Loma Linda University School of Public Health and Malamulo Adventist Hospital: A Global-Local Collaboration Addressing Malnutrition

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RATIONALE

In August 2021, Loma Linda University School of Public Health (LLUSPH) students and faculty travelled to Malamulo Adventist Hospital (MAH) to partner with hospital staff to assess malnutrition, as it was identified as a prevalent problem of interest, and provide recommendations to increase program effectiveness and sustainability.

Due to COVID-19 restrictions, not all students were able to travel to Malawi, (Figure 1) so five Loma Linda University School of Public Health students acted as the "home team" to support the field team with data entry and analysis. The field team, worked alongside local Health Surveillance Assistants (HSAs) and with guidance from the MAH Nutrition Director.

Purpose: To gather data to assess the nutritional status of children in the catchment area of Malamulo Adventist Hospital to inform future interventions.

Objective: To evaluate the current nutritional status of children under the age of 15 and provide recommendations for strengthening sustainable nutrition programs that respond to the identified needs of the surrounding population.

Field Team

BACKGROUND

- Food insecurity is a prevalent global health issue disproportionately affecting low resource countries, including Malawi.

- In 2015–16, approximately 37% of children aged under five years were stunted or chronically malnourished, 3% wasted, and 12% underweight.

- Only 25% of children aged 6–23 months old had minimum dietary diversity (NSO; ICF 2017).

- MAH is a community hospital located in the village of Helemani, in Thyolo District. Nutritional challenges within the catchment area of MAH include nutrition education, poor food rationing, food insecurity, and malnutrition (Gaven, 2021).

- MAH promotes nutrition through Community Management of Acute Malnutrition (CMAM) programs including:
  o Supplementary Feeding Program (SFP)
  o Outpatient Therapeutic Feeding Program (OTP)
  o Nutrition Rehabilitation Unit (NRU).

