



# Improving Healthcare Management through an Integrated Management System

## Case Study

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## Overview

Comprehensive Community Based Rehabilitation in Tanzania (CCBRT) is the largest provider of disability and rehabilitative services in Tanzania. Since opening in 1994 as a community based rehabilitation organisation identifying clients with preventable blindness for treatment, CCBRT has grown to encompass the country's largest specialised disability hospital – treating thousands of patients every year in four main service areas, ophthalmology, obstetric fistula, orthopaedic and reconstructive surgery, and physical rehabilitation – as well as a rehabilitation centre in Moshi, the House of Hope. CCBRT provides treatment free of charge for all children under five and obstetric fistula and cleft lip/palate patients, and its other services are subsidised to help Tanzanians with disabilities access the care they need to manage their conditions. With ophthalmology services accounting for approximately 70% of all services provided at the Disability Hospital (DH), this is its flagship service. With few ophthalmologists in Tanzania, eye health care services are in high demand. In Dar es Salaam only, it is projected that the population growth rate is 7%<sup>1</sup>, and this would further strain the already stretched Human Resources.

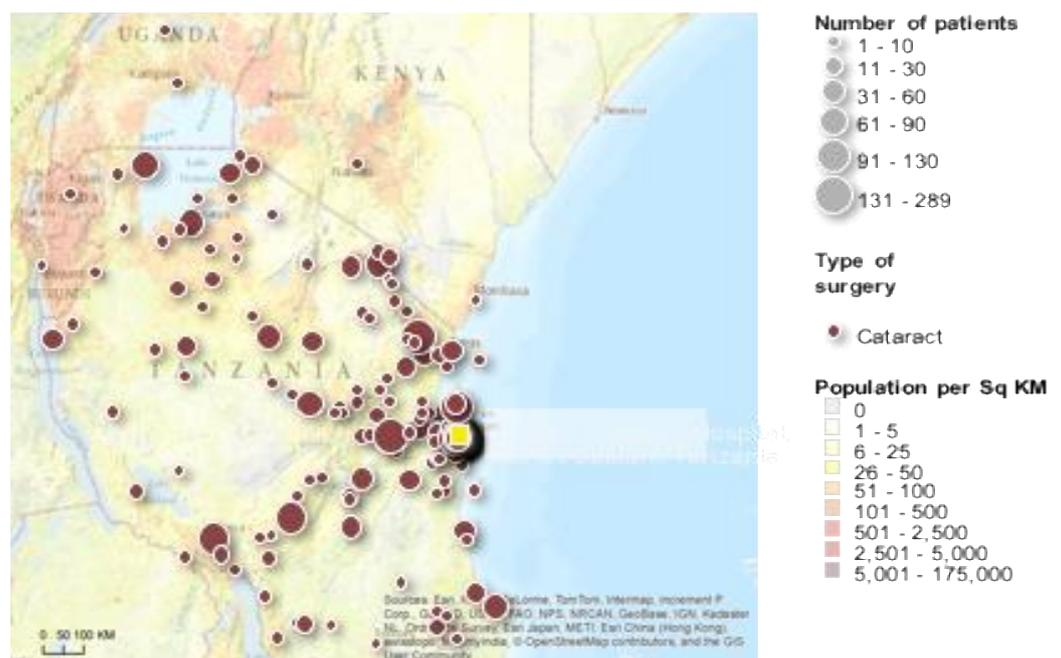
CCBRT's ophthalmology department sees approximately 300 patients per day. With such a high volume of patients and increasing need for services in Dar es Salaam based on the increasing population, the DH needed to ensure service delivery at scale while maintaining its high quality standards. To further compound this, CCBRT is one of only three public facilities in the country providing paediatric ophthalmology services.

At its busiest in 2016, CCBRT's Ophthalmology Department was forced to turn away approximately 80 clients per day. The management was faced with a challenge on:

- Maintaining CCBRTs quality and safety in the face of anticipated growing demand from the population growth
- Efficiently allocating the available resources in an unpredictable donor support environment
- Using lessons learned at CCBRT to help other healthcare providers facing similar challenges.

In Tanzania, 65% of people live on less than \$1.25 a day. Their ability to earn enough money to feed themselves and their family is directly tied to their health. Accessible, affordable and timely medical attention is the key to helping communities thrive.

