

# Nutrition Status pre Liver Transplant and Length of Hospital Stay post Liver Transplant

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# Background

- ESPEN states that *under-nutrition is a major factor influencing outcomes after orthotopic liver transplant (OLT)*<sup>1</sup>
- In SVUH use multimodal approach to assess nutrition status: dry BMI, hand grip strength, mid arm muscle circumference, dietary intake.



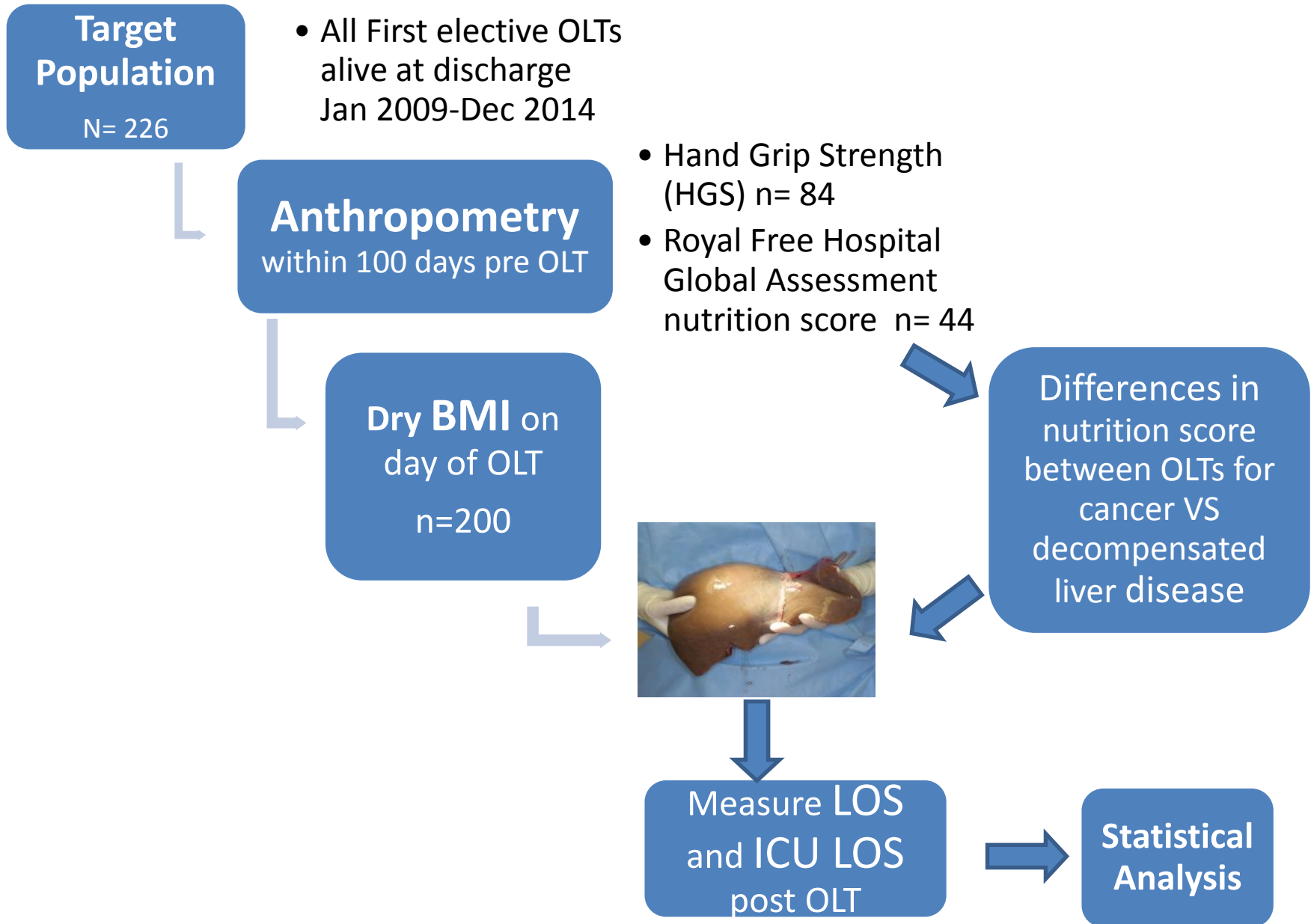
Is there a relationship between nutrition status pre transplant and length of hospital stay after transplant ?

<sup>1</sup>Plauth M et al, ESPEN Guidelines on Enteral Nutrition: Liver disease: [Clinical Nutrition](#). 2006;25(2):285-94.