Figure 1. Map of Malawi

METHODS

- The field team collected data from August 5–16, 2021, at the MAH Under 5 Clinic and the Outpatient Clinic to study the nutritional status of children under the age of 15 in the greater Malamulo hospital region.
- Historical data was collected from hospital ledgers and analyzed.
- Measurements included: weight, height, Mid Upper Arm Circumference (MUAC), and nutritional oedema.
- Data was recorded on a collection tool adapted from the Nutrition Rehabilitation Unit register (Figure 2) and analyzed via SPSS.
- Field team split into groups to travel on motorbikes to top ten villages by count
- Survey123 was utilized to geolocate villages.
- ArcGIS Pro was then used to map MAH and surrounding villages (Figure 3).
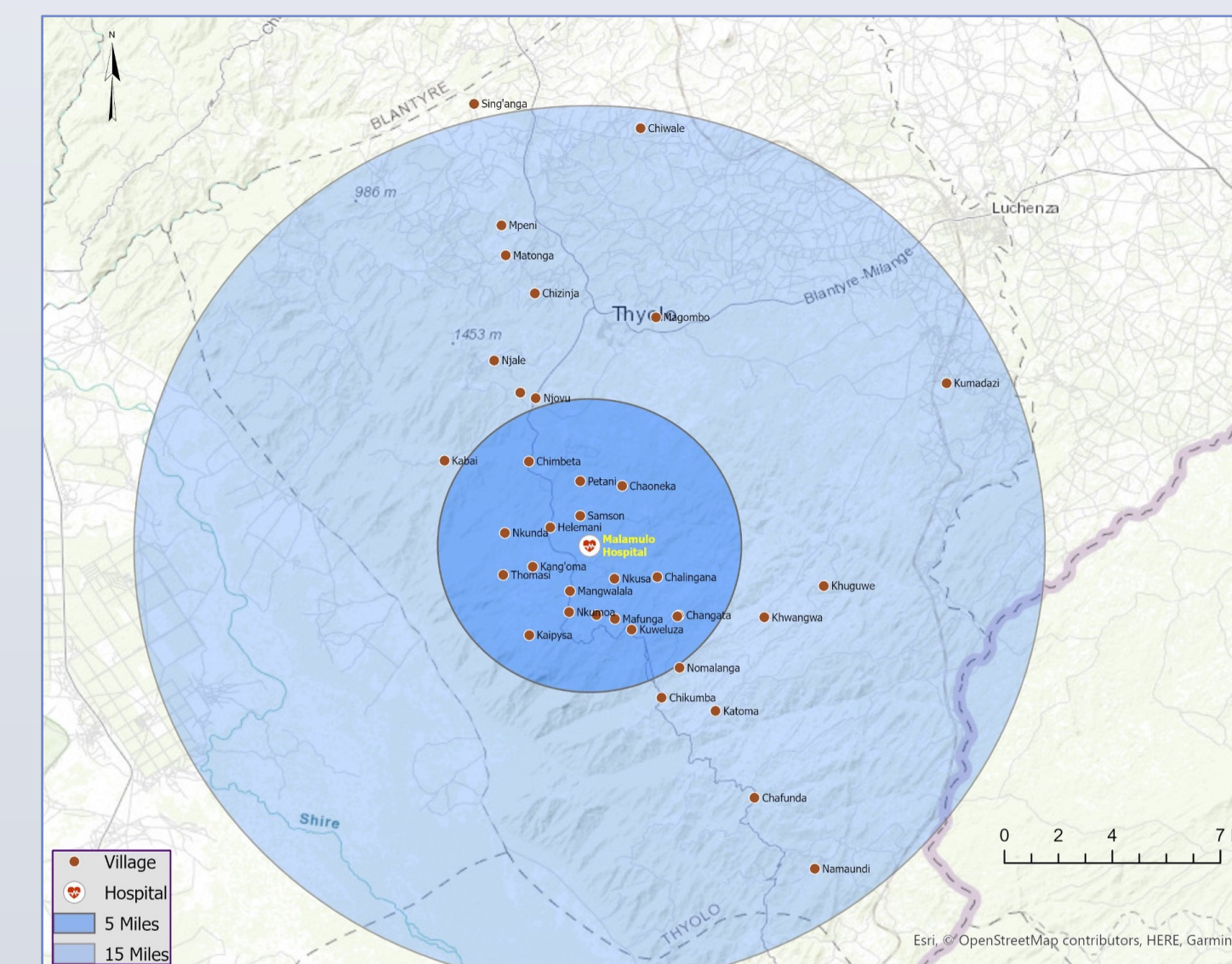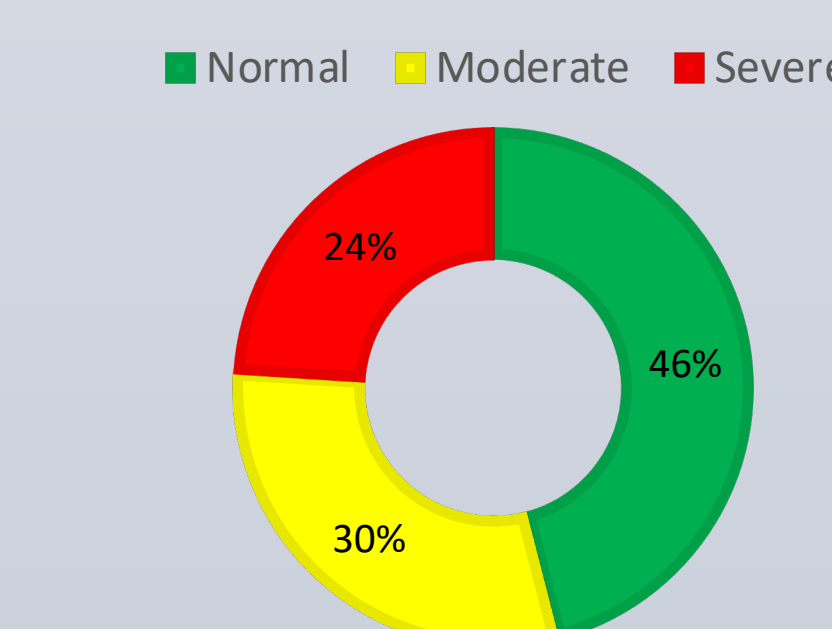
Figure 2. Nutrition Status Assessment
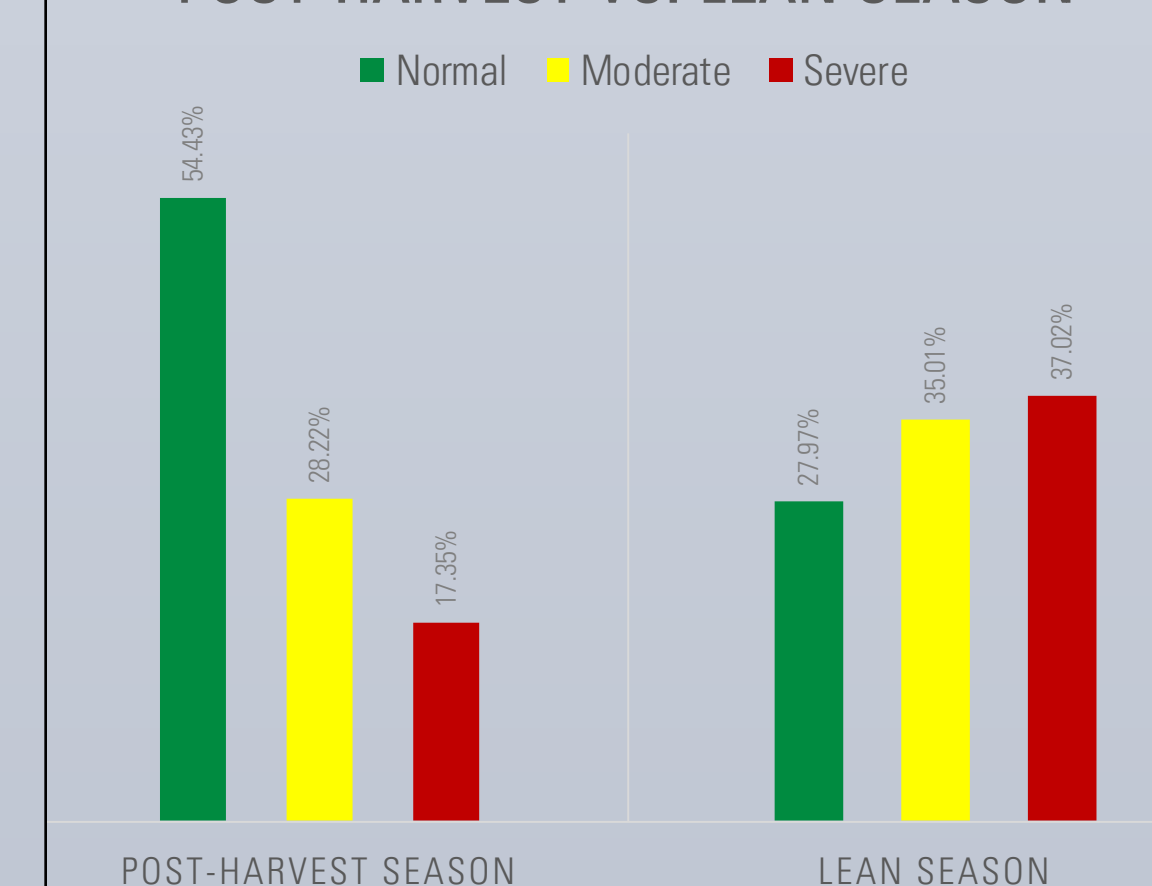
Figure 3. MAH catchment area

