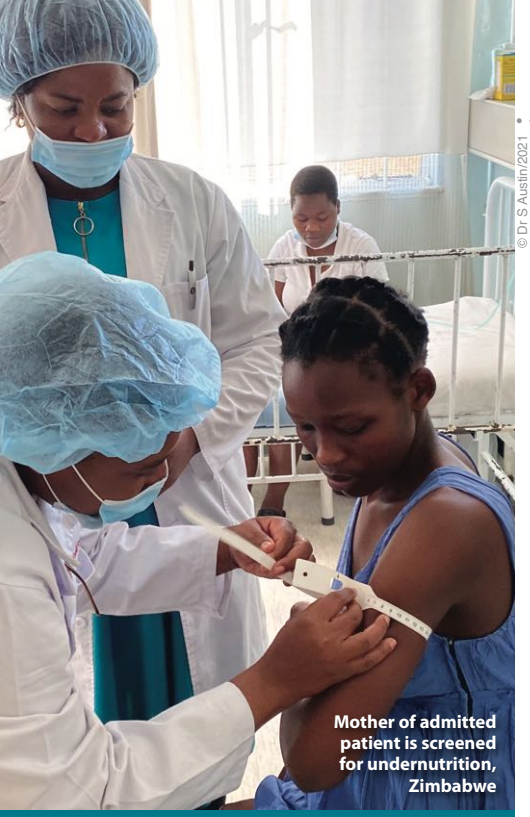
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Mother of admitted patient is screened for undernutrition, Zimbabwe

Sally Mugabe Children's Hospital: A snapshot

This article offers insight into the provision of inpatient treatment of complicated wasting at the Sally Mugabe Children's Hospital, Zimbabwe

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ZIMBABWE

Key messages:

- Wasting carries a significant health burden in Zimbabwe.
- Wasting is a complex illness caused by multiple factors, including both medical and socio-economic drivers. Therefore, it must be addressed in a holistic manner above and beyond mere nutritional rehabilitation and the treatment of medical complications.
- Creating a specialist multidisciplinary inpatient service for these vulnerable patients can improve their in-hospital outcomes and reduce mortality.

Background

Zimbabwe is currently facing multiple socio-economic challenges, healthcare sector incapacitation and the recent COVID-19 pandemic, all of which are exacerbating a precarious nutrition situation. The prevalence of wasting in Zimbabwean children (6- 59 months) increased from 3.6% in 2019 to 4.5% in 2020 (Zimbabwe Vulnerability Assessment Committee (ZimVAC), 2019; ZimVAC, 2020). Referral hospitals have experienced increased cases of complicated severe wasting, particularly in the Sally Mugabe Children's Hospital (SMCH) which saw a rapid increase from an average of 34 to 86 cases per month in 2019 and 2020 respectively.[1]

The SMCH, which is part of the Sally Mugabe Central Hospital, is the largest referral hospital in Zimbabwe, boasting a 350-bed capacity. It caters for patients from the poorest areas of Harare as well as accepting referrals from most other parts of the country. The SMCH is the largest stabilisation centre (SC) for complicated wasting in the country, admitting close to 500 cases per year. Unfortunately, inpatient mortality at the SMCH has been unacceptably high and in the period of 2019-2020 was reported at 45.7%. This is an alarming number of lives lost from wasting – a largely preventable condition. Even considering that as a tertiary referral institution the SMCH received referrals for the most complicated cases of wasting, this figure cannot be justified. A secondary analysis of combined data from two hospitals in Kenya and one in Malawi showed overall inpatient mortality in severely wasted children to be 16.3% (Wen et al, 2021), demonstrating a vast gap in the quality of care for these patients in the SMCH. Wasted children represent the most vulnerable group of patients with many not accessing formal healthcare. There were 52,659 children under five years of age estimated by the Ministry of Health and Child Care (MoHCC) to be in need of nutritional rehabilitation in Zimbabwe in 2021. Unfortunately, only 26.4% of these children were reached by the formal healthcare system, falling short of the 50% target set by the government (ZimVAC, 2020).

In 2020, as a part of an effort to improve care for children with wasting in Zimbabwe, the MoHCC updated its guidelines on the integrated management of acute malnutrition (IMAM) (MoHCC, 2020) covering both inpatient and outpatient management of wasting as well as the integration of nutrition into other national healthcare programmes. However, despite the existence of these new guidelines, the performance of the outpatient part of the IMAM programme in the country is 70.6%[2] which falls short of the targeted cure rate of 75%.

This article describes the journey of the SMCH in its quest to improve the quality of care for wasted children by becoming a National Centre of Excellence for wasting management.

