

Implementing Sarcopenia Screening in a Sub Acute Rehabilitation Setting:

A Multidisciplinary Quality Improvement Initiative



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Introduction

Despite the ubiquitous nature of age related muscle loss, the consequences are not universal for all older adults. The prevalence of probable sarcopenia in our older adult population is estimated at 20% (Murphy et al, 2023). However diagnosis and treatment of sarcopenia is not yet common. The European Working group on Sarcopenia in Older People (EWGSOP) developed an algorithm (Figure 1.0) that could be used in clinical practice for case finding which identifies patients with sarcopenia or probable sarcopenia. It enables staff to implement treatment clinically without waiting on diagnostic testing.

The current recommended treatment for sarcopenia includes a progressive resistance strengthening programme and adequate protein intake (Hurst et al,2022, Tieland et al 2012). Dietetics and physiotherapy in a sub acute setting are ideally placed to collaborate to ensure implementation of this evidence based treatment.

Objective

The aim of this quality improvement initiative is to create a site specific sarcopenia screening tool to diagnose sarcopenia, quantify the severity and implement evidence based practice with a multidisciplinary approach.

Methodology

A 6 week pilot project was undertaken on an orthopaedic ward within a sub acute rehabilitation setting, where patients over 65 years were screened for sarcopenia utilizing a site specific screening tool based on the EWGSOP algorithm. Those deemed sarcopenic, or to have probable sarcopenia were included in the project.

A patient education leaflet (Figure 2.0) was given to patients which included both exercise and dietary advice to provide health literacy for all patients. Patients received an initial individualised dietetic assessment and intervention which was reviewed and adapted throughout the patient stay. Patients completed an individualised resistance strengthening programme twice weekly led by a physiotherapist and progressed using the rate of perceived exertion (RPE).

The multidisciplinary pathway (Figure 3.0) for screening and treatment of sarcopenia shows the steps taken by physiotherapy and dietetic colleagues.

Outcome measures were taken on admission and discharge. These included hand grip strength, 5 times sit to stand test, Timed Up and Go, Mid Upper Arm Circumference Measurement, MUST, BMI and Gait speed to detect any changes associated with the intervention.