# Aims

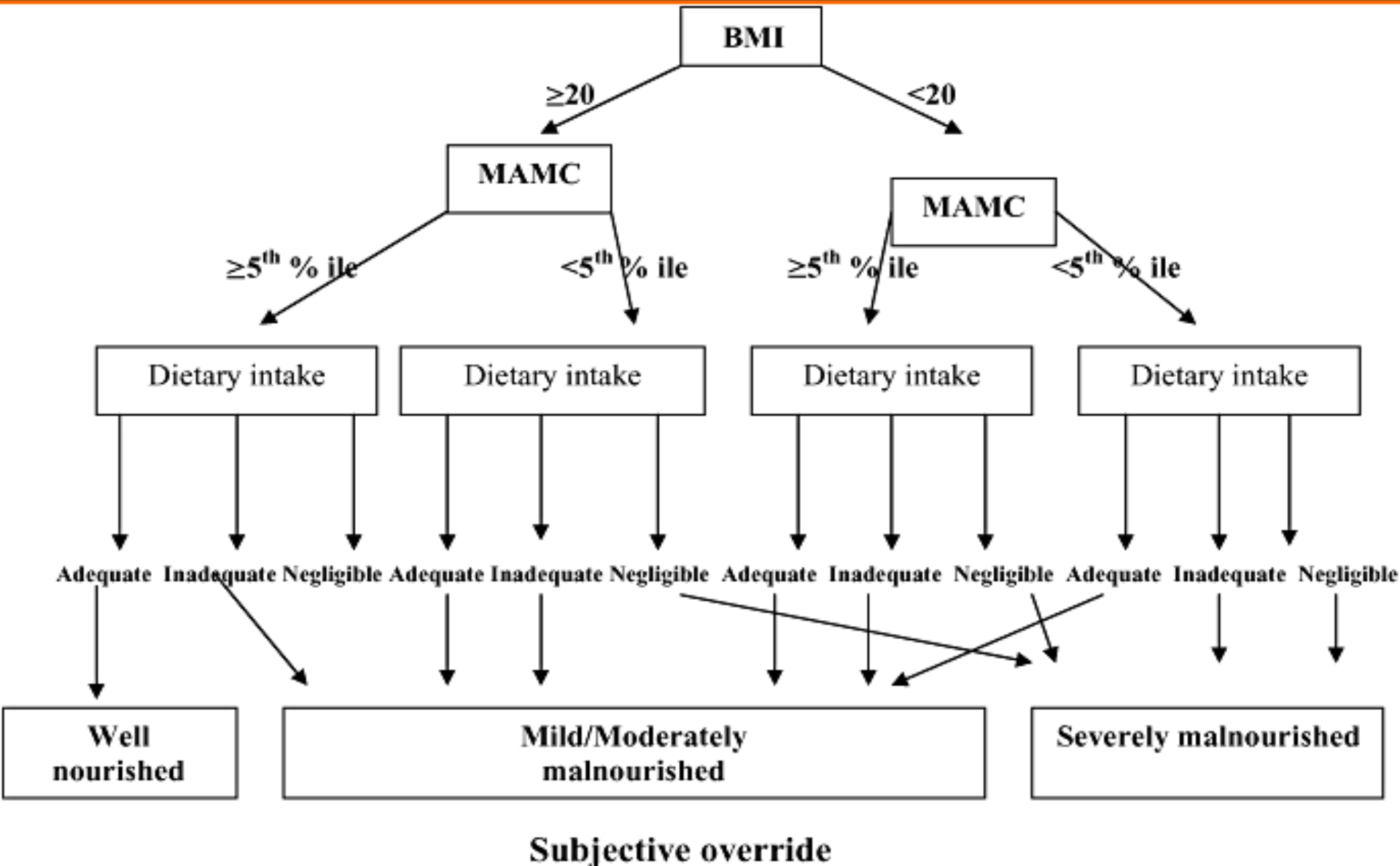
- Examine relationship between nutritional status before Liver Transplant and
  - i) total length of hospital stay (LOS) post OLT
  - ii) intensive care (ICU) LOS post OLT.
- Measure the degree of malnutrition in those with and without a malignant aetiology for OLT