RESULTS

- From August 5–16, 2021, 1,546 individual records were collected from 35 villages.
- 54% of children assessed were moderately or severely malnourished
- Of those under the age of 5:
  - 52.3% were normal nutritional status
  - 24.4% were moderately malnourished
  - 23.3% were severely malnourished
- Males under the age of 5 were almost twice as likely to be severely malnourished than females.
- The dry season was characterized by higher rates of normal nutrition status (54.4%)
- During wet season, over 70% of children assessed were moderately or severely malnourished (Figure 4).
- Children assessed at MAH were primarily coming from a 5-mile radius (Figure 3)
- The village of Nkunda had the highest proportion of moderate malnutrition status (~40%)
- The village of Chalingana had the highest proportion of severe malnutrition status (~60%) .
- 1,166 children participated in MAH nutritional programs.
- Of the 366 not in nutritional programs, 35 were moderately or severely malnourished

OVERALL NUTRITION STATUS

Normal | Moderate | Severe

46% | 30% | 24%

POST-HARVEST VS. LEAN SEASON

Normal | Moderate | Severe

POST-HARVEST SEASON: 54.4% | 35.2% | 11.2%
LEAN SEASON: 27.0% | 35.0% | 37.0%

Nutrition Status by Program Participation

Normal | Moderate | Severe

In Program: 32% | 37% | 31%
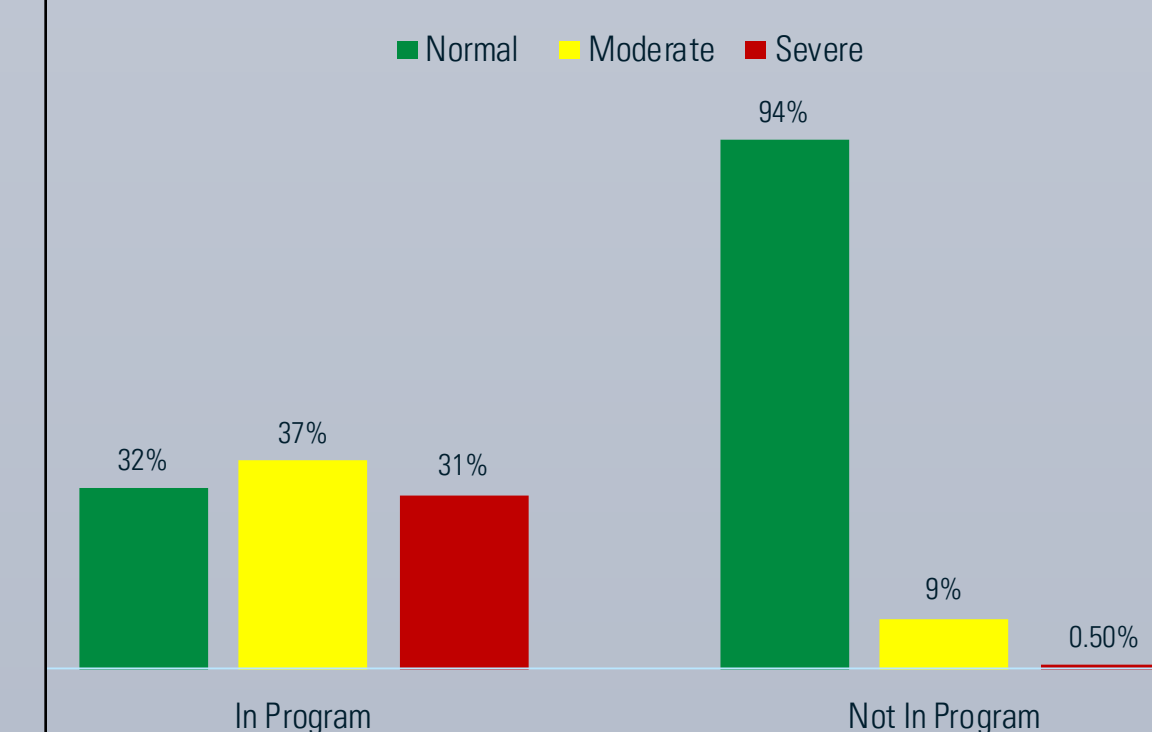Not In Program: 94% | 9% | 0.50%

Figure 4. Overall Nutrition Status

CONCLUSIONS

- Overall, there was an evident association between nutrition status and both village and season.
- Season was a significant indicator of nutrition status as food supply is dependent on rainfall and harvest yield, both of which are subject to the global risk associated with ongoing climate change. Food is more abundant in the post-harvest season which is defined as May to October. Food insecurity is historically higher during the lean season, defined as the months from November to April, as crops are not harvested during this time.
- Children enrolled in a CMAM program had varying nutrition status. It is hypothesized that this is due to time of enrollment in a program. It is unclear how long, on average, a child is enrolled in a program before they see improvement.
- Of the 366 not in nutritional programs, 35 were moderately or severely malnourished (9.6%). While this is a small portion of the population, these children have been overlooked and are therefore missing out on the benefits of nutrition programs for their growth and development.
- From the conclusions discussed, the following recommendation were formulated:

DATA COLLECTION	DATA STORAGE	INTERVIEWS	VILLAGE FOCUS	EDUCATION
Regular collection of nutrition data from all children in school and village settings	Digital database for nutrition assessment data across region	Qualitative data collection from the community regarding assets and barriers	Further analyze data and findings for village-focused programming	Continuing nutrition education and support for pregnant mothers, school age children, and ALHIV

ACKNOWLEDGEMENTS

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