied throughout the study due to staff changes. At the referral hospital there was a maximum of about 20, at the district hospital approximately 40 and at the community hospital around 25. As you can see from Table 9, many of the staff eligible attended each week.

Table 9: Meetings and attendees at each site

Meeting Number	Referral Hospital (max 20)	District Hospital (max 40)	Community Hospital (max 25)
1	Total=14 Nurse=6 NA=2 HA=4 Clerk=2	Total 23+3 CO=4 MA=1 Nurses=8 NA=1 HA=7 Clerks=2 3 staff on ward	Total=22 CO=4 SNO=2 Nurse=4 HA=8 Clerks=3 Messenger=1
2	Total=9 Matron=1 Nurse=3 NA=1 HA=3 Clerk=1	Total 27+4 CO=5 Nurse=9 NA=1 HA=11 Clerk=1 4 staff on ward	Total=21 CO=3 SNO=2 Nurses=3 HA=11 Clerk=1 Messenger=1
3	Total =19 Nurses=9 NA=2 HA=6 Clerks 2	Total = 34 CO=3 MA=3 Nurses=12 NA=1 HA=14 Clerk=1	Total=22 CO=1 Nurses=9 HA=9 Clerk=2 Messenger=1
4	Total=12+2 Matron=1 Nurse=4 NA=2 HA=4 Clerk=1 2 staff on ward	Total=26+2 CO=1 MA=3 Nurses=9 NA=1 HA=11 Clerk=1 2 staff on ward	Total=21 CO=3 SNO=1 Nurses=4 HA=10 Clerk=1 Messengers=2
5	Total=15 CO=1 Nurses=6 NA=1 HA=5 Clerks=2	Total=36+3 CO=7 MA=2 Nurse=12 NA=1 HA=13 Clerk=1 3 staff on ward	Total=19 CO=3 Nurses=5 HA=9 Clerk=1 Messenger=1
6	Total=13+1 CO=1 Matron=1 Nurses=4 HA=5 Clerks=2 1 staff on ward	Total 38 CO=7 Nurses=17 HA=13 Clerk=1	Total=16 CO=2 Nurses=3 HA=10 Messenger=1
7	Total= 16+1 CO=1 Matron=1 Nurse=5 HA=7 Clerks=2 1 staff on ward	Total=30 CO=2 MA=2 Nurse=13 NA=1 HA=12	Total=20 CO=1 Nurse=5 HA=11 Clerk=1 Messenger=2
8	Total=16 Nurses=9 HA=6 Clerk=1	Total=26 CO=4 MA=1 Nurses=9 NA=1 HA=10 Clerk=1	Total=21 CO=2 SNO=1 Nurse=6 HA=10 Clerk=1 Messenger=1
9	Total=19 CO=2 Nurses=9 HA=7 Clerk=1	Total=32 CO=2 Nurses=15 NA=1 HA=13 Clerk=1	Total=15 CO=1 Nurses=5 HA=7 CMA=1 Clerk=1
10	Total=14+2 CO=1 Nurses=6 HA=6 Clerk=1 2 staff on ward	Total=32+3 CO=4 Nurses=12 NA=1 HA=14 Clerk=1 3 staff on ward	Total=18 CO=2 Nurses=5 HA=8 CMA=1 Clerk=1 Messenger=1
11	Total=12 Nurse=4 HA=7 Clerk=1	Total=39 CO=3 Nurses=18 NA=1 HA=16 Clerk=1	Total=22 Nurses=7 HA=11 CMA=1 Clerk=1 Messenger=2

The Appreciative Inquiry Meetings

The AI process followed was the same at each site, but adapted for each individual group. The intervention started by explaining AI and then the team defined their topic of Inquiry. Once each of the sites had chosen a topic, the 4D action cycle of AI commenced. By the second half of the project, staff were designing and implementing action plans. Each week teams would revisit action plans, celebrate progress and redesign on-going plans. Table 10 shows a summary of activities in each site over the 11 sessions and the sample session plans collated into a toolkit for AI implementation in Malawi which is presented in Appendix 9.

Table 10: Outline of activities at each site over the twelve-month study period

Meeting number	Referral Hospital	District Hospital	Community Hospital
1	Introduction to AI with group exercises Definition of topic of the Appreciative Inquiry		
Topic	<i>'Team Spirit'</i>	<i>'Best possible patient outcome through excellent teamwork and monitoring of outcomes'</i>	<i>'Excellent infection prevention alongside optimal personal health'</i>
Between meetings	Discovery Phase Individual interviews between staff members to discover what is currently happening in terms of their appreciative topic.		
2	Discovery phase continued Appreciative interviews	Dream Phase Sharing stories from interviews and working in groups to dream about the workplace at its best	
3	Dream Phase Sharing stories from interviews and working in groups to dream about the workplace at its best	Design Phase Reflection of themes from the dream phase Developing the provocative propositions	
4	Design Phase Reflection of themes from the dream phase Developing the provocative propositions	Destiny Phase Prioritising provocative propositions. Developing action plans	
5	Destiny Phase Prioritising which provocative proposition to work on	Ongoing Destiny Phase Monitoring action plans Celebrating success Modifying or making new action plans	
6	Destiny Phase Developing action plans	Ongoing Destiny Phase Monitoring action plans Celebrating success Modifying or making new action plans	
7-11	Ongoing Destiny Phase Monitoring action plans Celebrating success Modifying or making new action plans		

Each site chose different topics. A short summary of what each site worked on and achieved is presented in Boxes 8, 9, 10. A more detailed summary is available in Appendix 10.

Box 8: Appreciative Inquiry in the Referral Hospital

AI in the Referral Hospital.

Staff enthusiastically chose to work on ‘**Team Spirit**’. Nursing and auxiliary staff actively attended and participated in these meetings, which were generally held in the small side rooms of the ward. However, only occasionally would a clinical officer attend. Although there were posters, text messages and WhatsApp reminders, some members of the team were not always aware of meetings, and were disappointed when they discovered they had missed them.

Staff seemed to enjoy being part of the team, especially when they were given badges. The ward leadership variably attended the sessions and the matrons attended when they could. Staff rotations did impact on meeting attendees, with frequent new additions. However, key individuals were identified and some naturally became AI champions. The latter sessions were facilitated by a local facilitator, and when one was unable to attend, we were able to invite another member of the team who was also enthusiastic.

Staff developed three provocative propositions and chose to work on *regular monitoring and timely management to improve patient outcomes*. They developed action points around this on respect and politeness to patients and monitoring of patients.

For respect and politeness, they chose to improve the way they welcomed patients to the ward. To measure this, they designed a patient exit survey and encouraged use of the suggestion box. To improve monitoring of patients they lobbied for appropriate resources, orientated patients to the ward routines and displayed posters to remind each other. Subsequent meetings focused on reviewing their progress, celebrating their success and altering their plans to be more effective going forward.

Box 9: Appreciative Inquiry in the District Hospital

Appreciative Inquiry in the District Hospital.

The team from the postnatal ward and labour ward joined together to meet in the postnatal examination room, which was sometimes very full. They chose the topic '**Best possible patient outcome through excellent teamwork and monitoring of outcomes**'. Initially they met in the mornings, but because of patient care they decided to move it to the afternoons. Despite it sometimes being difficult to encourage active contribution, especially in this large team, all cadres of staff actively participated. Members of staff from each cadre volunteered to be focal people and became AI champions. The most challenging parts of the meetings were encouraging staff to focus on the positive and understand the concept of provocative propositions.

As the AI continued, some of these focal people began to facilitate meetings. They were excellent at preparing for sessions or finding a stand-in facilitator if they were away, which most staff were at some point for personal, or work reasons. Staff identified themselves as AI team members and this was encouraged through wearing of badges.

Sessions were lively and all cadres of staff participated. However, none of the hospital leadership attended the meetings and only occasionally was the ward leadership able to attend. Staff created five provocative propositions but chose to work on those around infection prevention, teamwork and towards the end added in action plans on monitoring of patients.

In terms of infection prevention, they concentrated on traffic control in the wards, shoe removal and purchase of a shoe stand, hand washing and health talks for patients. For teamwork they decided to hold joint ward meetings and then made commitments for staff from postnatal and labour ward to work together to get patients to and from theatre and for staff to handover to each other. For monitoring of patients they chose key points at which to ensure that they completed observations. At each meeting staff reviewed their progress towards their goals and developed action plans.

Box 10: Appreciative Inquiry in the Community Hospital

Appreciative Inquiry in the Community Hospital.

These meetings were carried out in the meeting room where the maternity and theatre staff attended. Staff of all cadres actively participated in the meetings to choose the topic '**Excellent infection prevention alongside optimal personal health**'. Members of the ward and hospital leadership team attended these meetings regularly. A member from each cadre was selected by the team to be the AI focal person for each site.

The nurse in-charge of the labour ward became an enthusiastic AI champion and the AI facilitator. He arranged the meetings and encouraged staff to attend. They all felt part of the AI team and they were enthusiastic wearers of AI badges.

Although the concept of provocative propositions was hard to grasp, staff developed five, of which they worked actively on two. They decided to work on one at a time. First they chose one around a safe and clean working environment. They chose to concentrate on improving waste disposal (including sharps safety) and education of patients and hand-washing. They then decided to add in work on personal protective wear. They created plans to increase access to and usability of protective wear. This included lobbying for more resources. They then decided to add in a new provocative proposition around maternal sepsis and infection prevention and to encourage proper observation taking and examination for mothers.

Each meeting after the action plans were formed were used to review success and make further plans. Whilst sometimes it was difficult to concentrate on positives when new or vocal members attended. The staff did manage to celebrate positives at each meeting.

Staff evaluation of the implementation of Appreciative Inquiry

At the end of the study, staff were asked to complete evaluation forms giving feedback on the process of AI. They were asked questions about their enjoyment, session length

and frequency, whether they found AI useful for organisational change, whether they understood AI and whether they felt ownership and would continue with AI. They were also given the opportunity to provide free text answers. The characteristics of the staff who responded are presented in table 11 and the results of the survey in table 12

Table 11: Demographics of the respondents to the evaluation form

	Referral Hospital 12 respondents	District Hospital 41 respondents	Community Hospital 23 respondents
Cadres	4 (33%) Nurses 7 (58%) Auxiliary staff 1 (9%) Clerk	4 (10%) Clinical Officers 19 (46%) Nurses 17 (41%) Auxiliary staff 1 (3%) Clerk	8 (35%) Nurses 14 (61%) Auxiliary staff 1 (4%) Clerk
Gender	10/12 (83%) Female	31/41 (76%) Female	18/23 (78%) Female
Age	20-25yrs: 0 (0%) 26-30yrs: 2 (17%) 31-35yrs: 4 (33%) 36-40yrs: 3 (25%) 41-45yrs: 2 (17%) >46 yrs: 1 (8%)	20-25yrs: 8 (20%) 26-30yrs: 19 (46%) 31-35yrs: 5 (12%) 36-40yrs: 4 (10%) 41-45yrs: 0 >46 yrs: 4 (10%) Unknown: 1 (2%)	20-25yrs: 3 (13%) 26-30yrs: 3 (13%) 31-35yrs: 9 (39%) 36-40yrs: 3 (13%) 41-45yrs: 3 (13%) >46 yrs: 2 (9%)
Time as HCW	1 year - 26 years	5 months – 33 years	2 months – 13 years
Time in maternity	6 months -10 years	4 months – 10 years	2 months – 16 years
Number of AI sessions attended	0-3: 0 (0%) 4-6: 4 (33%) 7-9: 1 (8%) 10-11: 4 (33%) unknown: 3 (25%)	0-3: 3 (7%) 4-6: 13 (32%) 7-9: 8 (20%) 10-11: 15 (37%) unknown: 2 (4%)	0-3: 2 (9%) 4-6: 12 (52%) 7-9: 8 (35%) 10-11: 1 (4%)

Table 12: Number (Proportion) of participants responding agree/strongly agree with statements in the end of study evaluation results on implementation of AI

Questions:	Referral Hospital (12 responses)	District Hospital (41 responses)	Community Hospital (23responses)
Did you enjoy the AI?	12 (100%)	41 (100%)	23 (100%)
Would you attend the AI meetings again	10 (83%)	41 (100%)	23 (100%)
Were the meetings the right length of time	12 (100%)	33 (80%)	23 (100%)
Were the meetings the correct frequency	10 (83%)	40 (98%)	20 (87%)
Is AI useful for organisational change	11 (92%)	40 (98%)	23 (100%)
Did people understand AI	11 (92%)	29 (71%)	18 (78%)
Did you have ownership of AI	10 (83%)	36 (88%)	20 (87%)
Team able to continue AI	11 (92%)	35 (85%)	16 (76%)
Team will continue AI	9 (75%)	35 (85%)	18 (78%)

When considering the free text answers it emerged that staff enjoyed the AI because it enabled them to share experiences, find solutions and be interactive with all cadres of staff. However, staff felt that more change could be achieved if the formally organised meetings continued, the meetings were more regular and if the hospital management team were involved.

Maintaining the focus on the positive

AI encouraged teams to focus on their strengths and identify their positive core.⁴⁰

Although there was celebration of success at each meeting and a constant commitment to discussing all issues in a positive light, it seemed hard for individuals to talk about

topics without a focus on the negative or problems. This may have been because many other interactions they had in quality improvement and with supervisors focused on fixing problems. Several techniques were used to try to keep the focus on the positive: Strengths cards, magic wand game and ‘flipping it’.

The strengths cards game was the most successful of these. They were asked to use ‘At My Best’ (<http://atmybest.com/strengths-cards/>) strengths cards to identify their strengths either as a hospital, ward or individual. These cards have words and pictures on them and are designed to allow staff to identify their strengths and create a starting point for discussion. Staff enjoyed sharing these thoughts and here we will share an experience from each site to illustrate how helpful these cards were.

Figure 23: MHCWs playing the strengths card game from ‘At My Best’



At the referral hospital, the group described the team as caring because they prioritised the care of patients. For example, in the AI plans they prioritised respectful care. At the district hospital, one group decided to describe the team as flexible. They felt that the team now demonstrated flexibility due to nurses collecting patients when others, for

example hospital attendants, were busy with other duties. At the end of the study in the community hospital, staff decided they were approachable as they were now able to approach each other regardless of cadres, and that because they were happier at work, they were more easily approached by patients and guardians.

Figure 24: MHCWs playing the ‘magic wand’ game



The magic wand game involved staff waving a magic wand and deciding how the ward would be looking. This served to help staff revisit their ‘dream’ phase and focus on the way things could be rather than the way things were. The staff found this activity great fun. In the district hospital, the ward would be infection free due to hand washing. In the referral hospital, there would be zero maternal deaths, patients would go home happy and team spirit would no longer be an issue. In the community hospital, there would be bins everywhere, universal staff hand washing and proper incineration of all waste.

Flipping it was a concept that was introduced in the last three months of the study. When a person discussed a negative issue we tried to ‘flip’ it around to think of the

positives associated with it. This was the hardest of the positive thinking strategies for staff to grasp and it was not done with much success at any of the sites.

Resources

In addition to the incentive payments and refreshments discussed above, some resources were provided to teams. Basic stationary was provided to conduct the meetings.

Feedback posters were made and stuck up on the wall after every meeting. When staff requested basic resources, for example posters to remind them about observations or for the bins, these were provided to support them in achieving their goals.

On-going plans for AI

At all of the hospitals this was discussed at the penultimate and final meetings. At the referral hospital, they decided to change the names of the meetings to ward meetings where they would use an appreciative approach. This meant that staff would not automatically expect an allowance and refreshments. Some of the staff who were most committed to the idea of continuing the meetings were those who had seemed most sceptical all along. The team were motivated by the fact that they felt they were the best ward in the hospital and that other wards had noticed this.

At the district hospital, staff wanted to continue meeting, but they were unsure it would happen because of the lack of on-going allowances. Some of the team members were however committed to AI continuing and have arranged some subsequent meetings. At the community hospital, they wanted to continue the process and appointed the ward in-charge to lead on this. He felt that it would be best to use an appreciative approach to all

of the different meetings in the hospital. For example, he is the chair of the quality improvement committee and he felt they could use the AI methods there, rather than having separate meetings.

Reflections on the AI process

The implementation of AI was complex with many different factors playing a role. There were some clear commonalities between sites and also some nuances. Reflection on the successes and challenges of implementation will be discussed.

Successes of AI implementation

On the whole, staff enjoyed the AI, valued attending the meetings and they thought they were at the right spacing and length. There were several elements of the AI which stood out as successful in the implementation process.

The meetings being solely in Chichewa meant that there was more active participation, compared to when sections were in English. Another success along this vein was that staff from the local teams facilitated the meetings and they were committed to making them a success. These local facilitators were some of the 'AI focal people' selected by each group. These people advertised the meetings and reminded people of the activities between meetings. They were the 'champions' for AI.

In terms of participation, the number of attendees at each meeting varied, but as can be seen from table 9, in general a good proportion of those eligible to attend came. All cadres of staff attending the meetings actively participated, with hospital attendants

frequently presenting group discussions. Staff even came to meetings on their days off. This was perhaps facilitated by the fact staff felt part of the 'AI team' which was supported by AI badges that staff valued being given. In addition to this, we sent out text message reminders and developed WhatsApp groups at each site. Those with WhatsApp actively discussed AI related topics on these groups.

In order to keep the energy high in the meetings, we had energisers and provided refreshments. This seemed to be very important, as when we tried no snacks at one meeting, the energy for the activities became low.

One of the most important issues identified in the systematic review was managerial support. At all of the sites the ward level leadership attended the meetings. However, this managerial support was perhaps most successfully felt at the community hospital where the matron and the deputy hospital in-charge were also regular meeting attendees. This meant that when it came to staff rotations within the hospital, they decided to leave most of the maternity staff in situ as they were participating in the on-going AI project. At the referral hospital, the matron attended the meeting occasionally, leading to greater ability to harness resources like blood pressure machines.

Another success seen at the referral and community hospital was the active desire to include members of staff who were not core to the ward. For example, cleaners, guards and in the case of the community hospital, grounds-men.

Challenges of AI implementation

AI faced several challenges at all of the sites. One of the largest was that staff came to meetings late, which meant that meetings overran. This was frustrating for staff in the afternoon meetings, and had potential to impact on patient care. Some meetings were poorly attended, usually due to staff being at funerals, attending competing meetings or being away at training sessions. However, occasionally staff had not received communications about meetings via text messages or complained they had not seen the posters.

All staff in the district and referral hospital wanted to attend the meeting, so they were arranged in the mornings, so night staff could attend. In the district hospital in particular it soon became clear that this was impacting on patient care, as the CO's were not available in the outpatients department. The staff therefore agreed to move the meeting to the afternoon. However, at the referral hospital they wanted to continue morning meetings.

At the start of the process, it was sometimes difficult to encourage staff to be forthcoming in their participation. This difficulty also had to be overcome when new staff joined the groups. This happened frequently due to new staff being assigned to the hospitals and also due to staff rotations.

Although often the senior people on the ward attended meetings, this was not always reliable. In the district hospital, the ward in-charges rarely both attended the meeting. Also, in the community hospital in particular these people had to pop in and out in order

to attend to patients, visitors and other issues. In the referral hospital when the ward leadership changed, the new in-charge was only able to attend one meeting. This meant that the champions for AI were not in the senior roles within the ward. This also may have had some impact on the ability to secure even the most basic resources to achieve goals. In the community hospital, where the matron often attended, she was able to procure some personal protective wear, and in the referral hospital, the matron sourced blood pressure machines, however less success was had in the district hospital.

Staff found it difficult to grasp some of the concepts of AI. The core concept of focusing on the positive was sometimes a challenge which was heightened when people who did not regularly attend AI meetings, especially vocal or senior people, came. They then went on to discuss 'problems' at the meeting. This was particularly tricky for the facilitators to manage and often necessitated support from the AI implementation team.

Staff also struggled with the idea of provocative propositions. This was in part due to a language barrier. In addition to this, none of the facilitators had attended a formal AI training session, which may have meant it was more difficult to communicate these concepts. However, likening them to the more familiar concept of 'mission/vision statements' staff were able to grasp what they were aiming to achieve.

An appropriate meeting space close to the ward was sometimes hard to find and often led to the rooms being too small for the number of participants.

Having said all of this, according to the end of study evaluation, staff still believed AI was useful for organisational change, and most felt that it could continue beyond the study.

Comprehensive reporting of AI and developing an understanding of how it works.

Until this point, there has been a reflective account of the AI implementation process. Before concluding this chapter it is important to ensure two things. Firstly, that an adequate report of the intervention had been given which provided a foundation from which to consider how successful the implementation of the intervention was.^{45,46} Secondly, this was an opportune moment to begin to operationalise the ‘Blossom Model’ (Figure 22) for organisational change interventions.

As outlined in the introduction, it was crucial to understand several aspects of an intervention: acceptability, adoption, appropriateness, feasibility, fidelity, strength/intensity, cost, coverage and sustainability.^{45,46} One comprehensive framework for considering all of these elements is the CFIR.¹⁵⁸ This framework enabled implementation studies to be considered in a comprehensive way through five key areas; Intervention characteristics, outer setting, inner setting, process and characteristics of individuals. Box 11 shows how far each of these elements were addressed in this study. There were some individual areas which were not a focus of this study for example, the ‘outer setting’ was not highly controlled or harnessed. Although this was considered at the outset it was not feasible to affect it materially as this was a small feasibility study.

Box 11 How the Consolidated Framework for Implementation Research applied to this AI study.

INTERVENTION CHARACTERISTICS

Intervention source: Research team suggested intervention

Evidence strength and quality: Extensive AI literature, summarised for the participants

Relative advantage: Focus on positives rather than problems.

Adaptability: Core components retained with adaption to the local needs

Trialability: Piloted in a small area of each hospital

Complexity: The approach itself was in general grasped by the staff.

Design quality and packaging: A cohesive package could be developed and shared.

Cost: The monetary cost was small (Approx 50GBP per participant).

OUTER SETTING

Patient needs and resources: Staff considered patients' needs in addition to their own

Cosmopolitanism: no network beyond any existing individual ties that staff had

Peer pressure: none as this was a small feasibility study

External policies and Incentives: Transport allowances and refreshments provided

INNER SETTING:

Structural: Clear hospital hierarchy, high staff turnover, variable managerial involvement

Networks and communications: Social networks existed to varying extents, social capital increased with the inclusive nature of AI, 'WhatsApp' facilitated communication

Culture: Described in Section 1 of thesis

Implementation climate:

- Tension for change: staff were enthusiastic due to AI trying to improve their lives
- Compatibility: targeted at staff's needs so compatible with their working lives
- Relative priority: other competing interventions and tasks meant staff had to juggle-difficult to alter this, due to nature of setting and donor reliance
- Organisational incentives: increased respect within team
- Rewards, goals, feedback: staff set their own goals and feedback monthly
- Learning climate: discussion of ideas and share solutions across cadres of staff

Readiness for implementation:

- Leadership engagement: DHO's supportive, ward leaders frequently attended
- Available resources: meeting space and the time away from the ward was granted
- Access to information and knowledge: ready access AI implementing team

CHARACTERISTICS OF INDIVIDUALS

Knowledge and beliefs: Knowledge was developed with a focus on the positive

Self-Efficacy: Staff felt able to and often achieved the tasks they set for themselves

Individual stage of change: difficult to leave 'problem' discourse behind

Individual identification within organisation: Status meant staff identify with organisations

Other personal attributes: The personal attributes of individuals were not measured per-se

PROCESS

Planning: staff participated in planning their actions

Engaging: whole teams were enthusiastic to engage and committed champions emerged

Executing: staff decided how to change, progress was made and celebrated every month

Reflecting and evaluating: formal and informal feedback sought to modify and evaluate AI

Now the implementation process has been considered, the utility of the ‘blossom model’ will be explored. The intention of this model is to provide a framework to consider how an intervention may work through a Realist Evaluation lens.

In terms of the **context** there are three elements; capabilities, opportunity and motivation. In this study there were clear capabilities either provided to the teams, or originating from the intervention. The AI implementation team provided education about AI and supported the intervention. The whole team was included in the AI and as time progressed the team was provided with the capability to continue as part of this champions were mentored. This provided the team with the skills/capabilities to carry out the AI intervention. However, the hospitals were unable to provide the staff with any significant amount of resources.

There was opportunity for the staff to participate in AI. Initially this was fostered by the district-level management being supportive. Local and district level managers supported staff to attend meetings on normal workdays. They also provided space to meet.

However, they were unable to pause the rotations, so there was some interference with AI. In the Community Hospital, the team did rotate minimal staff to help support the AI initiative.

Staff were motivated because they could see the benefit of this intervention to them. They also received incentive payments which covered their cost of transport to work and some refreshments. This motivation was considered essential by staff. They also set their own goals, which meant that they were motivated to achieve their targets.

In terms of **mechanisms** as proposed in the previous chapter, it is possible to consider inputs and outputs. Firstly, in terms of mechanistic inputs, the first is linked to motivation as discussed above. Staff had control over their meetings, whether this was the time it occurred or the context – these meetings were truly participatory. In addition to this, the facilitation team took a constantly reflexive approach so that meetings could be modified and techniques altered following discussion and feedback. The regular, scheduled meetings enabled all staff to participate as equals and share their stories and enjoy identify their strengths.

In terms of mechanistic outputs, local capacity was developed as discussed in the capabilities section. In addition to this, the team became more cohesive and empowered and hierarchy was slowly broken down.

Outcomes will be discussed at length in section 3 of this thesis, therefore will be mentioned here only in the most general terms. According to the evaluation forms, staff enjoyed AI. Their attitudes towards each other changed whilst they gained knowledge about the areas they were working on (e.g. infection prevention). Staff changed their individual behaviour (e.g. hand-washing), and as teams (i.e. the organisation) they altered the way they worked for example improving traffic control. They tried to ensure benefits to patients not only by targeting their goals towards improving patient care but also, in the referral hospital by assessing patient satisfaction.

On initial assessment it seemed like the ‘blossom model’ was a useful method to use to begin to analyse the ways in which the intervention may work. From this short

discussion, it can be seen that many of the elements from each area actually overlapped and were clearly interrelated. It was important not to try to overlook or shy away from this idea, as the interdependence of the various ‘petals’ of organisational change should not go unrecognised. Despite the usefulness of the blossom model, it was also important when planning the intervention to design it in a thoughtful way. Therefore, the CFIR framework was used to ensure that all elements of an intervention have been considered, and more importantly reported, so that anyone can assess the implementation of the intervention.

Final Reflections

The details of how the AI was implemented were vital to report to allow full assessment of the intervention. The AI was well attended by teams who embraced the idea and were enthusiastic for change. Whilst the intervention was not implemented without challenges, it was overwhelmingly positively evaluated by staff. All of the elements of the CFIR framework were considered during the implementation process, even if not all could be addressed within the scope of this study. This provided an argument for the intervention quality being of a reasonable standard. Sharing the story of this intervention has also allowed the new ‘blossom model’ of organisational change interventions to be explored. It proved to be a useful way to discuss how the various elements of context, mechanisms and outcomes worked in organisational change.

Section B Discussion

The narrative synthesis was a useful platform on which to build the AI intervention. It provided a specific understanding of how AI had been used in healthcare and how it could be adapted in a variety of ways to those settings. The AI intervention was implemented successfully in all three hospitals. In addition to this, the implementation team addressed all of the aspects of the CFIR model¹⁵⁸ that were feasible given the scope and funding for the study.

This discussion will consider how the findings from the systematic review have been further strengthened by the report of the implementation process. This is particularly helpful as neither the systematic review nor the implementation of AI on their own can give the full picture. Together they provided further content for the theory of change. Furthermore, the systemic review suggested the ‘blossom model’ as a basis for the theory of change for AI in healthcare. Finally, the template for the analysis of the outcomes in SCP3 will be further developed.

Implementation of AI

During the AI staff took increasing control over the process. This was in keeping with the idea that the outside implementation team was there to support the process in organisational development initiatives rather than provide the content of the session.³⁵ This presented an interesting element for discussion regarding the content of the AI action plans.

Despite being asked to focus on their working lives, the action plans did not always centre on that area. This was particularly the case for the district hospital where the initial focus was on patient outcomes; although they did decide to concentrate in part on teamwork in order to fulfil their ambitions. In addition to this, as can be seen from the case studies, there was often a focus on improving care using non-evidence based methods. This organic development of change fits well with participatory action research, dialogic organisational development³⁵ and AI.³⁹ However, this is one of the largest barriers for implementing AI in an easily measurable way. This has perhaps contributed to the fact that AI has rarely been empirically investigated¹⁰⁸; and when it has been used in healthcare, there was limited success in changing clinical outcomes.^{119,122-124}

Therefore, in order to measure the success of AI two things are likely to be important. Firstly, having a sound theoretical model against which to map outcomes from studies, and secondly considering carefully the outcomes selected a priori. This could be done by developing tools to measure what AI is likely to effect at a fundamental level rather than only being interested in certain patient outcomes.

A point which is perhaps only of significance in low-resource settings, also noted by Joshi et al,^{120,121} is that holding the meetings in the local language was important. Additionally, some of the concepts of AI are not easily translatable across languages and therefore communicating in a way the staff could understand by finding alternative explanations was necessary.

Other features that resonated between the systematic review and the Malawian implementation was the need to ensure that staff were free of other duties during the meeting. In this setting, where staff needed to be close to the ward, it was very difficult to avoid staff leaving the meeting to attend to patients. The hospital leaders also left regularly to attend to administrative matters. There was therefore a trade-off between maximum participation and minimum distraction – as it is not possible to leave wards unstaffed. In the review, organisations came up with ways to try to involve everyone for example multiple meetings for the same content and surveys.

A further challenge was the issue of managerial support. This was identified and discussed in the systematic review. In addition to this, it was also an important concept in the CFIR model.¹⁵⁸ AI's foundations in OD meant that the consultants were often called in to support change in an organisation; hence the management were committed to the process.⁴⁰ Despite trying to learn from these lessons, and gaining managerial approval and enthusiasm from the start, it was not easy to engage the senior managers during this study. This is likely to be a challenge for any group working in a research context as change is unlikely to come from within.

Figure 25: Staff enjoying AI sessions



To end the discussion of the implementation of AI, I will focus on two successful elements of AI implementation. Firstly, AI champions were frequently identified in the systematic review. In the Malawian implementation, some staff showed enthusiasm for leadership within the AI process and this was encouraged and many of these staff were the champions for AI. Finally, there is the fact that staff enjoyed AI. This was almost universal in the systematic review, and was universal in the post-implementation evaluation in Malawi. When considering that we were trying to improve the working lives of staff, enjoying themselves seemed to be a good way to start.

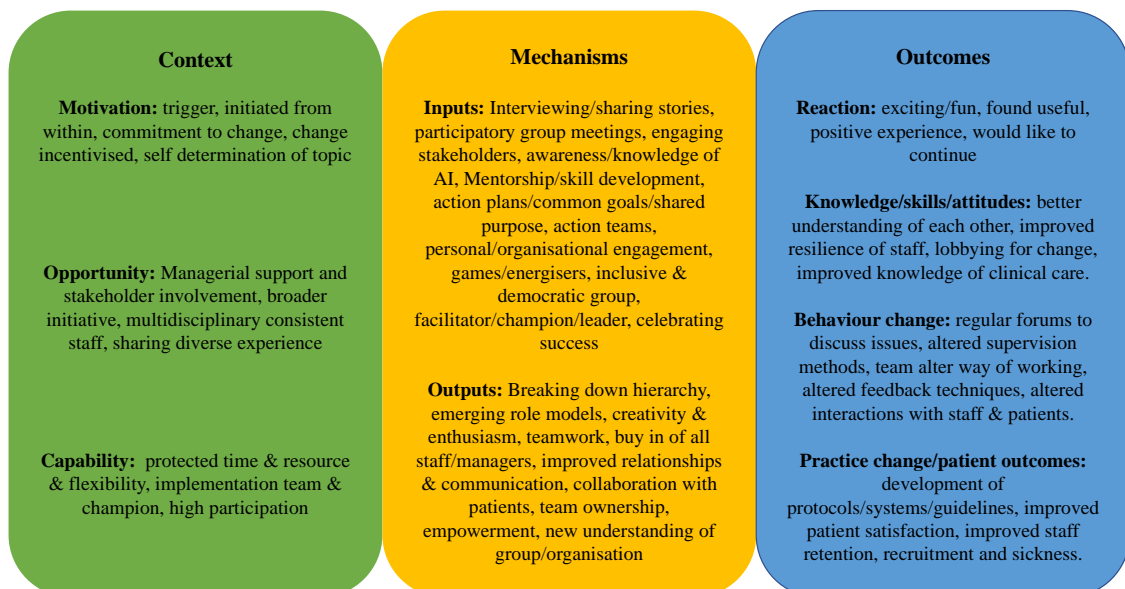
Development of a theory of change of AI in healthcare

As previously discussed an aim of this thesis was to develop a theory of change for AI in healthcare. In Section one it was highlighted that this will be rooted in elements of working life in a Malawian setting that could feasibly be changed. (see figure 13) Areas to consider in the theory of change identified in section 1 were: context, systems,

clinical care, relationships and motivation. These were combined with the findings of the systematic review and report of implementation from this section.

The proposed theory of change for AI in healthcare (figure 26) represents a useful initial model to consider how AI works, and one to test going forward. However, it should be noted that whilst the systematic review contributed to all elements of the theory, so far the implementation of AI has contributed largely to the context element with some contribution to the mechanisms. The outcomes will be investigated in Section C of this thesis.

Figure 26: Proposed theory of change for AI in healthcare



This model aims to be applicable to AI in healthcare across health settings. This was one of the reasons that it was important to ensure contribution to the model from the first part of this thesis. Including the experiences of working life of Malawian healthcare workers meant that some low-income perspectives are included. As explained in the systematic review, most of the evidence in the AI arena comes from high-income countries. This has strengthened the potential utility of this model across settings.

Understanding whether AI worked: a template for assessment.

The success of the AI will be considered in the next section of this thesis. To do this, a template analysis will be used. As discussed at the end of Section A this requires a template to assess the qualitative data. In order to develop it some of the likely sub-themes to be included were discussed in Section A (See table 6). These were hierarchy, teamwork, feedback, support, communication, training, individual systems, ward systems, goals and responsibilities, role models/leaders, enjoyment and empowerment.

As seen in the systematic review the Kirkpatrick framework proved to be a useful way to structure this outcome section. Therefore, the template will be divided into these four major areas (Reaction to intervention, Knowledge/Skills/Attitudes, Behaviour change and practice changes/patient outcomes) and contain the sub themes outlined in the theory of change above (figure 26), which incorporates the ideas identified in Section A.

Section B Conclusion

AI has been widely implemented in healthcare, however it has not often been used to improve clinical outcomes. As was noted for OD in general over two decades ago,¹⁰⁸ there is still little empirical research into its success. The available literature can facilitate the development of an appropriately targeted AI intervention when considered from a realist perspective. By undertaking a systematic narrative synthesis, the literature provided the tools from which to develop an AI intervention in a health setting and also much of the data on which to base the theory of change for AI.

AI was successfully implemented in Malawi. This has combined with the findings from the earlier parts of the thesis to enable the development of a theory of change for AI in healthcare, which can be further developed in the next part of this thesis.

Section C: Did Appreciative Inquiry work?

Introduction to Section C

In order to decide whether AI is a worthwhile investment of time, energy and money, it is important to understand whether it works. Although AI has been widely used, as highlighted in the systematic review (SBP1), its effectiveness in altering the care that patients receive has not yet been proven. Having said this, both this systematic review and others¹⁰⁵ have indicated that AI does have the potential to effect patient care.