# Methods

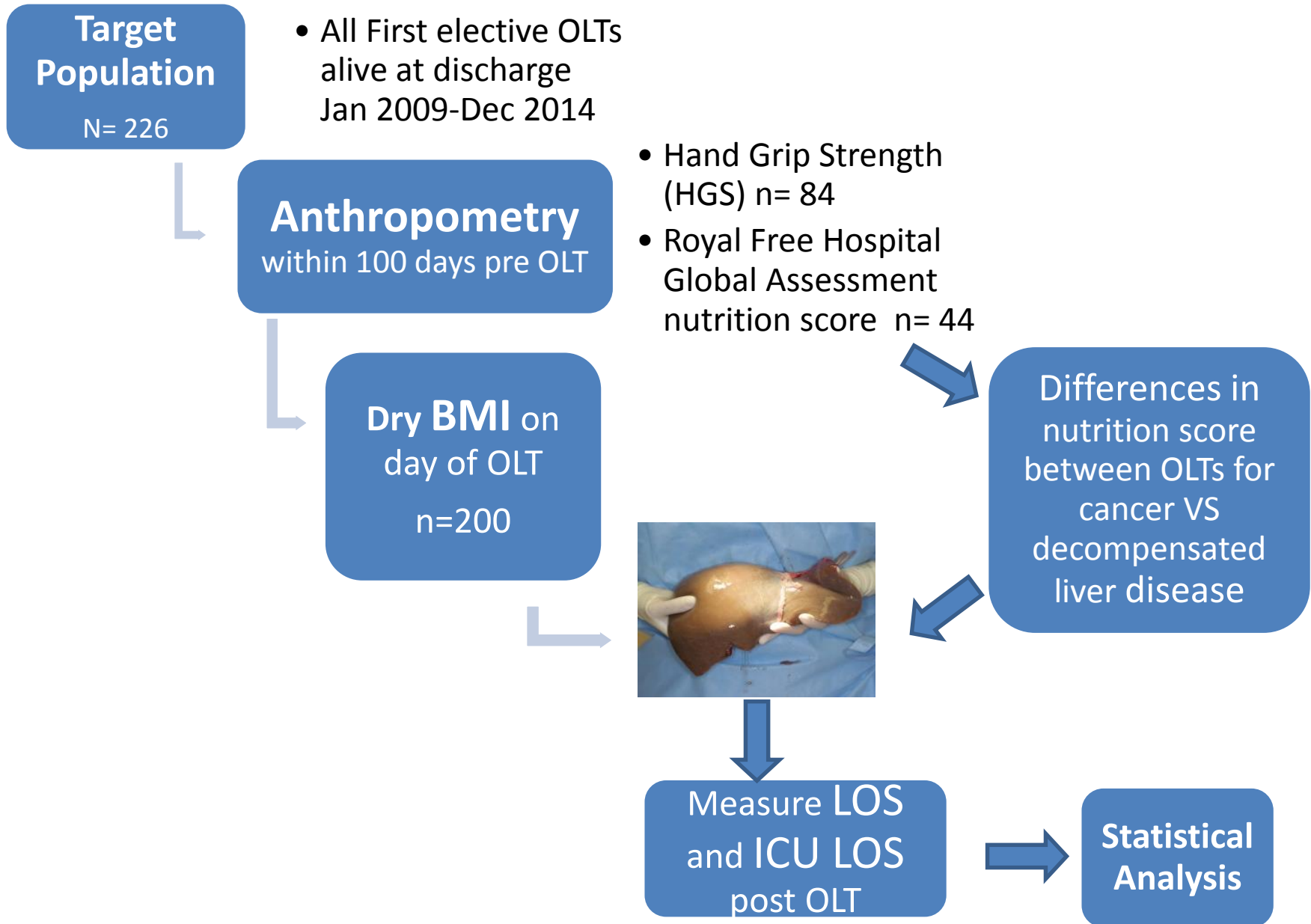


# Royal Free Hospital Global Assessment Tool

Morgan *et al* (2006)