<sup>1</sup> Based on the 2012 Population and Housing Census, NBS



CCBRT is often a person's only chance to get the specialised treatment they need.

Families borrow money and make financial sacrifices to travel to the hospital; therefore, turning people away was not a viable option for CCBRT given its commitment to providing services to all. Every day, there are hundreds of clients waiting in line at CCBRT Disability Hospital. Many have travelled for hundreds of miles to reach the facility. CCBRT's clients travel from every region of the country (see map). In addition, population growth within the Dar es Salaam Region means potentially higher demand for service. CCBRT needed to make urgent changes to increase its capacity to meet growing demand for high quality surgical and rehabilitative care.

### Application of lean management

CCBRT began its lean journey in 2012, introducing core lean principles to improve efficiency and eliminate waste, helping clinical and support teams to do more with limited resources. Pioneered on the production lines of Toyota Motor Company, lean management helps organisations to produce the highest quality 'product', at the lowest cost, with the shortest lead time, ultimately resulting in greater value for clients. Adapted and applied to the healthcare setting, the value of these principles ensures clients get the highest quality care, at the lowest cost, with the shortest wait time. Efficiency gains mean greater numbers of clients served while maintaining quality. A culture of learning encourages financial accountability and empowers staff to continuously improve.

### CCBRT's house of lean



At the end of 2014, CCBRT received a grant of GBP 434,434 from Human Development Innovation Fund (HDIF), to implement the 'Improving Healthcare Management through an Integrated Management System'. Because the organization is too big to be dealt with as a whole in terms of transforming how it operates, we opt to work on an area/department that we know is causing the organization most pain and start there. We change our systems to get our people

to start behaving differently and then we get to change the organization's culture, one cell at a time.

The largest improvement initiative during the project has been the transformation of the Eye Outpatient Department (OPD), piloting lean principles with a single department to collect lessons learned before rolling out lean continuous improvement initiatives to other departments in the hospital. After months of in-depth planning, including the formation of an improvement team from different functions within the DH, mapping the current state, agreeing on the future state and what was required to shift from the current state to the future state, the eye OPD was closed for a week to allow for redesign of the physical space as well as staff training and team building using the new processes and queue management system.

### **Continuous Improvement Team**

In order for improvement to be owned and to be continuously sustained beyond the management support, there was need to develop change agents. With the help of the lean management expert at CCBRT, a cross-functional team was created to be the champions of change and continuous improvement. This team was tasked with leading improvement initiatives as every current state is open to further improvement, to reduce waste and increase efficiencies and was a cross-functional team aimed at breaking the silo-thinking.

### **Mapping of the current state<sup>1</sup>**

This was capturing the patient journey in the eye OPD, from entry to exit. A total of seven patients were followed from one end of service to the very last service they received before departure from the gate. As all patient journeys could not be mapped, the team instead drew the map to represent the journey of one of several patients followed, whose case presented the most complications and went through most of the areas of the eye OPD. Refer to diagram 1.

### **Agreeing on the future state<sup>2</sup>**

The future state was aimed to challenge the thinking about reality and creating a new 'ideal' state/reality. This would lead to continuously improving systems and processes through experimentation at the lowest level in the organization towards an ideal state.

### **Action plan**

An action plan was then developed on how to move from the current state to the future state. In order to support the movement from the current state to the future state, some structural changes needed to be done. The team then prepared a visual representation of how best the flow can be changed so as to improve the patients journey through the eye OPD and reduce wastage in terms of time, while improving on quality of service to the patients. Diagrams 2 and 3 show the visual representation of

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<sup>1</sup> Refer to diagram 1 that shows the data summary of the current state map above revealed that the patient spent a total of 25,200 seconds (seven hours) at CCBRT of which 21,780 (86%) were waiting time, 2,454 (9.7%) were processing time, and only 1,140 seconds (4.5%) were value added time.

<sup>2</sup> Refer to diagram 2 showing the eye OPD space future state

the flow of patients from what was current to what the future state would be to facilitate pulling the clients through the system.