Like all organisational change interventions, AI takes time to work. Due to the financial and time constraints of this study, AI was implemented for one year. This meant that an AI cycle was not completed until meetings 5-7 and therefore, there was not much time for AI to have an impact on patient outcomes. Furthermore, there is not an explicit link between improved quality of care and patient outcomes, in part because outcomes are effected by issues other than quality too, for example health system financing.¹⁵⁷

In addition to the lack of a clear link to patient outcomes, and the possibility that AI would be implemented for too short a time to make a difference to patient outcomes, the focus of this study was improving the working lives of mHCWs. Therefore, staff were not asked to consider patient care, instead, they were asked to consider their working lives.

For these reasons it was necessary for me to assess outcomes other than patient care. It seemed reasonable to consider that by asking staff to improve their working lives, they may experience their lives at work differently. Therefore, this was considered a

plausible measure. Furthermore, because staff being happier at work had the potential to impact upon patient care,¹⁶⁰ even if outcomes were not affected, it was possible that a patient's experience of care would change. Finally, it seemed useful to understand staff's perceptions of the changes they had made within their workplace.

In order collect this data, I designed three studies. A longitudinal study of staff satisfaction at work (SCP1), a before and after study of patient satisfaction (SCP2) and a qualitative template analysis of observed outcomes (SCP3). This information will be used to contribute towards the outcome section of the theory of change being developed in this thesis.

Part 1: Staff perception of working life: A longitudinal study of staff satisfaction during an AI Intervention

Introduction

HCWs are vitally important in the healthcare system. As has been discussed previously, this is particularly the case for mHCWs who, by taking immediate action, can save women's lives.²⁸ Because of their central role in making a health system work, HCWs have become the focus of much research since the 2006 World Health Report.¹³ There was a realisation that in order to address the attrition of staff, the reasons for this must first be understood. It has been repeatedly identified that there is more to retaining staff than financial incentives alone.^{33,161}

A systematic review of HCW motivation revealed seven core areas of motivation: payment, career development, on-going education, infrastructure, resources, management and appreciation.³³ However, this review focused largely on the extrinsic factors of motivation, those which are provided to you, for example rewards. Considering intrinsic motivating factors, such as interest, enjoyment and inherent satisfaction, may also be important¹⁶² and are more challenging to address. Addressing these intrinsic factors may lead to highly motivated HCWs and mean that they are able to work more productively and drive their own success.¹⁶² Improving relatedness and supporting people to act with autonomy are two of the ways that these motivations can be fostered.¹⁶² Furthermore, other factors not rooted purely in motivation, although

undoubtedly contributing to it, include the pressure of work, effects on personal lives, lack of control over work and a lack of clarity on roles.¹⁵³

These various areas contribute to whether a HCW enjoys their job and intends to stay, or whether they are stressed, burnt-out and intend to leave. Furthermore, when staff are more stressed and burnt out, there seems to be a higher rate of medical errors,^{163,164} patients may receive worse care and have worse outcomes.^{165,166} Interventions can improve work related stress and reduce burn-out.^{34,167,168} AI has the potential to address some of the issues that affect staff most.

There are many potential areas to measure when it comes to staff working life. Undoubtedly motivation is important, which includes both intrinsic and extrinsic factors. Furthermore, understanding whether staff feel generally satisfied with their jobs and intend to remain is also illuminating as to whether AI worked.¹⁶⁹⁻¹⁷¹ A greater number of tools have been developed in a high income setting,^{162,172-175} than a low income setting.^{169,171,176} Among the scales that had been developed or used in a low-income setting, the majority did not address all of the above constructs. Therefore, three different scales were used to cover all constructs, one of which was developed in a low-income setting.

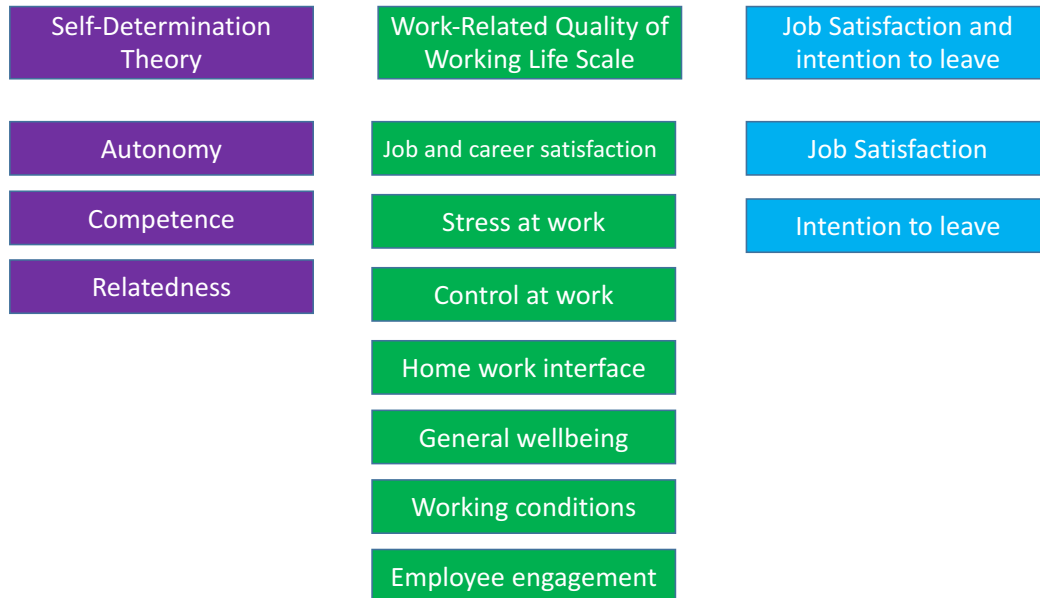
This study aimed to assess whether AI had an impact on the working live of mHCWs in the three study facilities in Malawi.

Methods

Measurement tools

I identified three tools that covered both the intrinsic and extrinsic factors along with the ability to understand a person's satisfaction at work or intention to leave. Two of the tools were developed in high-income settings; the 'Self Determination Theory – Basic Psychological Needs' scale¹⁶² and the Work-Related Quality of Working Life Scale for Healthcare Workers.¹⁷⁵ The third was a scale developed in low-income settings investigating job satisfaction and intention to leave.¹⁷⁶ These three psychometrically validated tools were taken as whole scales and combined to form the staff satisfaction survey for this study (Appendix 11). The constructs measured by each of these tools are displayed in figure 27. Despite the fact that they are all scales investigating working life, there is remarkably little overlap between the three scales.

Figure 27: A summary of the constructs assessed in the three psychometric scales of working life.



Participants

All staff participating in the AI intervention at each site were invited to complete the questionnaires.

Data Collection & Management

I gave the staff the questionnaire in English (COs, Nurses and those HAs/auxiliary staff who selected an English questionnaire) or Chichewa if they were more comfortable with this. The Chichewa questionnaires were translated and the translations checked by three of the study team. The Chichewa questionnaires were also piloted on mHCWs

from the referral hospital prior to the study commencing. Staff received the same language of questionnaire throughout the study.

Questionnaires were handed out for 12 months at the start of each AI meeting to staff who were present and then in person to any staff who were unable to attend the meeting. Not all members of staff completed the form each month due to fluctuations in staffing during the study (See Tables 13, 14, 15 adapted from Table 9 in SBP2). In addition to this, not all staff could attend the meetings each month as some were away from the hospital on those days. However some staff were around in the hospital in the same week as the meetings, and those staff were asked to complete questionnaires. For this reason, the data has been considered on a monthly basis rather than by individual. Despite the December meeting being cancelled due to staff being busy, the questionnaires were sent to staff and collected in January.

Table 13: Number of staff completing a study questionnaire at the Referral Hospital during study

Month	Auxiliary staff completing survey	Auxiliary staff available to complete survey	Clinical staff completing survey	Clinical staff available to complete survey	Nursing staff completing survey	Nursing staff available to complete survey
1	8	8	0	0	8	6 at meeting 2 on other days
2	5	5	0	0	4	4
3	9	10	0	0	9	9
4	7	8	0	0	4	6
5	2	No meeting questionnaires delivered to ward	0	No meeting questionnaires delivered to ward	2	No meeting questionnaires delivered to ward
6	8	8	1	1	5	6
7	7	7	1	1	3	6
8	9	9	1	1	8	7 at meeting 1 on other day
9	7	7	0	0	8	9
10	8	8	2	2	8	9
11	7	7	1	1	7	7
12	8	8	0	0	4	4

Table 14: Number of staff completing a study questionnaire at the at the District Hospital during study

Month	Auxiliary staff completing survey	Auxiliary staff available to complete survey	Clinical staff completing survey	Clinical staff available to complete survey	Nursing staff completing survey	Nursing staff available to complete survey
1	14	9 at meeting 5 other days	5	5	13	10 at meeting 3 other days
2	13	9 at meeting 4 other days	5	5	13	13
3	16	16	9	6 at meeting 3 on other days	12	12
4	13	13	4	4	12	11 at meeting 2 on other days
5	13	No meeting questionnaires delivered to ward	6	No meeting questionnaires delivered to ward	9	No meeting questionnaires delivered to ward
6	15	15	10	9 at meeting 1 on other day	14	15
7	14	14	8	7 at meeting 1 on other day	16	17
8	12	13	4	4	12	13
9	11	12	5	5	9	9
10	17	15 at meeting 2 on other days	2	2	16	15 at meeting 2 on other days
11	16	17	5	4 at meeting 1 on other day	13	14
12	18	18	4	3 at meeting 1 on other day	19	18 at meeting 1 on other day

Table 15: Number of staff completing a study questionnaire at the Community Hospital during study

Month	Auxiliary staff completing survey	Auxiliary staff available to complete survey	Clinical staff completing survey	Clinical staff available to complete survey	Nursing staff completing survey	Nursing staff available to complete survey
1	8	12	2	4	9	6 at meeting 3 on another day
2	12	13	3	3	8	5 at meeting 3 on other day
3	11	12	2	1 at meeting 1 on other day	8	9
4	12	13	3	3	8	9
5	7	No meeting questionnaires delivered to ward	1	No meeting questionnaires delivered to ward	6	No meeting questionnaires delivered to ward
6	11	11	3	3	5	5
7	12	11 at meeting one on other day	2	2	3	3
8	13	10 at meeting, 3 on other day	1	1	5	3 at meeting 2 on other day
9	15	12 at meeting 3 on other day	2	1 at meeting 1 on other day	8	7 at meeting 1 on other day
10	11	10 at meeting 1 on other day	2	1 at meeting 1 on other day	7	6 at meeting 1 on other day
11	8	10	3	2 at meeting 1 on other day	6	6
12	14	14	0	0	9	8 at meeting 1 on other day

In addition to Likert scale tools, demographic information was collected from staff to identify their educational level and cadre, length of time worked in their role, age and gender. Completed Likert scales were then entered into Microsoft Excel by a data clerk. This data was checked by a second clerk and spot-checked by a member of the AI

implementation team. Some of the lower cadres of staff struggled at first to complete the first part of the questionnaires. Once this was identified, they were talked through how the questionnaires were to be filled in and subsequently the questionnaires were completed adequately. There were 9 forms, all from the district hospital in which this confusion occurred across the first 4 months of data collection. The elements of these forms which were not completed were discounted, however the completed two questionnaires were included in the analysis.

Data Analysis

The data was stratified by site. Basic demographic data was analysed to understand the population. Each of the scales had instructions for how the constructs were assessed¹⁷⁷⁻¹⁷⁹ and each construct is calculated by finding the mean of the composite scores for that construct. The means of all of the constructs were combined to provide the overall score.

Supported by a statistician, I used linear regression models to quantify the monthly change in mean of the scores, to look at trends in the data, rather than comparing two time-points. In order to use these likert scales in this way, I had to equate the elements on the scale to numbers. Whilst I acknowledge that this methodology has its flaws, as the difference between agree and strongly agree may not be the difference between say a number 4 and 5, all of the scales I used had been validated using this methodology. It was therefore necessary to continue to use this method of analysis.

Regression models were adjusted for age, gender, education, training, designation, and length of time working at the facility. Analyses were performed for each individual scale and for the constructs within those scales. The results for each scale were also disaggregated by staff group, as it is plausible that different cadres of staff would react differently to the intervention. The statistical significance level was set at 5%. The analysis was performed using Stata statistical software, release 14 (StataCorp, College Station, TX, 2015).

Results

There were 145 mHCWs who completed a questionnaire at some point in this study, table 16 shows the breakdown of participants.

Table 16: Demographics of staff who participated in longitudinal study

	Referral Hospital (N=38)	District Hospital (N=67)	Community Hospital (N=40)
	n (%)	n (%)	n (%)
Gender			
Female	34 (89.5)	41 (61.2)	28 (70.0)
Male	4 (10.5)	26 (38.8)	12 (30.0)
Age, mean (sd)	34.5 (7.1)	31.5 (8.6)	34.2 (6.4)
Education			
Primary	3 (8.3)	1 (1.5)	1 (2.5)
Secondary	8 (22.2)	25 (37.3)	17 (42.5)
University	25 (69.4)	41 (61.2)	22 (55.0)
Training			
Certificates	4 (10.8)	9 (13.4)	4 (10.0)
Degree	5 (13.5)	8 (11.9)	2 (5.0)
Diploma	13 (35.1)	30 (44.8)	16 (40.0)
na	15 (40.5)	20 (29.9)	18 (45.0)
Designation			
Auxiliary	16 (42.1)	21 (31.3)	18 (45.0)
Clinical	3 (7.9)	19 (28.4)	5 (12.5)
Nursing	19 (50.0)	27 (40.3)	17 (42.5)
Length of time working at facility, mean (sd)	102.9 (69.4)	54.2 (65.5)	100.7 (70.6)

The summary results for each of the working life scales in each of the facilities are presented in table 17. The column ‘b’ throughout this results section refers to the average increase in the mean score per month, while ‘se’ denotes its standard error. The greater the increase in the ‘b’ column, the greater the improvement in scores month on month. Unadjusted and adjusted estimates did not differ substantially. Therefore I have displayed the adjusted estimates for simplicity.

Apart from the basic psychological needs scale in the District Hospital, there was an increase in the scores across the sites. However, these increases were only significant in the community hospital for the basic psychological needs scale and the work related quality of life scale.

Table 17: Summary results for each of the three working life scales

	Referral Hospital			District Hospital			Community Hospital		
	b	se	p-value	b (se)	p-value	b	se	p-value	
Basic psychological	0.003	(0.015)	0.8507	-0.010	(0.007)	0.1548	0.017	(0.010)	0.0748
Job satisfaction	0.010	(0.016)	0.5396	0.005	(0.009)	0.5953	0.000	(0.012)	0.9860
Work related quality of life	0.020	(0.013)	0.1334	0.010	(0.007)	0.1203	0.022	(0.010)	0.0243

Figure 28 shows the results of the longitudinal evolution over the 12 months of follow up. The basic psychological needs survey, which had a 7 point Likert scale, had mean responses between 4.7 and 5.3. The Quality of Working Life Scale, also a 7 point Likert scale, had lower mean scores between 2.6 to 3.45. The job satisfaction scale was on a 5 point Likert scale and the mean results here were between 2.2 and 2.8.

Figure 28: Pictorial summary results for each of the three working life scales showing month by month variation and regression lines

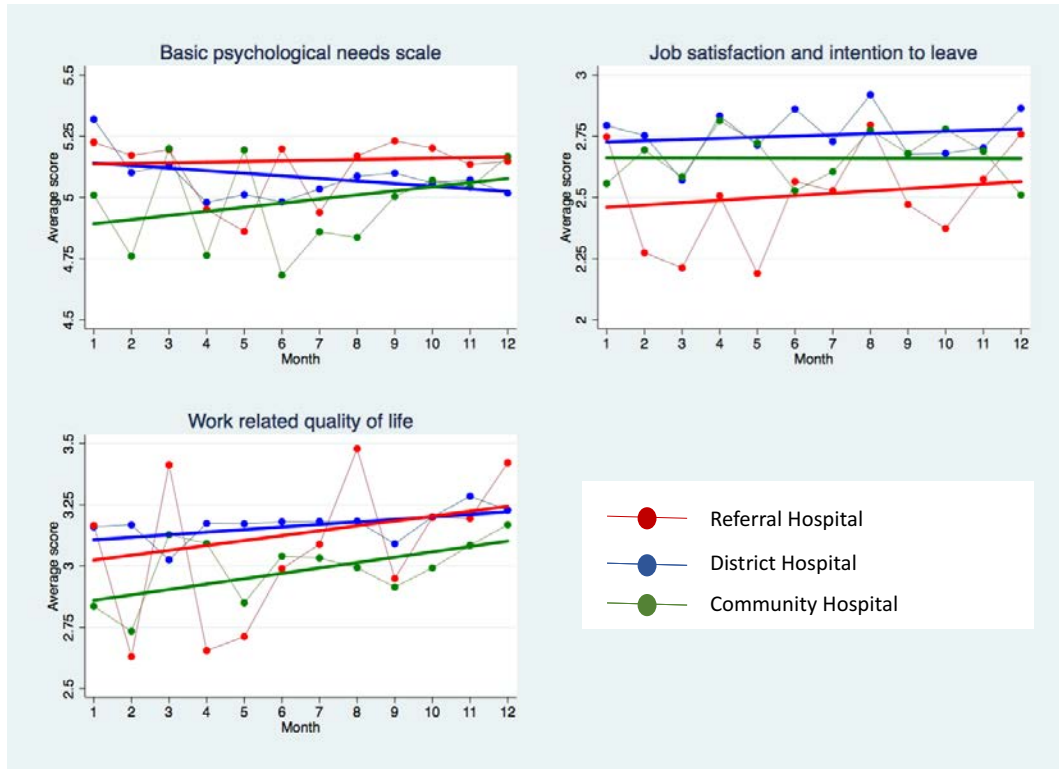


Table 18 shows the same results broken down per staff group. For the auxiliary staff, in terms of the referral hospital, across all scales, there was a decrease in satisfaction with working life, and this was significant in the basic psychological needs survey. This contrasts with the hospital attendants in the community hospital where there was an increase across all scales; significantly increased in the basic psychological needs and work related quality of life scale. However, in the district hospital, whilst there was a significant decrease in the basic psychological needs scale, there was a non-significant increase in the other scales. The clinical officers and medical assistants showed no significant changes in any of the scales across sites. For nurses the referral and district hospitals displayed significant increases in the work related quality of life scale but not

the others. The community hospital nurses did not reveal any significant changes, although there was a downward trend in both the basic psychological needs survey and the job satisfaction tool.

Table 18: The three working lives scales displayed by site and cadre of staff*

	Auxiliary		Clinical		Nursing	
	b (se)	p-value	b se	p-value	b se	p-value
Referral Hospital						
Basic psychological	-0.043 (0.017)	0.0126	0.119 (0.117)	0.3074	0.019 (0.018)	0.2790
Job satisfaction	-0.017 (0.024)	0.4964	-0.167 (0.154)	0.2788	0.034 (0.026)	0.1938
Work related quality of life	-0.011 (0.019)	0.5535	0.082 (0.128)	0.5229	0.045 (0.020)	0.0231
District Hospital						
Basic psychological	-0.026 (0.011)	0.0175	0.008 (0.023)	0.7277	0.000 (0.011)	0.9958
Job satisfaction	0.003 (0.013)	0.8138	0.007 (0.026)	0.7935	0.006 (0.015)	0.6974
Work related quality of life	0.010 (0.010)	0.3140	-0.020 (0.020)	0.3349	0.021 (0.011)	0.0501
Community Hospital						
Basic psychological	0.031 (0.014)	0.0226	0.022 (0.030)	0.4558	-0.005 (0.017)	0.7739
Job satisfaction	0.012 (0.015)	0.4128	-0.015 (0.035)	0.6642	-0.015 (0.018)	0.4137
Work related quality of life	0.033 (0.012)	0.0050	0.022 (0.027)	0.4237	0.006 (0.015)	0.6621

*Auxiliary staff are those who are non-professionally qualified and include HAs, PAs, NAs, Clerks and messengers. Clinical staff are COs and MAs. Nursing staff are comprised of SNOs, NOs, RNs, NMWTs and CMAs.

Each of the scales, as shown in figure 27, were broken down into constructs. Table 19 shows the results broken down into these constructs. In the referral hospital, there were significant improvements in general wellbeing, home-work interface and stress at work. In the district hospital, these same three areas improved, but there was also less intention to leave. However, there was a significant reduction in competence in the district hospital. In the community hospital, there were significant improvements in autonomy, general wellbeing, home-work interface and working conditions.

Table 19: The results for each of the constructs within the scales by site

	Referral Hospital		District Hospital		Community Hospital			
	b	se	p-value	b (se)	p-value	b	se	p-value
Autonomy	-0.006	(0.019)	0.7421	0.013 (0.010)	0.2162	0.039 (0.013)		0.0041
Competence	0.001	(0.019)	0.9771	-0.045 (0.011)	<0.0001	0.005 (0.014)		0.7189
Relatedness	0.011	(0.019)	0.5532	-0.007 (0.010)	0.4902	0.003 (0.013)		0.8091
Job Satisfaction	0.034	(0.021)	0.1009	-0.015 (0.012)	0.1934	-0.001 (0.015)		0.9692
Intention to Leave	-0.019	(0.026)	0.4724	0.029 (0.014)	0.0443	-0.001 (0.019)		0.9529
Job-Career Satisfaction	0.010	(0.016)	0.5077	-0.011 (0.009)	0.1990	0.020 (0.012)		0.0887
General Wellbeing	0.054 (0.017)		0.0018	0.022 (0.009)	0.0183	0.034 (0.013)		0.0070
Home Work Interface	0.039 (0.019)		0.0420	0.024 (0.011)	0.0208	0.050 (0.014)		0.0006
Stress Work	0.040 (0.019)		0.0310	0.026 (0.010)	0.0136	-0.016 (0.014)		0.2454
Control Work	0.028	(0.022)	0.2016	0.006 (0.012)	0.6050	0.017 (0.016)		0.2902
Working Conditions	0.020	(0.019)	0.2733	-0.019 (0.010)	0.0608	0.043 (0.014)		0.0022
Employee Engagement	-0.006	(0.020)	0.7673	0.011 (0.011)	0.3172	-0.001 (0.014)		0.9459
Overall	0.055	(0.030)	0.0686	-0.006 (0.017)	0.7331	0.044 (0.022)		0.0448

Discussion

There were significant positive changes in working life in the community hospital on two out of the three scales. However, when breaking this down by staff group, these changes largely seemed to come from the auxiliary staff, with no significant changes in other staff groups. When looking at the auxiliary staff in the referral and district hospital, they had a reduction in their basic psychological needs results. Although there were no significant changes in the other scales. Having said this, at both of these sites, for the nursing staff there was an improvement in the work-related quality of life.

The difference in these results could have many possible explanations. One potential reason is that when the auxiliaries were empowered through AI, they developed higher expectations of what they could achieve. However, they were not always able to achieve this due to the social order of the hospital. Furthermore, the nurses, who were higher in the social order were perhaps more able to enact their desired changes as they were in

control of ward life. Whilst the possibility of AI causing negative effects cannot be ruled out, the negative changes seem to be outweighed by positive changes.

When examining individual constructs, there were two areas which improved at all three sites. These were general wellbeing and home-work interface. In the referral and district hospitals, stress at work improved. Apart from that the improvements were inconsistent. In particular, it is important to mention at the district hospital there was a reduction in feeling of competence.

When looking at staff groups, although there were more significant results in the 'Auxiliary staff' section these results were balanced between positive and negative changes. There were no significant changes in the clinical staff group, with a few in the nursing group. From this there doesn't seem to be a particular attribution of the changes or lack thereof in the scale to a particular staff group.

An interesting observation is that general wellbeing improved across the three sites. This could feasibly have been because of the AI, as this was the target of the intervention. Although the improvement in home-work interface can be less easily explained this way.

Interestingly, job satisfaction in neither scale improved, despite it being the main target of the study. Reasons for this may include the fact that there are other issues effecting job satisfaction, out-with the realms of AI. For example, if resources did not arrive at the hospital, or staff felt unsupported at work. In the district hospital for example,

during the latter phases of the study there was a dispute with the DNO, due to the fact hot food had been removed from the night shift staff due to budget constraints.

It is also important to discuss the fact that competence decreased in the referral hospital. There is a possible explanation for this, rooted in the staffing during this time. At the start of the study there were a group of nurses who had been on the ward for around a year. During the study many new nurses arrived, just out of nursing school. Whilst some of them were confident initially, as time went on they seemed to ask more questions of their seniors, perhaps reflecting the fact that they were beginning to realise the importance of experience in clinical situations. Another possible explanation, is that as staff discussed issues during the AI meeting for example infection prevention or monitoring of patients, staff realised that they were not sure of their skills or knowledge.

It is important to note the small scales within which differences could occur. Given there were only 5-7 points in the scales, the overall changes in the mean scores occurred within a very small window and determination of a significant change is difficult. The other useful thing to note is that the total scores across all three scales are relatively low. This suggests a low satisfaction with working life in general, which, as indicated by the first month's scores, pre-dated the intervention.

Whilst discussing the scales, it is also worthwhile noting, that the basic psychological needs and work related quality of life scales were not validated in LMIC settings.

Furthermore, it was not possible to validate these scales in Chichewa owing to the fact

that neither the study timeline nor funding allowed for this. Instead, the scales were piloted (both in English and Chichewa) for sense and clarity.

This assessment of AI included all mHCWs involved in AI, whether they attended the meeting that month or not. However, because of the combination of three tools, it was a complicated tool for staff to fill in and it did take some time to complete. Despite this, staff were willing to complete the tool every month, and arrived at the sessions requesting their questionnaires. As discussed earlier, once support was provided to staff with the worst literacy, all team members were able to easily complete the questionnaires.

A power calculation for the study was not performed because recruitment was constrained by the number of staff available to participate in AI. Furthermore, sometimes when staff were away, unavailable or rotated to a new facility or ward, it was not possible to get a completed form from them and therefore there was variation in the number of completed questionnaires each month.

In order to understand the working lives of staff, multiple comparisons were undertaken. Due to the number of comparisons it is possible that Type 1 error was introduced and that the evidence for change is in fact erroneous. Having said this, the comparisons (by staff group and construct) were planned a priori, to prevent data mining, whilst using the data to understand in the fullest possible way the effects of AI.

The job satisfaction score is the only one of the scores that has been used before in Malawi in a study by Blaauw et al.¹⁷⁶ In that context, it had mean scores for individual questions between 2.54 and 4.33. A crude mean of all constructs for the Blaauw study was 3.33,¹⁷⁶ which is higher than in this study. There are several possible reasons for this. The Blaauw study targeted a much wider group across both the government and non-government sectors. In addition, the staff in the Malawian arm of this study had been in post for a relatively short time. Whilst this is the case for some of the participants in this study, many had been in the healthcare sector for many years. Furthermore, the Blaauw study was undertaken before 2012, which is before the ‘Cashgate’ scandal hit Malawi and much of the donor support, which amounted to a significant proportion of the Malawian budget, was halted.²³ This had a significant impact on the health sector, which was often starved of funds, with hospital not receiving enough money to continue with basic services.²⁴

Having said this, there is also another fundamental issue with assessing the effects of AI in this study. AI, and other organisational change initiatives take time to effect change. In this study, the AI was not up to ‘dose’, i.e. the full process had not been completed, until meeting 5-7/11 (depending on the site). This left a short time in which for changes to impact in a measurable way on working lives.

The issue of poor recruitment, retention and motivation of the workforce is well discussed.^{13,33,52} Many studies have documented staff perception of working life in LMICs^{169,171,176,180} but it is difficult to locate studies that aim to improve staff working lives.¹⁸¹ Perhaps the exception to this is the success around the introduction of the

supportive supervision initiative.¹⁸² There are many studies concentrating on human resource management initiatives,¹⁸³ some of which could be argued as addressing some of the issues identified in terms of motivation of staff. Whilst this study showed no consistent change in the working lives of staff in these facilities following the introduction of AI, concentrating interventions at the level of the working lives of the mHCW seems to be a logical area to address considering the huge issues with recruitment and retention.

Part 2: Before and After an Appreciative Inquiry

Intervention: Did patient satisfaction change?

Introduction

Quality of care is at the top of the international maternal health agenda¹⁸ having been relatively neglected for many years.¹⁸⁴ Quality is notoriously difficult to measure, and this is in part because it is such a complex indicator.¹⁸⁵ However, patient satisfaction can be a key contributor to this measurement. Not only is it an outcome of care but because it can measure wellbeing, it provides an overall picture of what the patient feels about their care.¹⁸⁶ Measuring patient satisfaction is becoming an increasingly popular way to measure quality.¹⁸⁷ There are calls for measurement of women's satisfaction to be central to the research agenda going forwards.¹⁸⁸

Having said this, patient satisfaction can be tricky to measure as it is focused on an individual's perception, which may or may not be stable over time. There are also several different constructs, which can contribute to a patient's satisfaction. These include:

- interpersonal interactions,
- technical aspects,
- accessibility to care,
- finances, efficacy/outcomes,
- continuity of care,

- physical environment of care and
- availability of resources.¹⁸⁷

Despite challenges of measurement, a patient's perception of poor quality of care is important. It is well documented that perception of poor quality, which includes perception of lack of competence of staff, can lead patients to choose to bypass facilities.¹⁸⁹⁻¹⁹¹ When women choose to bypass a health facility for delivery care this comes with significant expense for her and her family, as well as potential discomfort when traveling in labour and an opportunity cost to her being away from home for longer.^{190, 191} If a woman's perception of care can have such an impact on her choice of care provider, it is clearly important to consider patient satisfaction in the measurement of quality of care.

This patient satisfaction agenda has not been an area of great focus in developing countries, with most research centring on developed settings.¹⁹² There has been even less of a focus on maternity care, however this seems to be changing somewhat, with the increasing prominence of the respectful care agenda, the charter for which is available on the WHO website.¹⁹³ It stands to reason that the agenda centred around a woman's experience of maternity care is important for several reasons. Pregnancy is a healthy state and so it may be one of the early times in a woman's life when she comes into contact with health services. Therefore, this experience of care has the potential to influence her health-seeking behaviour in the long term.^{194,195} This may affect her willingness to seek care for her newborn, or herself during a subsequent pregnancy. If she has experienced poor care she may share these views, and it may put other women off attending for antenatal, delivery or postnatal care.

Interpersonal aspects contribute significantly towards patient satisfaction.^{186,187,196} This element plays a particularly important role for women when they are giving birth due to the companionship at birth improving birth outcomes¹⁹⁷ and improving women's satisfaction with care.^{196,198} Logically, it is this area of patient care which AI is likely to affect, and therefore measuring patient satisfaction is of value in this study.

The aim of this element of the study was to assess whether patient satisfaction changed in a measurable way following the implementation of AI in the three facilities.

Methods

Measuring patient satisfaction

Owing to the fact that the objective of the study was to measure patient satisfaction before and after the implementation of AI, an appropriate tool needed to be selected. Several possible tools were identified,^{189,199-202} however with the exception of one,¹⁸⁹ they were either not validated scales or not developed for a resource-poor setting. The scale chosen was originally developed to assess perceptions of primary healthcare in Upper Guinea as a validated 20-item scale.²⁰³ Following this it was validated for maternity services in Vietnam²⁰⁴ before being further developed and validated for maternity services in Nepal.¹⁸⁹ The Nepalese scale was of particular interest as it was adapted for the local context whereby the economic access aspects were removed, in Nepal, like Malawi there is a policy for free maternity services.

This 20-item scale from Nepal was translated into the Chichewa language and piloted on five patients. Subsequently the items were adjusted to match local understanding.

The 20-items covered three constructs;

- Health Facility (7 items),
- Healthcare Delivery (8 items) and
- Interpersonal Aspects (5 items).

These items were answered on a four point Likert scale ranging from completely agree to completely disagree. Taking the total score on the survey to 80 points. Two further questions were asked, firstly asking women to provide a global satisfaction rating and also whether she would deliver in this facility again. The full scale is included as Appendix 12. As this scale had been validated previously in similar settings,^{189,203} it was considered appropriate to use the scale in the form from the Nepalese study rather than re-validate it in this setting.

Study population

During the designated patient survey periods (five days prior to implementation of AI and five days at the end of the study period), all women being discharged from the three study wards were invited to participate in the questionnaire. This meant that the vast majority of the patients were going home post-delivery.

Sample size

A sample size calculation was undertaken using a power of 80% and an alpha value of 0.05. As this scale has not been used as a 'before and after' tool before, I set the

clinically relevant change in the scale arbitrarily as a 5-point difference. Using the Gpower software²⁰⁵ a sample size of 54 women in each group was required. Therefore, we aimed to survey at least 54 women from each site before and after each study.

Data collection

Having been invited to participate in the study, a research assistant explained to the women in Chichewa about the study and asked if they were willing to participate. If they were, the research assistant proceeded to ask the women the survey questions. This approach was taken rather than women completing a written survey due to the lack of literacy among patients. At this time the research assistants also collected basic demographic data, including their age, number of children, time taken to travel to the facility, how they travelled, why they were there, level of education and why they chose this facility.

For the pre-intervention survey, this data was collected on paper and inputted into an Excel spreadsheet. However, post intervention, a mobile platform CommCare (CommCare Dimagi Inc) was used to facilitate data collection for the post implementation element of the survey.

Data analysis

After describing the basic demographic data, I analysed questionnaire scores, stratified by facility and compared before and after the intervention using paired t tests. Chi-squared tests were used to compare the before and after differences between categorical variables.

I assessed each of the three domains separately, before comparing the overall scores. I used linear regression to compare the 4 elements of the scale before and after, adjusting for moderating effects of age, number of children, time taken to get to the facility and level of education. Finally, a comparison was made between the overall survey scores and the global satisfaction question asked at the end of the survey, and the correlation of the results with the validated questionnaire calculated. The data for whether women would use the facility again is also presented. All statistics were undertaken on STATA version 14 (StataCorp, College Station, TX, 2015).

Results

All of the women invited to participate in the study completed the survey. The number of women before and after in each site is shown alongside their characteristics in Table 20. Across all of the sites, the majority of patients were interviewed following delivery care although there were a small number attending for postnatal care. At the referral hospital there were significantly more women attending for postnatal care completing the post-intervention survey ($p=0.011$). There was no significant difference in the reasons for attendance at the district or community hospitals.

Table 20: Characteristics of women participating in the study

	Referral Hospital (Before) n=56	Referral Hospital (After) n=60	District Hospital (Before) n=54	District Hospital (After) n=62	Community Hospital (before) n=52	Community Hospital (After) n=69
Mean Age (SD)	25.7 (6.3)	26.5 (6.5)	25.4 (5.5)	25.2 (7.9)	23.5 (5.3)	24.1 (5.8)
Mean travel time mins (SD)	67.5 (47.5)	48.3 (26.4)	110 (39.5)	76.0 (47.2)	94.3 (51.4)	67.9 (39.1)
Primips n(%)	23/56 (41%)	19/60 (32%)	20/54 (37%)	25/62 (40%)	19/52 (37%)	31/69 (45%)
Education al level Primary or less n(%)	34/56 (61%)	35/69 (58%)	44/54 (81%)	49/62 (79%)	45/52 (87%)	57/69 (83%)

The mean ages for women were comparable between sites. However, the mean travel time was lower in all sites after the intervention compared with before. This coincided with an increase in the number of people using cars to travel to all the hospitals. In the district and referral hospitals there was a significant overall change in the way people travelled to the hospital, whereas in the community hospital this remained more stable. In terms of the mix of primiparous and multiparous women, the before and after groups were comparable at each site. The level of education was also similar in the before and after groups at each site.

Women's satisfaction with care is shown in table 21. It rose convincingly in the district and community hospital; however the rise was less convincing in the referral hospital. In the referral hospital, the 'health facility' element, which was not effected by AI, was lower post-intervention. When taking into consideration the possible moderating variables of age, number of children, time taken to get to the facility and level of

education, in all cases, the adjusted comparisons revealed larger differences in scores than the unadjusted ones.