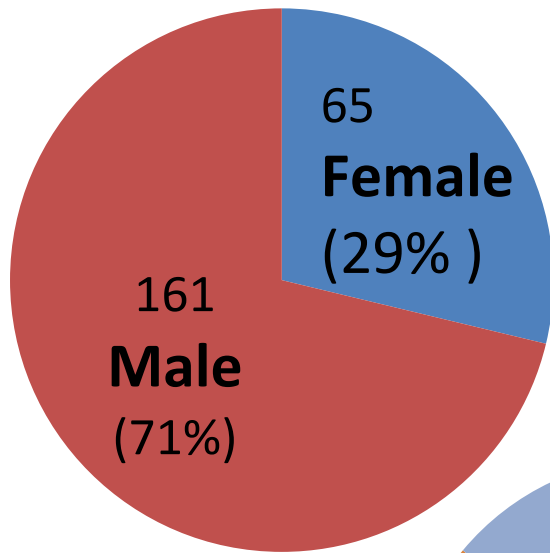
# Methods



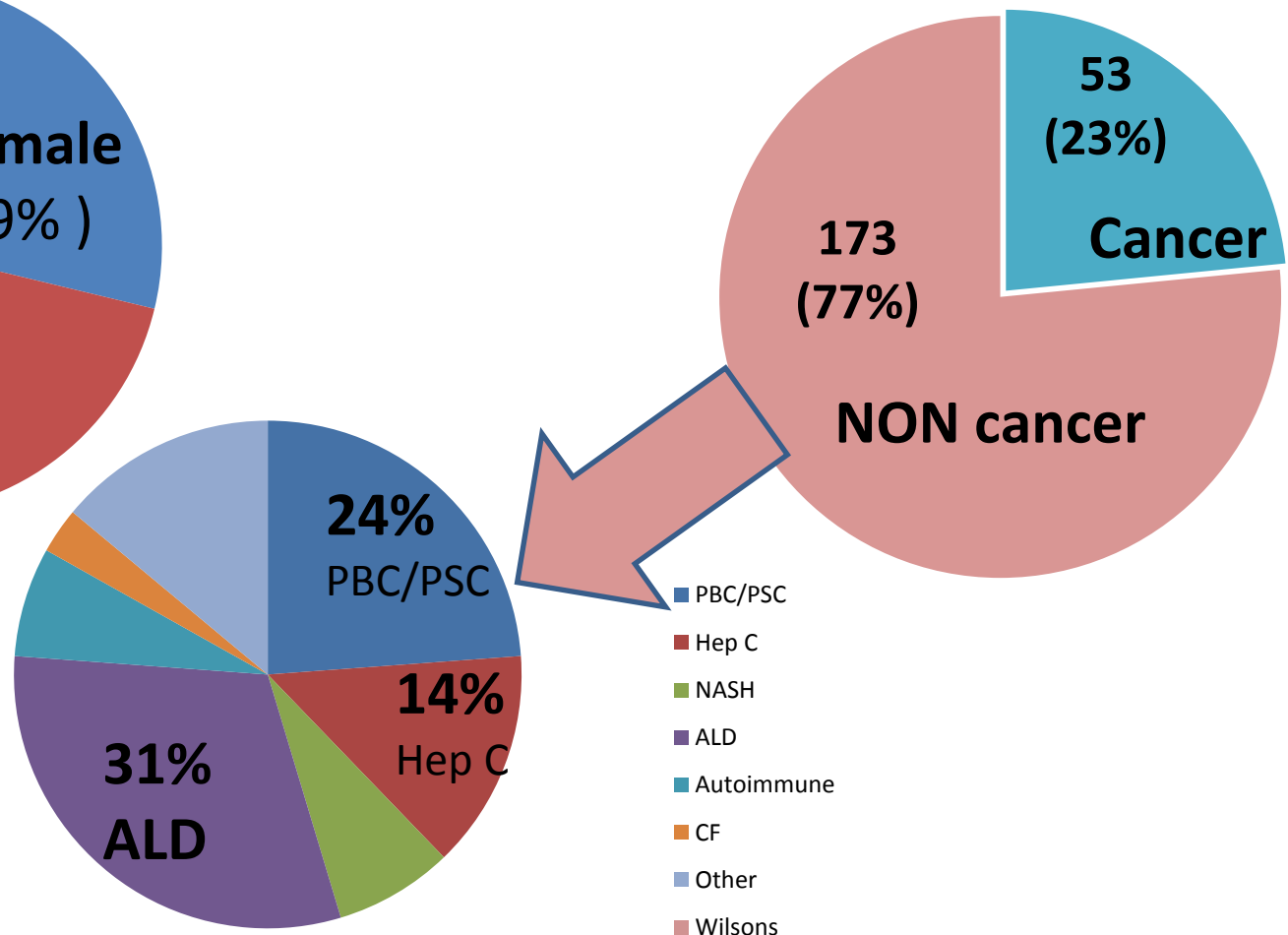
# Results

Profile of 1<sup>st</sup> elective Transplants that were alive at discharge

## Gender



## Reason for Transplant



# Patient Profile

	<b>BMI</b> <b>Kg/m<sup>2</sup></b>	<b>HGS %</b>	<b>Age</b>	<b>LOS</b>	<b>ICU LOS</b>
	n=200	n=84	n=226	n=226	n=226
<b>Median</b>	<b>25</b>	<b>75</b>	<b>55</b>	<b>18</b>	<b>1</b>
<b>Range</b>	<b>15.1- 41.1</b>	<b>28-151</b>	<b>19-70</b>	<b>8-164</b>	<b>0-30</b>