## Closure of the eye OPD

To allow for the structural changes that required to be done as well as for the capacity building and co-ordination of all staff who would be involved in the patient journey from beginning to end at the OPD. The eye OPD was closed from the 26<sup>th</sup> to the 30<sup>th</sup> September. The closure provided an opportunity for intensive training of the staff. The training conducted spanned across several topics<sup>3</sup> and a number of tools were developed to help with the journey including huddle boards. There was practical training on the use of the tools and on the new/ changed roles.

## Pictures showing part of the eye OPD space transformation -Visual Acuity (VA) area



Before



After

Following the success of the Eye OPD transformation, the Disability Hospital worked with the lean management expert in re-organising itself to reflect “Value Streams” that reflect the ‘end to end’ patient experience<sup>4</sup> rather than clinical departments. In the current set up that has 13 departments, the new set up is expected that every team member, regardless of cadre, will report to a value stream manager. Value streams break down silos, creating natural teams centered around the patient experience.

The next phase of improvement initiatives started at the Eye Operating Rooms (OR), and included mapping the patient journey in the OR particularly for cataract surgeries and Avastin injections. This was done applying approaches refined during the Eye OPD pilot stage to improve the efficiency of surgical care at CCBRT Disability Hospital.

In the coming years, CCBRT will invest in activities that will institutionalise the evolving culture of learning at the hospital. As our lean journey continues, we will build the body of knowledge and

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<sup>3</sup> Diagram 4 is the timetable of the eye OPD training that was held during the week that the OPD was closed to the public for renovation

<sup>4</sup> Value stream is the entire collection of all activities from beginning to end, required in delivering service. This includes the activities that add value and those that do not add value.

contribute to a growing evidence base for the potential of lean management principles to support urgently needed improvements to strengthen healthcare systems in low resource settings.

### Lessons Learnt

The project was highly involving and evolved throughout the project duration. However, some of the key lessons learnt from the challenges faced during the implementation included:

1. Start in a smaller, manageable work area rather than the entire organisation. This focus enables an area to serve as a laboratory for further learning and continuous improvement
2. Focus on building comprehensive skills in few key staff, rather than 'superficial' skills for all staff: in the example of the eye model cell, in order to drive the process, well trained as champions of the Central Improvement Team were essential in carrying work forward within the work value stream.
3. Ensure stakeholder ideas / opinions are considered and incorporated for workplace / operations changes
4. Set standards (SOPs, roles/responsibilities) in advance
5. Importance of data: Scientific decision making is based on data not opinions or feelings
6. Need dedicated time for lean: Lean is not a quick fix, rather takes time for the organisation and members to understand and learn, as well as to experiment / apply what is relevant to their context

With the testing of lean management strategies in Kabanga to assess roll out feasibility, other lessons have been learned:

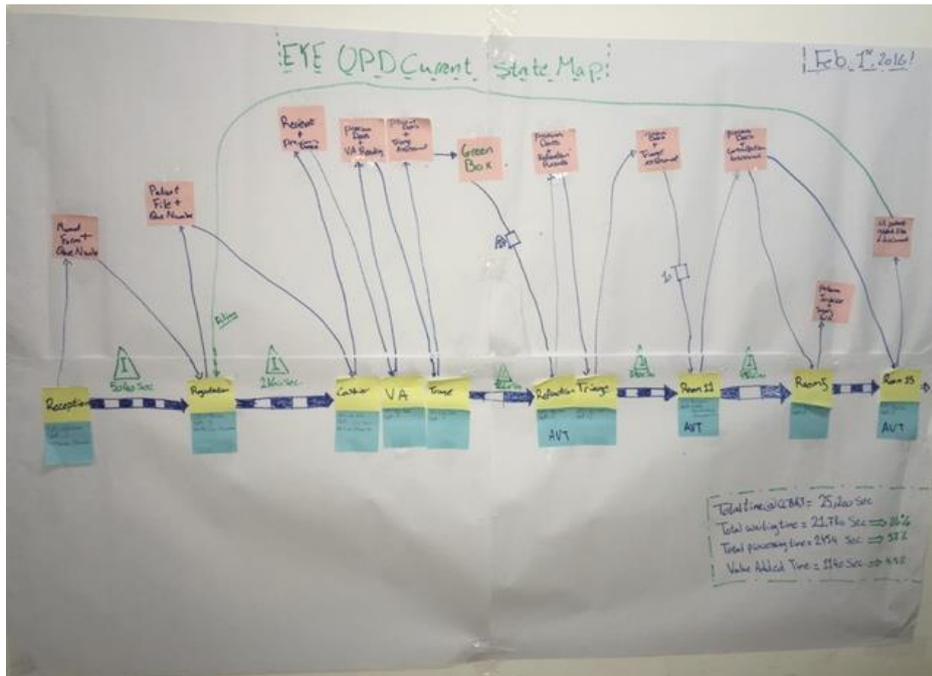
1. An overarching, more in-depth understanding of lean is crucial for success: limiting lean strategies to 5S may have hindered the Kabanga team's ability to engage in a lean transformation
2. Lean improvements are most evident in a high-volume setting with consistent feedback and adjustments to improvement strategies
3. Frequent, in depth feedback mechanisms are essential for success: with Kabanga's distance to CCBRT and lack of lean experience, a full-time coach, integrated in the organisation, would support improvement better than short-term visits and phone follow ups