Table 21: A before and after comparison of change in patient satisfaction scores in each of the three sites broken down by construct

	Referral Hospital		District Hospital		Community Hospital	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Health Facility (95% CI)	-0.65 (-1.62 to 0.31)	0.05 (-1.02 to 1.12)	2.65 (1.68 to 3.61)	2.96 (1.79 to 4.13)	3.78 (2.82 to 4.73)	3.92 (2.84 to 5.00)
Healthcare Delivery (95% CI)	1.60 (0.67 to 2.52)	1.92 (0.82 to 3.01)	3.42 (2.46 to 4.38)	4.02 (2.80 to 5.24)	4.06 (3.14 to 4.97)	4.28 (3.18 to 5.37)
Interpersonal aspects (95% CI)	1.74 (0.72 to 2.76)	2.35 (1.17 to 3.52)	2.55 (1.53 to 3.57)	3.27 (2.00 to 4.54)	4.98 (3.98 to 5.99)	4.78 (3.60 to 5.95)
Overall (95% CI)	2.57 (0.30 to 4.83)	4.41 (1.89 to 6.95)	8.53 (6.17 to 10.88)	10.22 (7.38 to 13.07)	12.82 (10.56 to 15.08)	13.02 (10.48 to 15.57)

In order to have an internal check of the overall satisfaction results from the validated body of the survey, a ‘complete satisfaction’ of care question was included. The overall correlation coefficient was 0.69, showing reasonable agreement between the global results and the more in-depth questions. Table 22 reports the results of this satisfaction score and the other global question about if a woman would use the hospital again in a future delivery. The complete satisfaction scores across all sites show that there is a move towards being more satisfied after the intervention compared to before. However, in terms of future delivery, there is no significant change in the number of women who would chose to deliver again except in the community hospital.

Table 22: A before and after comparison of the global satisfaction scores

	Referral Hospital (Before) n=56	Referral Hospital (After) n=60	District Hospital (Before) n=54	District Hospital (After) n=62	Community Hospital (before) n=51	Community Hospital (After) n=69
Complete Satisfaction with care						
Completely Agree	23 (41.1%)	42 (70.0%)	9 (16.7%)	45 (72.9%)	6 (11.5%)	59 (85.5%)
Agree	23 (41.1%)	9 (15.0%)	42 (77.8%)	9 (14.5%)	33 (63.5%)	5 (7.3%)
Disagree	4 (7.1%)	7 (11.7%)	2 (3.7%)	5 (8.1%)	6 (11.5%)	4 (5.8%)
Completely Disagree	6 (10.7%)	2 (3.3%)	1 (1.85%)	3 (4.8%)	6 (11.5%)	1 (1.5%)
Chi Squared	p=0.002		p=0.000		p=0.000	
Would use for future delivery						
yes	39 (69.6%)	50 (83.3%)	50 (92.6%)	58 (93.6%)	41 (78.9%)	66 (95.7%)
no	11 (19.6%)	8 (13.3%)	3 (5.6%)	2 (3.23%)	9 (17.3%)	2 (2.9%)
undecided	6 (10.7%)	2 (3.3%)	1 (1.9%)	2 (3.23%)	2 (3.9%)	1 (1.45%)
(Chi Squared)	0.157		0.749		0.015	

As mentioned in the introduction, women choose which facility to use based on a variety of factors. Table 23 shows the single reported reason for women attending this facility. There was no change in the proportion of patients whose reason for choosing the hospital was due to ‘better service’ in the referral hospital (p=0.520), however more women reported this following the intervention in the district (p=0.004) and community hospital (p=0.008).

Table 23 Why women chose to attend each facility before and after the intervention

	Referral Hospital (Before) n=56	Referral Hospital (After) n=60	District Hospital (Before) n=54	District Hospital (After) n=62	Community Hospital (before) n=52	Community Hospital (After) n=69
Nearest	18	15	20	20	29	32
Referred	20	26	25	31	15	12
Better Service	15	13	0	9	2	14
Planned C/S	0	2	0	1	0	7
Bigger	1	0	5	1	0	0
Free	0	0	3	0	6	4
Other	2	4	1	0	0	0
Chi Squared	0.285		0.010		0.005	

Discussion

This study has shown through a patient satisfaction scale there was a significant increase in patient satisfaction following the implementation of AI. This improvement was mirrored in the global score, with more patients being completely satisfied after the intervention. However, when it came to the question about whether a woman would deliver again at that hospital, there was minimal change except for in the community hospital, where more women would choose to deliver.

Interestingly, the community hospital performs best across all scores and the referral hospital the worst. There may be several contextual factors contributing to this including that the hospital is large, in town and women at the referral hospital were in general more highly educated. It is possible that with more knowledge comes higher expectations.¹⁸⁹ In contrast the community hospital was the physically smallest site

(although did not have the fewest number of deliveries) and the women were the least well educated.

In terms of the health facility component of the scores, the referral site remained stable, but there were increases in the other two sites. This change is remarkable because there was no observable alteration in the health facilities during the study period. Therefore, it may be plausible that any increase in the health facility scores were actually moderated by the increase in the interpersonal skills of staff.

With the exception of the community hospital, there was no statistically significant change in women's plans to deliver a subsequent baby at the hospitals, although there was an overall upwards trend. This is in keeping with the fact that in other studies in Malawi, women seem to have a high opinion of their healthcare services.^{196,206}

The women in this study had a variety of reasons for choosing the facility they delivered in. The main reasons being the fact that the hospital was their nearest, or they had been sent there. Due to the focus of the AI, there was the potential to affect the behaviour of staff, which may improve the service. Therefore, the 'better service' responses were compared before and after the intervention, and in the district and community hospitals more people decided to attend the hospital after the intervention for this reason. In the referral hospital this measure remained stable.

Strengths and weaknesses

A strength of this study is that, across three different government hospitals in Malawi, there were consistent and significant trends in improvement of patient satisfaction.

Despite being a small, non-randomised, feasibility study, this indicates that AI could have changed practice at the sites and increased patient satisfaction.

It is feasible that other changes in the health system could have resulted in this change.

However, the Malawian health system is currently under strain, with budget cuts as discussed previously. It is therefore unlikely that any increase in funding could have changed opinions of patients. At the time of the post-intervention exit survey, there was also an impending famine in the country, in addition to the financial crises. However, there was an intervention funded by USAID, whereby some extra benches were provided to sites and also some extra buckets for cleaning.

A further strength of this study is that the women were broadly comparable before and after the intervention at each site. This is despite the fact that the sample was one of convenience. Having said this, in all sites the length of time it took to get to a facility reduced. The reason for this is unclear, as the data collection days pre and post intervention were around the same time of year pre and post intervention, spread on different days of the week and not all at the end of the month (when people can afford petrol for their cars).

Despite all of this, it is important to acknowledge the difficulty in measuring patient satisfaction.²⁰⁷ This study is subject to the same criticisms as all studies attempting to

measure this complicated issue. It may well be that in this study women were wanting to give a positive response to the interviewer, rather than sharing their true feelings.¹⁸⁷ There is also the issue that women do not know what the service could be like, because they have no experience of it.²⁰⁷ However, a mother's satisfaction is now firmly on the agenda for measurement.¹⁸⁸ This, along with the fact that patient satisfaction can be a determinant of women seeking care, means that it is important to work on this agenda.

There has not been much focus on maternal satisfaction studies in the developing world. Few of these studies have occurred in Malawi. Some were survey based^{196,208} and others interview based.^{194,206,209} However, it was not possible to find a patient satisfaction survey that had been administered to patients before and after a quality improvement intervention in Malawi.

I would argue, as Donabedian did in 1988,¹⁸⁶ that it is vitally important to use tools to consider the effects of patient satisfaction. We have seen in the work on women's groups^{199,210} that women talking together works to improve maternal and neonatal health outcomes. However, if these women share their belief that the maternity services are poor or disrespectful at their local hospital this can only serve to reduce demand for services, and means that women will bypass facilities. This results in increasingly inequitable care as women who can afford to, will bypass to a hospital of their choice,¹⁸⁹ or those who can afford it least incur the extra unaffordable health expenditure.²¹¹

Conclusion

AI has the potential to improve the satisfaction patients have with their care. It is vitally important that satisfaction is measured when quality improvement interventions are undertaken. It will be one element with which to measure improvement in the quality of maternity care going forwards and achieve the targets in the sustainable development goals. To establish more conclusively whether AI improves patient satisfaction, larger non-observational studies are needed.

Part 3: Does Appreciative Inquiry Work?: A qualitative template analysis to understand the effects of Appreciative Inquiry in three district hospitals in Malawi.

Introduction

The use of AI was approached in a participatory way, with staff choosing topics important to them.³⁹ This made measuring a comprehensive set of pre-defined outcomes difficult. In the previous two chapters, staff and patient satisfaction were assessed. This qualitative analysis provided an opportunity to document the full range of potential outcomes as perceived by staff and observed by the study team. It embraced some key premises of AI, that stories were important, and that not all data for evaluation needed to be numerical.²¹² This comprehensive elucidation of outcomes experienced by staff helped develop the theory of change for AI in healthcare, and provided an opportunity to understand if there were unanticipated changes or unintended consequences of AI.²¹²

The Kirkpatrick framework,¹⁵² already discussed in SBP1, gave a useful framework for amalgamating disparate outcomes.²¹³ The framework was helpful when considering behavioural changes which involved complex issues. These were key to changing the way things worked in hospitals and improving care for patients.²¹⁴ AI's potential to change behaviour proved highly relevant to its effective utility.

This analysis aimed to identify what changes occurred following AI and facilitated the development of the outcome section of the theory of change.

Methods

Study Design

A comprehensive approach, encompassing the opinions of staff and the implementation team together with observations of practice on the wards, was undertaken. This evidence built upon the findings from other elements of this thesis: ethnographic data from SAP1, and records of the meetings and evaluation data from SBP2. Specifically, for this study, additional interviews and focus groups were carried out.

Participants

All staff working in the maternity departments were in some way involved in the data collection for this study. However, staff from each site were specifically invited to participate in focus groups or individual interviews. As previously, a small allowance was provided to staff to cover transportation costs.

Sampling

There was an English and a Chichewa focus group in each hospital. The English group was a cross-cadre representation of staff (COs, Nurses, HA's and clerks). The Chichewa group provided the HAs the opportunity to discuss their thoughts in vernacular language. Key informants were also asked to share their experience of AI individually. These individuals were in positions of responsibility (e.g. ward in-charges), champions for AI (e.g. facilitators) or people who seemed least involved in the AI. This was designed to give the most realistic perspective of AI.

Data collection

After providing an information leaflet, written consent was gained from all participants.

I conducted the English focus groups along with a note-taker who supported the process. For the Chichewa focus groups, we worked in tandem. As the main interviewer, I was supported by the second interviewer who translated my questions and the participants responses. Each of the interviews/focus groups lasted 15 to 90 minutes. They were recorded, transcribed and where necessary translated and back translated to ensure the meaning was adequately captured.

I developed a topic guide (Appendix 13) for these interviews, which served as prompts rather than a prescriptive set of questions. This topic guide covered the interviews for this study and also the qualitative study presented in Section D.

Staff may have found it intimidating or worrying to participate in these focus groups, especially when they were participating with seniors. To reduce the risk of any distress, the process was explained verbally and with written leaflets at least 24 hours in advance (in most cases a week in advance). All HA's were invited to attend a HA only group (in Chichewa) but a volunteer was asked to join the English group, which would include working with seniors. At the start of the meeting, staff were told that they were free to leave at any time, and they could also withdraw their consent at any time. The most senior staff were not invited to attend the focus groups, and instead individual interviews were performed with these people. This was in part to encourage candour from all parties.

Data Analysis

As in SAP2, template analysis was used to analyse the data.^{81,82,84} However, on this occasion instead of developing the template from the data, I derived the template from the first two sections of this thesis. A theory of change, was tentatively postulated at the end of SB (Figure 26). The outcome section of this proposed theory of change, which is laid out as per the Kirkpatrick framework, will be used as the basis for the template. As the analysis progressed, and areas of text were not coded for in the initial template, the template was developed.⁸⁴

Results

In addition to the ethnographic case notes and meeting reports, I carried out 15 individual interviews and 8 focus groups across the sites and cadres. During the analysis, the template was developed drawing on elements which emerged from this data. I have demarcated the additions in italics in the 'theme' column of the tables 24-26.

The four Kirkpatrick areas have been discussed in turn, by briefly addressing each of the minor themes in the template. A summary of the results from each site have been presented in tables 24, 25 and 26. Many of the changes in each of the facilities were remarkably similar. Therefore the evidence presented for each of the minor themes have been drawn from examples across the sites.

Table 24: Examples of changes in the Referral Hospital according to the template analysis

Developments to the themes during the analysis were highlighted in bold italics

*Proposed themes with no examples from the data were identified by **

Kirkpatrick area & sub themes	Examples in the Referral Hospital
i Reaction	
Exciting/fun	Enthusiasm in meeting
Positive Experience	Motivating experience,
Should Continue	Want meetings to continue to sustain change
Useful	AI is helpful and means they don't get discouraged
ii Knowledge/Skills/Attitudes	
Appreciating each other	Appreciating the work of all cadres
Better understanding of each other	Meetings mean everyone can provide views and work on the same things
<i>Happier/Easier work</i>	Less discrimination of juniors, feel happier so work harder, HA's doing tasks only nurses used to do
<i>Improved non-technical skills</i>	Improved communication between staff groups
Improved Knowledge	HA's taught to perform observations
Improved resilience	More willing to help each other when there are problems or when busy. Willing to find solutions e.g. using mobile phones as watches
Lobbying for change	Lobbying for resources e.g. BP machines
<i>Raising awareness to improve care</i>	Posters about taking observations and politeness
<i>Empowered, pride/respect in work</i>	HA's taking responsibility for patients staff taking responsibility for tasks, feel empowered,
iii Behaviour Change	
Altered interactions with staff/patients	Communal lunches, HA's highlight problems with observations/patients to nurses, communicate better with patients and staff, welcome the patients to the ward, better handovers between staff.
Altered supervision/feedback methods	Co-ordination between supervisors and juniors, new supervision approach, supervisors more respectful
<i>Individual altering behaviour</i>	Started monitoring respirations, Leading by example, new way for managing staff
<i>Monitoring change</i>	patient satisfaction survey, suggestions box, monitoring observation taking with audit
New forums to discuss ideas	Time to discuss things at communal lunch
Team alter way of working	Task allocation for admissions and observations, plans to work with non-ward staff to protect the new linen and improve respectful care, team to contribute towards lunch equipment, more regular monitoring of patient observations, HA's take observations, all staff working together better e.g. moving patients to and from theatre as a team, nurses trust HA's more leaving them with keys and responsibility, taking better care of resources, ward known as best stocked ward with no stealing due to trust in team.
iv Practice Changes/Patient Outcomes	
<i>Patients changing behaviour</i>	Being more available for observations
Development of protocols/guidelines/systems	New system of nurses/HA's working in teams
Improved patient satisfaction	Patients more satisfied
Improved retention/recruitment/sickness	Staff less likely to call in sick
<i>Information shared with patients/relatives</i>	Patients informed about how the ward works

Table 25: Examples of changes in the District Hospital according to the template analysis

*Developments to the themes during the analysis highlighted in **bold italics***

*Proposed themes with no examples from the data identified by **

Kirkpatrick area & sub themes	Examples in the District Hospital
i Reaction	
Exciting/fun	Meetings enjoyable with high energy
Positive Experience	The AI made them feel good
Should Continue	Want them to continue, but difficult without support
Useful	AI is valued
ii Knowledge/Skills/Attitudes	
Appreciating each other	HA's feel more valued
Better understanding of each other	Know each other better
Happier/Easier work	Happier at work, workload shared between staff
Improved non-technical skills	Teammates more flexible
Improved Knowledge	Better communication of abnormal observations
Improved resilience	Staff help each other to cope with the work e.g. all staff helping with pushing patients to theatre
Lobbying for change	Trying to get shoe rack, tapped buckets and getting help with traffic control from guards, trying to introduce rotas for CO's
Raising awareness to improve care	More information signs for patients (visiting hours/hand washing) and staff (hand washing)
Empowered, pride/respect in work	HA's feel empowered to change things, respect increased at work
iii Behaviour Change	
Altered interactions with staff/patients	Staff feel more able to approach seniors Improved communication within team, addressing issues directly within the team (e.g. meeting with CO's when they needed faster assessments of patients), improved teamwork across cadres, feel patients more open because staff attitude better.
Altered supervision/feedback methods*	---
Individual altering behaviour	More hand washing, CO's present on the wards
Monitoring change	Regular feedback to monitor changes
New forums to discuss ideas	New joint ward meetings,
Team alter way of working	Team remain at work to handover PN & LW ward teams work better together, staff all emphasise hand washing, general surroundings of ward improved, cleaning day planned, decided to redesign delivery packs
iv Practice Changes/Patient Outcomes	
Patients changing behaviour	Patients/guardians removal of shoes
Development of protocols/guidelines/systems	Purchase of shoe rack, Handovers became routine, PN & LW take patients to theatre together Health talk rotas about hand washing/traffic control, guards assigned to traffic control
Improved patient satisfaction	Reputation of hospital has improved
Improved retention/recruitment/sickness*	---
Information shared with patients/relatives	Health talks about hand washing and traffic control

Table 26: Examples of changes in the community hospital according to the template analysis

*Developments to the themes during the analysis highlighted in **bold italics***

*Proposed themes with no examples from the data identified by **

Kirkpatrick area & sub themes	Examples for Community Hospital
i Reaction	
Exciting/fun Positive Experience	Laughing about interviews, energisers fun Want to share skills in new departments, interactive and focusing on reinforcing good areas
Should Continue	Can't stop the changes need to continue them, benefiting the ward
Useful	Want to introduce AI to the hospital quality improvement team
ii Knowledge/Skills/Attitudes	
Appreciating each other Better understanding of each other	HAs feel more appreciated as an active part of the team More accepting of people's suggestions because get to know each other in meetings
<i>Happier/Easier work</i>	Working more as a team so its easier, being able to depend on each other
<i>Improved non-technical skills</i>	Confidence, leadership, respecting patients more leading to better greeting of patients, facilitation, finding solutions
Improved Knowledge	Hand-washing, training HA's to take observations, monitoring and examination of patients
Improved resilience	Building hand washing stations, help each other more if there are problems
Lobbying for change <i>Raising awareness to improve care</i>	More bins and personal protective wear on wards Hand-washing signs at sink, signs on bins, AI slogan use to secretly correct behaviour, talking to patients to give informal reminders
<i>Empowered, pride/respect in work</i>	Feel empowered after meetings, gain confidence as recognised and have more responsibility.
iii Behaviour Change	
Altered interactions with staff/patients	Participants freely expressing themselves, better relationships between cadres, better communication with patients, can highlight mistakes by seniors now
Altered supervision/feedback methods* <i>Individual altering behaviour</i>	--- Hand-washing, throwing waste in the correct bins, improved decontamination of instruments by COs, wearing closed shoes, fuller history and examinations
<i>Monitoring change</i>	Monitoring tools developed and completed for action plans, accountability to the team
New forums to discuss ideas* Team alter way of working	--- HA's start to take observations, incinerator better cared for, HA's meeting to discuss waste disposal, Hand-washing watch dogs, using AI slogan to remind team to wash hands, closed shoes monitoring, easier access to PPE.
iv Practice Changes/Patient Outcomes	
<i>Patients changing behaviour</i>	Hand-washing
Development of protocols/guidelines/systems	Sharps boxes disposed of when ¾ full, rosters for patient talks developed
Improved patient satisfaction* Improved retention/recruitment/sickness <i>Information shared with patients/relatives</i>	- Reduced sick leave Health talks on hand-washing and waste disposal

Reaction

The reactions of mHCWs to AI are shown in part i of tables 24, 25 and 26. Staff enjoyed AI meetings, where they voiced their opinions and were treated with respect. Having said this, maintaining energy and interest during the sessions was important as without enough interaction, staff became distracted. On the whole people liked the light-hearted elements and energisers and felt that they increased the teamwork and fun:

'we were interacting together because we were of different teams, we came together. So there were even activities like we had cards and ones and other things so it was kind of fun as well.' District Hospital, Nurse

Staff wanted AI to continue. Two things seemed important. Firstly, the AI meetings conferred benefits both by catalysing change and providing staff with refreshments and transport allowance. These allowances were of great importance to the staff and as a result increased attendance. Secondly, staff wanted the AI associated changes to continue. An HA from the district hospital explained:

'I am happy and I would want it to be sustained because we are in very good relationship with our supervisors and we feel motivated to come to work because we are free to communicate with them and we would always want to be on duty roster unlike in the past when one could always want to be off duty because the relationship was not good with our supervisors.'

A CO in the Community Hospital felt that AI would have lasting effects because *‘when your attitude is changed it can sustained for some time’*.

Staff felt the process was useful. They built relationships within their team and developed strategies to address their burning issues. The matron at the community hospital reported that *‘we have seen things changing, positive things happening’*.

Removing the focus on the negatives which was demoralising meant that the team focussed on their strengths.

‘It’s like it motivates when you have positive mind or positive things. They bring praise to you. It encourages everybody. Unlike as you say previously a lot of people have been saying negative things pertaining to health workers. It demotivates a lot of people.’

Referral Hospital, Ward Clerk

Change in Knowledge, Skills or Attitude

Tables 24, 25 and 26 show the wide ranging changes in this area. Staff understood what team members were capable of, and listened to each other. A nurse at the district hospital felt that *‘we were coming with suggestions as a group not as an individual or as a cadre. So it really helped us strengthen the teamwork because we were doing things together as a group.’*

This allowed improved communication and understanding of each other’s strengths and the whole team’s contribution was valued. A HA from the referral hospital explained *‘in*

terms of we, health workers there was not saying is this is a or clerk nurse; we were working hand in hand and we were respecting each other.'

This was felt most keenly by HA's, but nurses also reported feeling empowered. The nurse in-charge at the community hospital felt that AI *'has just made people to be more responsible on every activity that they are doing.'* The Matron observed that AI *'has boosted their self-esteem because...they feel that they can!'*

They appreciated each other and felt more respected. A HA at the referral hospital explained:

'Last week, I was on night shift...the nurse told me that she had left the ward in my hands and that I should report to any nurse should something happen. As I was just checking on patients in the rooms, I came across a patient who was bleeding...I rushed to low risk postnatal to get some help and when the nurse in-charge came, she found that everything was taken care of....The nurse was very appreciative and said that had I not taken any role in this, the patient would have died because she really was ill and had bled a lot...In the past, the in-charge would have just left, she could have hidden her bunch of keys...But in this case, I was able to get whatever was needed because I had access to the keys.'

Building trust led to greater interdependence, better patient care and staff feeling more appreciated. Many staff reported that their communication had improved as the deputy

ward in-charge in the referral hospital put it *'I have learnt how to interact with people how to handle people and...our patients.'*

Staff were also motivated to gain new knowledge of skills. At the referral and community hospitals untrained staff were taught how to perform observations to reduce the nurses workload. At the community hospital mHCWs learned about infection prevention:

'with AI I think as of now I am doing it well especially in IP concepts just because sometimes we maybe because we don't know how to do it.' Hospital attendant.

Staff increased awareness of topics using posters for themselves and patients. These highlighted hand washing, visiting times, waste segregation and taking observations.

Working better together to achieve these tasks and more generally became commonplace. A Referral Hospital HA shared: *'Also it may happen that my colleague's child may be sick and needs to take her to the hospital, there are only the two of us. We volunteer to take the shift of our colleague in order to cover her for the reason that work has become more enjoyable.'*

Staff felt that their working life was better and easier because of improved teamwork. The ward clerk at the community hospital explained *'I have seen that now my work is enjoyable, because at first - nurses are taught to write down any deliveries...But back some of them were not doing that. But because of this AI, we have got team spirit, each*

and everybody who has delivered a patient is writing the delivery in the delivery book. So it is making me easy'.

Staff became more resourceful. A CO in the community hospital described this: *'so we say well in a situation where we don't have running water, what do we do? Uhha so lets just find something like a tin then put in some water and then put a string somewhere so that you can simply paddle it and it will pour the water like running water.'* Working together to come up with positive solutions increased their capacity to be resilient.

Staff tried to take control and lobbied for resources, with some success, for example equipment for observations (Referral Hospital), tapped buckets (District Hospital) and personal protective equipment (Community Hospital). One of the biggest successes was in the district hospital, guards began to help with traffic control. An HA described: *'the idea of having guards helping us, come from just to lift off a certain burden; so that's when nurses went there to ask them if they could help with such and they said yes and they understood and then came to the ward.'*

The referral hospital matron felt that her getting *'support from the management for advocating like for the resources. That's the best part maybe I have done.'* Staff were proud to receive more resources, however, they could become frustrated when resources were not forthcoming.

Overall, a HA from the referral hospital described *'our work to be enjoyable now. In the past we would stay away from work because we had quarrelled with our colleague or because of unpleasant work environment. But now, staying away from work for no*

apparent reason is unthinkable, we are anxious to go to work because our relationship is good.' This suggests improved working relationships changed the working environment.

Behaviour Change

Tables 24, 25, 26, part iii illustrate the main changes mHCWs reported in how behaviours changed. The largest element, alluded to in the previous section was that relationships became more respectful and interactions more equal:

'As juniors, we were taunted most of the time, or let me say that we were discriminated against, but because of this project, we feel that now we are able to relate to each other and are united in our work.' Referral Hospital, HA

'It has actually brought in a very good rapport between...the technical people and the hospital attendants...I was even surprised when one of the patient attendants mentioned me a thing which you rarely recognise to say I think I did a very good thing which by then I was not aware of...now we have been brought together and we are interacting and we are sharing views and ideas well, we are building a good rapport.' Community Hospital, CO

However, staff also reported that relationships with patients improved, according to a District Hospital HA:

'Previously the patient was afraid to talk about some crucial issues she had because of our altitude towards them, so they were afraid. But now we feel AI has helped us bring openness between the patient and workers.'

Individual staff discussed ways they had altered their behaviour for example the matron at the referral hospital decided to manage her team differently:

'it has helped me on the strategy; on how best to help the team...It's better to focus on the positives for one to change, rather than focusing on the negatives; because people tend to be defensive if you go to, like for the challenges that you attacking them. So, they become closed up...So, as a manager, it has helped me in that we should look at the positives first then you go to the other side for easy implementation of the things.'

Another example of individuals altering behaviour was in hand-washing and monitoring vital signs improved: *'when I am here at work, I tried to monitor all the vital signs including the respirations which in the past I was not doing that.'* Referral Hospital, Nurse

The team changed the way they worked as they began to discuss ideas at meetings:

'Previously, I don't think that we discussed anything – I don't think we were having meetings among us. We were just working individually, but because of the AI, we are able to meet and then discuss each and every challenge we are meeting and then to find out a solution to it.' CO District hospital

Staff at the district hospital arranged additional joint ward team meetings to improve the cross-ward working, although there were challenges with attendance.

One of the main issues addressed in the meetings was the achievements of the team, which was a new thing to do for many of the staff. Although at times there was a struggle to fit this into the working day. In the referral hospital, they monitored patient satisfaction, using a suggestion box and exit questionnaire. The matron observed: *'we wanted to know if the mothers were satisfied with the respect they were receiving from the hospital.'* The positive feedback motivated staff. However, some of the audits of change were less well completed, perhaps because the feedback was less overwhelmingly positive.

Staff reported that they were working better together. A District Hospital CO explained this:

'Earlier on...they can tell me that okay there is caesarean section for you to do, lets say they have told you at around twelve o'clock noon but for you to end up doing that caesarean section it will be around three. You are running alone up and down doing this doing that so it has been a problem but with AI bring teamwork within even fifteen minutes the patient has been prepared already in theatre.'

Staff also felt they were supporting each other to achieve their goals, rather than undermining each other. For example, a community hospital nurse explained their use of 'AI' as a slogan *'to remove embarrassment to our friends; because sometimes you*

could just say, “You have not washed your hands and now you are touching the patient!” but if just say, “AI” That friend of yours knows that, “I have made a mistake somewhere, maybe I have not washed my hands” So she checks herself, “Where have I gone wrong!” So with the slogan of AI it has really moved the embarrassment of our staff.’

Changes in practice or patient outcomes

Table 24, 25, 26, part iv outlines changes in practice and patient outcomes, these were perhaps the most difficult changes to achieve, and they were hospital specific. An important change for staff was that they were less likely to take time off work because they were happier. In the community hospital, the Deputy-in-charge CO believed *‘the rate of sick leaves has actually gone down so it’s a better achievement, yea so the change is there.’*

To safeguard their health at the community hospital, staff developed a robust system of emptying the sharps bins. They monitored the incidences of the bins becoming overfull. They fed-back in meetings and often commented on their success: *‘Whilst she is drawing up the drug she disposes of some sharps in the boxes and tells me that “you can see that our safety boxes are not yet full”’. She feels that AI has brought in some improvements and she doesn’t want it to stop.’ Field notes Community Hospital*

Teams made rota’s for health talks for traffic control (District Hospital) and hand-washing (Community Hospital). Although these systems were not official hospital protocols or guidelines, they changed the way that staff worked. Staff wanted to share

information with patients. They put posters on the walls, arranged extra health talks and communicated individually with patients. A nurse at the district hospital explained *'we could give health talk especially on birth preparedness, how to do exclusive breastfeeding and the like, and there is a great change. Every woman is able to implement that especially on breastfeeding, talking of danger signs and the like'*. Giving these health talks empowered patients to take care of the health of themselves and their babies. In the referral hospital, they chose to allocate someone to inform patients about the way the ward works, this means that *'Patient are around, when we explain them on this time you should be available for drug this time for vital sign patient's are always available'* Nurse, Referral Hospital

Staff believed that as a result patients washed their hands more (Community Hospital), patients were available more often for observations (Referral Hospital) and removed their shoes before entering the nursery ward (District Hospital). The ethnographic data supported these views of staff.

Perhaps linked into this, staff felt that patients were happier with their care. In the referral hospital the suggestion box provided staff with good feedback. The matron described how *'the comments were really positive'* At the district hospital one of the HA's described how *'the reputation of our hospital has improved'*.

Staff also felt that clinical care and outcomes had improved. At the district hospital, a nurse explained how *'neonatal sepsis has been reduced...and puerperal sepsis also has been reduced since patients and guardians are able to follow IP (Infection Prevention)*

protocols; they are removing shoes...they are able to follow'. However, from the ethnography this improvement in outcomes was not as clear.

Discussion

This study has illuminated changes within the workplace following the AI intervention. HCWs gave largely positive reports of the effects of AI. The observational data was somewhat more circumspect, however, it largely supported the changes reported by the staff.

HCWs saw changes across all levels of the modified Kirkpatrick Model. They enjoyed AI, but also believed they'd learnt new skills and changed attitudes at work. They discussed altered interactions and new ways of doing things leading to systematic ward based changes and alterations in patients' care. However, they also expressed some frustration when they were unable to achieve their goals.

Staff unanimously reported that work relationships had changed. This seemed to underpin many of the other changes. The lower staff cadres began to feel valued as team members, while nurses and COs realised everyone had useful contributions to make. This seemed to be the beginnings of the breaking down of the social order of the hospital.

Hierarchy was an ingrained element of the social order of hospitals and as a result it was difficult to break down.²¹⁵ Teams exhibiting less hierarchy, deliver better patient outcomes,²¹⁶ in part because in hierarchies staff were not empowered to speak up.²¹⁷

This barrier, along with other aspects of the social order, had begun to be broken down. In addition to the altered relationships, there was the non-embarrassing use of the 'AI' slogan at the community hospital. Therefore, AI was one way of reducing the impact of the rigid social order on patient care.

HCWs, especially the most junior ones, felt happier about being at work. This made them not only more likely to come into work and work together to cover shifts, but work harder and take on extra tasks to achieve their joint goals. This idea of hierarchical breakdown fits with the elements of AI that have been identified to work in other settings²¹⁸ and resonates with the findings from some of the healthcare related AI studies.^{117,120,121,133,135,148-150} Although not all the studies referred specifically to the breaking down of hierarchy, many of them made reference to understanding each other better and breaking down of barriers, which was likely to be related to similar issues of social order.

In this study AI facilitated both changes in attitudes and changes in behaviour which staff valued and believed would be lasting. Staff behaviours in the workplace are complex²¹⁹ and it is important that a theoretical model is used to try to understand why interventions work.^{214,220}

The Kirkpatrick model was used to guide categorisation of the outcomes, to contribute to the overall theory of change. It can incorporate a variety of different outcomes within it.²¹³ This was particularly useful for this multi-site study because, due to the

participatory nature of the research, each of the sites decided to undertake different activities.

The Kirkpatrick framework was affected by the fact each part of the framework was built upon the previous one- so staff needed to react positively before being able to gain knowledge.¹⁵¹ However, there was little evidence of the stepwise chain being as clear-cut as Kirkpatrick presented it.^{213,221} When using the Kirkpatrick model to understand the outcomes of organisational change, this idea of the lack of a linear link between the stages of the model held true. It was much more the case that all the elements seemed to be in some way interdependent on each other. Although staff enjoyed the sessions, their reaction to the whole process was also taken into consideration. Their positive experience of the process seemed to link, at least in part, to their view that there were desirable changes in their workplace.

Due to the complexity of changing behaviour there were different levels at which change could occur.⁷⁸ For this reason it could be observed that some of the elements were touched on in different parts of the model. For example, a team member was taught to take observations. Meanwhile, because the decision was made to train HA's to take observations, the team adjusted to their new skill set and developed a new system on the ward. With some or all of these changes staff felt more empowered and those having tasks shifted from them were also happier at work. Although the decision and willingness to learn to take observations had to occur at the start of this process, the rest of the changes happened simultaneously. However, they would only be sustained if all elements of change continued smoothly. A break at one point – for example the nurses

not expecting HA's to take observations and therefore trying to do it themselves, would have meant that any gains made could break down.

Strengths and Limitations

A strength of this study is that a variety of data sources were used to gain the fullest picture of what happened following AI. Both focus groups and interviews were combined to allow groups to develop their thoughts together²²² whilst also gaining deeper insights from individuals. The ethnography was compared to the views of mHCWs, and overall matched their point of view well. However, the processing of the data was undertaken using template analysis. This allowed all data to be efficiently incorporated into the analysis. Template analysis precluded a deep understanding of an individual's experience, as would have been possible for example with IPA,⁸⁰ but as the observational data could not have been used for this purpose, template analysis was considered appropriate.

Participants in this study were based at government hospitals in Malawi, thus they were not specially selected in any way. There was no reason their experience of AI would be any different from any other Malawian mHCW. Furthermore, all staff contributed to the data used in this study, either through being observed, informal discussions or as part of the focus groups and interviews. This made this element of the study as representative as possible. While the specific changes at each hospital were different, the general message was remarkably consistent. The staff had better relationships, changed how they worked and interacted better with colleagues and patients. Furthermore, the reported outcomes were consistent with those in the literature review.

A final important area to consider is that of the effect of the social order of the hospital on the answers to the interview questions. The interviews were carried out jointly by the project manager, a masters qualified nurse, and myself, the ex-patriot doctor and PhD student. In terms of the social order of the hospital, discussed in SAP1, we were afforded with the utmost respect and were at the 'top' of the social order. This had the potential to affect the responses staff gave as they may have wished to please us as 'superiors' and, in addition to this, we were the implementation and research team. They were undoubtedly aware that we were invested in the outcome. Having said this, the answers given and the discussions that took place in both the focus groups and individual interviews were remarkably congruent across all sites. This finding occurred despite the fact we had not told them what kinds of changes we were expecting, or discussed their feelings in depth prior to the interviews (although they had as teams identified their successes in the meetings every week). The consistency and clarity of focus on improved relationships and hierarchical breakdown was remarkable, and went some way to allaying fears that they were telling us just what they believed they wanted us to hear.