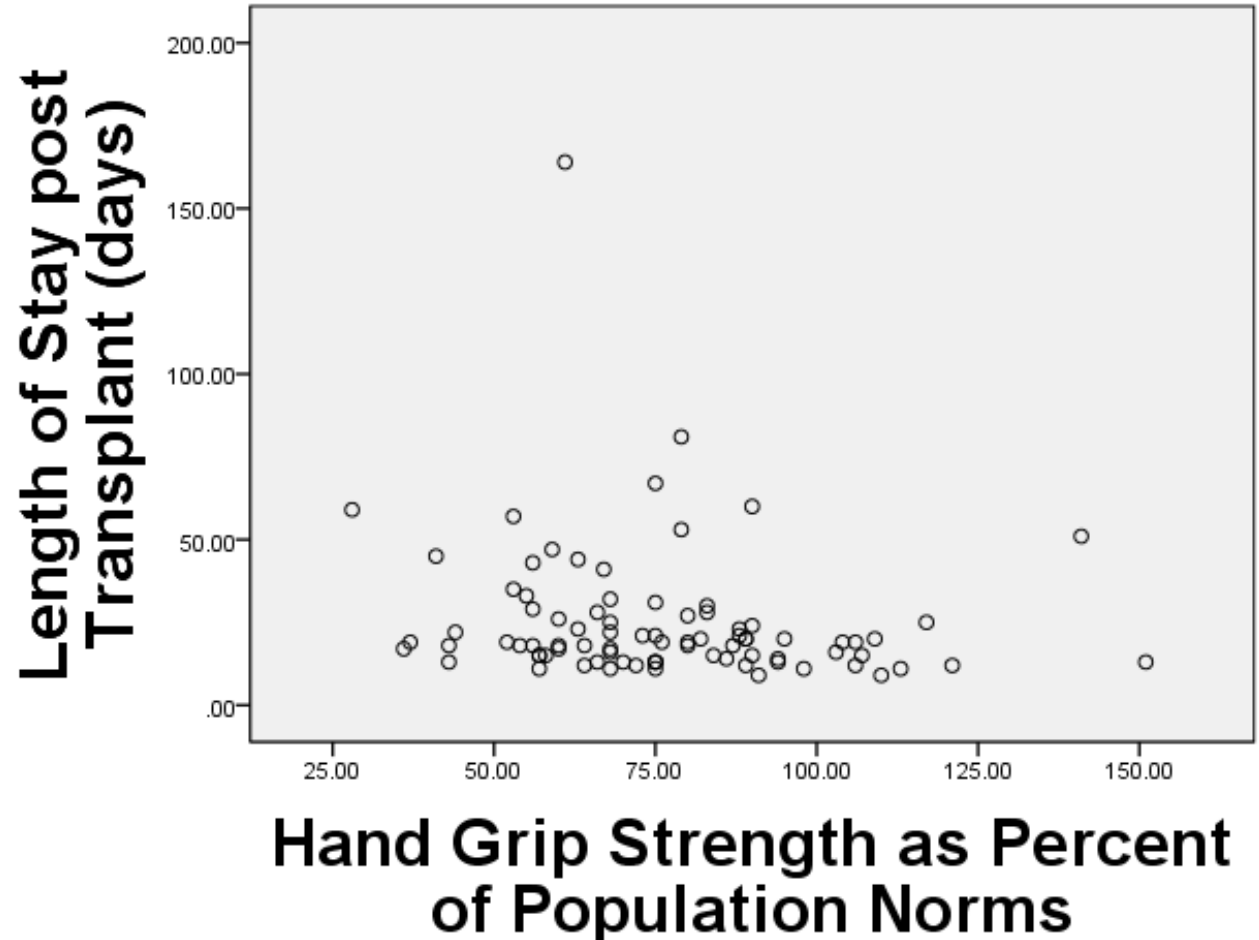


# Correlation % HGS and LOS

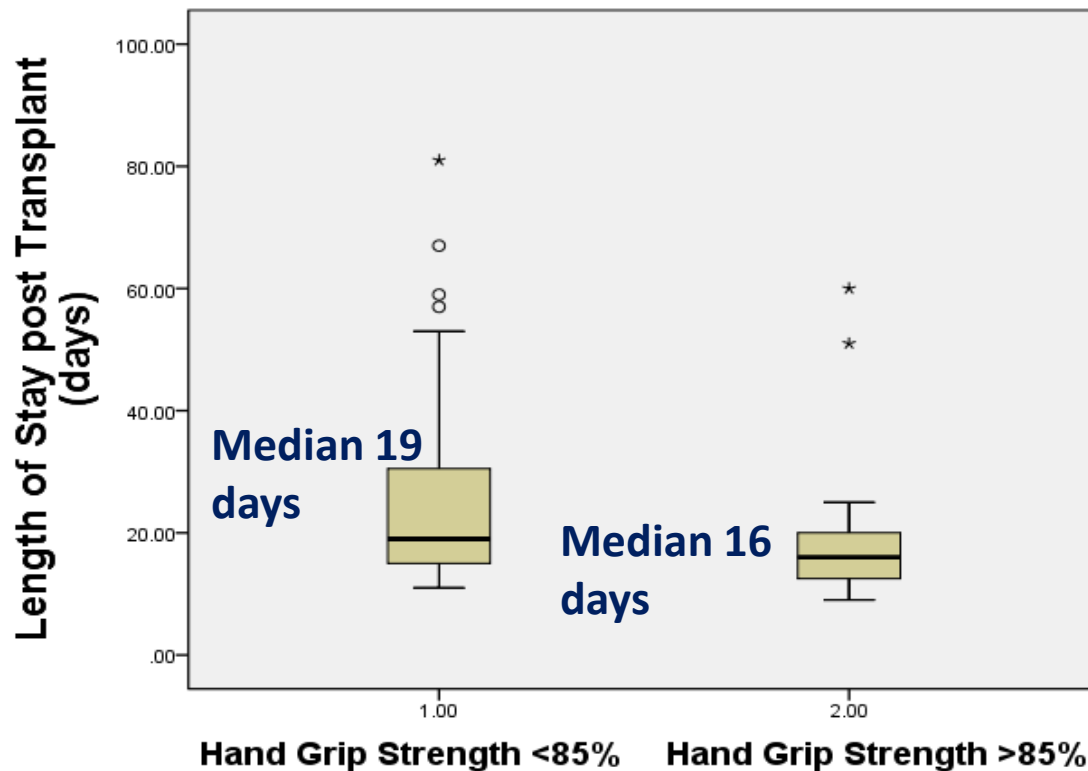


$$r_s = -0.25$$

$$p = 0.02$$



# Hand Grip Strength before OLT and Length of Stay Post OLT (n=84)



**3 Day Difference**

(p=0.02)