### Challenges

Lack of funding and underestimation of the time required to develop and implement the information systems. For instance, the HMIS is yet to close Phase II, and Phase III, which is the clinical phase of the HMIS, had to be put on hold until funding is received. Still, initial planning for Phase IV, which will be for roll out in the Maternity and Newborn Hospital, has already started. Some modules of the HRIS, including leave and performance management, were delayed due to internal processes and feedback. The implementation teams are also stretched as they provide the day-to-day support to end users.

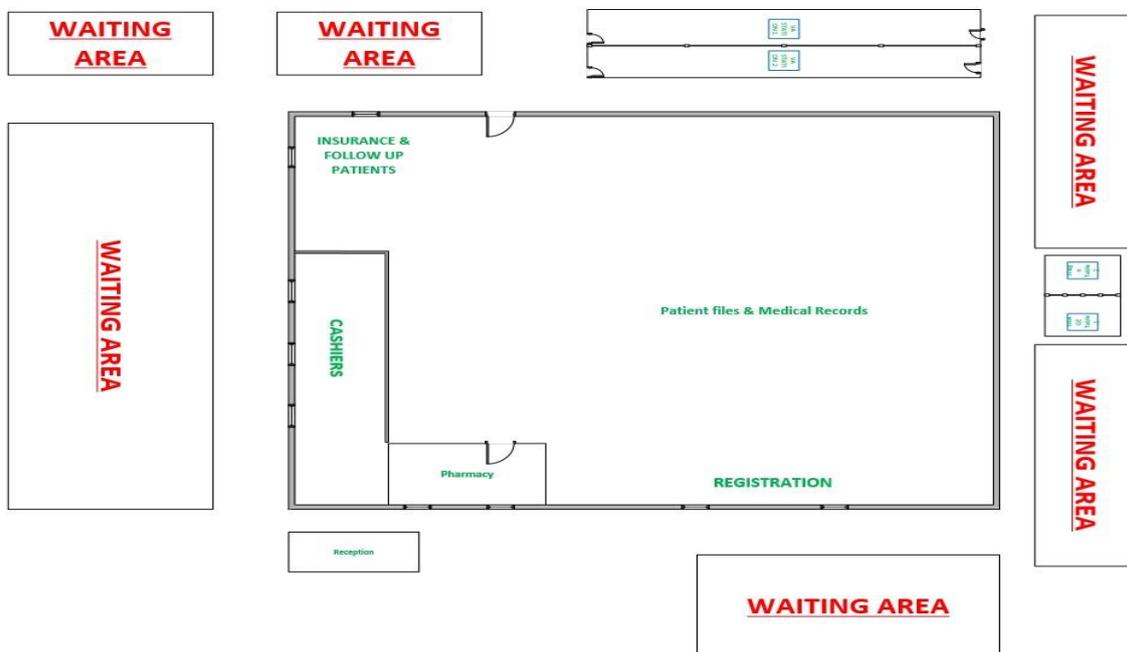
1. Interest by external facilities. The assumption that external facilities would understand and therefore buy in implementing lean management and continuous improvement initiatives may have been wrong; alternatively, it could have been overestimated.
2. The initial understanding and belief that within the scope of the project, CCBRT would be able to package its IMS for sale.

