

# CAR-T and Rehab

Comprehensive Care of the Bone  
Marrow Transplant Patient

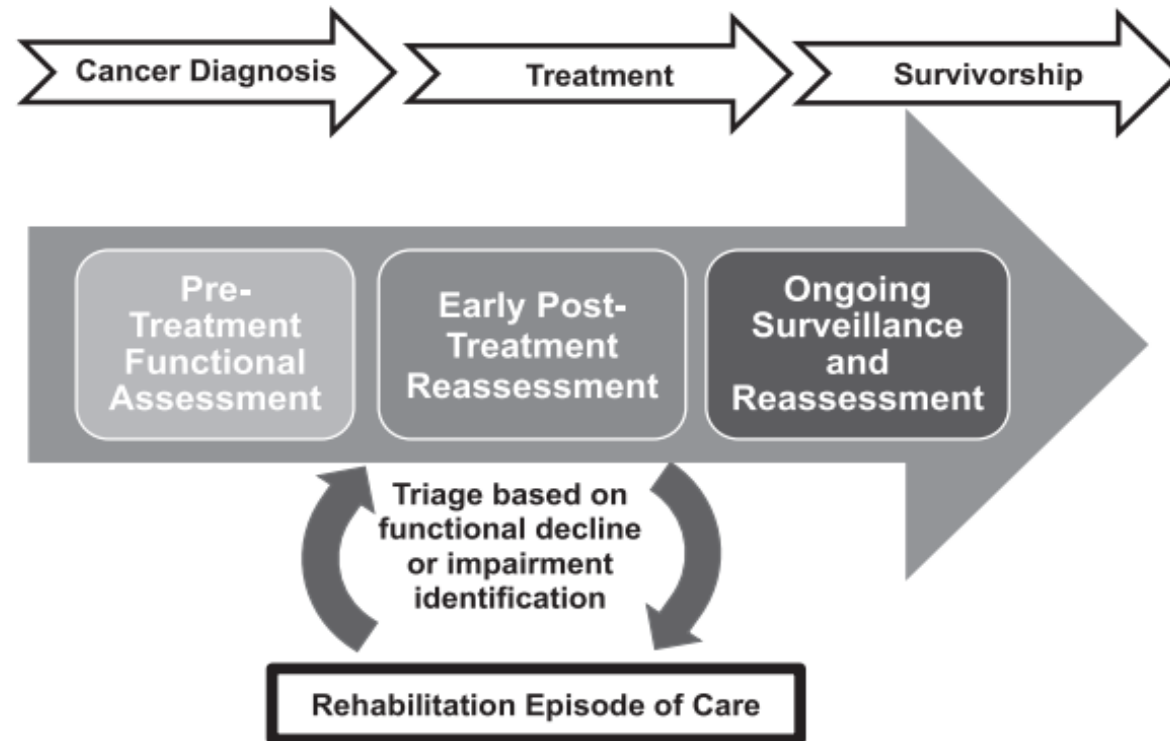
*Macy Hogan, PT, DPT*

*Franciscan Health*

# Objectives

- To address special considerations for BMT patients to improve awareness, clinical reasoning, and standard of care when treating a BMT patient, particularly patients undergoing CAR-T therapy
- To improve awareness of changes in the field related to comprehensive cancer care, including appropriate risk stratification, Prospective Surveillance Model, and pre-/post- transplant and CAR-T referral to supportive services
- To facilitate awareness and utilization of screening measures to assess need for skilled rehabilitation services and promote early referral