Min 11, Max 164

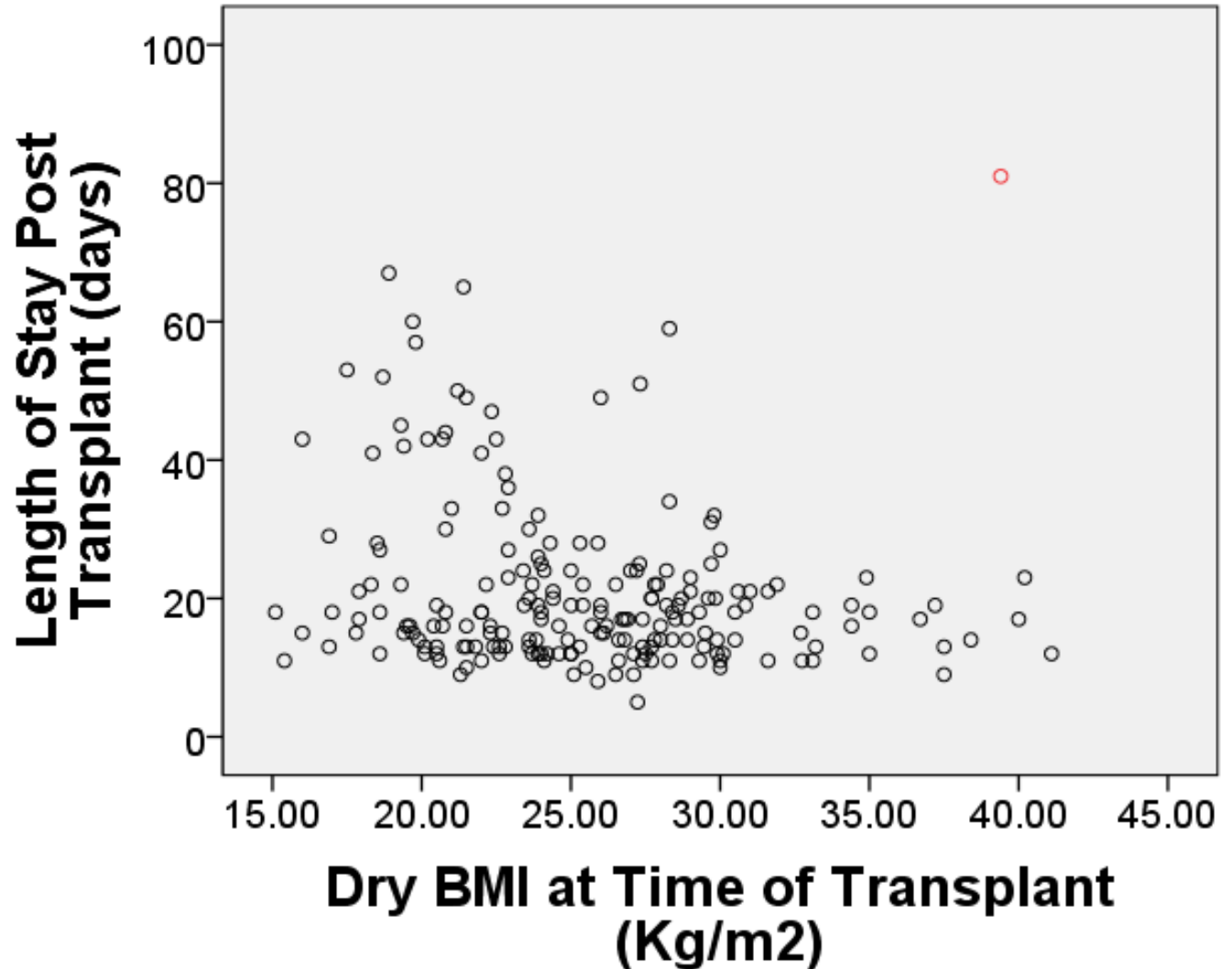
Min 9, Max 60

**19 days VS 16 days**

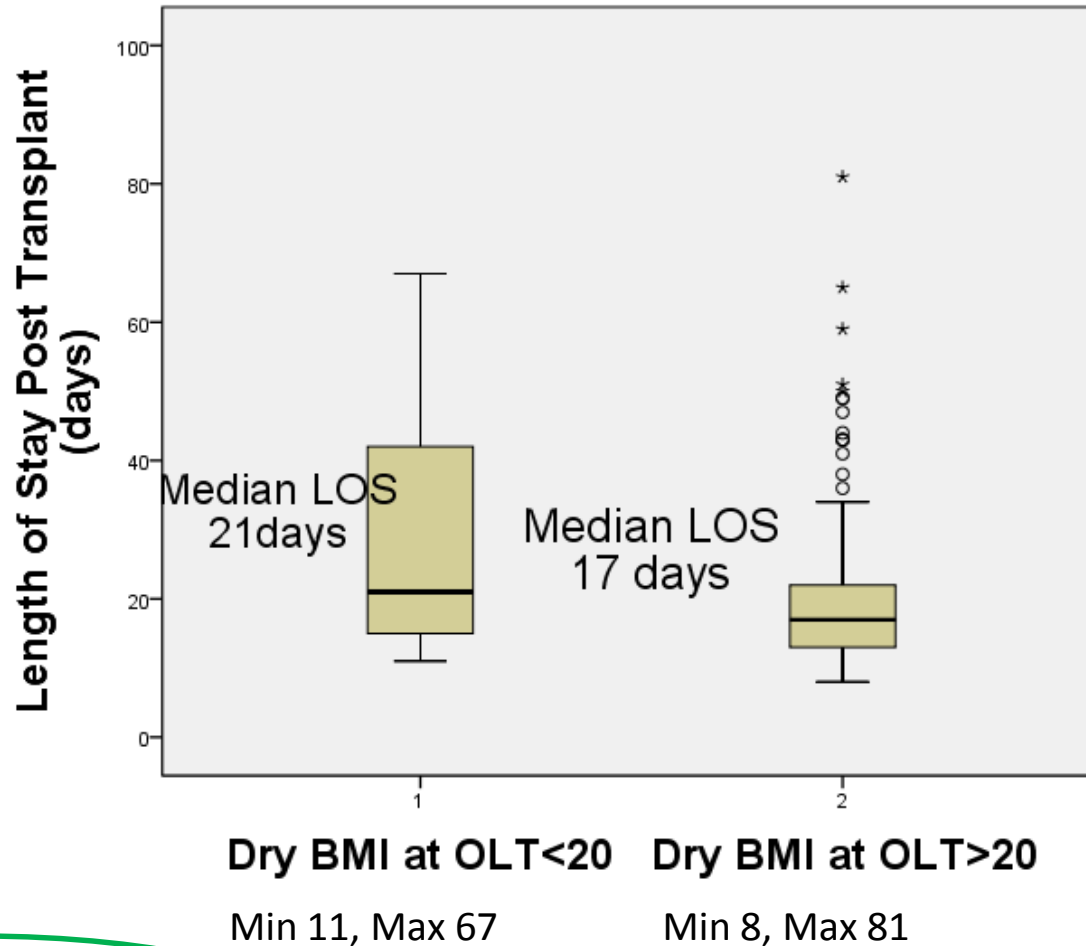
# Correlation BMI at OLT and LOS

$r_s = -0.19$

$p = 0.008$