Structure of wasting services at the hospital

Paediatric Association of Zimbabwe: Role in the project

The Paediatric Association of Zimbabwe (PAZ) is a group of paediatricians and other health professionals who aim to advance the welfare of children in Zimbabwe. Since 2019, PAZ has been working collaboratively with UNICEF and the MoHCC to build capacity and to provide mentorship in wasting management for clinicians in health facilities of various levels across the country. The previous key achievements through this partnership include:

- A capacity audit of five major hospitals managing severe wasting cases. This highlighted the major gaps in service provision for children with wasting and helped to formulate the necessary interventions to address these.
- The training of 136 doctors, 57 nurses and nutritionists across four provinces (Midlands, Matabeleland South, Manicaland and Mashonaland West) on IMAM as per national guidelines.
- Two rounds of clinical mentorship in four provinces covering 12 districts in total. This also included the support of clinical audits in each province.
- The development of online IMAM training videos for health worker capacity building.

Following the successful start of the project, the second phase of the collaboration was initiated in February 2021. The goal of this phase was to scale up and implement a sustainable, quality of care improvement intervention for children presenting to inpatient care with complicated severe wasting with the aim of reducing mortality and improving treatment outcomes. The project ac-

[1] According to unpublished District Health Information System 2 data provided by the Ministry of Health and Child Care.

[2] According to unpublished District Health Information System 2 data provided by the Ministry of Health and Child Care.

tivities were planned to take place over a nine-month period from February to November 2021 and included the following objectives:

Quarter 1 (22 February – 22 May 2021): The main objective of the first quarter was to establish a specialised national unit for the management of wasting. The SMCH was selected for the establishment of a Centre of Excellence for wasting management and to become the core site for training, protocol development and research. This included IMAM training of 80 clinicians working at the SMCH and the further dissemination of the acquired knowledge to their respective clinical areas. Another important aspect of the activities planned for the first quarter of the project was to establish a comprehensive data collection system for the patients admitted with wasting. Plans were put in place for the creation of a new High Dependency Unit (HDU) within the Malnutrition Unit for acutely ill children with wasting. This involved the placement of specialised equipment such as vital signs monitors, infusion pumps and syringe drivers as well as the continuous training of medical staff in the management of critically ill patients with wasting.

Quarter 2 (23 May – 23 August 2021): The main activities of the second quarter aimed to complete the training in the remaining eight provinces as well as to conduct IMAM training in four central hospitals of the country and further establish a sustainable capacity-building system. This, together with the activities carried out in the previous phase of the partnership, would ensure that all SCs in the country received training on updated IMAM guidelines. Two rounds of mentorship visits were carried out in four provinces that were not covered during the previous project: Mashonaland Central, Masvingo, Mashonaland East and Matabeleland North. One of the other core activities of the second quarter of the project was the development of a comprehensive e-learning package for IMAM for training health professionals nationwide.

Quarter 3 (23 August – 23 November 2021): During the third quarter, the project focused on the training and dissemination of the Continuous Quality Improvement (CQI) approach as guided by the MoHCC's Quality Improvement Strategy. This objective included the generic training of 100 healthcare workers across institutions of different levels with further training on the specific and practical application of CQI to the IMAM programme and its indicators. This training capacitated staff at health facilities to identify priority quality improvement needs and design strategies to track, monitor and achieve the prioritised quality improvement indicators.

Patient flow and staffing

Prior to the Malnutrition Unit inception, care for patients with severe wasting at the SMCH was provided as a part of general paediatric services. There was no prioritisation of children presenting with complicated severe wasting at the paediatric casualty centre or in the wards. In addition, such patients were usually refused admission to the intensive care unit due to presumed poor outcomes with preference instead given to children with other conditions who offered a 'better chance of survival'. There was also no separation between wasted patients in different stages of their treatment, with newly admitted critically ill patients placed next to children who were recovering and gaining weight.

Under the new set-up, all children presenting to the SMCH casualty department are screened for wasting irrespective of the presenting illness. Patients who are identified as wasted are prioritised and managed according to the newly introduced standard operating procedures (SOPs). Patients who meet the admission criteria for the Malnutrition Unit are then admitted as priority cases and managed by a designated multidisciplinary team of doctors, nurses and a nutritionist with hospital food services supervisors (HFSS). The doctors working in the unit include a consultant paediatrician, a middle-grade doctor and two junior doctors. The junior doctors rotate on a monthly basis while all other doctors are permanent.