# Prospective Surveillance Model<sup>1</sup>



# Risk Stratification<sup>2,3</sup>

Current

ECOG

Chronological  
Age

Future  
Practice

Physiologic  
Age

Reserve  
Capacity

# Geriatric Assessment<sup>3,4</sup>

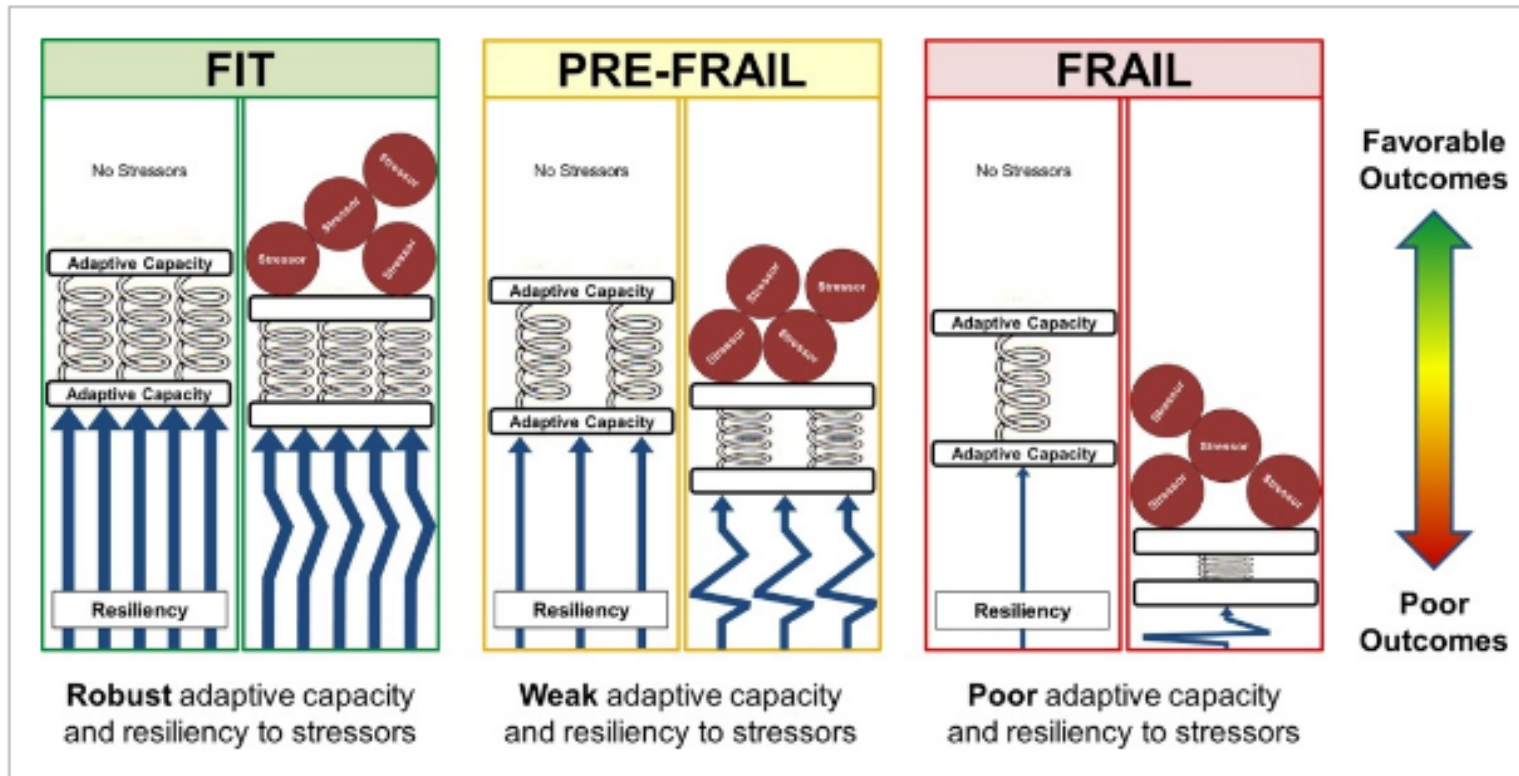
Evaluated using a brief geriatric assessment

- **Cognitive function (3 MS)**
- Psychological state (CES-D, Distress Thermometer)
- **Physical function (Pepper Assessment Tool for Disability, SPPB)**
- Comorbid disease (Hematopoietic Cell Transplantation Comorbidity Index Score)