Modifications to outcomes element of the theory of change

I developed the template for this analysis from sections A and B of this thesis.

Modifications were made to reflect some of the stories shared by the staff. No additions were made to the reactions area, but to the knowledge/skills/attitudes area four

'outcome areas' were added:

- Happier, easier working life
- Improved non-technical skills

- Raising awareness to improve care
- Staff being more empowered and feeling greater pride in their work.

In terms of behaviour change, it emerged that staff discussed individual behaviour change and monitoring change. In terms of altered organisational practice or patient outcomes, staff discussed sharing information with patients, and their new approaches resulting in changing the behaviour of patients. These elements form important new additions to the outcomes element of the theory of change being developed in this thesis.

In addition to these elements being modifications to the theory of change for this thesis, the idea of changing the behaviour of patients may be a useful contribution from this thesis to the Kirkpatrick framework. Previously the framework has focussed only on staff reaction, knowledge and behaviour change, organisational level change and patient outcomes.¹⁵² The ability of an intervention to facilitate alteration in patient behaviour to improve their individual or collective health outcomes could be a useful measure of success, and one which could be particularly important considering the strain on healthcare services globally.

Conclusion

According to staff, AI changes working life. They enjoyed work more and believed that the changes also brought about improvements in patient care and ultimately outcomes. Whilst this was a small feasibility study at three sites, the findings across the sites were remarkably congruous and in keeping with other AI studies in healthcare. Therefore,

this study provides evidence that staff value the opportunity to participate in AI and it has potential to improve their working lives.

Section C Discussion

The three studies in this section have contributed evidence to answer the question of whether AI works. The longitudinal staff survey only showed significant month on month improvements in the basic psychological needs and work related quality of working life survey in the community hospital. Thus it provided a lack of clear evidence for the intervention working. However, the study was not powered to detect a significant result in these surveys because the number of staff who could participate in the study was limited to the number of mHCWs who were working in each of the clinical areas. The patient satisfaction survey revealed improvements in satisfaction across all three domains of the questionnaire in all three sites. Interestingly, the largest improvement was in the community hospital. Finally, the qualitative assessment of outcomes of AI revealed that staff believed that changes had occurred in their departments.

Taken as a whole this evidence does not, nor was it intended to, provide the final word as to whether AI works or not. What it does provide is two things. Firstly, there is further evidence to add to that from the systematic review to suggest that AI has potential to change working lives of staff. Secondly, it shows that it is possible to implement AI in government hospitals in Malawi.

As a whole, the evidence provided here is not strong as these changes could have occurred by chance or due to other changes in the health system. As there was no control group, this was difficult to judge. This was taken as a decision at the beginning of the study as the main aim was to see if AI was feasible in this setting. Due to funding

and time constraints it was decided not to overstretch resources by including extra sites, or reduce the opportunity to try AI in a variety of different settings by having a control site.

Whilst the patient survey seemed to be useful and well suited to the study, the staff questionnaire may have been too complicated. Although it was completed regularly by staff in this small study, it may be that a shorter survey comprising just one of the three scales would have provided sufficient information and been less onerous to complete. As none of the scales seemed to behave particularly differently, arguments could be made for selecting any of them if staff satisfaction was to be measured in a subsequent study in this setting. However, due to the significant differences shown in the basic psychological needs scale and the quality of working life scale, it would seem to make most sense to use one of these two scales, despite them not being developed for a LMIC setting.

One interesting observation across the two quantitative studies was the fact that the largest measureable changes occurred the community hospital. There are several reasons why this may have happened. At the community hospital, as discussed in SBP2, the clinical managers (the matron and hospital in-charge) were personally involved in AI. Furthermore, the ward in-charge was enthusiastic about AI and was the AI focal person. In the other sites this was not the case. In addition to this, the unit was small, with all of the inpatient and postnatal services being delivered in one building. It was therefore easy to communicate within the staff team as there was one place they spent

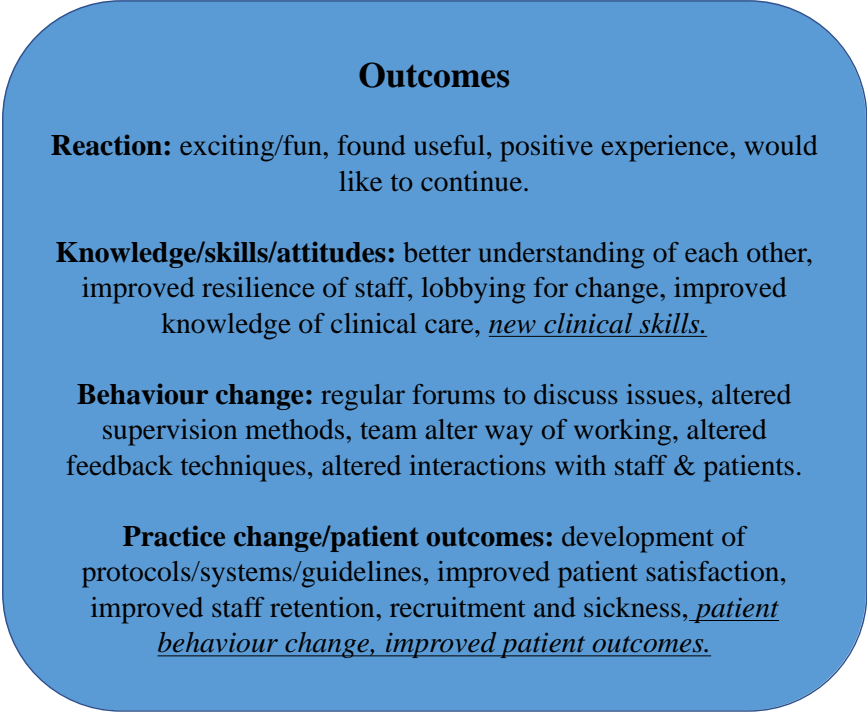
time. However, it is important to acknowledge that this finding could also have occurred by chance.

Some of the findings of this set of studies resonate with the findings of other studies of AI in LMIC settings identified in the literature review. In a study of puerperal infections in India, there was little change attributable to AI in their measure of infection rates.¹¹⁹ In another study carried out in India,^{120,121} improvements in patient's satisfaction with staff's actions occurred. This resonates with the improvement in patient satisfaction seen in this study. In the qualitative study, whilst there were improvements for all staff, it seemed as if the most important changes were for the most junior staff. This is in keeping with other studies of AI in LMICs.^{120,121,148}

Developing a theory of change for AI

Each section of this thesis has been contributing towards building a theory of change for AI in healthcare. This section provided the ability to consider the 'outcomes' element of the theory of change in more depth. In order to do this, the 'outcomes' element developed at the end of section B has been displayed in figure 29 with the few additional items identified as part of this section in italics.

Figure 29: Further developing the outcomes for the theory of change – added outcomes are underlined in italics.



Outcomes

Reaction: exciting/fun, found useful, positive experience, would like to continue.

Knowledge/skills/attitudes: better understanding of each other, improved resilience of staff, lobbying for change, improved knowledge of clinical care, *new clinical skills.*

Behaviour change: regular forums to discuss issues, altered supervision methods, team alter way of working, altered feedback techniques, altered interactions with staff & patients.

Practice change/patient outcomes: development of protocols/systems/guidelines, improved patient satisfaction, improved staff retention, recruitment and sickness, *patient behaviour change, improved patient outcomes.*

Conclusion

These studies have contributed more evidence towards the fact that AI has significant potential not only to change the way staff work but also to change the way patients experience care. They have also added weight to the fact that it is possible to implement AI in government hospitals in Malawi and highlighted some of the outcomes staff believe occurred through AI, with a focus on improving relationships at work.

Section D: Developing an understanding of how AI works

A grounded theory study to understand how AI worked

Introduction:

AI is grounded in a social constructionist approach which takes the stance that reality is constructed by a shared discourse about what is going on in the world.^{38, 223}

AI began as a form of ‘grounded theory’,²²⁴ and the seminal AI paper made it a core tenet of AI to rekindle the link between theory and action research.³⁸ Because of its philosophical underpinnings, there is debate about how to assess the impact of AI.

Empirical studies may miss key lessons about the success of the AI by not documenting the appreciative generative narrative within an organisation.^{108,225}

Having said that, when operating in the evidence based world of healthcare, it is important to define and measure success. Therefore much of section three of this thesis takes an experimental approach to evaluating the success of AI in healthcare, as do some of the studies discussed in the literature review.^{117-123,125} However, most studies do not focus on measuring outcomes at all, instead focusing on sharing the narrative of the AI.^{104,126-135,137-143,146-150} Few focus on developing theory, and most relate more to how care can be improved in hospitals, for example the seven c’s of caring conversations,^{128,129} rather than any theoretical developments of AI itself.

When considering AI as a complex intervention⁴⁸ it is useful to incorporate a theory of how it works into the evaluations of the intervention. Much of the theory as to how AI

works is left to the highly insightful and well-developed arguments from the key AI proponents.^{39, 218} In particular, the theory developed from an appreciative inquiry into AI which identified the six freedoms associated with AI: to be known in relationship, to be heard, to dream in community, to choose to contribute, to act with support, to be positive (Box 12).²¹⁸

The Six-Freedoms

1. The freedom to be known in relationship

This freedom is about knowing people as people rather than knowing them by their job title alone.

2. The freedom to be heard

This is about actually being listened to, sharing ideas and knowing that the person listening to them is attentive. It allows people to feel more valued and feel able to affect their environment.

3. The freedom to dream in community

The whole organisation needs to be invited to share dreams with each other.

4. The freedom to choose to contribute

People volunteering to participate based on their interests results in contributions being enhanced.

5. The freedom to act with support

A whole organisation being on-board with a project makes it safer to try things out and fosters co-operation which can promote success.

6. The freedom to be positive

Avoiding cynicism and instead recognizing people's skills and contributions and appreciating them can enable people and their organisations to thrive.

However, in relation to healthcare at least, there is little further generation of theory about how this complex intervention may work. Furthermore, no qualitative studies asking the participants of AI about how they thought AI worked have been identified.

This section of my thesis seeks to further develop the understanding of how AI worked by harnessing the experience of maternity staff, in relation to the AI intervention. This will be used to develop the mechanisms element of the theory of change.

Methods

This study was based on a grounded theory perspective. I chose this method because I wanted to develop the theory of how AI may work. It was therefore the most appropriate choice. Grounded theory enabled the generation of theory to be rooted in the data, rather than the data being used to test or develop a set of pre-defined theoretical concepts.²²⁶ For this reason, neither the ‘freedom theory’ nor the theoretical model developed thus far in this thesis was used as a basis for analysis.

Owing to time constraints, I modified the grounded theory approach. Instead of the traditional approach of fully analysing data alongside data collection, I decided to adapt the process and undertake a rapid ‘draft’ analysis daily to guide the process, with the substantive analysis occurring some weeks later after leaving the field. Whilst this may deviate from the original Glazer and Strauss²²⁶ method, it was not unusual in that the method was rooted in the research site and emerged from the context. This meant that it was less preconceived, and that the theory could emerge from the data.²²⁷ In fact, to Charmaz, an important thinker in grounded theory, Glazer and Strauss’ methods were less of a prescription for carrying out qualitative data collection and analysis and more a set of flexible rules which fostered early analytic thinking during the data collection process.^{227,228} Therefore undertaking this ‘draft’ analysis seemed to be an appropriate adaption to the methodology relevant for this setting.

Participants

Participants included HAs, NAs, nurses, nursing leaders and COs from across the three sites. They had actively participated in AI or been based on wards where AI had been taking place.

Data collection

Data was collected in two ways. Firstly, I arranged focus groups with staff at each site. There was one in English and one in Chichewa for each clinical area. These interviews were ‘shared’ with the interviews for SCP3. However, beyond the focus groups, the sampling was targeted at discussing the particular issues arising during the rapid draft analysis, in order to develop the theory.

A specific interview guide was not followed, instead general questions about how AI may have worked were asked. (Appendix 13) All questions were in the vein of AI, framing questions in a positive way for example ‘what was the best thing for you about the AI experience?’ or ‘how could AI be made better?’. In addition to this, as the process progressed questions were targeted towards discussing areas of particular interest.

In addition to these questions, and in part due to the language barrier, I introduced a tool after the initial discussion about AI. This tool was a print out of concentric circles to help staff visualise what was important to them (Figure 30). Pre-printed cards were provided suggesting topics to spark discussion for example ‘teamwork’, but staff were encouraged where possible to write their own ideas on blank cards.

Figure 30: 'What is important to me' tool for discussion in focus groups



The focus groups were used to kick start the theory building, and then individuals who did not attend the focus groups were interviewed to develop the theory further. These interviews were recorded and transcribed and, where necessary, translated and back translated for accuracy.

Sampling strategy

Grounded theory dictates that a 'theoretical saturation' should be reached. It suggests that once the theory is fully developed, the data collection can end. To reach that point, data should be collected to explore the ideas generated from the analysis of the existing data.²²⁶ For this reason, there was no pre-determined sample size and instead data collection stopped once the theory had been developed in draft.

Data Analysis

I used a comparative analysis technique for data analysis, as described by Glazer and Strauss.²²⁶ I read the transcripts and possible categories emerging from the data were

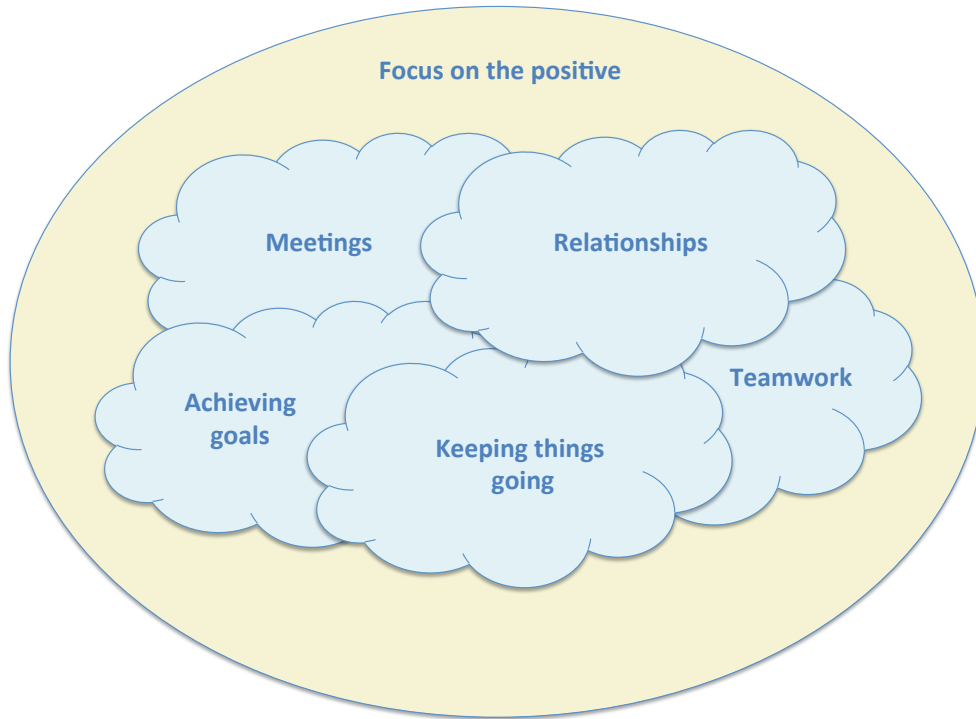
identified. When examples fitted a category that was already identified, that event/issue was compared back to other ideas within that category. This allowed for consideration of the theoretical properties within each category. As theoretical categories developed, notes were written to record how the theory was developing, and further modifications were made as any new elements of that category emerged from the data. As more examples within a category were identified, the act of comparing them to the already available data meant that properties of the category emerged. Fewer alterations were made to the developing theoretical model and the core concepts became clearer as theoretical saturation was approached.²²⁶ The theoretical model that was developed along with the data in which it was grounded is presented below.

Results & Analysis

Twenty-two interviews and focus groups were carried out with healthcare workers across the sites. Four Chichewa focus groups took place to capture the perspective of the hospital attendants and four focus groups in English included all staff groups. There were nine individual interviews with nurses and five with COs.

The theory developed from the data is pictorially represented in figure 31 below. The five clouds inter-mingle to show that each of these areas are intimately linked to the others. They all sit within the background of the core of AI – a positive approach to change. Each of these key areas will be discussed in turn.

Figure 31: The key areas in the theory of how AI works in healthcare



Positivity

Focusing on the positive is a fundamental tenet of AI.³⁸ The staff in this study identified that the positive approach was important to them and they felt it underpinned the AI process. The focus on the positive elements meant that staff could shift their thinking and look forwards.

*'If we are in the meeting and you focus on the negatives you cannot go forward yeah!
You can always go plan and go back, you plan and go back so you cannot finish so if*

you go and the focus on the positives you are able to go forward and for each and everything goes on well without problems' Referral Hospital, Nurse

In addition to this focus on the future, staff believed that the positive attitude made them feel more satisfied. It motivated them and enabled them to build on their success with greater energy, rather than 'stagnate on the negatives' HA District Hospital. All of this comes together to make it easier to implement change within an organisation.

'I think it was good that AI was focused on the positives because most of the people once you dwell on their negatives they draw back; so we were trying to improve what we were already doing good as well as remind us on the things we weren't doing so good. So it was a good thing because it inspired us and it motivated us to continue doing what we were doing.' District Hospital, Nurse

Many staff experienced this positivity at least in part by receiving more praise from their colleagues, with the introduction of AI. Although some acknowledged that whether appreciation was given depended on the staff involved too. This served as a useful reminder both that individuals had their own experience of the intervention, but also that not everyone reacted or embraced an intervention in the same way.

'I feel that the appreciation depends on whom one is working...some people appreciate others when it pleases them, but others do not really say whether something has pleased them or not' Community Hospital, HA

Although AI has been criticised by some²²⁹ for not addressing problems in the workplace, here staff felt that they did address their problems and that they were able to draw on the positives to find new ways to do things.

'You have to think which on things we are doing good then concentrate on that one so that you can help us to change those negatives into the positive. So if you ask me that, AI has changed us a lot and I have seen a success in it' Community Hospital, Nurse

Staff valued the positive approach as a new way of doing things and overall believed that it was a useful approach against a background of a typically problem focused healthcare culture.

Meetings

Having meetings seemed to be fundamental to AI's success. Three elements to this emerged from the data: meetings being fun and productive, everyone being together and the need for incentives to stimulate attendance.

Everyone being together

This was likely to be the most important aspect of these meetings. All cadres of staff working on the wards were invited to these meetings and were encouraged to participate equally. A HA from the district hospital observed that *'even during the discussions you don't segregate us as of low cadres but we do everything together as a team'*. One of the in-charges from the district hospital reflected on the importance of involving everyone in the process *'it is important because whenever we want to initiate change,*

there is always a need to involve the people that will be involved during the change process. So involving the group has helped a lot'.

This linked closely with the idea that staff felt more able to share thoughts with team-mates when they attended joint meetings. For example, according to one HA in the community hospital, *'this relationship [between cadres] has been enhanced because we were having joint AI meetings across cadres and therefore there was good communication'.*

Struggling to develop solutions together meant that staff worked better together and felt able to share ideas. This joint meeting was a cornerstone of the AI process.

Meetings being fun and productive

Meeting together was instrumental in developing teamwork and relationships in AI. This seemed to happen through staff discussing the issues important to them.

'It has helped because most of each and every month we are able to remind each other what to do...we are able to discuss' Referral Hospital, Nurse

An important element of this was that staff were able to communicate freely with each other in these meetings. This had many elements, but holding the meetings in the local language was important according to the nurse in-charge at the community hospital.

'The people should understand what we are talking about, so that we should be on the same boat and from the beginning up to the end. So that has helped a lot. That is my feeling.'

Staff worked together at these meetings to build consensus. Furthermore, staff could be brought on board with AI and the plans that were made. The in-charge of the labour ward at the district hospital explained how:

'It is important because the people that are involved in providing the care are in those meetings. They have always been present during those meetings so people were voicing out their issues and those issues were being cleared together as a group. And then at the end of the day we would come together a consensus and agree on one thing and am happy that the participants were always willing to change and they easily adapted to the changes that had been implemented.'

This illustrated the view that once people were brought on board at the meetings, they were more willing to follow through on the group's decisions. In addition to being a place to discuss and develop ideas, the meetings were also seen as fun. For many, engaging meetings were important, as it kept the attention of those in the room as well as encouraging people to attend. A district hospital nurse discussed how the games and icebreakers effected the sessions: *'that was very important to keep our brains alert and enjoying the things because when you are enjoying it, you tend to participate more'*

Incentives to stimulate attendance

One issue that emerged strongly was the need for staff to receive incentives to encourage attendance at meetings. This is in the context of incentives (or lunch allowances) being regularly paid to Malawian's, and other staff from LMICs, attending meetings.²³⁰ Staff on the whole felt that it was necessary to keep these allowances in place for the success of AI.

'To have a meeting without lunch allowance is for some too boring and people don't attend it, without lunch allowance, I don't think it would have been possible to have a meeting there. Maybe we could only be having maybe two, three people and even the rest not willing to attend the meeting. So the allowance acted as a motivator.' District Hospital, CO

However, many of the people who were most enthusiastic about AI felt that it was possible to run meetings without incentives. In the district hospital, the members of the team most likely to attend the extra AI meetings were the HAs – who were on the lowest wages and most rarely received incentive payments. This is perhaps linked to the fact that they had gained the most from the intervention in other ways – for example feeling more valued at work.

Relationships

The development of relationships also seemed to have three main strands – all rooted in the important fact that staff were meeting together: communicating freely; increasing interaction and forming supportive relationships.

Communicating freely

There was an improvement in communication within and between staff groups. They felt that following AI they could be more open with each other. For example, a HA at the district hospital explained that *'AI has helped us to be open with our supervisors'*. Another HA described how now *'there should be no difference between us'*. These quotes illustrated that the HA's felt that they were a more valued part of the team and more able to communicate. However, it was not only the HA's that felt this improved communication, nurses also observed the change in their working lives too:

'AI had given us a chance to communicate to our people of different cadres like the matrons, the in-charges and other people.' Community Hospital, Nurse

This improvement in communication meant that the ward in general could run more smoothly. And staff felt more able to remind each other of things, which were important to ward life.

'As of now, we are being corrected in a better way as opposed to the past when this was done in the presence of the guardians and patients...sometimes they even use signs and by so doing, you realise on your own understanding that it is about the bin. So now we feel that things are better and we feel good.' Referral Hospital, HA.

In addition to feeling that communication had improved between members of staff, many staff felt that they were more open with patients too. According to one HA in the community hospital: *'AI has brought about a good relationship between health workers*

as well as patients in that we are able to understand the needs of our patients and in turn, they are able to understand when we talk to them. So there is good communication between the health workers and the patient.’ This was possibly because they felt able to listen to patients, and then communicated with nurses to find answers if necessary.

Increasing Interaction

With staff getting to know each other better, they were interacting more. For example, they were having more fun on the day-to-day ward rounds, laughing and joking: *‘Nowadays we are friendly, during the ward rounds, of course, it is working and we do joke sometimes during the work to make work simple and funny and I think it has helped the friendship’ District Hospital, CO.*

Furthermore, they interacted more on non-work related topics. For example, in the district hospital they arranged to bring different parts of meals with them so that they could eat together. In the referral hospital, they ate lunch together, which provided an extra, informal time at which to discuss ward matters. *‘So when we have a communal dish we are able to chat and get to interact and we are to know each other’ Referral Hospital, Deputy ward in-charge.*

Supportive Relationships

Staff reported feeling less hierarchy in their relationships with seniors. As a result, staff felt more important as people and their self-esteem increased. For example, one HA from the referral hospital told a story of how she was now praised at work: *‘like for me, my bosses are my witness, they would tell you that we are doing our best; it has been a*

while since I have been reminded, sometimes my supervisors appreciate and say, “We rely on you because we know that when you are around, things will go on well!”

During AI all staff were seen as instrumental in improving care. For example when one CO was discussing the HA’s at the district hospital he explained that: *‘I am thinking that if we can involve them more they will assist us to have a better achievement, rather than putting them aside as we have been doing’*. This story suggested that the relationships within the team were evolving.

The nurse who was deputy in-charge at the referral hospital explained how the relationships had become more functional: *‘as for now the relation is good literally good because there is no segregation, we are able to interact the maids the clerk, the nurses we are working as one team from high risk postnatal due to AI meetings.’*

Teamwork

Undoubtedly the relationships discussed above underpin the teamwork that blossomed during the AI. A willingness to help each other developed and the teams became highly functioning. This contributed to making work better for everyone.

Willingness to help each other

People seemed to care about what they were doing and their flexibility increased. This meant that staff felt able to ask for help. They appeared to develop an interdependence of sorts. For example, a hospital attendant in the referral hospital explained how this flexibility affected them:

'I feel there is a great change because like in the past there was that possibility that if the nurse is inside delivering patients, we were just like oh that is not my business...But now because of the coming in of AI, there is communication. We find that if the nurse is conducting deliveries, you seat by her side maybe she can ask you to draw oxytocin; then you help out with or maybe she asks for more gauze, you pass it to her without any problem. But in the past we were just leaving it to them because we were saying this duty is for the nurses. And likewise if we are doing damp dusting, nurses too were like this task is for the hospital attendants. But because of the coming in of AI; we found out that we are doing all those tasks together without looking at who is doing what and for whom.'

This remarkable flexibility was also shown when HAs were willing to learn new skills, such as taking observations from patients. They agreed to do this without receiving any financial reward for this new task. Perhaps this enthusiasm came from being a valued team member. As one HA from the referral hospital put it: *'It is a very valuable experience, we did not know how to take the vitals but now that we know, it feels good because we know that we can monitor the patient's condition and this is very important to us to have learned this skill.'*

Staff across all sites displayed this willingness to help each other at work, and this extended to supporting their colleagues when they had a problem. For example, if a child at home was sick, filling in for their workmate.

Being part of a highly functioning team

The willingness to help each other and contribute to what the team needed was the foundation for the teams becoming highly functioning. This was displayed in several ways. Firstly, there was better information sharing amongst staff. This was often in the form of handovers and meant that the team is clearer about the tasks that they need to perform at work and the needs of their patients. A CO at the district hospital explained how the team was functioning better for patient care:

‘One of the things I think that have been quite helpful for us is the handovers among the patients from between postnatal and maternity...a patient attendant from postnatal ward is present, so the nurse from postnatal is already aware that we are going to have a caesarean... So, for me, that was very good because at the end of the day, what I, what would happen before is that...there will be a period where the patient is not monitored, nobody knows what is going on...But now, because the attendants are working together between postnatal and antenatal and maternity, it is much faster and that gap where the patient hasn’t been monitored, is not there.’

This story also highlighted the impact of working together with teams across departments, to provide seamless patient care. They were able to depend on each other more:

‘It is true that we are able to depend on each other; before the A.I. trainings started, everyone was working as an individual; now because of the communication which is now existing, we are able to depend on each other. So we changed and are able to trust

that whatever I have not been able to achieve during my day or night shift, my colleague will continue from where I have stopped.’ Community Hospital, HA

Making work better for everyone

Staff working well together made things better, not only for patients, but also for mHCWs. Staff wanted to make sure that no-one suffered. An example of this was given by an HA from the referral hospital when talking about how their ward performed best in the hospital for not having any theft:

‘There is unity and teamwork, so what brings about theft is when you are not considered when you ask for something. But because there is team work, like, as a woman, I may ask for cotton wool from my in-charge and if she gives me, I will not think of stealing [the cotton wool]...there is no theft in our department and stocks last long’

HA’s seemed to benefit by being respected and able to reap some small benefits of being a healthcare worker, in turn, they were loyal and therefore the ward functioned better.

Achieving Goals

Achieving goals seemed to be one of the most important ways the AI propagated its success and kept people on board with the intervention. It appeared that action plans were essential as were developing skills and having a champion to drive change. Teams

also liked to set themselves up for success but managers being involved could make all the difference.

Action plans drive change

One of the most important elements of the action plans was that the team jointly developed them. The deputy in-charge at the referral hospital described how *'we are able to discuss and to come up with one solution'*. A CO at the district hospital felt that better plans were made when everyone was involved: *'we can achieve a better thing or a greater thing because if you put the other cadre aside you leave some of the ideas that maybe beneficial when decision making.'*

In the meetings staff were assigned the responsibility of overseeing elements of action plans. Everyone felt that this was important to ensure that the goals were achieved, however it was particularly important for some of the HA's as explained by an HA from the community hospital: *'being given responsibilities or even assignments during our training has helped us juniors, to gain our dignity because at times, we were regarded as if we were not able to perform something...but AI has proved that we are also capable.'*

One possible consequence of assigning these individuals to take on key roles was that when they were away, sometimes things did not happen- as described by the Matron at the referral hospital. *'Let's say there was an action point but we may then, uh, instead of, uh I would say that responsible person who was supposed to follow up that one is*

not around you will see that next time will say; ah! We gave this responsibility to this and that, such and such but we don't know what really happened.'

However, a key element of ensuring that action plans made a difference was reviewing the success at each meeting. One CO from the district hospital put it very succinctly:

'I think the feedback was necessary because at the end of the day, we always found out that there were areas we have been lacking, there were areas that took us a long time to get together. And there are some things that we managed to do in a very short time. So taking all those things into account was quite useful, because regardless of the fact that it took us a while to achieve certain things, we were able to see that we do have potential'

Skills to make it happen

To make their action plans a success, staff gained two broad sets of skills through the AI process. Firstly, they gained '*skills on how to identify the things happening on the ground*' (District Hospital, Nurse) this was not only in identifying what was going on to make the plans, but also to monitor their progress towards their goals. As a CO from the district hospital explained:

'It is important to analyse the action that we are putting in place because we can just say aaah washing hands but now okay this is our action plan after two weeks we see that people are no longer following properly but now we think what could be the reason, water scarce so it's like after two, three, four patients to wash hands its difficult

because of water problems. Now with analysis we could think how could we solve this so we have come we have been coming with better solutions'

It became important for staff to use their ability to analyse their environment to make more progress. However, the AI process also equipped the staff with other enduring skills.

'AI has made us to know that on every challenge we are facing at the end of it there is a way and how best we can deal with it, by making an action plans. So the skills we got from AI will be using it in different meetings here or some elsewhere here.' Community Hospital, Nurse

Other skills gained through the AI process were technical (for example taking blood pressures for HAs) or non-technical skills (for example leadership and facilitation). These skills both supported success in AI but also empowered staff in general:

'I felt empowered and it gave me conscious of what I really have to do for each and every patient who came here. And it wasn't only for the patients, it was even for my workmates. Yah, so, it improved my communication skills with my workmates and my relationship with my workmates as well.' Referral Hospital, Nurse

Having a Champion to Drive Change

Staff universally believed that it was important to have someone in the team to lead them. This would not only be important going forward, but it was also essential to keep

AI on track. The AI champions would advertise meetings and remind people about them. Also, they would regularly remind people about that month's goal for the AI plans:

'As a leader I would say, ah, let me encourage my friends...Let's work hand in hand. And following up over issues I've discussed like the issues of electricity blackouts, I would do ask the focal person how's the work is going on. Say 'Ah it's going on well.' I could follow up the shoe rack program after people organised money. So I go to carpentry to do the job. So, each day I could want to go to the ward to see how AI is going on. It was like AI was in my blood, yah, my spirit and I would wish it when you are gone AI should continue. Cause people are used. When I am passing by they ask - when are we having AI?' District Hospital, nurse.

In two of the hospitals (referral and community) the AI champions were leaders in the ward (the in-charges/deputies). Having enthusiastic leaders seemed to ingrain AI more within the substance of the ward. For example, AI techniques, could be used during other meetings.

'We can also incorporate it in Quality Assurance Improvement meetings, because we do have meeting with the hospital staff so we can choose that today we want to meet the hospital attendants, today we want to meet the nurses or the guards or the clinicians, ya! So we can incorporate it in what you are doing today' Community Hospital, Matron

Set themselves up for success

Firstly, staff were very enthusiastic about having the opportunity to choose to work on the topic that is of most interest to them. Choosing their own topic meant that they could select something relevant to them.

'It was good to choose the topic on our own as a team because you cannot choose the topic for us. I have said this because we have different cadres...it was good to choose the topics on our own as teamwork.' District Hospital, Nurse

In addition to this making the changes more relevant for the team, it meant that staff were more committed to achieving the action plans.

'When you choose what you should work on you'll rely on each that I should do this this this ...than just being told that you should do this. So you have the choice of, I don't want but when you chose you are willing to do it because you choose it yourself'

Referral Hospital, Nurse

In addition to selecting a topic important to them, staff actively chose to set themselves manageable targets. As explained by one HA in the district hospital: *'Choosing a topic was important because there were many topics and it was difficult to work with all the topics that came out because that meant we would not achieve anything. That was why we chose one topic to work with'*

This not only meant that staff viewed their plans as achievable but also that they could then celebrate the success of achieving their goals more frequently along the way.

Managers make a difference

Managers were identified as instrumental to the success of AI. In all sites, the ward leadership attended, and in the referral and community hospital the clinical hospital leadership also attended. Staff in these two hospitals benefited from the resources that these management level staff could provide. In addition to this, HAs felt that involvement of senior leaders at the hospital was necessary, otherwise, they might lose their ability to utilise their newly acquired skills for taking observations. A HA in the referral hospital described how there would be a danger of their skills being underutilised if there was no institutional knowledge of what they had been doing:

‘Nurses found me dressing wounds in the dressing room, then they said, “Come here, why do you allow Mrs. X to dress wounds, don’t you know she is a Hospital Attendant?” Now since our in-charge is now in the current and not the past, she replied saying, “I know what I am doing, I have known that Mrs. X has been dressing wounds for a long time now and I cannot stop her from dressing wounds now” so in another ward, there was this other Hospital Attendant who used to check Blood Pressure and temperature of the patients and the nurse during the report, one day said, “Why do you like checking the vital signs, it is not your job, you have not been taught.” So the hospital attendant was offended and said, “I will stop doing so!” For me, when I heard what they thought about my dressing the wounds, I did not stop, I said I will continue

doing so, but my counterpart said she was not ever going to take vital signs even though she knows how to do it.'

In all sites, even when leaders attended, staff universally believed that other managers should also be involved. Either more senior leadership, or those leaders who were non-clinical. They felt this would mean that they were more likely to be able to make changes with AI.

Keeping things going

All staff wanted the AI initiative to continue, however this may well have been because when they see positive results, this promotes success. However, keeping AI going means embedding change and bringing new team members on board.

Positive results promote success

Staff believed that they were seeing positive results from AI and that it was making their lives easier. Staff were therefore keen to continue AI and moreover, they wanted to bring other staff who worked more peripherally in the ward on board with the AI. One CO from the referral hospital discussed how people, even peripherally involved in AI, wanted to come on board when they saw the changes:

'Every clinician was told about AI and most of the times like they were just ignoring, but since they are not regularly coming to this meeting; but they have seen how the ward is moving. It's not a change of one person, but other people if they are connected. If you are there, you see that these people have changed in this, so you just adapt to the

system of the ward, how it's moving, you have like, you can't change the system that is in the ward'

In addition to changes motivating others, they also motivated the staff to continue with AI. As a HA from the referral hospital explained AI '*motivates us as workers but also the patients so that we should be united and have a shared vision so that the patients should not only receive the care but also that as health care workers, we should be able to work in a free environment*'.

Embedding change

This idea of healthcare workers feeling motivated to be involved in AI is positive. But work is needed to embed AI into a hospital's fabric. Firstly, as suggested earlier, the management needed to be more involved in AI. This not only meant that management needed to attend some meetings, but also that AI needed to be reported formally up the hospital's structures. Furthermore, to keep AI going outside of the context of research, the intervention needed to be flexible as do the staff. For example, the meetings continue but staff find a way to have fewer team members at each meeting, as people will be off and not at work on many of the days. As a CO from the district hospital pointed out '*I think it is not necessary to have everyone present at every meeting because it is like a morning handover. We manage to have a morning handover every morning, but not everybody gets to attend*'.