# BMI at OLT and Length of Stay (n=200)



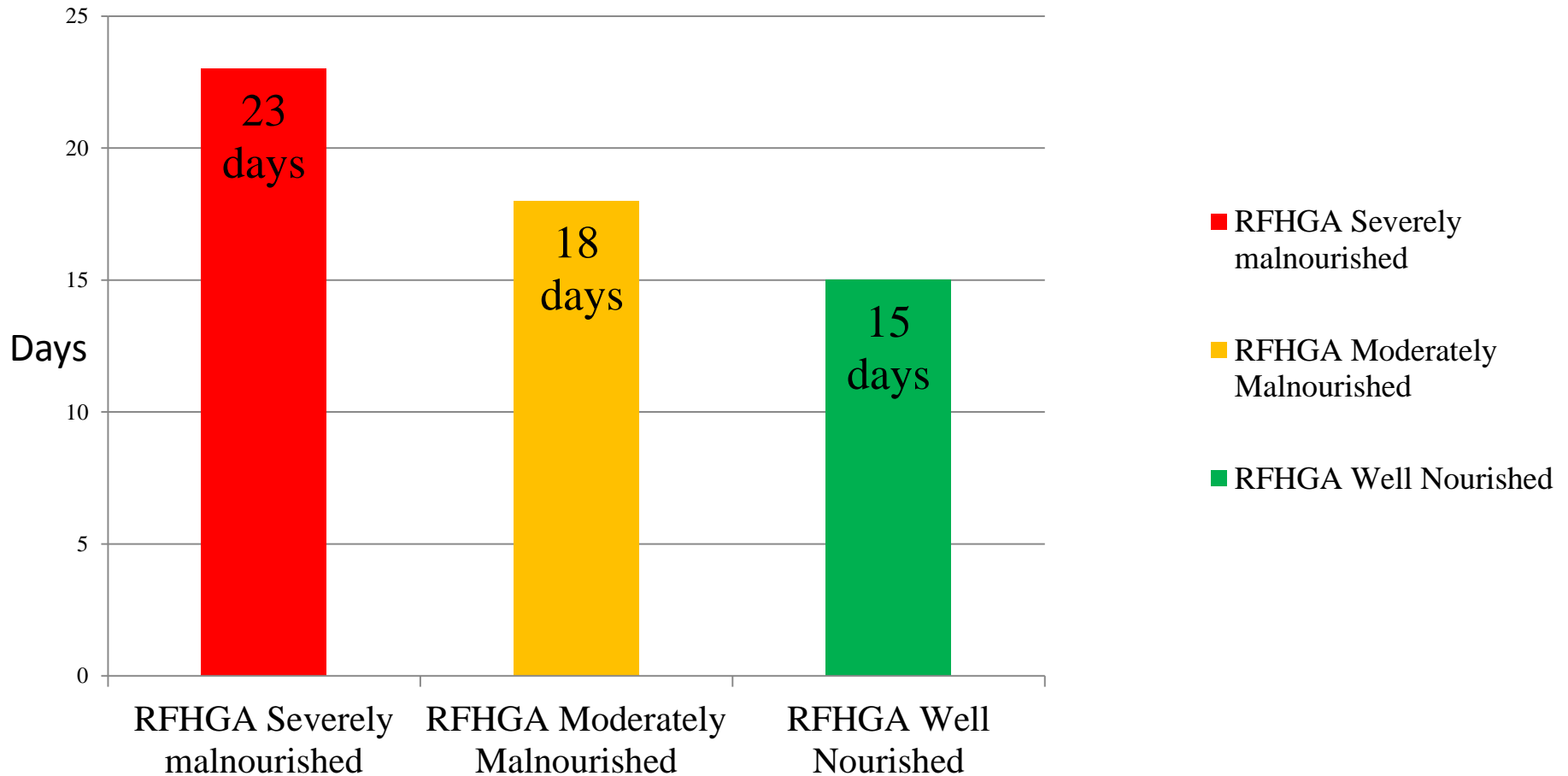
**4 Day Difference**

(p=0.009)

**21 days VS 17 days**

# RFH-GA Status & Length of Stay post OLT (n=44)

Figure 3: Median Length of Stay (days)