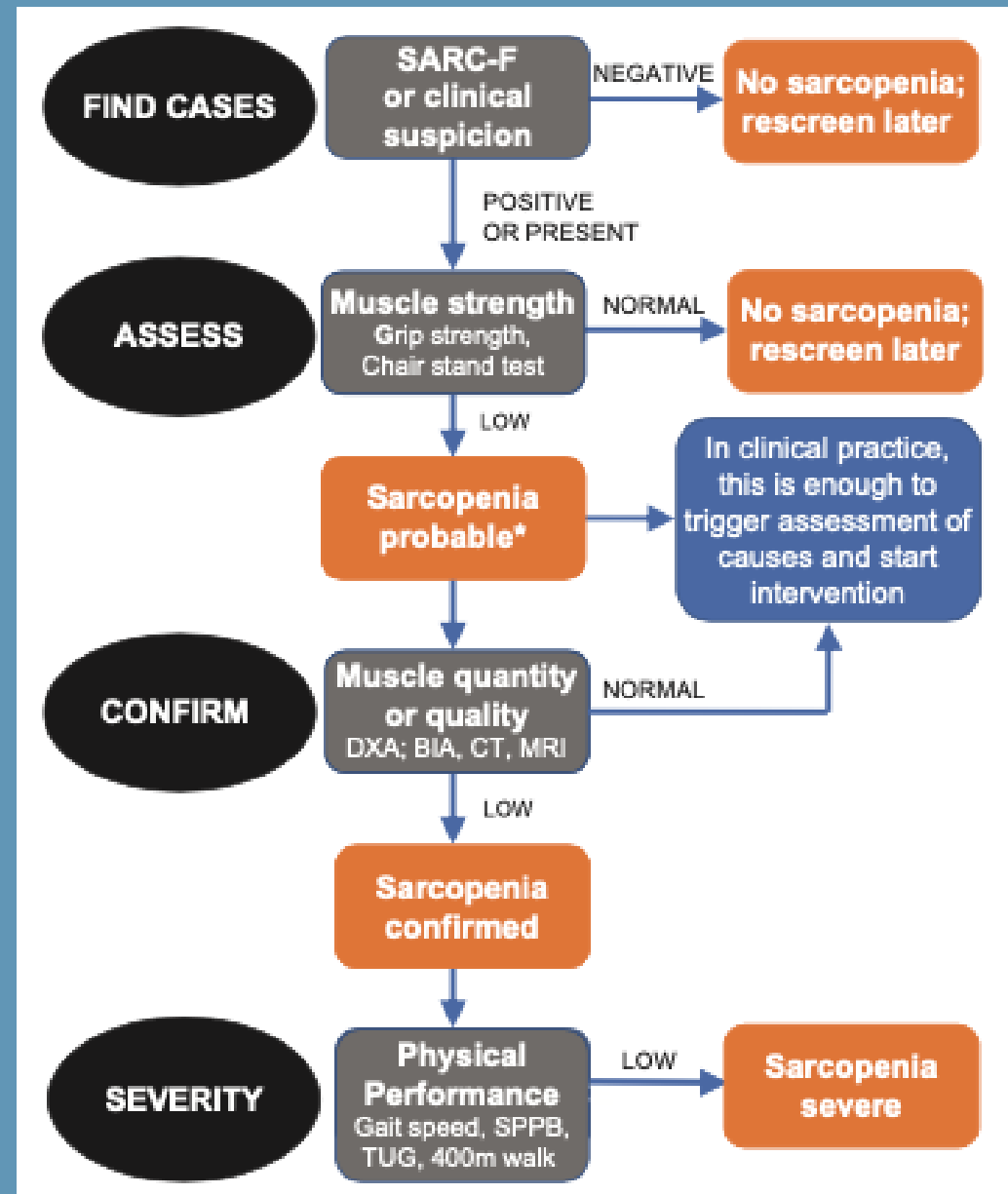


Figure 1.0 EWGSOP algorithm for case finding

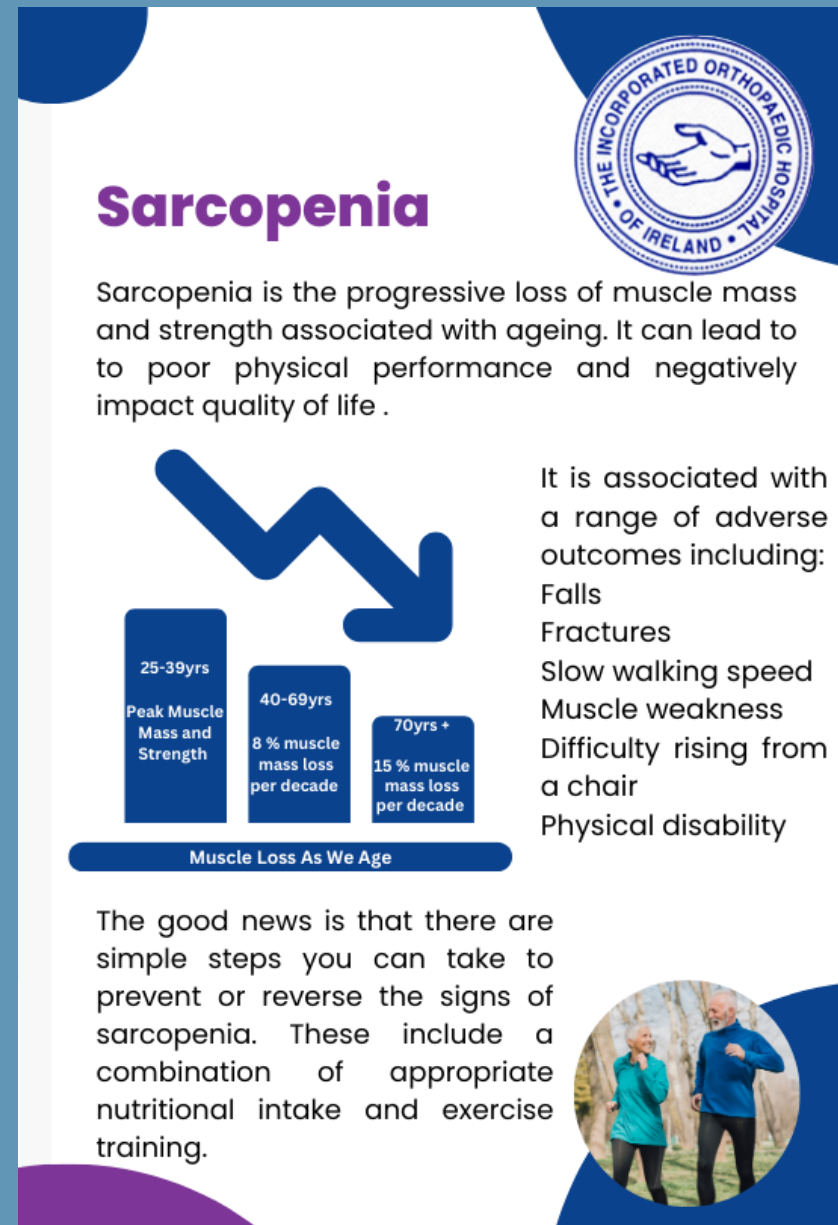


Figure 2.0 Patient Education Leaflet

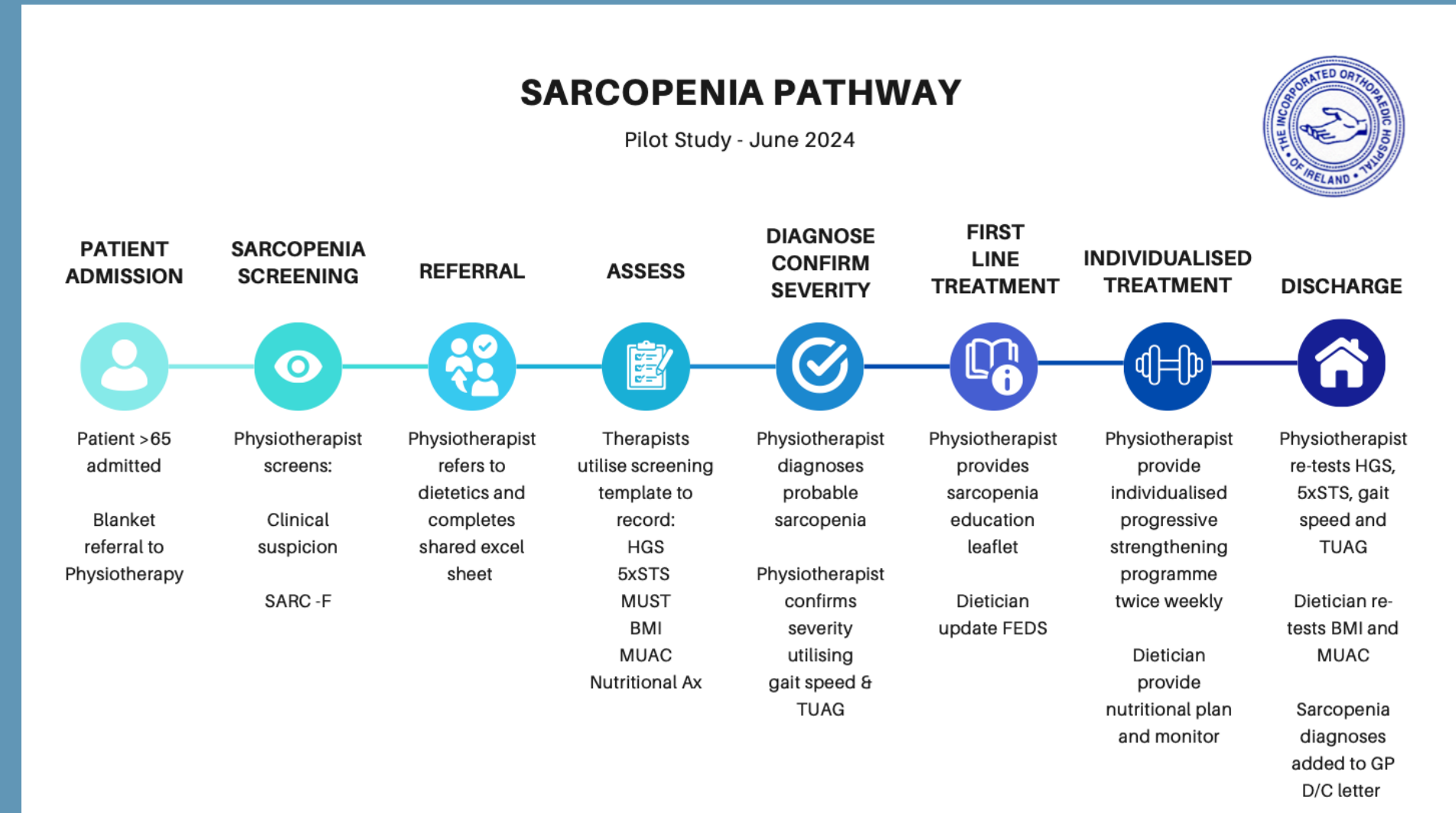


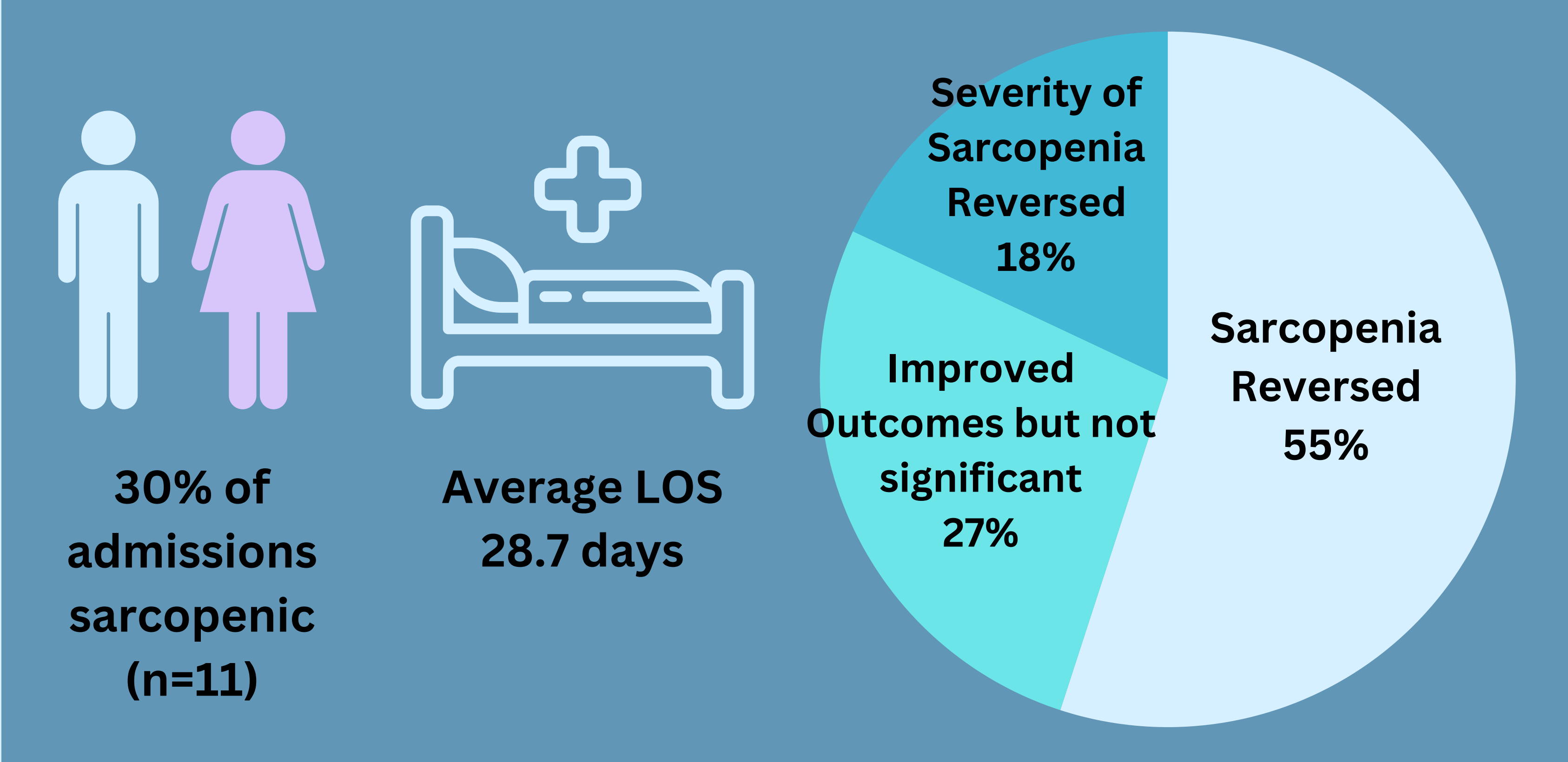
Figure 3.0 Clontarf Hospital Sarcopenia Pathway

Results

All new patient (n=37) admissions over the age of 65 years were screened for probable sarcopenia during this 6 week pilot study. The average age of the patients was 77 years. 30% of patients screened (n=11) during the pilot study were diagnosed with probable sarcopenia based on the EWGSOP algorithm for case finding. 100% of these patients (n= 11) would have been classed severely sarcopenic based on the EWGSOP algorithm. None of these patients were identified as at risk of malnutrition using a validated malnutrition screening tool (MUST).