Bringing new team members on board

It was crucial that staff were committed to the concept of AI for it to continue. Staff identified that it was important to try to ensure that their knowledge was shared with new staff arriving in their team. One CO from the district hospital described how they had been getting the new team members involved: *'we have had people moving from other ward to maternity but with the briefing and them attending the AI meeting'*. When new members joined the teams, they were motivated to learn about AI according to a HA from the referral hospital: *'I felt that I was lagging behind because I felt what they were learning was very important and I wished I could learn what my colleagues were learning about A.I.'*

In addition to making plans to get people involved in AI, the teams also talked about how they could take their lessons from AI with them to other wards and try to involve staff from outside of maternity. As the deputy hospital in-charge, a CO, from the community hospital said: *'don't have specific areas but consider almost all the cadres. Why am I saying this; I think each and every person employed here has a heart even a ground labour'*. AI truly inspired staff to take a multidisciplinary approach to change.

Discussion

This analysis of AI showed that the ways in which it worked were both complex and highly interrelated. Although some logical 'stories' were presented at the start of each theme to show how the areas within each concept fitted together, in fact the level of dependence and interaction within and between the themes was immense.

Some core issues from each theme did however shine through in the analysis. Firstly, the positive approach was refreshing to the teams, and highly motivating. Secondly, meetings were vitally important because these forums brought staff together and allowed progress to be made. Thirdly, involving all cadres of staff transformed relationships and provided the basis for better team performance. In other words, it seemed to challenge the social order of the hospital discussed in SAP1.

Teams working better together was in part a function of them meeting, planning together and then achieving their goals. These things motivated a commitment to AI and a desire to continue. However, continuing required commitment, not only from the team, but also from management.

This grounded theory analysis of the AI process provided a different theoretical perspective on how AI may work in healthcare. This offered a complimentary adjunct to the 'freedoms' theory (Box 12),²¹⁸ especially as this study consulted the participants in the process. This research brought out many areas similar to those identified in the freedoms theory, but it also brought out a few other interesting areas, which were perhaps more practical in nature. These emerging areas contributed in a useful way to understanding how AI worked.

With these newly identified practical elements, there were two options. Either to create new freedoms for these areas or broaden the interpretation of the freedoms theory to incorporate these areas. As the freedoms theory is so well established and core to the

ethos of AI, creating some supplementary, more practical applications of the freedoms seemed appropriate.

Table 27 shows how the elements of this theory fit broadly into the very useful freedoms theory. Four new freedoms are proposed based on the concepts not incorporated in the freedoms theory: to meet together, to lead a change, to learn and to plan for the future. These new freedoms will be discussed briefly in turn.

Table 27: The expanded theory of the freedoms AI brings

Freedom to..... - concepts from the grounded theory study mapped to each freedom * marks suggested new theory	
...be known in relationship - increasing interaction	...be heard - communicate freely
...dream in community - setting up for success - positive results promote success	...choose to contribute - action plans
...to act with support - supportive relationships - managers make a difference	...to be positive -positive focus motivating
...meet together* - everyone being together - incentivised to meet - fun and productive	...lead a change* - champion to drive change
...learn* - skills to make it happen	...plan for the future* - embedding change - bringing new members on board

The freedom to meet together.

As discussed in the results section, meeting together provided the foundations for the other freedoms to happen. However, in the healthcare setting, especially in this low-income setting, meeting all together had not previously happened. Once this 'permission' was granted, staff then decided to meet at other times, or more informally over food. Thus providing the petri dish for organisational change.

The freedom to lead a change

The champions for AI were enthusiastic and felt empowered to lead the changes in their wards. Furthermore, people selected to lead individual action plans also found themselves in a new, respected role. This gave people a 'can do' attitude and a certain responsibility to make it happen.

The freedom to learn

Prior to AI, staff, especially the lower cadres, often didn't have the opportunity to learn whilst at work. However, with AI all the staff felt that they had the opportunity to learn, and this was valuable to them. With permission to learn, they had better self-esteem as well as making a difference to their colleagues and patients.

The freedom to plan for the future

Staff felt the need to plan for the future. They wanted to involve others in the AI so that when rotations happened, it would not be a problem. They also wanted to involve other parts of management. This meant that staff felt enthusiasm about sustaining the changes brought about with AI and were able to look ahead to the future.

Incentives

In addition to these proposed freedoms, an important point was observed in the context of low-income setting interventions: the need for incentives to be provided to attend training sessions. Staff were clear that these were necessary, and this was in line with evidence from other projects elsewhere in low-income settings.²³⁰ However, this need for incentive payments has also been observed in high-income settings.¹²²

This is particularly the case when staff were attending work specially to attend a training session, although in Malawi staff expected to be compensated regardless of whether they were working normally that day. Solving this issue was beyond the scope of the project, but the need for some level of incentive to catalyse change should be considered when designing, implementing and analysing such projects.

Strengths and limitations

Despite the usefulness of the insights from staff about how AI had worked, this study was not without its weaknesses. Firstly, these opinions were from staff based at these three facilities who had participated in AI. Whilst this was not an unreasonable way to develop theory²²⁶ it might lead some to question the generalisability of its findings.

However, it was important to note that the theory developed here is a starting point for further testing and hopefully development in subsequent studies, and that grounded theory was never intended to provide a means of establishing objective reality.²²⁷

What was perhaps more important was that it was not possible to use the grounded theory methodology faithfully as it was not feasible to elongate the period of data collection for long enough to thoroughly analyse each interview/focus group before

moving onto the next interview. However, performing a contemporaneous rapid analysis, using the audio recordings, during the data collection period minimised the impact of this and allowed saturation of the theory.²²⁶ It might also be in line, as discussed above, with the idea that the research process was not pre-conceived but instead Glazer and Strauss²²⁶ provided a flexible and versatile set of guidelines.²²⁷

Modification to mechanisms element of the theory of change

In the previous three sections, the theory of change was gradually developed. In section A some important contextual features were identified, in section B developments to the realistic evaluation framework of context-mechanism–outcome¹⁵⁵ were suggested.

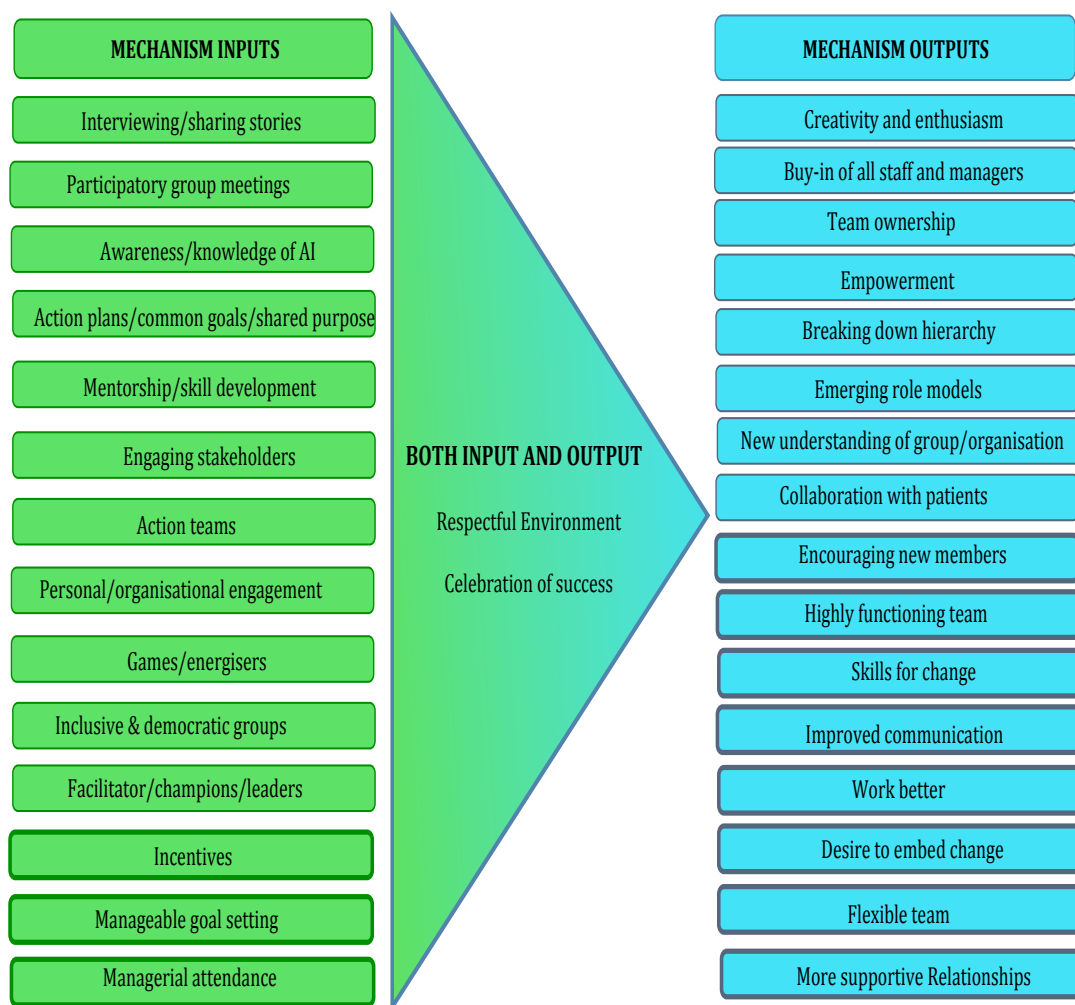
Following which the three areas were populated. Section C further expanded the outcomes section of the model. This section focused on the ‘how’ AI worked – in other words, the mechanisms by which AI mediated its effects.

In SBP1, it was postulated that mechanisms had inputs; perhaps the way in which change was catalysed, and outputs; the way AI changes were made. Together this formed the basis for the outcomes to be achieved.

In this section of this thesis, some extra elements for the mechanistic inputs and outputs were developed. To show this, figure 32 has been modified from its original form in figure 20. In terms of the mechanistic inputs, additions were incentives, setting manageable goals and managerial attendance. To both sections were added ‘respectful environment’ because of the tone set in meetings that led to a better environment throughout. In addition to this, celebration of success was added to mechanistic output

in addition to mechanistic input. Mechanistic output was further expanded to include: encouraging new members, skills for change, work better, desire to embed change and flexible team. The element of improved relationships and communication in the model were broken down into improved communications and more supportive relationships. Finally, the teamwork element was replaced with an output of a highly functioning team.

Figure 32: Updated mechanistic inputs and outputs with additions highlighted in bold boxes.



Conclusions

AI is a complex intervention, and whilst many studies have been carried out to establish if it works, fewer have investigated how it works. A seminal study created the ‘freedoms of AI’, however this theory has not been further developed or adapted to a healthcare specific or resource-poor setting. This grounded theory study asked participants to share their view of AI. This has enabled further mechanisms in which AI may work to be theorised and the freedoms theory to be expanded. Subsequent studies should use this framework as part of their understanding and assessment of how AI works in their setting.

Discussion: Developing the theory of change

I have focused on testing whether AI could improve the lives of mHCWs at three district facilities in Malawi. Throughout each individual part of the thesis the relevant elements of a realistic evaluation approach¹⁵⁵ have been used to examine how elements could contribute to the theory of change for AI in healthcare. Each part of the thesis has enabled this picture to evolve.

All of the parts and sections of the thesis have a discussion, and these arguments will not be revisited in depth here. Instead, the main findings will be summarised before moving on to develop the final theory of change and discussing the overall strengths and limitations of the study.

Summary of Main findings

Section A: Working life of maternity healthcare workers in Malawi – “I do cope up with such a burden”

This section illuminated the fact that mHCWs worked within a fragile health system that was frequently unable to meet the needs of mothers. Furthermore, staff worked within a complex social order in the hospital. They all had their position in a very hierarchical structure and followed closely the rules of the group to which they belonged. Staff also followed the precedent set by those that came before them. The social order of the hospital took precedence over the needs of the patients, often resulting in a lack of a systematic approach to patient care.

When discussing working life with staff, it became clear that there were certain issues at an individual and health systems level which could be addressed to improve their working lives within this social order. Staff were motivated to deliver respectful care to patients, but whilst doing so they want to work within an environment where they are respected and could develop as professionals. They deliver care within a superdiverse community of workers and staff, and they have developed a resilience to their health system and the challenges it presents. Part of this resilience may be linked to the promise of the incentives they receive as a mHCW.

Some contextual issues specific to Malawi were identified, which led to the illustration of the health system as a bicycle which requires all of its parts to be working in order to move forward effectively. The broad themes are part of the substance for developing the theory of change for AI in healthcare. These included ideas around context, systems, clinical care, relationships and motivations.

Section B: Appreciative Inquiry as a tool for organisational change in healthcare

The systematic review highlighted how AI has been used widely in a variety of different healthcare settings. According to the available evidence, AI has the potential to improve outcomes, although the evidence for this is not strong. Drawing on the systematic review, the AI for Malawi was developed and implemented. Aligned with the recommendations in the MRC complex intervention guidelines⁴⁸ the implementation was reported in detail. The planned AI sessions were carried out in each site and in all sites an AI cycle was completed. Staff met together and made action plans for changing

their working lives, which largely consisted of taking action to improve care on the wards.

The systematic review provided an opportunity to consider how to use the context, mechanisms and outcomes model. As a result, a proposed way of structuring each of the sections within the model was developed. This was called the 'Blossom model' and it provides a framework for theorising how and why organisational change interventions may work. The systematic review and implementation of AI were used to develop the content of this model.

Section C: Does AI work?

This section of the thesis revealed that some elements of working life improved for staff using psychometrically validated scales. The only significant differences, when considering whole scales, occurred in the community hospital in which two of the scales improved. Across all sites, 2 of the 12 constructs that were measured on these scales significantly improved: general wellbeing and home-work interface. In terms of patients, their satisfaction improved across all three sites after the AI. The qualitative analysis revealed positive changes across all of the Kirkpatrick outcome areas.

Although in this study patient outcomes were not measured, staff believed that their new ways of working improved patient care. The clearest outcome that shone through was that staff felt that AI changed their relationships at work. This meant that staff felt more respected, and they were able to work better together as part of a well-functioning team, resulting in them being happier at work and more willing to support colleagues.

This suggests that AI could start to alter the social order of the hospital, changing the way the rules of groups and their interactions worked and also disrupting the precedent that staff had been following.

As a body of evidence this suggests that AI does have the potential to improve both staff working life and patient satisfaction. In terms of the theory of change for AI in healthcare, this section mainly contributed information to develop the outcomes section.

Section D: Developing an understanding of how AI works

This section drew on the experience of healthcare workers to understand how AI had its effects. Staff postulated a variety of reasons for how AI worked. They felt that the positive core associated with AI was vital, but that that this formed the background for AI facilitating changed interactions. Staff seemed to identify five main areas explaining how the changes made in AI were mediated: meeting together, improved relationships, improved teamwork, keeping things going and achieving goals. However, staff were very clear that the hospital leadership needed to be committed to the initiative.

Staff in this grounded theory study provided a very practical set of answers to how AI worked. This enabled the very helpful 'freedoms' theory of AI to be further developed to add in some of these pragmatic ideas identified by staff such as meetings, leadership, learning and planning for the future. This deeper understanding of how AI worked enabled the mechanisms element of the theory of change to be expanded. Furthermore, it adds weight to the idea that AI has the potential to disrupt the social order.

Modifications to AI for this study

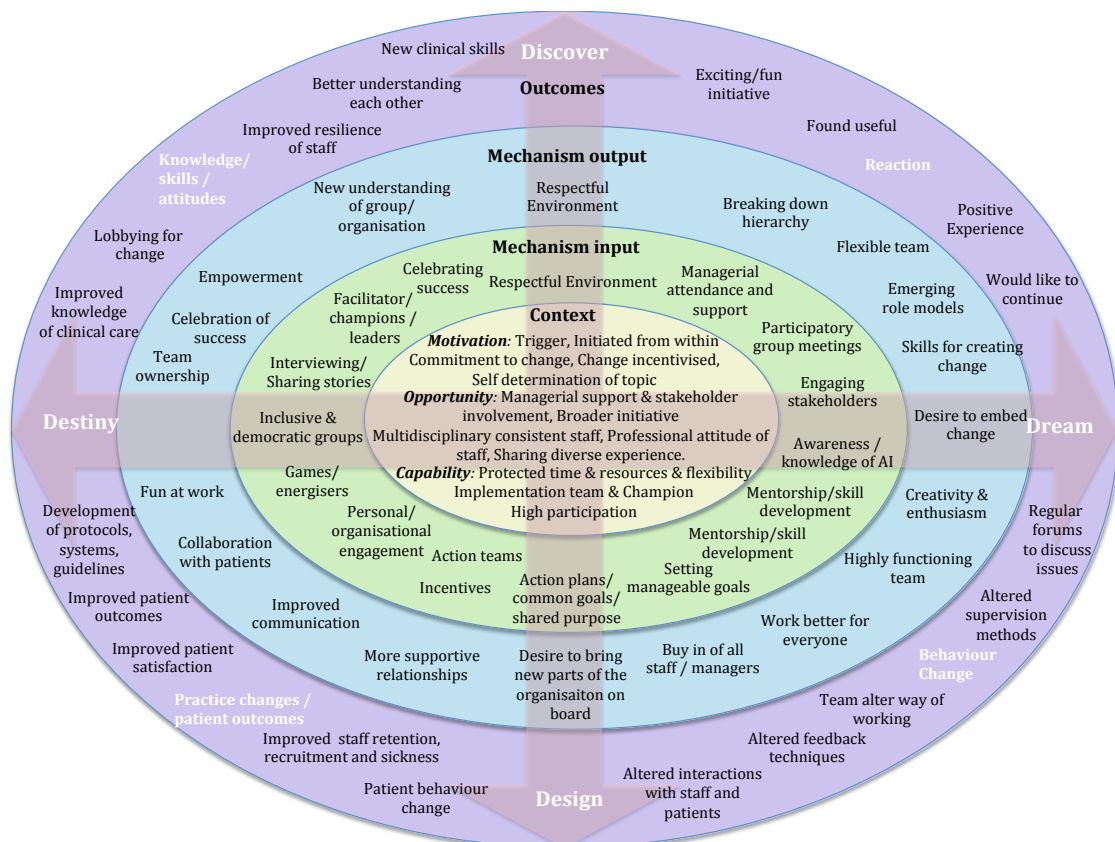
For this study to work, I had to modify AI from the way it is traditionally carried out. To do this, I took lessons from the systematic review. Namely that there needed to be additional flexibility in the AI process. The main modifications were in terms of shortening AI sessions and not necessarily covering whole areas in one session, instead breaking the process down into components which each individual group could tackle at its own speed. During the meetings, it was clear that there needed to be considerable 'recapping' time to cope with the quick staff turnover. The groups also needed to be receptive to returning to areas previously discussed in order to bring their colleagues on board with their plans.

One potential factor effecting implementation was that I undertook an ethnography alongside the AI intervention. Whilst this was useful in understanding the working lives of mHCW's and undoubtedly built my relationships with them, it did not form part of the adaption or implementation of the intervention. Although the approach in this case was very particular, there are similarities with the way AI is usually implemented. For example, AI is usually implemented by an outside group (e.g. management consultants) or a person within the organisation who has become enthusiastic about AI. I would not anticipate that an ethnography is necessary to implement the intervention, however an implementation team, available to provide mentoring to the local implementation team is required in this setting.

Theory of change

The information collected in each section has contributed towards developing a theory of change for AI in healthcare. This is based upon the ‘blossom model’ developed in SBP1(Figure 22). The ‘blossom model’ provides a useful framework around which to build the theory of change for AI in healthcare. As this thesis has progressed, each section has provided some of the ‘content’ towards this theory of change based upon a realist evaluation model. In figure 33, this information has been brought together and displayed as a theory of change for AI in healthcare.

Figure 33: The theory of change for AI in healthcare



I developed this theory of change from the AI performed for this thesis as well as the other AI interventions in healthcare which came before it. In common with other complex interventions,⁴⁹ this theory of change has not been depicted in a linear fashion. The concentric circles are important, and the elements of this model are deliberately nested within each other rather than linked with connectors. This represents the fact that these elements all interact and contribute to each other. Furthermore, although it is likely that outcomes will come after the context and the mechanisms, a successful outcome could then serve to ignite changes in the context and mechanisms, providing a better foundation for change.

This theory of change is not proposed as a final model for AI in healthcare. Instead it is hoped that people will use it as a theory of change to test during their AI studies. Therefore, when it is used, it can be added to and developed to incorporate any further observations from subsequent AI studies and ultimately refined to deepen the understanding of how AI works. This will then solidify the essential components and conditions required to deliver a successful AI.

In addition to providing a model from which to evaluate subsequent AI studies in healthcare, this theory of change could be used to plan AI interventions. It provides a framework with which to consider the important features of context which are needed to prepare for the AI. It also provides a broad, structured, set of potential outcomes which could be used to design specific study outcomes. Doing this would help the theory of change for AI in healthcare become more useful and refined.

Strengths

This study had several strengths, although some of them have been discussed previously in this thesis they will be briefly revisited here. One of the biggest strengths is in the fact that it used mixed methods. It drew on a variety of different disciplines to search out the best possible way of answering the research questions. Furthermore, through taking a pragmatic approach with a critical realist perspective, it was possible to choose the methods best suited to answering specific questions rather than being fixed within a particular epistemological standpoint. Critical realism also meshed neatly with the perspective of realistic evaluation¹⁵⁵ which was used to understand the complex intervention of AI, and eventually form the basis of the theory of change for AI in healthcare. Whilst it did not perhaps fit as neatly with the social constructivist perspective of AI³⁸, it was still possible to appreciate and understand the ‘life giving’⁴⁰ forces of AI within this philosophical standpoint.

In addition to this, multiple studies were conducted to understand whether AI worked and to develop the theory of change presented above. This enables an element of triangulation of results and a more comprehensive answer to each question.

A further strength of this study was that it used an organisational change intervention that was grounded in theory and had been widely used (Table 2). It was possible to draw upon the well-developed AI literature^{38-40,107,218} and the developing literature of AI in healthcare identified in the systematic review in order to adapt and implement the AI in Malawi.

This study took place across three government hospitals in Malawi. This facilitated an element of internal checking and triangulation of results between participant groups. It also allowed an assessment of AI in hospitals where staff were under different pressures. Largely, the results across the three sites were similar, which indicates a degree of generalisability within Malawi, if not in low-income settings more generally.

A final strength to mention is that because the skills were slowly passed over to the local AI teams at each of the sites, there is potential for this intervention to be sustainable. Having said this, even if there is no continuation of the AI in the form of meetings, the alterations in the relationships reported by staff may continue to affect the daily working lives of staff for as long as they are together as a team.

Limitations

This study also had some limitations that need to be taken into account. Firstly, it was a small feasibility study which did not have a control group. This limited the strength of the findings, particularly in the quantitative studies. Due to resource constraints it was not possible to operate across more than three sites. Therefore, a decision was taken to ensure that the feasibility of implementing the intervention was understood first, over the generalisability of the results.

The study being grounded in a critical realist perspective provided an advantage in terms of being able to take a pragmatic approach as discussed above. However, due to the variety of methods employed, alternative interpretations could be drawn from people with epistemological standpoints firmly in one or other camp. For example,

social constructivists in the case of AI or phenomenologists in the case of IPA. Having said this, in the methodology and reporting an attempt has been made to be true to the approach that was being used.

AI was in itself a complex intervention. It was especially complicated because the fully participatory approach was used. This had two ramifications. Firstly, it was not possible to pre-define outcome measures for the study, as staff were free to choose what to work on. Therefore psychometrically validated surveys, measuring staff working life and patient satisfaction were used as surrogate, tools to assess the impact of AI. Secondly, because staff were in control of the process, they chose to do what they felt was important. Whilst this made complete sense if they had concentrated on their working lives, which is how AI had been used in other similar settings, for example making a kitchen garden,²³¹ it was more difficult when it came down to the areas they chose to work on. Staff overwhelmingly chose to work on issues that affected patient care. However, they chose to work on only a few proven interventions (e.g. hand-washing and monitoring of patients), often instead concentrating on other issues such as traffic control on the wards or health talks for women. Whilst these are important issues for staff and their working lives, they were not rooted in a strong evidence base, and therefore this could be seen as an opportunity missed. Having said that, staff strongly believed that their lives at work became easier as a result of the teamwork this engendered and their improved relationships.

Another issue with the intervention was the need to provide incentives to attend the meetings. Whilst it was necessary to do this to ensure that staff attended meetings, it

also had implications both for the sustainability of the intervention, and the ability to scale up AI. However, owing to the short period of the feasibility study, and the fact that the study was for the purposes of research rather than a quality improvement intervention, it was important that the staff were compensated at least for their expenses to attend the meetings. In practice, this meant that most staff actually received an extra, modest payment, to attend work that day, which at a minimum covered the cost of their transport to work.

This study was based in the Central Region of Malawi and within a limited geographical area around the capital city. Although the community hospital was technically a rural hospital, it was not in a particularly hard to reach area, and this may have meant that both the population and the staff were more homogenous compared to those who may have been posted in a harder to reach area.

A further limitation was that the study focused only on government hospitals; the CHAM sector and the private for profit sector were not investigated. It is feasible that both working lives and the way the intervention behaves may be different in other healthcare settings which have different management structures and more funds and resources. However, government facilities are the mainstay of care for many people, so there is a clear argument for initially focusing on this area. Finally, again for practical reasons, this study focused on hospital level care. This meant that the health centres, which were often the first port of call for women, were missed out.

Generalisability to other settings

With the exception of the systematic review, this thesis has concentrated solely on implementation of AI in Malawi. As these were district level government facilities it is likely that the findings could be generalisable across other similar district level hospital in Malawi. However, many of the lessons learned in the implementation of AI in Malawi could be generalisable to other settings.

Some of the lessons, for example those associated with the need for incentives to attend training, are perhaps most relevant to Malawi specifically but also low income countries with similar financing models more generally. It may also be plausible to consider that AI would have the potential to improve patient satisfaction, and staff working lives, especially in low income settings.

However, many of the ideas that fed into the theory of change (Figure 33) could be useful when considering both the potential, and the ways to evaluate the AI intervention in both high and low income settings. This is supported by the systematic review findings which were largely congruent with my findings. Important examples of these may be the need for champions to drive change and managerial involvement in the process. The theory of change could now be usefully taken and tested in AI interventions in high income settings.

Final reflections: Investing in quality of care

One issue only briefly discussed in this study is the cost of implementing AI. Whilst it is low cost, it certainly is not no-cost. The direct monetary cost of the intervention

consisted of supplies and meeting costs totalling less than GBP50 per participant for the year. However, in addition to this, there is the cost of the facilitator who is necessary, at least initially, to share with the staff how the intervention works. Perhaps more important is the cost of mHCWs time to attend meetings and undertake activities. This is much more difficult to quantify and, as discussed in SBP2, it was important that patient care was not compromised as a result of AI. These costs are before there has been any investment in the actual changes that staff want to undertake.

Improving the quality of care is high on the international maternal health agenda.^{18,188} In order to make these changes healthcare is learning from industry and adapting their organisational change ideas.¹⁰³ However, there seems to be a significant chasm between the world of organisational change in industry and in healthcare. In industry not only is there significant investment in the process in terms of organisational development consultants, time and space. Additionally, because the change is desired, the organisation is willing to invest to support its staff in making changes.²¹⁸ In health settings change and improvement also requires investment. If leaders do not invest time and money in change that is valued or needed by the organisation then change is unlikely to diffuse as they want it to.²³² Øvretveit argues it is entirely possible that if a process of improvement is not well managed, the significant investment made can be lost.²³³ It is therefore important that to deliver improved quality of care, especially in low resource settings, there is both desire for and investment in change.

Conclusion: Recommendations for change

Recommendation for using AI as a tool for change

At this time there is no high-level evidence in the form of randomised controlled trials for the effectiveness of AI in organisational change. However, there is a growing body of studies which suggest that AI seems to work, it is unlikely to do any harm and, moreover, staff universally seem to enjoy being part of it. Therefore, this logically seems to be a good idea for a system in which mHCWs are feeling under pressure and undervalued. For this reason, even in the absence of empirical evidence for its effectiveness, based on the strength of the evidence assessed and developed in this study it would be reasonable for healthcare organisations to consider using AI within their workplace at a ward, facility or organisational level.

There are clear lessons that emerge from this thesis. Firstly, staff believe that AI improves their working lives and makes their life at work easier. Having institutional support and resources is important in achieving the goals of mHCWs. AI should be harnessed as a promising new way to achieve change within an organisation that does require investment in terms of time and resources, but which has huge potential to improve the way staff feel at work and thus the outcomes of the organisation.

Recommendation 1: Governments, hospitals and wards should consider their strategy for improving quality of care. Whilst many of the ‘problem’ focused methods predominate, there is growing body of evidence for positive focused approaches, and AI in particular. The renewed focus that the new Global Strategy for Women’s, Children’s

and Adolescent's Health¹⁸ brings the opportunity to reconsider the old problem focused approach to quality improvement and instead focus on positive ways to improve care.

Recommendation to improve working life that require health system changes

Through the various studies described in this thesis, in particular the staff interviews, ethnography and implementation of AI, it became clear that there were some areas important to staff that need to be tackled at the health systems or facility level. Many of these recommendations are not new, however they are rooted in the data collected from this thesis.

Recommendation 2: Staff felt that they were drastically under-resourced. This was clear in the ethnography and staff interviews, but also when implementing AI. The government and donors, where appropriate, need to invest in high-quality, basic health services as a minimum.

Recommendation 3: Training and advancement is important for staff. However, the potential negative impact of training is profound in terms of the potential impact on patient care by taking staff away from the wards. Therefore the training offered to staff in the form of workshops and courses must be driven by the learning needs of staff and their clinical environment rather than the desire of donors.

Recommendation 4: The required skill mix of staff on the wards was often lacking. It is vital therefore that the rotations of staff should be carried out according to clinical need, taking into account the skills of staff and the clinical needs of facilities.

Recommendation 5: MHCWs follow the precedent of those that come before them. Therefore, all mHCWs must be expected and empowered to be positive role models in order to work in a happy supportive environment delivering high quality care.

Recommendation 6: MHCWs were emphatic about the unfairness of allocation to training, and a system should be developed to ensure that this is done in a transparent and rational manner.

Recommendations to improve working life that are amenable to change from AI

There are several aspects of working life which have the potential to be affected by the disruption in the social order that AI can bring. However, it is important to acknowledge that some of these may be best addressed through additional in-service training, or more robust pre-service training in addition to an intervention such as AI.

Recommendation 7: Staff wanted respect, appreciation and valued communication. Staff should be supported to achieve this through excellent clinical leadership which fosters supportive organisations. The AI intervention showed that staff valued the ability to improve these relationships.

Recommendation 8: Staff are not always present when they are needed and they do not always carry out systematic clinical assessment. Therefore, concerted work needs to be undertaken to ensure that staff are available for their clinical duties and that they are well equipped and expected to perform systematic clinical examinations. AI has the potential to affect this through altering relationships on the ward and disrupting the social order. In time this could ultimately make staff more accountable to each other, and more invested in the outcomes of their patients.

Recommendation 9: Many staff felt that their leaders spent time away from the ward leaving them to work. Furthermore, they felt that leaders were punitive rather than supportive. Leaders within hospitals should be encouraged to take a supportive approach to supervision and lead by example. As seen in this AI, it has the potential to alter individual's supervision methods.

Recommendations for research

Whilst AI has achieved much in healthcare, however, it's effectiveness at improving lives at work and patient outcomes has not yet been proven. For this reason, recommendations for research are:

Recommendation 10: A large scale mixed methods trial of AI in a healthcare setting should be undertaken to establish the effectiveness of AI in healthcare. This could then guide the level of investment that should be made in AI as an organisational change technique.

Recommendation 11: The costs of AI need to be investigated and understood through a cost effectiveness analysis, which would ideally be undertaken as part of the trial.

Personal Reflections

Undertaking this PhD has been a personal journey for me. Before beginning my fieldwork in Malawi I had the opportunity to learn about organisational change and implementation science. However, when I began my fieldwork in Malawi the additional challenges of working in this setting became evident.

Whilst gaining ethical approval I was able to begin to build links in and around Lilongwe in Malawi. At first this was an incredibly challenging process, which was made more difficult by significant staff changes at PACHI the NGO with which I was working. PACHI were kind enough to link me with both one of their team, and also some of the DHO's. This enabled me to begin discussions with the relevant teams and lay the foundations for the study.

By spending a large proportion of my time in Malawi, I was able to invest in the relationships within the research team in PACHI and also broaden my research network by meeting with various government officials and also other academics from all over the world. This gave me a rich experience both in terms of academic discussion, but also with respect to understanding the policy environment in Malawi. Further than this, I was able to spend time with many committed and enthusiastic ex-patriots which enabled me to understand more about how organisations such as DFID, USAID and

others work in practice on the ground, giving me a feeling of the international policy environment.

In addition to the idea of building a network, I believe I have also built a new armoury of academic skills. This PhD provided me with the time to embed myself in qualitative work and gain some important skills which will equip me for qualitative aspects of research in the future. I was also able to learn about psychometrically validated tools, and develop some of my basic abilities with data analysis.

For me this PhD has provided an important foundation upon which I believe I will build throughout my career. It has cemented my commitment to improving quality of care for women, but also to ensuring that we look after our mHCWs whilst meeting this important goal. I have been inspired to see that it is possible to do both and hope to use my new skills and knowledge in both global health and in the UK in the years to come.

Dissemination Plans

I plan to disseminate the findings from this thesis in publications and presentations. I have already successfully presented work at the Health Systems Global Symposium in Vancouver and also at the Global Women's Health Research Society meeting in Manchester, sharing the idea of AI being a positive way to improve maternity care.