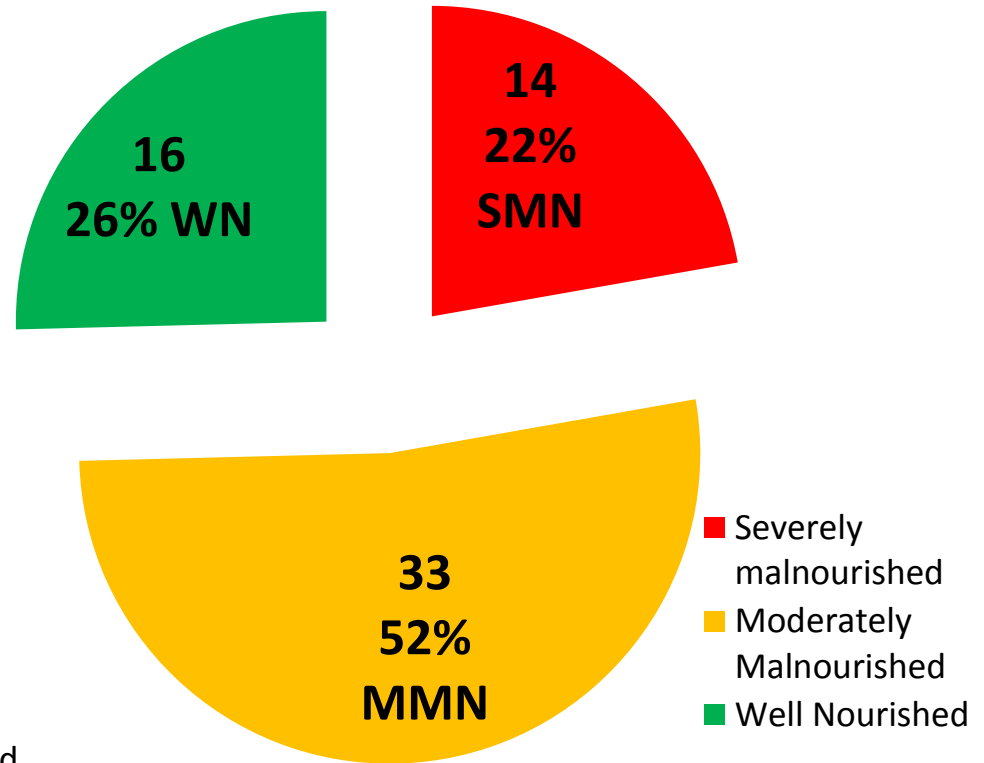
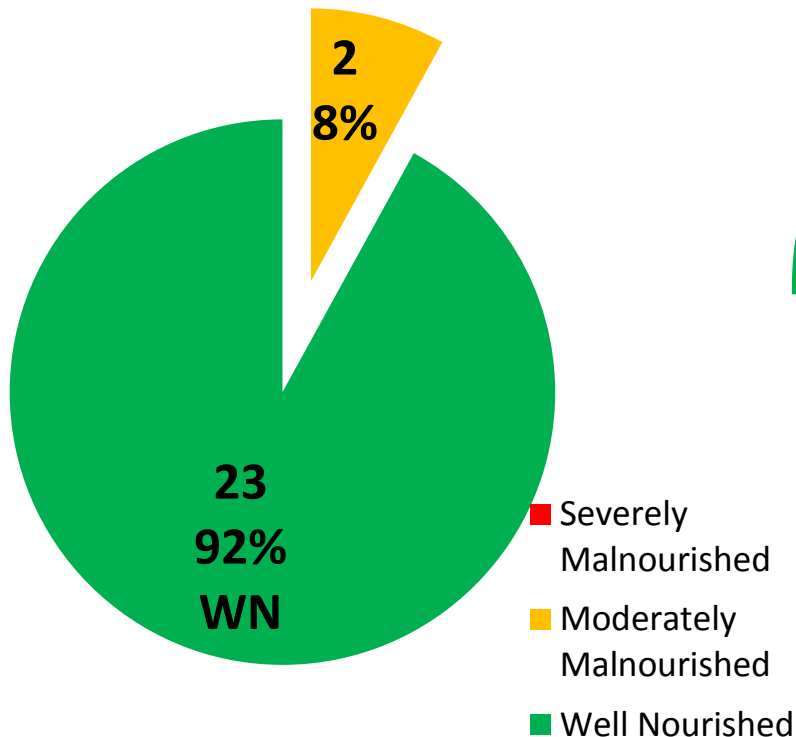
Trend towards increased LOS for malnourished patients

# Royal Free Hospital Global Assessment

## Nutrition Category

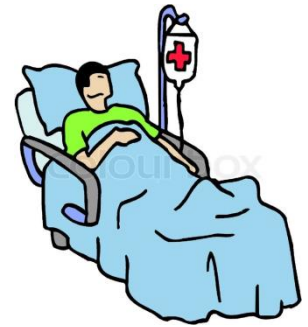
Cancer Etiology for Transplant

Non Cancer Etiology for Transplant



# ICU Length of Stay

- No association was found between any nutritional parameter pre transplant and ICU LOS (HGS:2 days VS 1 day)
- No association was found between dry BMI at OLT and ICU LOS post OLT (1day VS 1 day)



# Limitations

- Does not correct for confounding factors
- Bias as HGS/ RFHGA not done on all patients (data skewed as malnourished patients have more frequent measurements )
- Limited numbers for RFH-GA scores



# **Conclusion:** Implications for Clinical Practice

- Patients with a dry BMI  $< 20$  at time of Transplant stayed in hospital longer than those with a BMI  $>20$
- Patients who had a Hand Grip Strength  $<85\%$  of population norms within 100 days pre Transplant had a longer stay than those with a HGS  $>85\%$
- BMI or HGS was not associated with intensive care length of stay post transplant
- Patients undergoing a transplant for Cholangiocarcinoma or hepatocellular carcinoma were better nourished than those with a non cancer eitiology.

# Future Work

- Nutrition status pre OLT and Mortality post OLT
- Correcting for severity Liver disease (MELD)
- Males VS Females



Any Questions ?