Nurses are now allocated to the Malnutrition Unit for two months at a time, as opposed to the old system of rotation on a daily basis. This allows for better care quality due to improved accountability, continuity of care, better handover practices, teamwork and bonding between the staff and the caregivers. Furthermore, the nutrition team has now been fully integrated with the medical team and patients greatly benefit from their continuous input. The most recent addition to the malnutrition team is a qualified counsellor who specialises in disability counselling and child protection. This counsellor provides caregivers with emotional and psychological support as well as collecting qualitative data for the Malnutrition Unit on the knowledge and attitudes of the caregivers. Visiting members of the team include social workers who join the ward rounds on a weekly basis and a family planning team that provides educational sessions for the mothers twice a week.

> ***"Malnutrition is both treatable and preventable. We can do more, and we can do better."***
>
> – Sally Mugabe Children's Hospital

All new admissions are placed into one of two Stabilisation Units that function as HDU settings. Once the patients are stabilised and their acute medical problems addressed, they are moved into Transition Units. This allows for the separation of patients according to the severity of their condition and the stage of their illness. The patients who are deemed medically stable are encouraged to go to the Unit's playroom where they take part in play therapy conducted by a qualified teacher as a part of their emotional and sensory stimulation. Sensory, emotional and physical stimulation constitute a fundamental part of the rehabilitation of patients suffering with wasting and constitutes one of the10 steps of malnutrition management as per World Health Organization (WHO) guidelines.

Following their discharge from the Malnutrition Unit, the patients are transferred to the outpatient treatment programme (OTP) and seen on a designated day at the Outpatient Department. This clinic is run jointly by doctors and nutritionists utilising a holistic approach to patient care comprising of medical and nutritional assessment, health education, counselling and emotional support. Usually, discharged patients are followed up at the Outpatient Department of the SMCH for a month or two after which they are transferred to their local OTP centres.

Amongst other activities, the malnutrition team also conducts regular screening of all paediatric inpatients admitted under other teams as well as the screening of the mothers of wasted patients.

Data collection and audit

The paucity of data on inpatients managed for wasting was one of the major challenges when the Malnutrition Unit was established. Setting up a functional data collection system was a priority. Within the first quarter of the PAZ/UNICEF collaboration, a data collection system was set up in both electronic and paper format. The information collected for every admitted patient includes demographic data, details of the presentation to the hospital, clinical course and outcome.

Death auditing, using a standardised WHO tool (WHO, 2018), is also routinely measured at the unit. The Malnutrition Unit is the first facility in the country to conduct routine formal audits of paediatric deaths and serves as a pilot site. It is intended for this practice to be disseminated to the rest of the country soon, pending approval by the MoHCC.

Key outcomes

During the first year of operation of the Malnutrition Unit, the mortality of patients admitted with complicated wasting dropped from 45.7% to 14.2% and is now comparable to similar units in neighbouring countries (Wen et al, 2021).

The unit is also a nucleus for targeted teaching and research in childhood wasting with regular teaching for nursing and medical students now conducted at the facility. From 2022, all medical students at the College of Health Sciences of University of Zimbabwe are assessed in the diagnosis and management of wasted patients since this became a part of the core curriculum. SOPs have also been developed by the team and, once finalised and approved by the MoHCC, these will be distributed to other Stabilisation Units in the country. This will assist in streamlining the care for inpatients with wasting to improve their outcomes.

Through this collaboration, the majority of districts in all provinces of Zimbabwe have now been trained in IMAM. Ongoing mentorship

visits are planned to ensure the continuity of support of the clinical staff and further capacity-building in SCs across the country. An e-learning package for IMAM training is now being finalised and will allow free nationwide access to the training resources that cover all aspects of IMAM from the background and country statistics all the way to the management and follow-up of patients with wasting. E-learning materials will be available via the MoHCC platform to make it sustainable and to allow access for health facilities at all levels.

Improvements in patient data collection allow for the identification of areas for future research with several topics already identified such as patterns of infections and their sensitivities in the admitted patients and barriers to seeking medical help, amongst others. Data collection at the Malnutrition Unit also allowed for the identification of referral hotspots, highlighting the areas in Harare and surrounding areas with a high burden of wasting in the community such as Epworth and Hopley. This supports planning for further interventions for the improvement of wasting management in both inpatient and outpatient settings as well as strengthening the links between them.

In addition, the data demonstrated a large burden of disability in children with wasting, particularly cerebral palsy. Almost a third of all patients admitted to the Malnutrition Unit had associated neurological disability. The actual burden was even higher when expressed in bed-days, increasing to around 50%, as the children with cerebral palsy take a long time to recover compared to those without a disability. The data collection at the Malnutrition Unit showed the average length of stay for children with associated neurological disability to be 3.5 weeks compared to just over two weeks for the patients with wasting alone. There is therefore a clear need to scale up the screening and active prevention of wasting in this vulnerable group of patients. According to the Malnutrition Unit data, human immunodeficiency virus infection also represents a significant burden in admitted patients and currently stands at just over 10%. This figure is likely to rise as we see the long-term effects of the COVID-19 pandemic on the routine health care programmes in the country.