I have now started to prepare several papers for publication. In terms of the AI intervention specifically I am preparing papers on the quantitative aspects of the AI work (SCP1 and 2), a paper on the qualitative aspect of the AI work (SCP3) and a paper

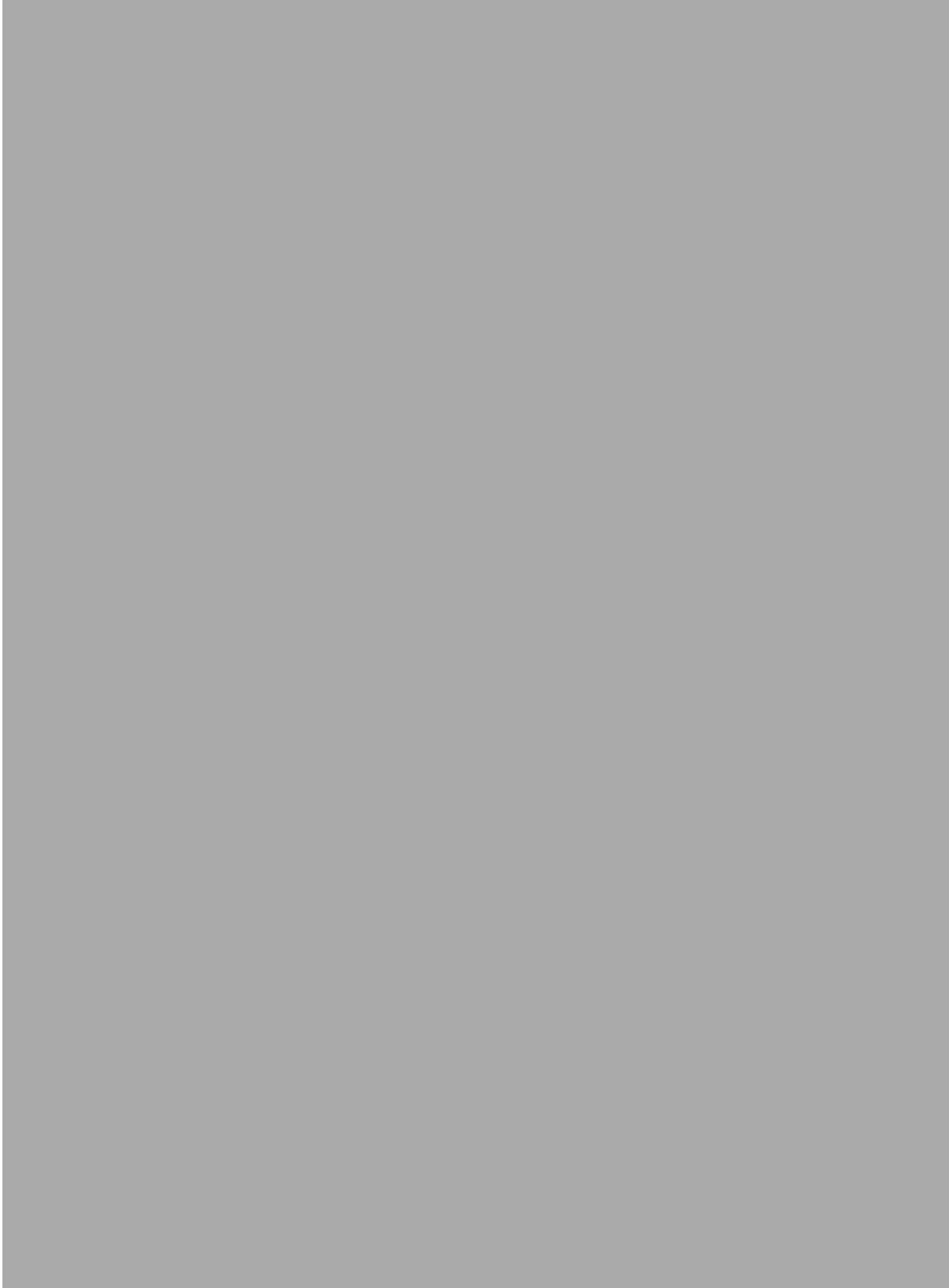
on the systematic review of AI(SBP1). In terms of the working life of mHCW's I have prepared a paper based on the staff interviews in SAP2 and will prepare a paper reflecting the ethnographic work in SAP1. For all of these papers I will be the first author.

Concluding Thoughts

AI showed great promise with patient satisfaction improving and staff reporting changes on the wards. In addition to seeing that AI can work in these settings, a theory of change for how AI has its effects has been developed using a realistic evaluation model. AI should be taken forward in low-resource health settings to try to improve the working lives of staff and the outcomes for patients, and further research is needed to guide the scale of investment that should be made in AI.

Appendix

Appendix 1: Ethical Approvals





Appendix 2: Participant Information Sheet for interviews

Participant Information Sheet: Semi-structured Staff Interviews



Working life experience of maternal healthcare workers in district level facilities in

Malawi:

A participatory intervention to improve working lives.

Information for you about the research

We would like to invite you to take part in this research study.

Before you decide, we would like you to understand the study, why the research is being done and what this part of the study involves for you. One of the team will explain the study to you and answer any questions you may have.

Part 1 of this information sheet informs you about the purpose of the study and what will happen if you take part.

Part 2 of this information sheet gives you more information about how the study will be run.

Part 1: Purpose of the study

What is the purpose of the overall study?

This study aims to improve the working lives of maternal healthcare workers in Malawi, like you. Making your working life better will hopefully make you happier at work and caring for patients easier.

In order to achieve this aim, there are several steps:

1. Understand your current working life.
2. Understand what you think can improve.
3. Work together to improve your working life through an action cycle.
4. Evaluate the process to see if it has worked

We hope you will be willing to participate in all of the activities for the study. However, this information leaflet relates just to understanding your working life and what you think can be improved.

Why have I been invited to participate?

You have been invited to participate because you work in maternity care at xxxxx Hospital. We would like to understand your experiences of your working life.

What will I have to do if I take part?

You will be interviewed by a researcher. This interview will be in English and take approximately one hour. The interview will take place at or close-by to your place of work, at a time that is convenient to you. The interview will be audio-recorded to allow

us to analyse the information you give us. Some or all of the information will be transcribed word for word. This information will be used in several ways – all of which will be anonymous so that your identity is not disclosed. The table describes how your information will be used.

If your interview is at the start of the study some of the information you give us will be used to suggest possible changes in your place of work as part of the action cycle.
The information you give us will be used to evaluate the success of the study by comparing how maternity staff feel at the beginning and at the end of the study
Some of the information you give us, including word for word extracts, will be used in the final project report, which may also be published in a journal.

Do I have to take part?

It is completely up to you to volunteer to be interviewed and it will have no effect upon your work. We will describe the study and go through this information sheet with you.

If you decide to take part, we will then ask you to sign a consent form.

What are the possible disadvantages and risks of taking part?

Before participating you should consider that we will be asking you about your experiences, opinions, beliefs and feelings in relation to your work. We are interested in finding out about the positive things that help you do your work and also anything that hinders your work. Although unlikely, there is a possibility that you might feel upset

when answering these questions during the interview. If this was to occur, you would be able to take a break or continue another day.

There will be an opportunity at the end of the interview for you to consider whether there is anything that you have discussed that you would prefer not to be included in the transcript. The transcript will also be made available to you to review by email if you would like. As a participant you are free to withdraw during the interview and up to a month afterwards, without giving a reason.

What are the possible benefits of taking part?

We hope that you will find the experience interesting and enjoyable. The information we collect from this study will be used to guide the action cycle at your hospital. Your interview will also be instrumental in evaluating the action cycle's effects at your hospital.

What if there is a problem?

Any complaint about the way you have been dealt with during the study or any possible difficulty you might suffer will be addressed. Information on this is given in Part 2.

Will my taking part in the study be kept confidential?

We will follow ethical practice and all information about you will be handled in confidence. Further details are included in Part 2.

This completes part 1. If the information in Part 1 has interested you and you are

considering participation, please read the additional information in Part 2 before making any decision.

Part 2: Conduct of the study

What will happen if I don't want to carry on with the study?

You may withdraw from the study without giving a reason. If you chose to withdraw from the study during or up to one month after your interview, we might ask you whether we can use the information you have given us, such as your interview answers. If you don't want to carry on with the study but you give us permission to use the information already collected, we will proceed to keep it securely. If you wish to withdraw and don't want your data to be used for the study, we will delete any recordings and destroy transcript files.

What if there is a problem?

If you have a concern about any aspect of this study, you can speak to the researchers, who will do their best to answer your questions. Their contact details are on the last page.

If you remain unhappy and wish to complain formally, you can do this either to the manager of xxxxx Hospital or to the College of Medicine Research Ethics Committee, Blantyre.

Will my taking part in this study be kept confidential?

The study will take place at your workplace, and for this reason it is possible that other work colleagues will be aware of your participation. However, we will follow these procedures for collecting, storing, processing and destroying information about you to ensure your confidentiality and safeguard your data:

- The recording of any information you give us during your interview will be stored in a password-protected file and only authorised people will have access to it. This will help prevent people identifying your voice.
- The data transcribed from recordings will be stored securely on a computer with access restricted by a password. Transcripts will not include names or locations. Consent forms and printed transcripts will be kept in a locked cabinet, only accessible to authorised researchers.
- Data collected will be used for this study but, with your permission, might also be retained to include it in future studies.
- The identifiable data will be retained for the duration of the study and will be disposed of securely (i.e. shredding documents).
- As a participant, you would have the right to check the accuracy of data held about you and correct any errors.

What will happen to the results of the research study?

The researchers will write a report outlining the results of this study. You will not be identified in any report, presentation or publication, however extracts from your interviews may be reproduced. The results will be used to inform local practice and a future possible larger scale trial of the action cycle intervention. If you are interested in the outcome of the research, then a summary of the findings can be sent to you via email and if you wish you will be invited to attend a feedback day at the end of the project.

Who is organising the research

This study is being carried out by Dr Abi Merriel, as part of a postgraduate degree at the University of Birmingham, UK.

It is supervised by Professor Arri Coomarasamy who works at the University of Birmingham, Dr Michael Larkin from the University of Birmingham and Dr Julia Hussein from the University of Aberdeen. Mr Charles Makwenda from Parent and Child Health Initiative (PACHI) and Professor Address Malata from Kamuzu College of Nursing are supervising the project in Malawi.

Who has reviewed the study?

This study has been reviewed by the College of Medicine Research Ethics Committee in Malawi and the University of Birmingham ethics committee in the UK.

Contact details:

Dr Abi Merriel

a.merriel@bham.ac.uk

Tel: [REDACTED]

Address: [REDACTED]
[REDACTED]

Professor Arri Coomarasamy

Professor of Gynaecology, University of Birmingham,
[REDACTED]

Charles Makwenda

Chief Executive Officer PACHI

College of Medicine Research Ethics Committee

[REDACTED]
[REDACTED]

Email: [REDACTED]

Phone number: [REDACTED]

Please keep this information sheet for your own records.

Registered study ID number: P.09/14/1635-).

Staff Interview Information Leaflet: version 3.0. 1/12/14



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Appendix 3: Individual participant consent form



UNIVERSITY OF
BIRMINGHAM

Informed Consent form for healthcare providers participating in interviews

Title of study	Working life experience of maternal healthcare workers in district level facilities in Malawi: A participatory intervention to improve working lives.
Principal Researcher:	Dr Abi Merriel
Site:	
Ethics approval:	P-09/14/1635-
Affiliated organisations	University of Birmingham, UK Kamuzu College of Nursing, Lilongwe, Malawi Parent and Child Health Initiative (PACHI), Lilongwe, Malawi

Thank you for reading the information about our research project. If you would like to take part, please read and sign this form.

Part A: Consent for the current study

PLEASE INITIAL THE BOXES IF YOU AGREE WITH EACH SECTION:

1. I have read the information sheet version datedfor the above study and have been given a copy to keep. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw up to one month after my participation without giving any reason.
3. I agree to be interviewed for research in this study. I agree to my interview being audio-recorded and I understand that transcripts will be anonymised. I understand that participating in the interview for this research is voluntary and that I am free to withdraw my approval for use of the audio-recordings and transcripts up to one month after my participation.
4. I understand that anonymised sections of data collected during the study, may be looked at by individuals from regulatory authorities in the UK or Malawi. I give permission for these individuals to have access to my anonymised transcript.
5. I understand that the results of this study will be used to inform the action cycle at my place of work. I understand that the results of this study will be analysed and will be part of the information fed back to the staff from my place of work.
6. I understand that the researchers might publish an article in a journal with the results of this study. I give permission for my transcripts to be used for this purpose. I understand that these transcripts will be anonymised.
7. I know how to contact the research team if I need to.
8. I understand that I may terminate the interview at any time.
9. I agree to participate in this study.
10. I agree for my interview to be used in future studies endeavouring to understand aspects of working life

SIGNATURES:

Participant Name and Surname Date Signature

Researcher Name and Surname Date Signature

Participant Study ID Number: ___/___

Consent for interview Version 3.0. 1/12/14

Appendix 4: Topic guide for working life individual interviews

Understanding the working life experience of healthcare workers in Malawi.

Please could you describe what you do at work?

Prompts: What happens typically? How do you cope? How do you feel? What are your responsibilities? What are your skills?

How did you come to be a (doctor/clinical officer/nurse)

Probe: how do you feel about that now?

If a new post came up at this facility, what would you say to a prospective applicant about working here?

Prompts: What tasks need to be performed? How do co-workers interact? What is the physical environment like?

Tell me about the support you get to fulfil your role.

Prompts: Is there someone you can call for help? Are there other team members around? How does that make you feel?

Tell me about your continuing professional development?

Prompts: Can you attend? Why do you attend? How does that help you?

What are your long-term career plans?

Prompts: continue working here? Leave to another healthcare job? Leave healthcare?

How does your day at work impact upon your home life?

Prompts: how does your working schedule fit around your home life-
predictable/unpredictable? Does the workload mean you're tired at home? Does the
work you do energise you?

How do you feel the staff at the centre work together?

Prompts: how does the team work in an emergency? Does the team get on well? Do the
nurses/doctors/clinical officers/managers/assistants communicate well between groups?
Are there any things that are particularly good about the team? Are there any problems
within the team?

Do you think that your working life could be made better?

Prompts: Teamwork? Training? Systems? How might that work? How could you
achieve that?

Appendix 5: Data extraction form for systematic review

Data collection form Appreciative Inquiry

GENERAL INFORMATION	
Date of Extraction	
Who Extracting	
Title	
Author	
Journal	
Publication Year	
Citation	

INCLUSION/EXCLUSION	
Who participating in AI? (if no HCW's EXCLUDE)	
Is an action cycle implemented or evaluated? (If No -EXCLUDE)	
Is there a clear description of the intervention?(if no - is it referenced elsewhere? If NO - EXCLUDE)	

BACKGROUND	
Setting for AI:	
Who involved in AI:	
Number of people involved in AI:	
Indication of proportion of group involved in intervention (ie if there are 100 possible participants are all involved):	
Who initiated AI (e.g. management, staff, pure research)	
Are there any groups clearly supportive of AI (e.g. staff, management)	
The defined methodology of the study (e.g. before and after, observational, qualitative etc.)	
Any Trigger for AI	

THEORY OF CHANGE	
Is a theory of change for the AI Documented?	
Diagram/description of theory of change:	
Was the theory of change updated following the intervention?	
If updated how was it changed?	

Hypothesis	
Is a hypothesis Documented?	
What is the hypothesis?	

Aim	
Are aims/objectives Documented?	
What is the what is it?	

DESCRIPTION OF IMPLEMENTATION OF AI	
Was AI implemented in it's usual 4/5 steps? (Explain)	
How was AI adapted to the setting?	
If yes describe each step below:	
Defining the Inquiry	
Discover:	
Dream:	
Design:	
Destiny:	

Any other information about the implementation of the intervention e.g. did people continue activities beyond just in any set meetings:	
How was the process documented?	

CONTEXT	
Description of any documented contextual factors:	
How were these factors collected/documentated?	

MECHANISM OF CHANGE	
Did the authors propose any mechanisms through which any changes may have been brought about?	

OUTCOME MEASURES: List each outcome measure and describe how it was measured and it's result	
Outcome Measure	Result

WHOM DID THE INTERVENTION IMPACT UPON: List any group whom the intervention impacted upon and the documented effects.	
Group	Documented effects

SHORT TEXTUAL DESCRIPTION OF THE STUDY:

Quality (please delete as appropriate):

CONSORT (RCT):

Section/Topic	No	Checklist item	i n c l u d e d
Title and abstract			
	1a	Identification as a randomised trial in the title	
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	
	2b	Specific objectives or hypotheses	
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial) including allocation ratio	
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	
Participants	4a	Eligibility criteria for participants	
	4b	Settings and locations where the data were collected	
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	

	6b	Any changes to trial outcomes after the trial commenced, with reasons	
Sample size	7a	How sample size was determined	
	7b	When applicable, explanation of any interim analyses and stopping guidelines	
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	
	8b	Type of randomisation; details of any restriction (such as blocking and block size)	
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	
	11b	If relevant, description of the similarity of interventions	
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	
	12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses	
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome	
	13b	For each group, losses and exclusions after randomisation, together with reasons	
Recruitment	14a	Dates defining the periods of recruitment and follow-up	
	14b	Why the trial ended or was stopped	
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	
Numbers analysed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory	
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	
Discussion			
Limitations	20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses	
Generalisability	21	Generalisability (external validity, applicability) of the trial findings	
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	
Other information			
Registration	23	Registration number and name of trial registry	
Protocol	24	Where the full trial protocol can be accessed, if available	
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	

STROBE (Observational Studies)

	Item No	Recommendation	Included
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	
Objectives	3	State specific objectives, including any prespecified hypotheses	
Methods			
Study design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) <i>Case-control study</i> —Give the eligibility criteria, and the sources and	

		methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants <i>(b) Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	

COREQ (Qualitative):

	Question	Evidence
Domain 1: Research team and reflexivity:		
Personal characteristic:	1. Interviewer/Facilitator: which author/s conducted the interview or focus group?	
	2. Credentials: What were the researcher's credentials e.g. PhD/MD?	
	3. Occupation: What was their occupation at the time of the study?	
	4. Gender: Was the researcher Male or Female?	
	5. Experience and training: What experience or training did the researcher have?	
Relationship with participants:	6. Relationship established: was a relationship established prior to study commencement?	
	7. Participant knowledge of the interviewer: What did the participants know about the researcher? E.g. personal goals, reasons for doing the research	
	8. Interviewer characteristics: What characteristics were reported about the interviewer/facilitator? E.g. bias, assumptions, reasons and interests in the research topic	
Domain 2: Study Design:		
Theoretical framework:	9. Methodological orientation and Theory: What methodological orientation was stated to underpin the study? E.g. grounded theory etc...	
Participant selection	10. Sampling: how were participants selected?	
	11. Method of approach: How were participants approached?	
	12. Sample size: How many participants were in the study?	
	13. Non-participation: how many people refused to participate or dropped out? Reasons?	
Setting	14. Setting of data collection: where was the data collected?	
	15. Presence of non- participants: Was anyone else present besides the participants and researchers?	
	16. Description of sample: what are the important characteristics of the	

	sample? E.g. demographic data? Date?	
Data collection:	17. Interview guide: were questions, prompts, guides provided by the authors? Was it pilot tested?	
	18. Repeat interviews: were repeat interviews carried out? If yes, how many?	
	19. Audio/visual recording: Did the research use audio or visual recording to collect the data?	
	20. Field notes: Were field notes made during and/or after the interview or focus group?	
	21. Duration: What was the duration of the interviews or focus group?	
	22. Data saturation: Was data saturation discussed?	
	23. Transcripts returned: Were transcripts returned to participants for comment and/or correction?	
Domain 3: analysis and findings:		
Data analysis	24. Number of data coders: How many data coders coded the data?	
	25. Description of the coding tree: Did authors provide a description of the coding tree?	
	26. Derivation of themes: Where themes identified in advance or derived from the data?	
	27. Software: What software, if applicable, was used to manage the data?	
	28. Participant checking: Did participants provide feedback on the findings?	
Reporting:	29. Quotations presented: were participant quotations presented to illustrate the themes/findings? Was each quotation identified? E.g. participant number	
	30. Data and findings consistent: Was there consistency between the data presented and the findings?	
	31. Clarity of major themes: Were major themes clearly presented in the findings?	
	32. Clarity of minor themes: Is there a description of diverse cases or discussion of minor themes?	
	Any other comments	

SQUIRE (Quality improvement):

Title and Abstract: Did you provide clear and accurate information for finding, indexing and scanning your paper?		
Title:	Indicates the article concerns the improvement of quality (broadly defined to include the safety, effectiveness, patient-centeredness, timeliness, efficiency and equity of care)	
	States the specific aim of the intervention	
	Specifies the study method used	
Abstract:	Summarises precisely all key information from various sections of the text using the abstract format of the intended publication	
Introduction: why did you start		
Background Knowledge	Provides a brief, non-selective summary of current knowledge of the care problem being addressed and characteristics of organizations in which it occurs.	
Local problem	Describes the nature and severity of the specific local problem or system dysfunction that was addressed.	
Intended improvement	Describes the specific aim (changes/improvements in care processes and patient outcomes) of the proposed intervention	
	Specifies who (champions, supporters) and what (events, observations) triggered the decision to make changes, and why now (timing).	
Study Question	States precisely the primary improvement – related question and any secondary questions that the study of the intervention was designed to answer.	
Methods: What did you do?		
Ethical issues	Describes ethical aspects of implementing and study the improvement, such as privacy concerns, protection of	

	participants physical well-being and potential author conflicts of interest and how ethical concerns were addressed.	
Setting	Specifies how elements of the local care environment considered most likely to influence change/improvement in the involved site or sites were identified and characterized.	
Planning the intervention	Describes the intervention and its component parts in sufficient detail that others could reproduce it.	
	Indicates main factors that contributed to choice of the specific intervention (for example analysis of causes of dysfunction; matching relevant improvement experience of other with the local situation)	
	Outlines initial plans for how the intervention was to be implemented: e.g. what was to be done (initial steps; functions to be accomplished by those steps; how tests of change would be used to modify intervention), and by whom (intended roles, qualifications, and training of staff).	
Planning the study of the intervention	Outlines plans for assessing how well the intervention was implemented (does or intensity of exposure)	
	Describes mechanisms by which intervention components were expected to cause changes, and plans for testing whether those mechanisms were effective	
	Identified the study design (for example, observational, quasi-experimental, experimental) chosen for measuring impact of the intervention on primary and secondary outcomes if applicable.	
	Explains plans for implementing essential aspects of the chosen study design, as described in publication guidelines for specific designs if applicable.	
	Describes aspects of the study design that specifically concerned internal validity (integrity of the data) and external validity (generalizability).	
Methods of evaluation	Describes instruments and procedures (qualitative, quantitative or mixed) used to assess a) the effectiveness of implementation, b) the contributions of intervention components and context factors to effectiveness of the intervention and c) primary and secondary outcomes.	
	Reports efforts to validate and test reliability of assessment instruments.	
	Explains methods used to assure data quality and adequacy (for example, blinding; repeating measurements and data extraction; training in data collection; collection of sufficient baseline measurements).	
Analysis	Provides details of qualitative and quantitative (statistical) methods used to draw inferences from the data	
	Aligns unit of analysis with level at which the intervention was implemented if applicable	
	Specifies degree of variability expected in implementation, change expected in primary outcome (effect size and ability of study design (including size) to detect such effects	
	Describes analytic methods used to demonstrate effects of time as a variable (for example, statistical process control).	
Results: What did you find?		
Outcomes Nature of setting and improvement intervention	Characterizes relevant elements of setting or settings (for example, geography, physical resources, organizational culture, history of change efforts), and structures and patterns of care (for example staffing, leadership) that provided context for the intervention.	
	Explains the actual course of the intervention (for example, sequence of steps, events or phases; type and number of participants at key points), preferably using a time-line diagram or flow chart.	
	Documents degree of success in implementing intervention components	
	Describes how and why the initial plan evolved and the most important lessons learned from that evolution, particularly the effects of internal feedback from test of change (reflexiveness).	
Outcomes: Changes in processes of care	Presents data on changes observed in the care delivery process	

and patients outcomes associated with the intervention		
	Presents data on changes observed in measures of patient outcome (for example, morbidity, mortality, function, patient/staff satisfaction, service utilization, cost, care disparities)	
	Considers benefits, harms, unexpected results, problems, failures	
	Presents evidence regarding the strength of association between observed changes/improvements and intervention components/context factors	
	Includes summary of missing data for intervention and outcomes	
Discussion: What do the findings mean		
Summary	Summarizes the most important successes and difficulties in implementing intervention components, and main changes observed in care delivery and clinical outcomes	
	Highlights the study's particular strengths	
Relation to other evidence:	Compares and contrasts study results with relevant findings of others, drawing on broad review of the literature; use of a summary table may be helpful in building on existing evidence	
Limitations:	Considers possible sources of confounding, bias, or imprecision in design, measurement and analysis that might have affected study outcomes (Internal validity)	
	Explores factors that could affect generalizability (external validity), for example: representativeness of participants; effectiveness of implementation; dose-response effects; features of local care setting.	
	Addresses likelihood that observed gains may weaken over time and describes plans, if any, for monitoring and maintaining improvement; explicitly states if such planning was not done.	
	Reviews efforts made to minimize and adjust for study limitations	
	Assesses the effect of study limitations on interpretation and application of results.	
Interpretation	Explores possible reasons for differences between observed and expected outcomes	
	Draws inferences consistent with the strength of the data about causal mechanisms and size of observed changes, paying particular attention to components of the intervention and context factors that helped determine the intervention's effectiveness (or lack thereof), and types of settings in which this intervention is most likely to be effective.	
	Suggests steps that might be modified to improve future performance	
	Reviews issues of opportunity cost and actual financial cost of the intervention.	
Conclusions	Considers overall practical usefulness of the intervention	
	Suggests implications of this report for further studies of improvement interventions	
Other information: Were other factors relevant to conduct and interpretation of the study?		
Funding:	Describes funding sources, if any, and role of funding organisation in design, implementation, interpretation and publication of study.	
Other		

Risk of Bias:

Newcastle-Ottawa Scale:

Domain	Question	Support for judgment	Number of stars
Selection	Representativeness of the exposed (max 1*)		

	<ul style="list-style-type: none"> a) Truly representative of a health setting in that country* b) Somewhat representative of a health setting in that country* c) Selected group of users d) No description of the cohort 		
	<ul style="list-style-type: none"> Selection of the non-exposed (max 1*) a) from same community as exposed * b) from different source c) no description 		
	<ul style="list-style-type: none"> Ascertainment of exposure(max 1*) a) from secure record * b) structured interview c) written self report d) no description 		
	<ul style="list-style-type: none"> Demonstration that outcome of interest was not present at start of the study a) yes* b) no 		
Comparability	<ul style="list-style-type: none"> Comparability of cohorts on the basis of the design or analysis (max 2*) a) study controls for context* b) study controls for other factors * 		
Outcome	<ul style="list-style-type: none"> Assessment of outcome (max 1*) a) independent blind assessment* b) record linkage* c) self report d) no description 		
	<ul style="list-style-type: none"> Was follow up long enough for outcomes to occur a) yes at least 6 months* b) no 		
	<ul style="list-style-type: none"> Adequacy of follow up of cohorts(max 1*) a) complete follow up* b) small number of subjects lost to follow up or one site* c) More than one site lost to follow up or large number of subjects. d) No statement 		
Other comments:			
		Total Stars (max 9)	

COCHRANE RISK OF BIAS TOOL:

Domain	Support for judgement	Review authors' judgement				
Selection bias			Yes	No	Unclear	
Random sequence generation		Was the allocation sequence adequately generated?				
Allocation concealment		Was the allocation adequately concealed?				
Performance bias			Outcome	Yes	No	Unclear
Blinding of participants and personnel <i>Assessments should be made for each main outcome (or class of outcomes)</i>		Performance bias due to knowledge of the allocated interventions by participants and personnel during the study.				
Detection bias			Outcome	Yes	No	Unclear
Blinding of outcome assessment <i>Assessments should be made for each main outcome (or class of outcomes)</i>		Detection bias due to knowledge of the allocated interventions by outcome assessors.				
Attrition bias			Outcome	Yes	No	Unclear
Incomplete outcome data <i>Assessments should be made for each main outcome (or class of outcomes)</i>		Attrition bias due to amount, nature or handling of incomplete outcome data.				
Reporting bias						
Selective reporting		Are reports of the study free of suggestion of selective outcome reporting?				
Other bias						
Other sources of bias		Bias due to problems not covered elsewhere in the table.	Early stopping			
			Baseline imbalances			
			Assessors not independent from researchers			
			Post-hoc changes to the protocol			

Weight of Evidence:

Domain	Question	Comments	Judgment low/med/high
A	What is the quality of the study		
	What is the risk of bias in the study		
B	Is the research design appropriate for the review question?		
C	Does the available evidence answer the review question		
D	Does the study contribute evidence towards answering the review question?		

Appendix 6: Quality assessment criteria

As described in the text the robustness of the synthesis was determined using Gough's Weight of Evidence Criteria. 'Weight of evidence A' required an assessment of the quality and risk of bias. As displayed in Appendix 5, the relevant EQUATOR network tools were used to aid with assessing quality. These included CONSORT for RCT's, STROBE for observational studies and SQUIRE for quality improvement studies. In order to be considered high quality the studies had to meet the majority of the criteria on the relevant checklist, dropping only 2/3 items. Any more than this and the studies were considered of either medium or low quality if there was particularly poor reporting and few items of the checklist were met.

In terms of risk of bias, the Cochrane risk of bias tool was used for the one RCT in the sample. For the other observational studies, the Newcastle Ottawa scale was used. A number of stars with a maximum of 9 was allocated across the three domains, 7-9 stars was considered low risk of bias, 4-6 as medium risk of bias and below for as high risk of bias. Risk of bias assessment was not performed for qualitative studies, as bias is a concept which does not translate well into the qualitative domain. Instead, there was a focus on the quality of the study.

Appendix 7: Summary of Included Studies

Study ID	Participants	Setting	Outcomes Reported	Intervention and results
Randomised controlled trial (RCT)				
Ruhe 2011 ¹¹⁷	Whole practice meetings, no further description of attendees.	Three organisational settings: highly integrated healthcare system; a health care system emphasising independent practice and safety net practices caring for underserved populations, USA	Preventative service delivery score; Accomplishment of instrumental changes meaningful to the practice; finding common ground; development of trust and sharing; new understanding of themselves.	In this RCT AI was adapted to the needs of the practice, but each of the four stages were carried out during two cycles. The staff decided the topic for the first cycle, whilst the topic for the second cycle was directed towards a preventative service delivery change. Although there were slight differences in patient populations, the study revealed no difference in the preventative service delivery rates between intervention and control practices. When considering the qualitative data, four themes emerged in terms of changes at practices: accomplishment of instrumental change meaningful to the practice because of their connection with a larger shared purpose, finding common ground, development of trust and a safe environment for sharing and a new understanding of themselves as individuals or as a group.
Controlled Observational Studies				
Chen 2014 ¹¹⁸	Managers; clinical staff; allied health staff; social workers.	Three tertiary care psychiatric hospitals in Canada	Knowledge of Improved recovery knowledge inventory	There were 26, largely female groups of multidisciplinary participants in a two-stage recovery educational programme in this pilot study. The first part of the programme was a self-learning DVD. This was followed by an AI approach to encouraging participation and strength based practice. Participants improved in their recovery knowledge and gave favourable feedback on the pilot.
Hussein 2014 ¹¹⁹	Hospital staff; state and district government officers	6 secondary and tertiary hospitals in Gujarat state India.	Puerperal infections	This controlled cohort study, investigated the effects of a combination of surveillance and AI on the rate of puerperal infections. There were three phases to the study pre-intervention (5 months), intervention (8 months) and post-intervention (3 months). Data collection was undertaken for the whole study period at both the intervention and control sites. AI was implemented by an AI specialist. The cohort study of women delivering in the study sites over 28 weeks gestation revealed that the rate of infections reduced in both the intervention and control sites during the study, however, there was a larger decline in the infection rates in the intervention group, which was not statistically significant.
Joshi 2007 ¹²⁰ & 2015 ¹²¹	Doctors; nurses; auxiliary staff including ward boys and sweepers	Maternity homes within the city initiative for newborn health, Mumbai	Training evaluation; staff attitudes to and experiences of work; patient exit interviews	This AI intervention was part of a larger city initiative for newborn health and was being used in order to improve the attitudes and behaviours of staff. This is a case control before after study designed to pilot AI in 9 sites (approximately 280 people) with 9 controls. A patient questionnaire was carried out before and after the intervention. In terms of the patient questionnaires, there were general improvements in attentiveness to patients and attitudes to patients in the intervention group.
Kavanagh 2010a ¹²² & 2010b ¹²³	Nurse leaders; administrative: clinical and educational roles; staff	Surgical unit at a university affiliated paediatric hospital in Canada	Paediatric Nurses Knowledge and attitudes survey regarding pain; evidence based pain assessment documentation;	This prospective, repeated-measures, mixed-methods case study aimed to use AI as a means of knowledge translation in pain management. AI meetings were facilitated by AI and pain management experts and observed by a post-doctoral researcher. They developed a provocative proposition and an

	nurses.		documentation of pain intensity score; pain intensity scores.	action plan to create a self-learning module to promote evidence based pain assessment and documentation. There was a statistically significant improvement in participant's pain knowledge and attitudes. Participants felt that the AI cultivated a positive reception to change, broadened their horizons around pain and enhanced their team spirit.
Shendell-Falik 2007 ¹²⁴	Emergency department staff and those from the inpatient telemetry unit	Medical centre with Emergency department and hospital in USA.	Welcome script for patients; standardised transfer report; system for safety assessment; protocol for low risk cardiac transfer; interpersonal relationships; patient satisfaction	This pilot project aimed to improve the quality of patient handoffs between an emergency department and a telemetry ward. AI was undertaken by staff in project teams. Five projects were implemented: a welcome script, safety assessments, standardised transfer reports, low risk cardiac transport protocol and interpersonal relationships. Staff measured patient and staff satisfaction, completion of skin and nutritional assessments, compliance with cardiac enzyme regimen and medication administration record and patients transported without a cardiac monitor. All of these measures showed improvement during the project.
Stefaniak 2007 ¹²⁵	Nursing leaders; staff nurses	Quaternary full service acute care and teaching facility in the USA.	Nurse recruitment tools; recruitment and retention rates; bed capacity; decision making; manager satisfaction	A core AI team selected the topics for the enquiry, a larger group of nurses were included through questionnaires. Following this, summits were held for planning of actions. Quantitative and qualitative measures were developed and staff turnover decreased, bed capacity increased and nurses were more satisfied with their decision-making. From a qualitative perspective people were very positive about the process. The organisation now adopts the AI philosophy into its meetings, recruitment campaigns and exit interviews.
Qualitative studies				
Carter 2006 ¹²⁶ & 2007a ¹²⁷	Families; voluntary sector; community & hospital staff; school staff; social workers	The agencies working with children and families with complex health needs in one area in the UK.	Development of guidance plans for multiagency working and initiation of a pilot project.	This is a qualitative study used AI with the aim of identifying what worked well and enhancing multi-agency practice. This study was undertaken due to a governmental and research driven demand for improvement of multi-agency working for children. A team of researchers worked closely alongside the participants as co-researchers/co-analysts. The intervention produced a set of guidance plans that have been used to develop a pilot project for multi-agency working – a single point of referral system.
Dewar 2010 ¹²⁸ & 2013 ¹²⁹	Registered and unregistered nurses; allied healthcare staff; medical staff; patients; families.	Inpatient clinical areas in a Scottish University hospital.	Developed a model of compassionate caring; Improved caring for each other; Examining care provided and trying to improve care.	This action research project was part of a broader initiative to embed compassionate care in hospitals in Scotland. A senior nurse and PhD student ran the project. Staff, patients and relatives worked together to understand who they are and what mattered to them and how they felt. The appreciative approach was embedded into the ward through feedback sessions, display boards and daily short discussions between nurses of how to put ideas into action. During the study staff seemed to become more empowered to ask simple yet important questions to improve the care they provided to patients and also provide supportive feedback to relatives which was valued by those included in the study.
Trajkovski 2013 ¹³⁰	Nurses; parents; special care nursery staff.	Neonatal unit, Australia	Development of strategies for change	This qualitative study using AI to enhance family centred care. Parents and nurses participated in the AI. Key elements were shared and agreed by the group at each stage before going onto the next. At the end of the

				meeting an action plan was made and a subsequent meeting arranged. Participants found the meeting valuable, with the nurses particularly valuing the time they had to hear the effects they have on patients. There was an air of needing to continue the work and involve others from the department.
Yoon 2011 ¹³¹	Registered practical nurses; registered nurses.	Five complex continuing care units, Canada	Commitments to change to improve oral care	This qualitative study aimed to improve oral care. The project involved a small number of registered nurses in two workshops and a follow up questionnaire at two months. The AI methodology was embedded within knowledge transfer theory. They included information on best practice in oral care at the first workshop, to ensure that evidence based practice was known by the team. The two-month follow up questionnaire suggested that the staff had taken these ideas back to their teams and had begun to implement the changes to improve patient care.
Non-controlled Observational Studies				
Aggett 2013 ¹³²	Child and adolescent mental health workers (CAMHS); administrative staff	CAMHS services across three boroughs in the UK.	Post workshop questionnaire immediate and at 12 months	This quality improvement project sought to improve how healthcare workers dealt with risk and involved all members of the CAMH teams. The teams devised strategies to reduce risk and have more open conversations about risk in their departments. Post workshop evaluations revealed that the workshops were relevant to staff. One year on there was some, limited, feedback to suggest that team and individual discussion regarding risk had improved, however, there was no convincing evidence that the quality of clinical decision making had improved or that the plans from the workshop had been achieved.
Alfred 2006 ¹³³ & Hobbs 2004 ¹³⁴	Senior management ; healthcare workers	Heart Centre in the UK	Plan to develop trust and respect; Joint vision	AI began on a management away day and was then spread to representatives of the rest of the organisation through workshops. They created powerful provocative propositions and formed groups to develop concrete action plans for achieving their goals. The consultant cardiologists were largely absent from this intervention and therefore a specific meeting was arranged for them to engage them. The ongoing work includes trying to involve more of the organisation in the process.
Baker 2006 ¹³⁵	Practitioners ;Patients and families; managers; drug company reps	British society of paediatric gastroenterology, hepatology and nutrition.	Initiation of a managed care network	This study aimed to design of a managed clinical network for paediatric liver services. Clinicians, managers and families (including young patients) participate in the AI. The participants enjoyed the approach, even those who had difficulty in engaging made important contributions. Particularly valuable was the feedback from patients and their families. Regular meetings are being held to continue the development of the MCN and this approach has supported the development of new services.
Brookes 2011 ¹³⁶	Staff from the paediatric medical ward; consultant reps; chief executive	Paediatric medical ward in the UK	Development of roles and training on the ward	This organisational change initiative aimed to foster teamwork, empower staff to improve patient care, be more satisfied in their jobs and feel valued. All staff working on the ward were invited and the team enjoyed the away day. They feel that they have played an active part in creating their dream and are positive about changes. They have developed new strategies within their working environment to improve patient care for example an 'oxygen champion' and