Diagram 1: The current state map

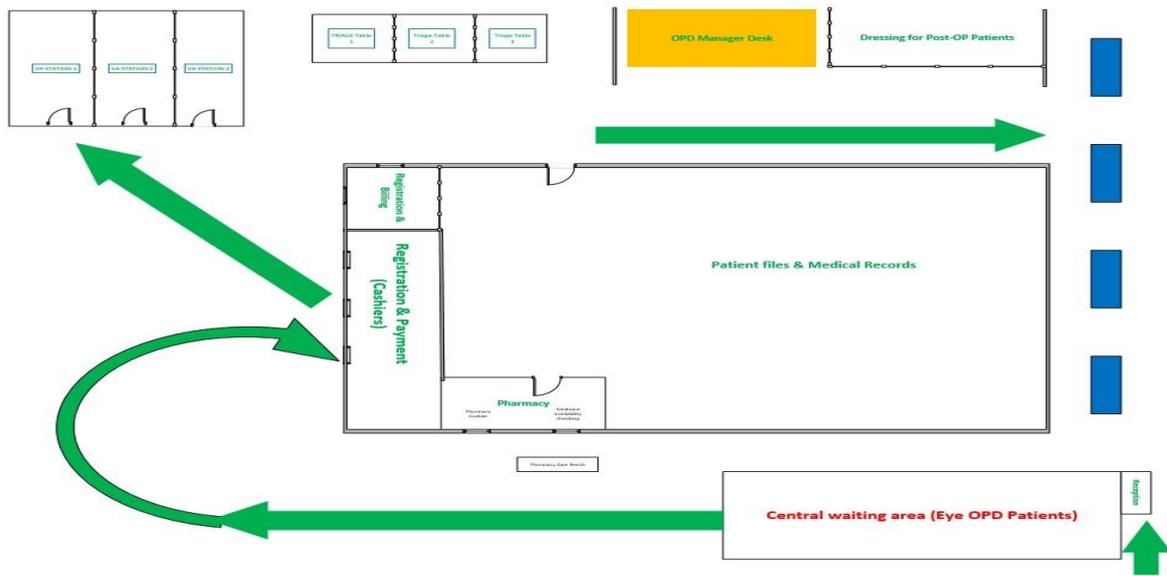


This was a mapping out of a patient journey at the eye OPD

Diagram 2: Representation of current eye OPD Floor layout



**Diagram 3: Representation of eye OPD floor after changes**



**Diagram 4: Timetable for eye OPD training plan**

Days	Time	Activity	Participants
Monday	8:00 - 8:15	Welcome by DH Director	All Eye OPD Staff
	8:15 - 4:00	Team Building Training	All Eye OPD Staff
Tuesday	8:00-10:00	Lean overview + General overview of the future state plan	All Eye OPD Staff
	10:00-12:00	Open clinic training	Finance Cashiers
	10:00-12:00	Roles in the future State	Front office + Pharmacy
	1:00-4:00	A3 Problem Solving	Front office + Pharmacy + Cashiers
	10:00-12:00	VA training	Medical Team (Doctors, Nurses & Optometrists)
	2:00-4:00	Triage Assessment	Medical Team (Doctors, Nurses & Optometrists)
Wednesday	8:00-12:00	Health & Safety policy	All Eye OPD Staff
		Hazards & Risks assessments	All Eye OPD Staff
		Incident Reporting and Investigation	All Eye OPD Staff
	1:00-2:00	Roles in the future state	Medical Team (Doctors, Nurses & Optometrists)
	2:00-4:00	Infection Prevention & Control	Medical Team (Doctors, Nurses & Optometrists)
	2:00-4:00	Huddle Board	Front office + Pharmacy + Cashiers
Thursday	8:00-9:00	QA&QI	Medical Team / Medical Records + SS
	9:00-12:00	A3 Problem Solving	Medical Team (Doctors, Nurses & Optometrists)

	1:00-4:00	Huddle Board	Medical Team (Doctors, Nurses & Optometrists)
Friday	8:00-3:00	Rehearsals on Huddle board & General operations & 5S and Visual Management	All Eye OPD Staff
	3:00:-4:00	Staff Celebration & Recognition	All Eye OPD Staff