What we learned from the process

Successes

The project to create the Centre of Excellence for the management of malnutrition was possible due to the joint efforts of paediatricians, UNICEF and the MoHCC. It was substantiated by the clear and undoubted need for improving the quality of care for children with wasting in Zimbabwe. It now represents a hub for training and research in this area as well as being the centre for the development and implementation of the standards of care.

This project allowed the establishment of a specialised Malnutrition Unit for the management of complicated wasting in children – the first one of its kind in Zimbabwe. The patients are now managed by a specialised multidisciplinary team that draws on different areas of expertise from all members of the team thus improving patients' outcomes. It also created a positive team spirit where all members of the team are invested in improving outcomes for each individual patient. Regular team meetings further reinforce this trend. Each mortality that occurs in the unit is discussed and audited to identify possible gaps and to improve practice for future patients. This provides an incentive for the team to commit to good care practices without seeking financial rewards.

Having a dedicated Malnutrition Unit with a specialised team gave an opportunity for targeted fundraising. Significant renovations of the Malnutrition Unit were carried out through crowdfunding which included painting, tiling, the purchase of new hospital curtains and chair-to-beds for the caregivers. The funding was provided by individuals as well as several companies, particularly those in close proximity to the SMCH as they felt that the hospital was caring for their community. The funding efforts are ongoing with the hope of being able to provide particularly vulnerable families with some basic food supplies upon their discharge from the Malnutrition Unit.

Challenges

A number of challenges were faced during the inception of the Malnutrition Unit. One of the most challenging was the nursing staff allocation restructuring. It was important for the Malnutrition Unit to have a team of dedicated nurses to allow for continuity of care as well as continuity of training. Under the new system, the nurses are attached to the Malnutrition Unit for two months at a time. In a year of the existence of the Malnutrition Unit, the majority of SMCH nurses have been a part of the malnutrition team and trained in IMAM. This was possible due to the efforts of the paediatric matrons and sisters-in-charge of the wards who were supporting the project.

Another challenge was to develop a close relationship between clinicians and nutritionists. Before the beginning of the project, a nutrition team comprised of a dietician and HFSS worked independently from the medical team, doing their own ward rounds, supplying therapeutic feeds and providing dietary counselling. Doctors consulted the dietician and her team when they felt the need. This was often not conducive for holistic patient care and created an opportunity for conflict between the teams. HFSS mostly spent their working hours in the hospital kitchens supervising the preparation of the feeds which did not capitalise on their expertise and training. Now the dietitian and HFSS are an integral part of the malnutrition team with HFSS being actively involved in clinical work including ward rounds, patient counselling and screening activities.

Lessons learned

Despite the demonstrated reduction in mortality for the Malnutrition Unit, the number of deaths remains high and further efforts will be made to improve the quality of care for wasted patients. These include:

1. Accelerating the development of SOPs to further standardise the care provided in the Malnutrition Unit.
2. Completing the establishment of HDU facilities for critically ill malnourished patients.
3. Strengthening the links between SCs and OTPs to improve follow-up and strengthen the referral system.
4. Completing the development of IMAM e-learning package for national dissemination and use.
5. Conducting research into two identified priority areas:
   a. Patterns of infection and antibiotic sensitivity in patients presenting to the SMCH with complicated severe wasting
   b. Actual and perceived barriers in seeking medical assistance for children with wasting
6. Lobbying for the provision of nutritional support and a social package for the families of patients with poor socioeconomic circumstances or disabilities to reduce readmission rates.
7. Engaging in screening activities and the active prevention of wasting in high-risk patients, particularly those with cerebral palsy.

Conclusion

Our experience has demonstrated that the model of the Malnutrition Unit can and should be replicated in other SCs across Zimbabwe. A key starting point would be to identify malnutrition champions such as doctors, nurses and nutritionists who are passionate about improving outcomes for the wasted children admitted to their facilities. In addition, SOPs developed at the SMCH Malnutrition Unit should be rolled out in other centres in the country to standardise care for this vulnerable group of patients.

As a Malnutrition Unit we are at the beginning of our journey but, in a short period of existence, a significant reduction in mortality has been achieved. We will continue working closely with our partners to improve the quality of care for children with wasting and ensure the sustainability of the project.

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