				'resuscitation link'.
Campbell 2013 ¹³⁷	Primary care nurses	Non-academic cancer centre in Canada	Better understanding of expertise; Nurses encouraged that they were being listened to.	This was an organisational change study to improve job satisfaction and enhance positive practices of care. Nursing staff used AI to develop projects to improve patient care. For example improving palliative care referral pathways. Only two out of the seven participating nurses completed the survey at ten months. They enjoyed the experience although they were frustrated with lack of time to work on their projects.
Carter 2007 ¹³⁸	Physicians; medical assistants; office manager; Admin staff.	A family practice in a small community in the USA	Initiation of regular staff meetings; new care delivery process; new preventative care flow sheet	This AI implementation project was undertaken because of pressures to increase financial margin. They arranged meetings where AI was explained and the majority of practice staff attended and engaged in the project. Two action teams were formed to take the work forwards. Changes were implemented in terms of monthly meetings, new care protocols and new ways of team working e.g. pairings between physicians and medical assistants.
Challis 2009 ¹³⁹	Nurses	200 bed acute care facility in the USA	Reduction in vacancy rates	This study was initiated at a time when the senior nursing leadership was changing and the issue of staff retention was highlighted as a challenge. Those attending any given meeting may be from different wards or specialties which allowed sharing of positive stories across these settings. The project identified why nurses remain in post. During the study, the vacancy rate decreased, which may represent a cost saving of \$375000.
Clarke 2012 ¹⁴⁰	Nurses; ward clerks; managers; home care coordinators ; allied health workers; patients.	Tertiary teaching hospital in Canada	Checklist for transfer designed	This quality improvement project focused on transfers between acute general medical units in teaching hospitals to a sub acute non-teaching units. The team comprised of a variety of nurses and managers from across the sites. The individual units were tasked with implementing plans made by the group which included a quiet time and place for preparation of transfers, structured verbal communication and a transfer checklist. The Destiny phase was ongoing when the paper was published.
Clossey 2011 ¹⁴¹	Midlevel agency administrator; direct care staff; clerical staff	Two mental health agencies in the UK.	Tool to measure productivity; redesign of clinical tools; new method to record billable time	This AI was undertaken in two separate mental health units whose management were both aiming to introduce a new approach to mental health care – the recovery approach. At service X the AI was introduced by an external consultant who felt that the approach may be useful, whilst at service Y the approach was introduced by management in response to a feeling of disempowerment by staff. At both services tools were developed but their impact not assessed. Both staff groups were identified at the end of the study as being more empowered.
Guljar 2001 ¹⁴²	Primary care doctors and nurses; secondary care professionals; patients	Primary care group (PCG) and 5 neighbouring practices in the UK	Multidisciplinary forum; patient education group; patient held notes	This study aimed to improve the organisation of primary diabetes care. The PCG arranged a day-long meeting and invited staff and patients from the 5 surrounding GP practices to consider 'How can we enable people with diabetes to manage their diabetes as well as is possible?' The group developed ideas for improving care, which included having dieticians with culturally appropriate training and having a multidisciplinary team at one accessible site. Ideas such as having a multidisciplinary forum, having a patients group and patient held notes were taken forward.
Havens	Chief	6 community	Positive staff	This study aimed to improve communication

2006 ¹⁴³	Nursing Officers; site coordinators ; staff nurses	hospitals in nursing shortage counties in the US	meetings; improving collaboration; changes to patient satisfaction and employee surveys	and collaboration between health professionals. Each hospital defined their topic of inquiry and undertook their own 4D cycle. Change occurred in the organisation for example starting meetings on a positive note, improved communication and positive shift reports. There were also changes that began to spread to other departments for example the pharmacy and imaging services.
Jaccai 2008 ¹⁴⁴	Management; clinical staff; patients; residents; affiliated communities	Community based healthcare system in USA	Projects implemented; innovation teams launched; summit evaluated; patient care and satisfaction	This AI is part of a 5-year improvement programme to provide the best possible services to patients. There was a phased approach to involve as much of the organisation as possible, starting with the leadership team. After a large summit there was commitment by the staff to make positive changes in the hospital, and some staff received training as champions. The hospital has seen success from this with improved surgical and pneumonia care and patient satisfaction ratings.
Lazic 2008 ¹⁴⁵ & 2011 ¹⁴⁶	Nurses	Haemato-oncology department of the university children's hospital Serbia.	Evaluation of course; commitment to continuing education; production of educational materials	This project aimed to improve interprofessional working in paediatric oncology. It was undertaken as a part of a large European Cancer Organisation project to enhance quality of care by interprofessional working. The nursing staff wanted to improve interprofessional communication and develop a professional development programme. They designed a peer-taught programme of education, which was well received by nursing staff and fostered interest in ongoing education.
Marsh 2008 ¹⁴⁷	Clinical staff facility managers; health promoters involved in chronic care	15 community health centres around the Metropolitan Cape Town area.	Building chronic care teams & Leadership; structured approach to care; Involving the community; empower patients; developing clinical skills, improve referral pathways.	This quality improvement project aimed to address the needs of the diabetic service. Three cycles of improvement took place. Each health centre addressed its needs by developing local solutions but some overall themes included developing a chronic care team with a structured approach and clear membership, fostering patient involvement, caring for the carers, having clear leadership and improving referral pathways. This led to improved services, better diabetic control and decreased waiting times in some sites. A new provincial policy was also developed to reflect the ideas generated.
Messerschmidt 2008 ¹⁴⁸	Joint staff/ community stakeholder workshops	A women's health project in 4 districts and a Safer motherhood project in 9 districts in Nepal.	New language with positive imagery; improved cleanliness of facilities; promotion of positivity; cost; sustainability	This study is a joint analysis of two projects to improve women's health outcomes. They both implemented the cycle in the standard '4D method' using outside consultants to deliver the training. AI seems to operate through improved teamwork and one thing that is noticed is that perhaps the biggest effect is on the lowest caste of people working the facilities. They noticed that staff have many positive stories of AI and attribute many changes in their facilities to its success, however, there is little empirical evidence for this.
Reed 2002 ¹⁴⁹	Older people's, hospital and community trusts; local authority; voluntary and private care sector.	The whole system involved in hospital discharge, UK	Development of action plans;	This AI aimed to improve discharge home from hospital. The AI resulted in clear themes of understanding, empowerment and evaluation and feedback. Some important issues were noted in terms of the importance of organisational buy in being necessary to make changes and lack of senior managers at the meetings reducing the ability to make changes. However, it was also noted that it was very difficult to actually measure changes that happened as a result of the AI. The participants developed 9 provocative

				propositions, which were incorporated into concrete action plans. There was no clear report of the implementation of action plans.
Richer 2009 ¹⁰⁴	Nurses; volunteers; pharmacists; physicians; clerical staff and attendants; managers from medicine, nursing and pharmacy.	Adult cancer care division of a multi site university-affiliated healthcare centre in a metropolitan area and Canada.	Development of action plans	This study focused on discharge home from hospital, taking a participatory multi-agency approach to organisational change. Following a large stakeholder meeting, a multi-professional group including users was convened to investigate and plan a joint research project. Three meetings of the whole group, plus additional meetings of the core team were convened, although exactly when or where these were held is unclear. The inquiry resulted in clear themes of understanding, empowerment and evaluation and feedback. Some important issues were noted in terms of the importance of organisational buy in being necessary to make changes and lack of senior managers at the meetings reducing the ability to make changes. The participants developed 9 provocative propositions which were incorporated into concrete action plans for them to take forward within their organizations. There was however no clear report on what happened in the organizations in practice.
Seebohm 2010 ¹⁵⁰	Carers; service users; managers; practitioners ; local authority; volunteers	Mental health of older adults directorate in London based NHS trust	Vision of best possible journey for patients	The study aimed to improve choice for older people. The whole system, including patients, were invited to participate in the process facilitated by two external consultants. A core project group was formed and ultimately made a 'river of hope' to include issues on access, choice and continuity. The core group then formulated the action plans, and activities are ongoing.

Appendix 8: General staff participant information leaflet

Information Sheet for Staff



Working life experience of maternal healthcare workers in district level facilities in

Malawi: A participatory intervention to

improve working lives.

Information for you about the research being undertaken at xxx Hospital

We would like to give you information about a research project that we'd like you to be involved in at your place of work.

We would like to take the opportunity to explain the study, why the research is being done and what it could involve for you. If you have any questions, one of the research team will happily explain the study to you and answer any questions you may have.

We look forward to working alongside you in the coming months.

Part 1: Purpose of the study

What is the purpose of the overall study?

This study aims to improve the working lives of maternal healthcare workers in Malawi, like you. Making your working life better will hopefully make you happier at work and it will make it easier for you to care for your patients.

In order to achieve this aim, there are several steps:

1. Understand your current working life.
2. Understand what you think can improve.
3. Understand what your patients think of their care.
4. Work together to improve your working life through an action cycle.
5. Evaluate the process to see if it has worked.

We hope that you will be willing to participate in this process. We will gladly welcome your thoughts and feedback throughout the project and will use your input to work with you to make an action cycle that works for you and your colleagues.

Why has your facility been selected?

Your facility has been invited to participate because it is a government/cham facility that provides maternity services. It is close to Lilongwe city where most of the administrative activities for the research will be done. We hope that as a member of staff providing maternity care at xxx Hospital, you will be willing to participate in the study.

What will be happening at my place of work?

In-depth interviews with 3-5 members of the maternity staff (you may be approached to take part in these interviews) will be undertaken. This will allow an understanding of your current working lives to be developed. This will take place at the start and the end of the study.
Researchers will undertake an exit-interview' with patients from your facility at the start and the end of the study to understand how women view their care.
All staff working in maternity care (nurse midwives, clinical officers, doctors, students, assistants and clerical staff) will be asked to complete a questionnaire at the beginning and end of the study. Questions will include information about how you feel about work, your supervision, your career development and job satisfaction and it will take up to 15 minutes.
A member of the research team will observe the whole maternity team (including healthcare workers and other staff), in order to understand you current working lives. This will include watching how you work and interaction with other members of staff and patients.
You will be asked to participate in the adaption and implementation of an action cycle at your facility with the aim of improving your working lives and the quality of care for your patients.

How may the 'action cycle' work?

How the action cycle works at your facility will depend upon how your team decided to develop the project. It is anticipated that the maternity team will meet at least once a month in order to discuss the cycle and make action plans. Between meetings, team members may decide to carry out tasks in order to fulfil the plans made during the meetings.

Do I have to participate?

Your participation in this study is entirely voluntary and your decision to participate or not will not have any effect upon your work. It is up to you how much you participate in

the project. We hope that either you or your colleagues will agree to be interviewed – a separate information leaflet will be provided about this. We also hope that you will have the time to fill in a questionnaire for us at the start and end of the study. We will invite you to the action cycle meetings and hope that you will be able to attend these and participate in plans alongside your colleagues and managers.

What are the possible disadvantages and risks of taking part?

The main disadvantage to you is that undertaking an action cycle will take time. Your time will be needed to attend meetings and also to implement plans. The other issue to take note of is that we will be asking patients for feedback on their care at your facility.

What are the possible benefits of taking part?

We hope that you will find the experience interesting and enjoyable. Ultimately, we hope that you are able to improve your daily working lives.

Will my taking part in the study be kept confidential?

We will follow ethical practice and all information about you will be handled in confidence. Further details are included in Part 2.

This completes part 1. If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

Part 2: Conduct of the study

What will happen if I don't want to carry on participating in the study?

If you no longer wish to attend action cycle meetings or participate in changes, then that is up to you. Whilst your facility is continuing to participate in the study you may be observed at work and members of the research team may ask you questions. If you do not feel that you wish to answer these questions, just inform the research team at the time. You will be requested to fill out a questionnaire at the end of the study, if you feel that you do not wish to do this, again please just inform us at the time.

What if there is a problem?

If you have a concern about any aspect of this study, you can speak to the researchers, who will do their best to answer your questions. Their contact details are on the last page.

If you remain unhappy and wish to complain formally, you can do this either to the manager of xxx Hospital or to the College of Medicine Research Ethics Committee.

Will my taking part in this study be kept confidential?

The identities of the staff completing the questionnaires and the interviews will not be released, however, the results and some selected extracts of their interviews will be used to inform the action cycle at your facility.

We will follow these procedures for collecting, storing, processing and destroying

information about you to ensure your confidentiality and safeguard your data:

- The recording of any information you give us during an interview will be stored in a password-protected file and only authorised people will have access to it. This will help prevent people identifying staff by voice.
- The data transcribed from recordings and collected from questionnaires will be stored securely on a computer with access restricted by a password. Transcripts and questionnaires will not include names or locations; instead they will be identified by a code. Consent forms and printed transcripts and originals of questionnaires will be kept in a locked cabinet, only accessible to authorised researchers.
- The identifiable data will be retained for the duration of the study and will be disposed of securely (i.e. shredding documents).

What will happen to the results of the research study?

The researchers will write a report outlining the results of this study. You will not be identified in any report, presentation or publication; however extracts from your interviews may be reproduced. The results will be used to inform local practice and a future possible larger scale trial of the action cycle intervention. If you are interested in the outcome of the research, then a summary of the findings can be sent to you via email and if you wish you will be invited to attend a feedback day at the end of the project.

Who is organising the research?

This study is being carried out by Dr Abi Merriel, as part of a postgraduate degree at the University of Birmingham, UK.

It is supervised by Professor Arri Coomasamy who works at the University of Birmingham, Dr Michael Larkin from the University of Birmingham and Dr Julia Hussein from the University of Aberdeen. Mr Charles Makwenda from Parent and Child Health Initiative (PACHI) and Professor Address Malata from Kamuzu College of Nursing are overseeing the project in Malawi.

Who has reviewed the study?

This study has been reviewed by the College of Medicine Research Ethics Committee in Malawi and the University of Birmingham ethics committee in the UK.

Contact details:

Dr Abi Merriel

[Redacted]

Tel: [Redacted]

Address: [Redacted] [Redacted] [Redacted]

[Redacted]

Professor Arri Coomasamy

Professor of Gynaecology, University of Birmingham,

[Redacted]

Charles Makwenda

Chief Executive Officer PACHI

College of Medicine Research Ethics Committee

[Redacted]

[Redacted]

Email: [Redacted]

Telephone number: [Redacted]

Please keep this information sheet for your own records.

Registered study ID number: P.09/14/1635-).



**UNIVERSITY OF
BIRMINGHAM**

Staff Information Leaflet: version 3.0. 1/12/14

Appendix 9: AI toolkit

This short toolkit provides the information about the sessions that were delivered in the course of this AI. It includes some notes to the facilitators to help the sessions run smoothly. The majority of the AI information used for planning these sessions was from the 'Appreciative Inquiry Handbook'.⁴⁰

Suggested session plan for session 1: Deciding on an appreciative topic:

- Opening prayer (this is very important in Malawi – meetings always open and close with prayers)
- Introductions to AI team and project 5 mins
- Introduction to AI: 5 mins

The most important this is that we will be unconditionally positive - we're not going to talk about negative things when we are doing AI AT ALL!

AI is something that started in late 1980's with the idea that thinking about good things and talking about good things means that people can stay more focused on the positive and create exciting ideas to build upon the good things within an organisation. This is especially important in a climate where, as the interviews have shown, lots of the feedback is rather negative. Appreciative inquiry has 5 phases:

- 1. Choosing the topic to work on*
- 2. Discovery: discover the positive aspects about the affirmative topic that we choose today*
- 3. Dream: about this ward and your team at its best*
- 4. Design: make plans for how to achieve this 'best' state*

5. *Destiny: Implement some of the design.*

AI has been used in many different organisations, from NGO's to hospitals to private businesses. Some examples of successful organisations where AI has worked include Save the children, United Nations, USAID, NASA, British Airways and McDonalds.

AI has been used to achieve many different things; Happier staff, clear visions, creative ideas for improving the way things are done, staff taking less days off sick.

We hope that you will all enjoy working together in a team and build on your positive core.

Today we're going to do phase 1: choosing a topic to work on – as this is your intervention you need to choose what to work on.

Examples of topics chosen by other organisations:

Happiness at work, harmony and sharing among all employees, continuous people development, leadership at every level, relationship centred approach to patient care and the work environment, sensitivity to patients requests whilst being proactive in the work environment.

This session is going to be speedy so that you guys can get to work and also get home.

So we're going to try to work as fast as possible.

Please answer all of these questions within the current resource and staff constraints on the ward (go through questions one by one)

- Appreciative Q 1: in pairs/groups 5 mins- feedback 5 mins

What has been your single best moment whilst working on the high risk postnatal ward and why?

- Appreciative Q 2: in different pairs/groups 5 mins feedback 5 mins

What is it that you value most about yourself?

What is it that you value most about your work?

What is it that you value most about the postnatal ward?

- Appreciative Q3: in different pairs/groups 5 mins feedback 5 mins

What is the core/important thing that gives the postnatal ward life?

- Appreciative Q 4: in different pairs/groups 5 mins feedback 5 mins.

If you had three wishes for the postnatal ward what would they be?

- Create list of possible topics 5 mins

See if we can bring together the information from the above into general areas – we can get the wording of them right later

- Vote for the top choice topic 5 mins

I think that we need to choose one area to focus on first to make it manageable.

- Commit to interviews and understand collection and distribution system (5mins)

With the chosen topic we will develop a short sheet with questions on it around this topic and bring it to the ward later in the week. Then, if everyone can agree to ask the questions of two people, at least one from a different cadre to themselves so that everyone does at least one interview and everyone is interviewed at least once, and return the interview into an envelope/box we will place in the staff room – we will collect them during the week commencing the xxxx. We will then meet again on xxx at xxx time to feed back the information to you all and start the dreaming phase.

- Closing prayer

Discovery: Sample Interview guide using the best possible patient outcomes through excellent teamwork and monitoring of outcomes topic

Thank you for taking the time to do this interview as part of this project to improve your working lives. Our last meeting was very exciting and during the meeting the whole team shared positive experiences. At the end of the meeting we chose six appreciative topics which will be the focus of our action cycles for the next 12 months.

1. The whole team being highly skilled
2. Excellent infection prevention
3. Patient centred respectful care
4. Hardworking, punctual team

5. Cooperation and unity within the team
6. Best possible patient outcomes through excellent teamwork and monitoring of outcomes.

There was a team vote and you chose to work on ‘Best possible patient outcomes through excellent teamwork and monitoring of outcomes’.

We would like each of you to ask two people, at least one of which is not from your cadre, these questions. Please return the completed questionnaires to the box at the nurses’ station in the maternity or postnatal ward by Thursday 27th August. We will then compile your thoughts and feed them back at the next AI meeting which will be in the week commencing 14th September.

This is the ‘Discovery’ phase of the Appreciative Inquiry. So we’re seeking to find the best stories that you have about patient outcomes so that we can all use them as the foundations to build our Dreams in the next session. In the last meeting we focussed only on positives. This time we’d like you to focus again only on the positive elements of your experience.

Please ask the person you are interviewing to answer the questions focusing on things in the control of the team i.e. NOT Resources, Staffing or Salaries. You can then write the summary of their answers and reflect on the interview. If you have any questions, please text/flash on xxx.

These are the Questions to ask to your interviewee but please ask them more questions to be curious about their stories:

Q1: What does 'best possible patient outcomes' mean to you?

Q2: What does 'excellent teamwork' mean to you?

Q3: What does monitoring of outcomes mean to you?

Q4: Describe a time when you were involved in delivering a best possible patient outcome as part of an excellent team? How did it feel? Who was involved?

Q5: Describe a time when one of your colleagues achieved a best possible patient outcome through working as a team?

Q6: Describe a time when monitoring of outcomes has enhanced patient outcomes? How did this work? Who was involved?

Q7: What do you think are the most important ingredients to create the best possible patient outcomes through excellent teamwork and monitoring of outcomes?

Q8: any other thoughts you would like to share?

*****THE END OF THE INTERVIEW*****

Reflections of the interviewer:

1. What do you think was the best idea to create the best possible patient outcomes through excellent teamwork and monitoring of outcomes that you discussed during the interview?
-

2. Which was the most engaging story from the interview?
-

3. What is most important to this person?
-

THANK YOU.

Suggested plan for session 2: Dreaming

- Quick reminder of names and project (2 mins)
- Brief feedback from the group about the discovery activity – invite people to share their favourite stories from the first round. Approximately 3. (10 mins)
- High point analysis – thematic feedback from the first round (5 mins)
- Energiser (5 mins)
- Now for the task for the day - in small groups – write on sheets and one person present back after 15 mins - you will have 5 mins to present back.
 - You wake up tomorrow and your ward is as you wished and dreamed it would be:
 - What is happening
 - How is it different

- What are you doing that makes a difference

Suggested plan for session 3: Designing

- Prayer (2 mins)
- Introduction of the team (3 mins)
- Sum up of AI (5 mins)
- Recap of Discover and Dream phases (5 mins)
- Explanation of today's activities (5 mins)
- Activities (40mins)

The recurring themes we identified from your Dream phase: (Identify recurring themes from the dream phase.)

Firstly – does anyone think that there is anything that we have missed from the things we discussed during the dream phase?

Today we will divide into groups to work together to create 'provocative propositions' around these themes. A provocative proposition allows us to bring together the discover and dream phases by combining the best of what is and what might be. They are a clear shared vision for the organisations destiny.

Today is an opportunity for you all to create ideas about the future of this organisation based on what we discussed in the previous two meetings.

Remember we can't bring more resources or produce more money for this healthcare service.

People need to vote with their feet and decide what to work on. There will be 6 groups (or less if people choose to work on the same issue).

We will have 10 minutes to brainstorm as many ideas as you possibly can. We'll provide you with pens, paper and post-it notes to use to create ideas. Try to be creative and brainstorm about your most exciting ideas for provocative propositions. We ask you to write them down on the paper.

Remember they need to be:

- Challenge the status quo*
- Related to what we talked about in Discover & Dream phases*
- Something that you want*
- Positive and bold*
- Something the team can participate in*

Then you will have 10 minutes to discuss these as a group

Then you will have 10 minutes to create up to 5 provocative propositions that you agree on as a group

Then each group will present back their provocative propositions.

- Closing prayer

Suggested plan for session 4: Destiny Phase – making action plans

- Opening prayer (2 mins)
- Introduction to team (2 mins)
- Recap of the AI so far: (10 mins)

Now we're going to remind you of what we've done using the SOAR process:

Strengths/opportunities/Aspirations/Results.

Strengths to build on:

*** add the strengths you have identified here***

- Opportunities

add the opportunities you have identified here

- Aspirations: Provocative Propositions

Last meeting you developed provocative propositions:

add provocative propositions here

This week we're going to work on the destiny phase and also remember that we need to make sure that we see results so you know just how much you're achieving as a team!

To start with just a little about this destiny phase:

This is your opportunity to declare what actions you'd like to take and then get support from the other members in your organisation.

This is the start of an appreciative learning culture, this is where you take the positives that we have been discussing and harness them and build upon them.

- *Today's task:*

We invite you to look at the provocative propositions pinned around the room and choose if there is one you would like to work on. You need to care and be passionate about it.

This is the opportunity to develop your action plans

When you do this you need to remember:

- *focus on strengths*
- *be passionate*
- *ensure that there is ongoing collaboration*
- *Remember that you need to be able to measure the change so that you can see it happening!*

Here's how it will happen:

1. *Talk about the provocative proposition and make sure that you agree on the working of the proposition*

2. *Spend 15 mins brainstorming things that you can do as a team to build on the successes here at Dowra and towards the provocative proposition.*
3. *You can spend 5 mins choosing the thing that you most care about as a group (they could always split into two if that was better).*
4. *For 15 mins you can plan what you will do towards your idea.*
5. *For 10 mins you can plan how you as a group will monitor this change*

- Feedback

Each group will have just 2 mins to present their idea (10 mins)

- Closing prayer (5 mins)

Suggested session plan meeting 5 onwards: Destiny Phase

- Welcome (2 mins)
- Prayer (2 mins)
- Reminder of process so far and last session (5 mins)

Overall Topic: 'Best Possible patient outcomes through excellent teamwork and monitoring of outcomes'

Chose to work on x provocative propositions:

**** Add provocative propositions here****

You developed the following action plans:

Add action plans here

- Feedback from team on how the implementation has gone (5 mins)
- Energiser (5 mins)
- Decide what we want to continue working on as a group (5 mins)
- Strengths cards: Choose your strengths as an individual – spilt into groups and talk about it in groups. (10 mins)
- Update plans as a group (20 mins)
- Clear action points and people responsible (10 mins)
- See if there is someone who would like to help lead the meeting next time (5 mins)
- Closing prayer

Appendix 10: Summary of meetings from each site

Referral Hospital: 'Team Spirit'

Meeting 1: Learning about AI and identifying the appreciative topic.

During this meeting we introduced AI before moving onto use four appreciative questions to select the topic for the AI. The first question was 'What has been your single best moment whilst working on the ward and why?' People shared many stories but thoughts will be shared to give an illustration of some of people's high points.

'On Christmas days we health workers and patients receive a lot of gifts from others and because of this both of us we really became happy'

'It was on March when I did a good wound dressing to a certain patient, the patient was very happy and satisfied and we make a good relationship up to now we give each other phone number and we do calling each other'

'Saved a patients life who was at risk of dying...I managed her accordingly and responded immediately'

The second question was in three parts 'What is it that you value most about (a) yourself, (b) your work and (c) your ward?'. For this I have reported the broad themes for each category:

- (a) yourself: being healthy and having good relationships with patients

- (b) your work: team relationship, salary, resources, patients and zero maternal deaths
- (c) your ward: relationships with patients and teamwork

The third question asked 'What is the most important thing that makes your ward work well?' They discussed teamwork, being at work on time and good relationships with patients.

Finally staff were asked: 'If you had three wishes for your ward, what would they be?'. They wanted resources, good patient outcomes, a clean ward, to be hardworking and get recognition, good teamwork, everyone to be punctual and to be appreciated.

We identified themes from the discussion and the staff reviewed them and felt that they fell either into quality of care or team spirit. Staff voted and unanimously chose the appreciative topic of 'Team Spirit'

Meeting 2: Discovery phase: Appreciative Interviews

Staff were given interviews to perform between the meetings but only two responses were received therefore we decided to do the appreciative interviewing during the second meeting. Staff divided into mixed cadre pairs and interviewed each other.

Staff asked each other questions about what team spirit means to them, a time when they and one of their colleagues demonstrated team spirit and what they felt the

important ingredients were. The interviewers also reflected on their responses and then we performed a high point analysis.

Most passionate and effective when...	Opportunities to build on
Working together across cadres	Good mutual respect
There is good communication	Good communication within the team
We are achieving good outcomes	Working together towards a common goal leading to good patient outcomes
We receive the clinical support we need	Coordination, cooperation and collaboration
Spending time together as a team	Current team spirit!
Good coordination with clear expectations	Examples clinical support
Complementing each other on effort	Using the skills within the team
Adequate resources	Appreciating each other
All dedicated and hardworking.	

Meeting 3: Dreaming

After feeding back the high point analysis and inviting some staff to share their stories from the discovery process we moved onto the team dreaming. We used the method of asking staff to imagine they had woken up after a dream to a state where their workplace was perfect in terms of the appreciative topic. They told us first ‘What is happening?’: there were zero maternal deaths, with enough resources on the ward. They were having regular ward meetings and they were being appreciated. They were taking good care of their patients and there was a positive attitude towards healthcare workers.

Within the team there was good communication, a good relationship and mutual respect.

They then shared 'how is it different?': They highlighted better co-ordination, appreciation and communication. They would have a communal lunch too. Patients would be more satisfied.

Finally they told us 'what are you doing that makes a difference?': They were more respectful and appreciative of each other and communicated better between cadres. They undertook more timely monitoring and management. They attended regular refresher training.

Meeting 4: Designing provocative propositions

At this meeting we reminded the team of the previous meeting and highlighted the recurring themes from the dream phase:

- Regular monitoring and timely management to improve patient outcomes,
- Good coordination and communication amongst staff,
- Cohesive ward team,
- Good communication with patients,
- appreciation for staff and respect for each other and patients.

Staff chose to develop the following three provocative propositions:

Respect for each other and patients: To improve communication skills through a good approach, in order to create positive mind-set and image

Regular monitoring and timely management to improve patient outcomes: To improve nursing services in order to reduce maternal and neonatal deaths through comprehensive management and monitoring of patients postnatally.

Good communication with patients: To improve good communication through health education, explanations, kind attitudes and empathy to families and patients.

Meeting 5: Destiny - choosing a provocative proposition to work on

There were new team members after the rotation, so much of the meeting was given over to discussing AI and briefing the new team on what had come before. Following this the team voted to work on:

Regular monitoring and timely management to improve patient outcomes: To improve nursing services in order to reduce maternal and neonatal deaths through comprehensive management and monitoring of patients postnatally.

Meeting 6: Destiny- planning and committing

After a brief recap, the team identified the positive things already happening on their wards: No maternal deaths due to HRPNW, good focus on identifying critical patients,

timely following of orders/management/monitoring, good attitude of staff and good communication with guardians about the removal of free meals.

The group then broke the provocative proposition to three parts: Improving nursing services, comprehensive management and monitoring of patients. Three groups met to form and present plans however, they decided to focus on two.

Comprehensive management: After making a list of possible areas to focus on they decided to work on ‘Respect and Politeness’ and created the following action plan.

Action Point	Responsible Person	Indicators
Addressing patients by name	All	Patient exit survey & suggestions box
Greeting & welcoming patients	All	Patient exit survey & suggestions box
Orientating patients to the ward	All	Patient exit survey & suggestions box
Reminding patients to use the suggestion box during health education talks and at discharge	Nurse doing discharge talk Clerks	Number of suggestions
Patient exit surveys to understand how happy patients are with the ward	Patient attendant	Patient exit survey & suggestions box

During the meeting they designed the patient exit survey:

Patient exit questionnaires:

Were you welcomed to the ward? Y / N / don't know

Were you given a physical orientation to the ward? Y / N / don't know

Were you told about how the care works on the ward? Y / N / don't know

Are you satisfied with our services? Y / N / don't know

Any other suggestions for improvement?

Monitoring patients postnatally:

This team developed the following action plan:

Action point	Focal Person	Indicator
Availability of resources for vital sign monitoring, drugs and supplies.	In-charge	Sampling patients files for vital signs: 5 CS patients 5 ND patients by ward clerks weekly.
Orientation to patients of ward routines about times of vital signs	All clinical staff	Audit of notes with vital signs
Encouraging staff to take regular vital signs using reminders at ward meetings and posters in the rooms.	All clinical staff	Presence of posters and success shown in audit

The team felt that they needed nurses watches for this, so some were donated.

Meeting 7: Reviewing the progress towards 'destiny'

The patient attendant had completed the patient surveys and overwhelmingly positive results were shared. Staff celebrated both her achievement at doing the surveys and the success they were having on the ward. They decided that an extra person needed to help her and one was appointed.

The key for the suggestions box was lost, so the matron decided to address this. And the team discussed how to encourage patients to leave feedback.

The ward clerks had not audited the observations, but one of the nurses kept informal track. She was pleased to report they'd kept the posters up, and started off well, but by the third week some of the observations were not being done. She identified positives and challenges:

Positives	Challenges
Teamwork	Night staff did only in the morning, this is because they are busy and don't have a patient attendant
Supervision of staff to ensure obs were done	Lost the watches
Resources available to do	Sometimes unfeasible to do obs when busy
Posters to remind people	Room 4 can't do vitals – patients not around

The staff decided to address some of these issues through informally training the hospital attendants to take observations and also by the nurses taking on the responsibility for checking that the observations were done as the ward clerks were too busy.

Meeting 8: Reviewing the progress towards 'destiny'

This meeting was facilitated by one of the nurses from the ward. It started with feedback on how they were progressing towards their action plans. They discussed that for some of the tasks they needed resources like BP machines and these were not available. The facilitator, in-charge of the audits too, reported that she did one audit, and that this month there had been poor documentation of vital signs.

They also had the patient questionnaires and whilst most of the feedback was good, there was some poor feedback about orientation performed by the security guards.

The team came up with the following plans in addition to the previous plans:

- Create a multi-cadres team approach to vital sign monitoring
- All to work on vital signs monitoring – using phones as stopwatches
- Continue with audits of vital signs
- Work on resources for vital sign monitoring. The matron will provide a new machine.
- Get quote for batteries for BP machine.
- Raise funds for batteries
- Continue with respectful care and patient exit interviews.

Meeting 9: Reviewing progress towards ‘destiny’

This meeting was again facilitated by the local facilitator. They started with feedback on progress from the previous meeting. Patient attendants were all trained to take observations except one. They had not been successful in getting batteries due to late payments from the hospital. The nurse had done irregular auditing of vitals, but she did not feel they were being done frequently enough. However, there were not observation charts, but staff were making the effort to draw them. They were also having an issue that there was only 1 BP machine.

In terms of the teams to improve care, the rota had already been written for this month, however the deputy in-charge was planning on changing it for next months.

The exit survey showed happy patients and the suggestions from the box were positive:

“It went well and they really took care of me very well”

“You gave us a very warm welcome since yesterday up today. We are very grateful to you our doctors (meaning health workers) keep up the good spirit if there is any other kind of care please do assist us”

“The hospital services are very good but you should add more laundry drying lines and we need incinerator for burning sanitary pads.”

Staff made some plans to try to improve observation taking. Firstly they would try to help by checking on each other during the shift. And secondly they identified that some patients were being transferred from the labour ward directly to the nursery mothers room with no communication. Therefore the matron would discuss this.

Meeting 10: Reviewing progress towards ‘destiny’

This meeting was again facilitated by the team facilitator. They fed back on the progress on the action plans so far. Unfortunately the hospital attendant had been away so not been able to undertake the patient exit surveys. They announced happily that the AI team had lobbied and they had received 4 new electronic BP cuffs which meant that they could do observations. However, they had noticed that thermometers were going missing because people took them home in their pockets.

In terms of the observations for the women with babies in nursery, the matron was away so could not feedback on this, but some health talks were happening to orientate them. It was difficult to pair up the hospital attendants with nurses for the team working due to rostering issues.