55% of patients (n= 6) after receiving intervention showed reversal of their sarcopenia diagnosis with a further 18% of patients (n=2) showing a marked improvement with reversal of the severity of their sarcopenia. The remaining patients (n=3) had improved outcomes but these were not significant at time of discharge.

The average length of stay for patients with sarcopenia was 28.7 days, 8 days longer than those without sarcopenia.



Discussion

It is difficult to discern the relationship between length of stay and severe sarcopenia diagnosis from this study however the trend of longer periods of hospitalisation in the severely sarcopenic population was observed.

The orthopaedic ward that this pilot study was carried out on was not reflective of the typical hospital population. On review of outcomes for the whole hospital, 55% of the inpatient population at that time would be classified as sarcopenic. This would present a significant burden on resources available to develop this service throughout the hospital.

Conclusion

The sub acute rehab setting is an appropriate setting to identify patients with sarcopenia and commence a multidisciplinary evidence based treatment programme aiming to educate patients about sarcopenia and reverse the effects of sarcopenia.

A resistance exercise programme in conjunction with appropriate protein intake has been shown to improve patient outcomes with probable sarcopenia in a clinical setting.

References

Connolly, K., Cunningham, C., Murphy, N., Romero-Ortuno, R. and Horgan, F. (2021). Prevalence of sarcopenia and associated factors in older adults attending a day hospital service in Ireland. *European Geriatric Medicine*, 12(4), pp.851–862. doi:https://doi.org/10.1007/s41999-021-00463-x.

Cruz-Jentoft, A.J., Baeyens, J.P., Bauer, J.M., Boirie, Y., Cederholm, T., Landi, F., Martin, F.C., Michel, J.-P., Rolland, Y., Schneider, S.M., Topinkova, E., Vandewoude, M. and Zamboni, M. (2010). Sarcopenia: European Consensus on Definition and Diagnosis: Report of the European Working Group on Sarcopenia in Older People. *Age and Ageing*, [online] 39(4), pp.412–423. doi:https://doi.org/10.1093/ageing/afq034.

Cruz-Jentoft, A.J., Bahat, G., Bauer, J., Boirie, Y., Bruyère, O., Cederholm, T., Cooper, C., Landi, F., Rolland, Y., Sayer, A.A., Schneider, S.M., Sieber, C.C., Topinkova, E., Vandewoude, M., Visser, M., Zamboni, M., Bautmans, I., Baeyens, J.-P., Cesari, M. and Cherubini, A. (2018). Sarcopenia: Revised European Consensus on Definition and Diagnosis. *Age and Ageing*, [online] 48(1), pp.16–31. doi:https://doi.org/10.1093/ageing/afy165.

Daly RM, Gleanidis J, Prosser M, Kidge D, Ellis KA, O'Connell S, Nowson CA. The effects of a protein enriched diet with lean red meat combined with a multi-modal exercise program on muscle and cognitive health and function in older adults: study protocol for a randomised control trial. *Trials* 2015;16:339. Doi 10.1186/s13063-015-0884-x.

Hurst, C., Robinson, S.M., Witham, M.D., Dodds, R.M., Granic, A., Buckland, C., De Biase, S., Finnegan, S., Rochester, L., Sketton, D.A. and Sayer, A.A. (2022). Resistance exercise as a treatment for sarcopenia: prescription and delivery. *Age and Ageing*, 51(2). doi:https://doi.org/10.1093/ageing/afac003.

Murphy, C., McCarthy, S., McMorrow, A.M., Egan, B., McGowan, M.J., Rafferty, S., Corish, C. and Roche, H.M. (2023). Prevalence and determinants of sarcopenia in community-dwelling older adults in Ireland. *Aging Clinical and Experimental Research*, 35(8), pp.1651–1660. doi:https://doi.org/10.1007/s40520-023-02453-4.

Pennings B, Koopman R, Beelen M, Senden JM, Saris WH, van Loon LJ. Exercising before protein intake allows for greater use of dietary protein – derived amino acids for de novo muscle protein synthesis in both young and elderly men. *Am J Clin Nutr* 2011;93(2):322-31. doi:10.3945/ajcn.2010.29649

Tieland M, Dirks ML, van der Zwaluw N, Verdijk LB, van de Rest O, de Groot LC, van Loon LJ. Protein supplementation increases muscle mass gain during prolonged resistance – type exercise training in frail elderly people: a randomised, double – blind, placebo – controlled trial. *J Am Med Dir Assoc* 2012;13 (8):713-9. Doi: 10.1016/j.jamda.2012.05.020.