They then discussed updates to their plans. They needed to do observations on admission for the women with babies in nursery and alert them to danger signs. They would remind each other about taking thermometers home.

They also discussed about the new linen on the ward and how the hospital attendants should not ask the guardians to pre-wash as it would be more likely to go missing. Also they decided to talk to the security guards to ask them to tighten the security around the new linen. They also discussed the importance of food, and the fact that leaving the hospital to get food took them away from patient care. So they planned to all make contributions to buy utensils and food.

They also discussed the future of AI. They decided that they would combine AI into an appreciative approach of ward meetings then people would not expect allowances.

Meeting 11: wrapping up and making plans

This meeting was facilitated by a different facilitator as the regular one was away from the ward. During this meeting they reviewed their successes which included: patient attendants taking vital signs, improved monitoring of patients, good communication,

more respectful care, sourcing extra resources for their work through lobbying, improved use of the suggestion box.

The suggestion box this month had 34 suggestions in it and the random selection revealed appreciation for patient care. One was however a complaint about the cleaning, and so staff decided to invite the cleaners and guards who were from private companies to their AI meetings in future.

They talked about the future of AI and generally they were all positive about continuing in the form of appreciative ward meetings. They believed that they were now the best performing ward at the hospital. They also grasped that ‘focusing on shortfalls discourages people from moving forward’. They reiterated their commitment to communal dishes at lunch now the hospital had stopped providing food and all planned to contribute.

District Hospital: ‘Best possible patient outcome through excellent teamwork and monitoring of outcomes’

At this facility the postnatal and the labour ward staff were joined together for the AI meetings.

Meeting 1: Learning about AI and identifying the appreciative topic.

During this meeting we introduced AI before moving onto use four appreciative questions to select the topic for the AI. The first question was ‘What has been your single best moment whilst working on the ward and why?’ People shared many stories but thoughts will be shared to give an illustration of some of people’s high points.

“It was when a woman delivered a set of twins though it was like a breech delivery and with that we didn’t expect the babies to be alive due to the breech condition and everybody was very busy to save the life of the babies”

“I delivered twins with breech presentation and managed PPH so it was my best moment because I saved the life of the mother that day”

“ I saw the pregnant mother with cord prolapse and I feel pulsation then I called theatre team then mother together with the baby is saved through CS. Baby still alive”

The second question was in three parts ‘What is it that you value most about (a)yourself, (b)your work and (c)your ward?’. For this I have reported the broad themes for each category:

- a) yourself: staff value being healthy and not getting infections though having adequate safety equipment, wearing a proper uniform, being dedicated, skillful and doing a good job
- b) your work: staff valued availability of resources, patients being happy, completing tasks, good communication and teamwork.
- c) your ward: staff cared about having a clean ward with hardworking staff available who cared for patients.

The third question asked ‘What is the most important thing that makes your ward work well?’ Staff identified teamwork, cooperation, respect, taking care of patients and availability of resources as important areas.

Finally staff were asked: ‘If you had three wishes for your ward, what would they be?’. Staff would wish for good teamwork, resources, enough staff, good working environment, equal access to frequent training good responses to emergencies, and zero maternal and neonatal deaths.

From this we created six possible appreciative topics to vote between. With 12/20 votes, ‘Best possible patient outcome through excellent teamwork and monitoring of outcomes’ won.

Discovery phase: Appreciative Interviews

Staff interviewed each other to discover what best possible outcomes, excellent teamwork and monitoring outcomes meant to them. They went on to describe a time when they were involved in achieving these things and when they had seen a colleague achieve doing so. They also identified the most important ingredients to achieving these things were. Interviewers then recorded their reflections. Staff submitted these interviews in advance of the AI meeting so that we could prepare a high point analysis for the second meeting as background information for the start of the dream phase.

Below are the results of this process.

Most passionate and effective when...	Opportunities to build on
Treating a patient holistically and discharging home alive and healthy	Multidisciplinary collaboration
Functioning well as a team	Good team spirit and interdependency
Easy collaboration between cadres	Communication both within and with other service e.g. lab
Quick action through good monitoring	Working hard and supporting each other
Everybody working hard	Timely response to abnormal clinical results
When offered good support from colleagues	Regular feedback on patient outcomes to track progress.

Meeting 2: Dreaming

After feeding back the high point analysis and inviting some staff to share their stories from the discovery process we moved onto the team dreaming. We used the method of asking staff to imagine they had woken up after a dream to a state where their workplace was perfect in terms of the appreciative topic. They told us first ‘What is happening?’: There were adequate staff who were collaborating well with enough resources to achieve good patient management and healthy discharges.

They then shared ‘how is it different?’: They explained how there were increased staff and better access to resources and equipment. They were able to collaborate between and within cadres and share roles. They would identify patient problems quickly and therefore have better outcomes.

Finally they told us ‘what are you doing that makes a difference?’: They would be attending more meetings, training courses and doing more death reviews. They would work better as a team and improve patient care through better hand washing, handovers, monitoring and prompt action.

At the end of this meeting six people volunteered to be the AI focal people who would act as a point of contact during the study.

Meeting 3: Designing provocative propositions

We suggested six possible themes based on the discovery and dream phases: communication, monitoring of patients and documentation, respectful care, teamwork, infection prevention and enough physical and human resources. Staff each chose which theme they wanted to work on and developed the following 5 provocative propositions:

Infection prevention: We aim to reduce/prevent infection on both mothers and babies by 75% by the end of this project through strict adherence to aseptic measures during delivery of babies in labour ward control of traffic in nursery and KMC ward to avoid overcrowding.

Enough physical and human resources: We shall treat patients holistically and function well as a team within the limited physical and human resources available.

Monitoring of patients and documentation: To reduce preventable maternal and neonatal deaths through proper monitoring of patients and documentation.

Communication: We should be able to effectively communicate through proper documentation, early collaboration between cadres and high quality handover leading to best possible patient outcomes.

Teamwork: We aim to produce good quality care to patients through collaboration between all cadres and patients are discharged whilst healthy.

Meeting 4: Destiny- planning and committing

The team voted to develop plans for teamwork, Infection prevention and monitoring of patients and proper documentation. Three groups worked on plans and presented them to the group. The group decided that they wanted to make their tasks manageable and therefore chose to implement two of the action plans: Teamwork and Infection Prevention

For teamwork they committed to hold joint ward meetings every week to discuss teamwork issues relevant to the two wards. They would measure these by the dates and minutes of the meetings and a clinical officer took responsibility for this.

For Infection prevention the following action plan was made:

	Indicator	Who responsible
Rota for Health talks on hand washing and infection prevention	Rota Talks happening	2 nurses
Traffic control	Observation of visiting hours daily	2 Hospital Attendants
Hand washing education and encouragement	1. Available water and materials daily 2. Random spot check daily	2 Hospital Attendants
Removing shoes in Nursery and KMC	Spot check of no shoes	2 Hospital Attendants
In-charge to lobby for shoe stand	Shoe stand	PN in-charge

Meeting 5: Reviewing progress towards ‘Destiny’

At this meeting the team reviewed their action plan. They had held 2 team meetings one in December and one in January. They had discussed the issue of transfer of patients and handovers between teams but came to no resolution. Therefore they decided to use this meeting to discuss the issue and came to the following agreements:

Appreciative Inquiry Team Commitments

- 1:** When the patient is going and coming from theatre, two Hospital Attendants, one from Labour Ward and another from Postnatal will transfer all patients.
- 2:** Hospital staff rather than Guardians will be used to transfer patients.
- 3:(a)** Nobody should knock off without physically handing over to the colleague starting a shift and nobody should rely solely on scripts as a tool for handover.
- (b)** There should be handovers between cadres where appropriate for patient care. For example, clinician and nurse, or HA and Clinician

They reviewed the teamwork meetings and decided that weekly was too frequent, so they would aim for every other week. They reviewed the infection prevention plan and decided that they had not implemented it and wanted to try again.

Meeting 6: Reviewing the progress towards 'destiny'

This meeting was facilitated by one of the AI team at the district hospital. The action plans were reviewed.

They were having some team meetings, but these did not always involve both wards. Staff discussed how the health talk rota had started and how everyone was now helping with traffic control rather than just the HA's. The staff made a hand washing poster and pasted it up. Shoes are being removed by patients and guardians on entry to the nursery and placed in cartons. At the team meetings they decided to ask management for a security guard to help with the traffic control and this had started. They had also decided to have a scrubbing day to clean the ward on Thursdays. In terms of pushing patients to theatre and back, even when HA's were too busy, teamwork was meaning that nurses or clinical officers helped instead. The team celebrated their successes and decided to continue with the action plan but assigned extra people to some of the tasks.

Meeting 7: Reviewing the progress towards 'destiny'

The meeting was facilitated by the local facilitator. Staff fed back on how handovers within cadres were improving as verbal handovers were being given. In terms of patients transfer everyone was continuing to help. In terms of the shoe rack for the nursery, the nurse in-charge of postnatal had spoken to maintenance who promised to

provide him with feedback. The hospital attendant had been to the security officer and he had agreed to let her see the rota for guards so they knew who would help them. The roster for health talks on postnatal was in place. They were also working hard to have water available for handwashing by saving buckets of water when the water was off.

In terms of regular team meetings, the progress had been slow on this and therefore they decided to make a change to have only one per month in addition to the AI meeting.

A new concern was raised at this meeting, that of neonates on oxygen dying during a power outage. The staff decided to use the AI forum to try to address this. The first step being to try to build the case for there being an issue to discuss with management, therefore a black out and neonatal effects audit was started.

Meeting 8: Reviewing the progress towards 'destiny'

The regular facilitator could not attend this meeting, but he arranged and briefed a stand in. The team fed back the positives that were happening as better handovers, improved theatre/postnatal transfer, regular health talks, better traffic control and hand washing. Then identified the need to work on traffic control in the latent ward, tapped buckets for hand washing and improved communication of team meeting dates. They decided that they would include the traffic control in the latent ward in the labour ward task allocation, speak to a partner organisation about them donating some tapped buckets, one of the CO's would get a quote for the shoe rack as the hospital were unable to support it, and the CO arranging the meetings would be supported by a nurse.

Meeting 9: Reviewing progress towards 'destiny'

This meeting was co-facilitated by the two nurses who had been facilitating the AI meetings.

They first started by reviewing the traffic control. Labour ward staff highlighted that the latent room had become congested and they had discussed this with clinicians who were reviewing patients more quickly and sending them to the waiting home. Team members decided that they should make clearer the visiting hours in the latent phase room.

On the postnatal ward, they felt that the infection prevention was going well despite no running water. They were unable to obtain tapped buckets from a donor and the hospital management but these would not be possible due to resource constraints. Along with this, there were cuts in the security guards and the PN ward now had to share a guard with the children's ward, which made the job harder. Team meetings had been arranged and the price of a shoe rack sourced. Blackout monitoring forms had been completed and one neonate had died that month during a blackout.

During the meeting they discussed how they could buy the shoe rack. The team members decided that the only way was to all contribute to buy it. They collected money during and after the AI meeting for this. The action points from this meeting were to buy a shoe rack, discuss with management about the postnatal water supply, to continue the infection prevention tasks and to continue black out data collection for three months.

Meeting 10: Reviewing progress towards 'destiny'

This meeting was facilitated by the original local AI facilitator on his own. He began by reviewing what had been achieved so far: the shoe rack on the PN ward, health education talks, improved traffic control, improved teamwork, neonatal survival during blackout audit and infection prevention in the form of trying to improve water system and get tapped buckets. They were also trying to improve hand washing amongst mothers.

They reviewed the fact that they had not yet acted on the provocative proposition around monitoring of patients and proper documentation. The team felt that they were now able to start working on this area. On the labour ward they agreed to commit to checking vital signs at least on arrival to the labour ward and once post delivery. On the postnatal ward they planned to monitor patients for bleeding on arrival to the ward.

Meeting 11: wrapping up and making plans

This meeting, facilitated by the original local AI facilitator, was used to remind people about the principals of AI and what had been achieved. The team fed back on this. They felt they had improved relationships between the postnatal and labour wards, nurses and hospital attendants. They feel that they are working together to transport patients to theatre and patients are removing shoes when entering nursery and putting them on the shoe rack. They have also started to do handovers to each other and think that they are monitoring patients better. All in all they have strengthened team spirit.

In order to keep AI going they decided to add additional focal people to each task to share out the workload. However, they were worried about the AI meetings continuing due to the lack of ongoing funding for refreshments. However, several people expressed commitment to continue AI meetings.

Community Hospital: Excellent infection prevention alongside optimal personal health

Meeting 1: Learning about AI and identifying the appreciative topic.

During this meeting we introduced AI before moving onto use four appreciative questions to select the topic for the AI. The first question was ‘What has been your single best moment whilst working on the ward and why?’ People shared many stories but thoughts will be shared to give an illustration of some of people’s high points.

‘When I resuscitated a baby who was considered dead but had a pulse’

‘When I received a phone call from the DEHO appreciating the way we handle data related issues. He said it was one of the best in [his] district facilities.’

‘When we resuscitated a patient who was near to die, had also ruptured uterus, clinicians escorted this patient who was so pale, as of now she was alive’

The second question was in three parts ‘What is it that you value most about (a) yourself, (b) your work and (c) your ward?’. For this I have reported the broad themes for each category:

- a) yourself: clinical decisions, being healthy and not getting HIV, knowledge and skills.
- b) your work: commination, clean environment, patients, being productive.
- c) your ward: patients, good relationships and team spirit, achieving department goals and having the resources to work.

The third question asked 'What is the most important thing that makes your ward work well?' Staff discussed teamwork, communication, cooperation, appreciation and working hard as reasons things worked well.

Finally staff were asked: 'If you had three wishes for your ward, what would they be?'. Many wishes were made but the most popular ones were: resources, ward expansion, more supervision, more staff, good teamwork, live mothers and babies and a good attitude of all healthcare workers towards patients.

To choose the appreciative topic we collected the areas that seemed important to the team and amalgamated them into 6 areas to vote on. Seven out of sixteen staff chose 'Excellent infection prevention alongside optimal personal health', interestingly most of these votes were from hospital attendants.

Discovery phase: Appreciative Interviews

Staff interviewed each other to discover what infection prevention and optimal health meant to them. They went on to describe a time when they demonstrated best possible infection prevention care and felt at the best health whilst they were working. They went on to review this in terms of their colleagues too and finished with identifying the important ingredients. The highpoint analysis conducted from the interviews is below:

Most passionate and effective when...	Opportunities to build on
Clean and safe environment	Working well as a team to deal with hazards
Proper use of protective wear	Good use of guidelines to prevent infection e.g. antibiotics for PROM.
Physically, socially and psychologically well	Good sterile techniques with support within the team
Free from infection	Imagination/lateral thinking e.g. cleaning the floor with chlorhexidine if there are no beds
Proper use of sterile techniques	Knowledge of infection prevention techniques
Quick response to health hazards	Availability of protective garments.

Meeting 2: Dreaming

After feeding back the high point analysis and inviting some staff to share their stories from the discovery process we moved onto the team dreaming. We used the method of asking staff to imagine they had woken up after a dream to a state where their workplace was perfect in terms of the appreciative topic. They told us first ‘What is happening?’: They described how everyone would be following infection prevention guidelines so that they would be working in a clean and less hazardous environment and neither staff nor patients would be contracting infections.

They then shared ‘how is it different?’: They described improved access to resources, refresher training in infection prevention protocols and motivated staff. This would mean that there are less sick days for staff and patients and staff were healthier.

Finally they told us ‘what are you doing that makes a difference?’: They described that everyone would be following infection prevention protocols (e.g. cleaning, gloves,

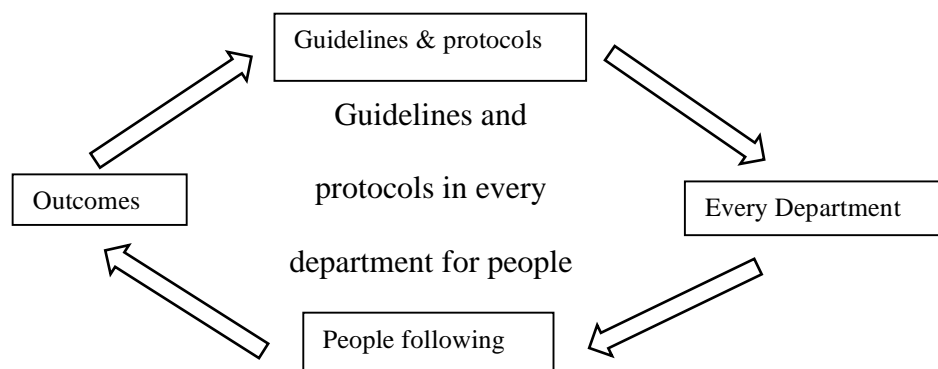
sharps), staff would be wearing personal protective wear. There would be good hand washing, more education to patients and also good teamwork.

At the end of this meeting three people were appointed as focal people.

Meeting 3: Designing provocative propositions

At this meeting the previous meeting was reviewed and six themes were suggested as areas for provocative proposition development. Staff chose which one to work on in groups. Nobody chose 'availability of resources' but small groups developed provocative propositions for the remaining areas:

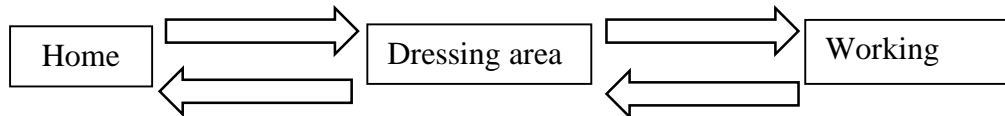
Guidelines and protocols: Community Hospital to have guidelines and protocols well stipulated and followed.



Reduced maternal and neonatal sepsis: Community Hospital needs to have reduced maternal and neonatal sepsis through practising infection prevention standards towards individuals, families and people of community.

Healthier staff and reduction in sick leave: Together we can promote infection prevention to be healthy.

Use of personal protective equipment: To ensure that all staff working in maternity department are put on full personal protective wear at all times.



Safe and clean working environment: To promote safe and clean working environment in order to prevent infections for staff and people around the community hospital– by following guidelines and protocols.

Meeting 4: Destiny, planning and committing

The team decided to choose one provocative proposition to work on and voted to concentrate on a safe and clean working environment. Although the Healthier staff and reduction in sick leave provocative proposition came to be somewhat of a team motto with staff chanting: Together we can promote infection prevention to be healthy at the start of sessions.

They developed action plans around ensuring proper waste disposal, hand washing and proper use of chlorine. However, they only went on to finalise the action plan around waste disposal.

Action Item	Who
Discarding sharps in sharp box	All Nurses and Clinicians
Disposing wastes either in wet or dry bin	All Nurses and Clinicians
When $\frac{3}{4}$ full sharp box to be brought to incinerator	Hospital Attendants
Instruments to be immersed in 0.5% chlorine, then after 10 minutes, cleaned	Hospital Attendants
Everybody disposing wastes to the incinerator has to burn the wastes to do this there should be: <ul style="list-style-type: none"> - A meeting of all the hospital attendants - Weekly meeting for all hospital attendants 	Hospital Attendants
Using the correct dustbins or wastebins <ul style="list-style-type: none"> - Appropriate colour coding and labelling of the bins 	All
Health education on the proper waste disposal	Nurse on duty
Monitoring	All - as delegated by In-charge.

In order to monitor this, the staff created indicators and questions which we made into a monitoring form:

Indicator	Questions to answer
Availability of bins	How many bins are available in maternity and theatre?
Availability of pointers/signposts on bins	How many of the bins are labelled with signs that all guardians, patients and staff can understand?
Proper waste segregation	Have there been any incidences of waste in the wrong bin this week? If yes – how many this week?
Roster for disposal	Is the roster for disposal available? Is the roster for disposal being adhered to?
Debriefing all patient attendants	Have patient attendants met to discuss waste disposal?
Fortnightly reviews	Was there a review meeting this week on the ward?
Full sharps containers	Have any sharps containers become over $\frac{3}{4}$ full this week? If yes – how many? If yes – is there a reason?

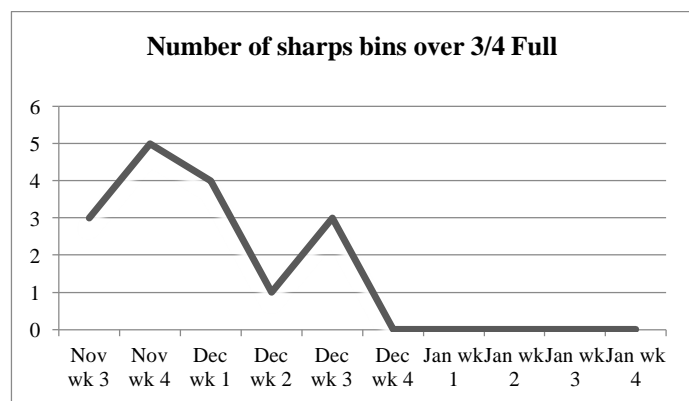
Meeting 5: Reviewing progress towards ‘Destiny’

This meeting was run largely by the local facilitator. The progress since the last meeting was reviewed. The team reported that they had made progress on the incinerator,

although one of the team allocated to help was unable to as his job was focused elsewhere. The team felt that the incinerator was now clean, but they needed to assign a new person to help. There had not been a meeting of hospital attendants. They also told us that there was a roster for health talks. Staff were also doing better with the waste and sharps – but the bins were not labelled, so they assigned a nurse and hospital attendant to work together to design a sign. This was supported in the findings from the monthly monitoring forms. They decided to continue with the infection prevention plan, but start a hand washing plan too. They spent a few minutes at the end of the meeting choosing what areas were important for staff and patients and then deferred further plans until the next meeting.

Meeting 6: Reviewing the progress towards ‘destiny’

The AI implementing team facilitated this meeting as many of the more senior members of the AI team were away at a meeting. Progress was reviewed and identified that there were fewer incidents of full sharps bins (see graph below). The hospital attendants had also met to discuss the waste disposal and draft posters had been designed, which staff made alterations to.



They decided to continue with the infection prevention and add in some hand washing action points for staff and patients. For patients they would provide health education talks and ensure posters were available by discussing with the information officer.

For staff they will all encourage each other to wash hands before and after touching patients. Everybody planned to be hand washing spies and vote for the person who had done the best job at the next meeting.

Meeting 7: Reviewing the progress towards 'destiny'

This meeting was facilitated by a local facilitator. In terms of hand washing staff felt they were making progress. This was helped by the access to some resources like soap from other projects – meaning some of the different NGO projects were working in synergy. Staff felt that they were all being 'watch dogs' to try to improve hand washing practice. They all voted and a nurse was awarded the 'prize' for being the best hand washer that month.

They also decided to 'approve' the signs for the bins. They also discussed how bins had been moved, and the ward in-charge volunteered to take this up with the management, as staff were worried that the guardians would not have anywhere of dispose waste. The other issue with waste disposal is that nurses and hospital attendants felt that it was not as successful this month as last. They believed that it was down to the students and so they decided to try to educate them more on these matters. In terms of sharps, staff felt their practice was improved, but that perhaps other wards were not as effective at

incinerating their sharps. They wanted to include other areas of the hospital in the AI programme.

In terms of decontamination of equipment, they felt that everyone was participating in keeping the instruments clean. This included a CO who cleaned his own equipment for which the hospital attendants were appreciative.

Staff decided that next time they would create a new action plan for proper use of protective wear.

Meeting 8: Reviewing the progress towards 'destiny'

This meeting was facilitated by a local facilitator. They began the meeting with a recap of previous activities and highlighting what was going well. They decided that they were doing well on proper sharp disposal, health education on hand washing and use of chlorine to decontaminate used utensils. They then split into groups to discuss about how to work on the next provocative proposition: *Use of personal protective equipment:* To ensure that all staff working in maternity department are put on full personal protective wear at all times. They came up with the following plan and they decided that instead of reminding each other of things like wearing protective wear and washing hands in front of patients, they'd just remind people 'AI' so that nobody was embarrassed or belittled.

Activity	Indicator	Responsible person
Everyone has to wear PPE whilst on duty	Wearing PPE	Ward clerk
Reminder slogan 'AI'	Wearing PPE	Everybody
Changing room or area	Changing area	Ward in charge
PPE in stock	Wearing PPE	Ward in charge
PPE Accessible – communication about stock at handovers.	Available PPE and Wearing	Ward in charge
Wearing covered shoes	Wearing covered shoes	Ward clerk

Meeting 9: Reviewing progress towards 'destiny'

This meeting was facilitated by the local facilitator and they began with reviewing their progress over the previous weeks. Firstly they discussed the personal protective wear. The in-charge had found it hard to source it, and therefore they had to concentrate on using what they had as well as possible. However, they did report that they had improved on how to locate the equipment. In terms of proper waste disposal, they believed that it was improving amongst staff and patients. They are getting all hospital staff to promote proper waste disposal, even the guards have a bin at the hospital gate which they are encouraging patients to use.

In terms of hand-washing, staff felt that they were doing less well this month. They feel this is in part due to the fact that the ward has moved and the sinks are less accessible. Along with this, as the month has progressed, there was a dwindling use of the AI slogan to remind people.

The ward clerk reported good progress on using closed shoes on the ward rather than open ones or ones with holes in them. The in-charge announced that he thought the matron had been able to sources some new gum boots so staff would be able to use them from now on.

The staff then discussed if there was anything else they wanted to work on and they discussed about how they would like to reduce sepsis amongst mothers and babies. This led to the following additional action plan:

Activity	Indicator
Full examination of mothers and babies during postnatal check up and on discharge	1. Documentation 2. Auditing patients files
Availability of resources like BP machine, thermometers	Physical inventory
Proper Use of antibiotics	1. Documentation Auditing patients files
Follow up of postnatal check ups	Documentation in postnatal register
Monitoring of patients	1. Documentation Auditing patients files

Meeting 10: Reviewing progress towards ‘destiny’

This meeting was facilitated by a local facilitator. They first reviewed their current action plans. They decided that waste disposal was not being as well done because there were new students and also staff were very busy. They decided to try to put more effort into this.

In terms of hand-washing, people felt the patients were not having the opportunity to wash their hands much after leaving labour ward because there were no easily

accessible sinks in the temporary ward. The team however thought they may be doing better as they had found themselves reminding about hand washing less.

In terms of the new action plan for maternal sepsis, the focal person felt that they were improving in examinations, but the facilitator suggested an audit was needed. They were also having issues with resources for monitoring as they were having to use a borrowed BP machine. They were also lacking antibiotics in the hospital and therefore they were having to use them very prudently.

In terms of postnatal checkups, they were being poorly documented by a few. So the ward in-charge was assigned to discuss this issue individually. The ward in-charge had sampled some notes and seen that there was poor documentation post delivery. The hospital in-charge came to this part of the meeting and there was a focus on what the problems were. We tried to flip this around to see what was going well. One example was that all the partograms were being completed properly.

One issue was that the staff were very busy. So after a discussion, the team decided to train the hospital attendants in taking observations so that they could help on the postnatal ward. This was the main additional action for this month.

Meeting 11: wrapping up and making plans

Due to an emergency on labour ward, this meeting was facilitated by the AI implementation team. They started by listing the teams achievements as: members having more confidence, improved leadership skills, improved hand washing,

communication, waste disposal and documentation. All of these achievements met with clapping and cheering.

They then reviewed their action plans in more detail. During the AI, they had lobbied for personal protective wear and this had been successful, as recently they had received a supply from the matron. They also felt that they were doing well with sharps boxes at the end of each bed and they were being disposed of when they were three quarters full. The hospital attendants were also working with ground labourer's to ensure that the incinerator was properly cared for and regularly used.

Staff were doing individual patient education in order to encourage good hygiene practices including hand washing. The hospital attendants had been trained in taking observations and this meant that they could help more on the postnatal ward.

In terms of the sepsis plans they identified that drug administration was not happening regularly. They decided that to improve this they would change task allocation and make it clear about administration times and all document in the notes better.

Moving on to talk about sustainability. The team were keen to continue and appointed leaders for the on-going activities. They also decided that they wanted to invite other members of the hospital to learn about appreciative inquiry.

Appendix 11: Staff longitudinal questionnaire

Facility code: _____

Questionnaire to understand working life experience of healthcare workers

Firstly we would like to understand a little more about you and your role. Please fill in the blank boxes or circle the appropriate answer.	
How old are you?	
What is your gender?	Male / Female
Highest Educational qualification	
Professional training	None / Degree in clinical medicine / Certificate in clinical medicine / Nursing degree / Diploma or certificate in nursing / Diploma or certificate in environmental health / don't know or can't say / Other (please specify)
Designation	Medical assistant / Clinical officer / Doctor / Nurse / Health assistant / HSA / Ancillary Staff / don't know or can't say / Other (please specify).....
How long have you worked in this role?	

Please read the questions and answer with your first thoughts, you do not need to take a long time to think about the answers. This is not a test, it will just help us to understand the factors affecting your experience at work. Please place a tick (✓) in the box you think most represents how you feel. Remember your boss will never know how you personally responded to this questionnaire.

	The following questions concern your job in the last year (or the total time in this job if less than a year). Please indicate how true each of the following statements is for you given your experiences on this job.	Not at all true		Somewhat true			Very true	
		1	2	3	4	5	6	7
1	I feel like I can make a lot of inputs to deciding how my job gets done.							
2	I really like the people I work with							
3	I do not feel very competent when I am at work							
4	People at work tell me I am good at what I do							
5	I feel pressured at work							
6	I get along with people at work							
7	I pretty much keep to myself when I am at work							
8	I am free to express my ideas and opinions on the job							
9	I consider the people I work with to be my friends							
10	I have been able to learn interesting new skills on my job							
11	When I am at work, I have to do what I am told							
12	Most days I feel a sense of accomplishment from working							
13	My feelings are taken into consideration at work							
14	On my job I do not get much of a chance to show how capable I am							
15	People at work care about me							
16	There are not many people at work that I am close to.							
17	I feel like I can pretty much be myself at work							
18	The people I work with do not seem to like me much							
19	When I am working I often do not feel very capable							
20	There is not much opportunity for me to decide for myself how to go about my work							
21	People at work are pretty friendly towards me.							

	To what extent do you agree with the following? Please tick (✓) the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
1	In general, I am satisfied with this job					
2	I feel that I am able to use my abilities to their full potential					
3	I have a variety of duties, tasks and activities in my job					
4	I find that my opinions are respected at work					
5	I am satisfied with the recognition I get for the work that I do					
6	I am satisfied with the personal relationship between my manager and myself					
7	I am satisfied with the way my manager handles staff					
8	I feel that my job conditions allow me to perform at high levels					
9	I am satisfied with the availability of drugs and equipment					
10	I am satisfied with the education/training opportunities that I get					
Please note this questionnaire continues on the next page....						

Facility code: _____

	To what extent do you agree with the following? Please tick (✓) the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
11	I am actively seeking other employment					
12	I have a clear set of goals and aims to enable me to do my job					
13	I feel able to voice opinions and influence changes in my area of work					
14	I have the opportunities to use my abilities at work					
15	I feel well at the moment					
16	My employer provides adequate facilities and flexibility for me to fit work in around my family life					
17	My current working hours/ patterns suit my personal circumstances					
18	I often feel under pressure at work					
19	When I have done a good job it is acknowledged by my line manager					
20	Recently, I have been feeling unhappy and depressed					
21	I am satisfied with my life					
22	I am encouraged to develop new skills					
23	I am involved in decisions that affect me in my own area of work					
24	My employer provides me with what I need to do my job effectively					
25	My line manager actively promotes flexible hours/patterns					
26	In most ways my life is close to ideal					
27	I work in a safe environment					
28	Generally things work out well for me					
29	I am satisfied with the career opportunities available for me here					
30	I often feel excessive levels of stress at work					
31	I am satisfied with the training I receive in order to perform my present job					
32	Recently, I have been feeling reasonably happy all things considered					
33	The working conditions are satisfactory					
34	I am involved in decisions that directly affect members of the public					
35	I have unachievable deadlines					
36	My work is as interesting and varied as I would want it to be					
37	I am able to achieve a healthy balance between my work and home life					
38	I feel motivated to do my best in my current job					
39	The organisation communicates well with its employees					
40	I am proud to tell others that I am part of this organisation					
41	I would recommend this organisation as a good one to work for					
42	I get a sense of achievement from doing my job					
43	I am pressured to work long hours					
44	I have unrealistic time pressures					
45	I have sufficient opportunities to question managers about change at work					
46	I am happy with the physical environment where I usually work					
47	I am satisfied with the overall quality of my working life					

If there is anything else that important to your every day working life that you would like to tell us more about please write about it here.....

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.....

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Thank you for completing this questionnaire. We will feed back the results to you during the action cycle meetings.

Appendix 12: Patient satisfaction survey



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Women's Perception of Quality of Healthcare services

We are undertaking a study to understand the working lives of healthcare workers working at this hospital. We are then going to try to work with staff at this hospital to improve their working lives and the care you receive as patients. As part of this study we would like to understand how you feel your care at this facility went today.

What is your age?	
How many children do you have?	
How long does it take you to travel to this facility?	
What are you here for today?	
Why did you attend this facility?	
Did you attend school? If so to what level?	

Health Facility	Completely Disagree	Disagree	Agree	Completely Agree
Please tick (✓) the box according to the patient's response.				
In your opinion, the number of health staff in the health facility is adequate .				
In your opinion, the health staffs in the health facility are well suited to treat women's health problems.				
In your opinion, the waiting rooms, examination rooms and other rooms of the health facility are adequate for women's health problems.				
In your opinion, the provision of clean drinking water, hand washing facilities, and toilets for women in the facility are adequate .				
In your opinion, the overall environment of the health facility is very clean .				
In your opinion, the equipment in the health facility is well suited for detecting women's health problems.				
The distance from your home to the health facility is very far .				

Site ID: _____



Health Care Delivery Please tick (✓) the box according to the patient's response.	Completely Disagree	Disagree	Agree	Completely Agree
In your opinion, the health staff in the health facility examines pregnant and postpartum women well .				
In your opinion, the health staffs in the health facility are very capable of finding out what is wrong with the patients.				
In your opinion, the health staffs in the health facility prescribe the drugs that are needed .				
In your opinion, the drugs supplied by this health facility are good .				
In your opinion, patients can obtain drugs from this health facility easily .				
The health facility provided very much privacy during vaginal examination and delivery.				
You feel very much unnecessary and humiliating procedures during antenatal and delivery care.				
In your opinion, the information of danger signs of delivery and postpartum provided by health staff is adequate .				

Interpersonal Aspects Please tick (✓) the box according to the patient's response.	Completely Disagree	Disagree	Agree	Completely Agree
In your opinion, the health staffs in the health centre are very open with the patients.				
In your opinion, the health staffs in the health centre are very compassionate towards the patients.				
In your opinion, the health staffs are respectful towards the patients				
In your opinion, the time that the health staffs devote to their patients is adequate .				
In your opinion, the people in the health facility are very honest .				
Overall Please tick (✓) the box according to the patient's response.	Completely Disagree	Disagree	Agree	Completely Agree
You were completely satisfied with the services provided to you				
In the case of your future delivery or next baby, will you again use the health care facility?	yes	No	Undecided/do not know	

Do you have any further comments you would like to make about the maternity services at this facility?

.....
.....

Thank you for participating in this care survey

Site ID: _____

Appendix 13: Interview guide for the Post intervention interviews

How did you find AI? / What did you think of AI?

How do you think the AI went?

How were you part of the AI?

Is your practice any different now than it was before AI?

How do you think things have changed?

Do you think AI has been successful? If so, what are the successes of AI? Why?

Why do you think AI worked/not worked?

What factors within your ward do you think enabled AI to work/not work?

What were the barriers for AI?

What were the external factors that enabled AI to work or not work?

How could we make AI work better?

Do you think you will carry on with AI? How?

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