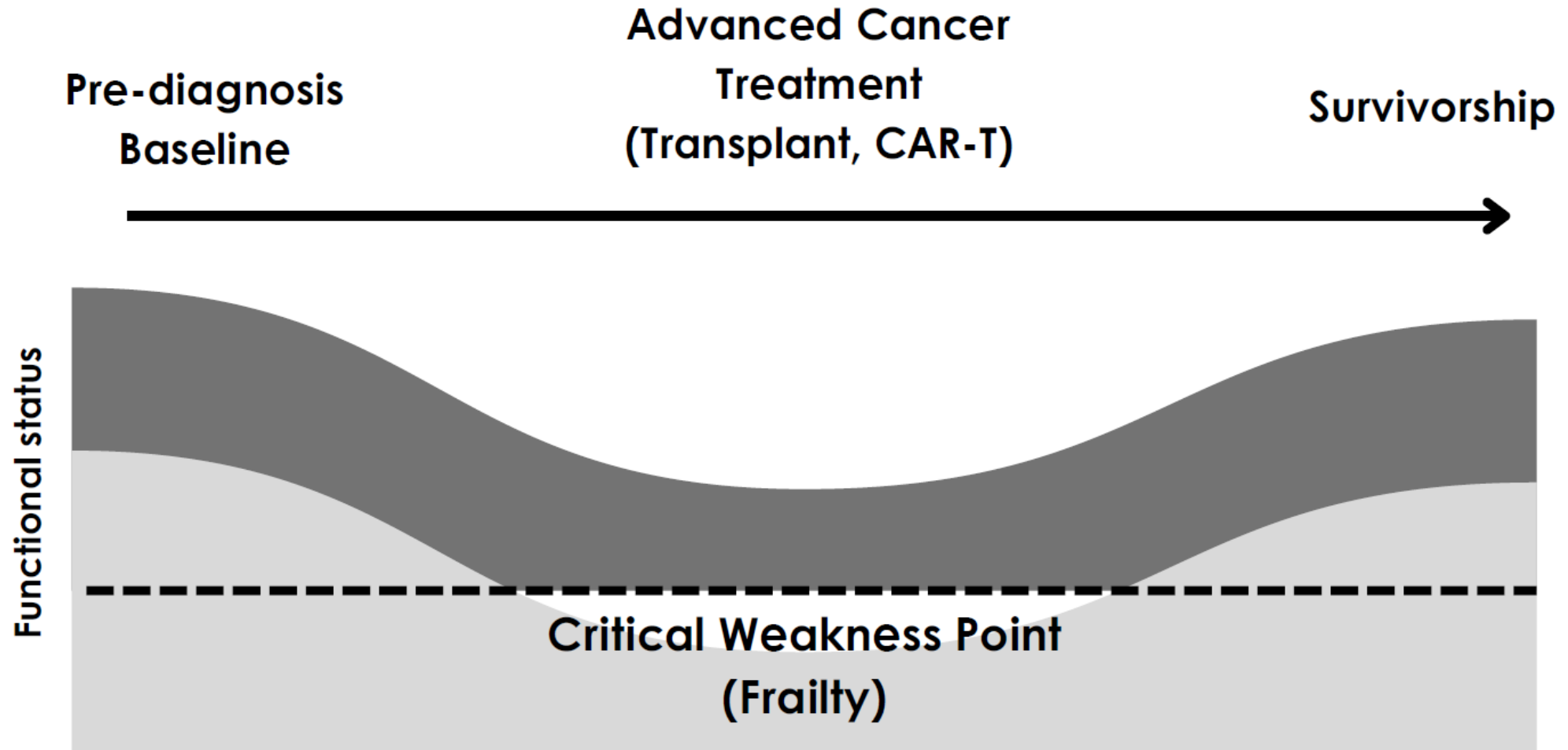
## FINDINGS<sup>3</sup>

- Physical function (PF) and cognitive function more important than chronological age
- PF and cog function improved prediction of OS by 60%
- SPPB: Score 5-7, 2.6x higher risk of death or rehospitalization compared with Scores of 8-12

# Frailty Risk Stratification<sup>2</sup>



# Adaptive Capacity and Resiliency



# TOP Evaluation

## Frailty and Functional Performance

- Strength and endurance
- Fatigue

## Neurological baseline

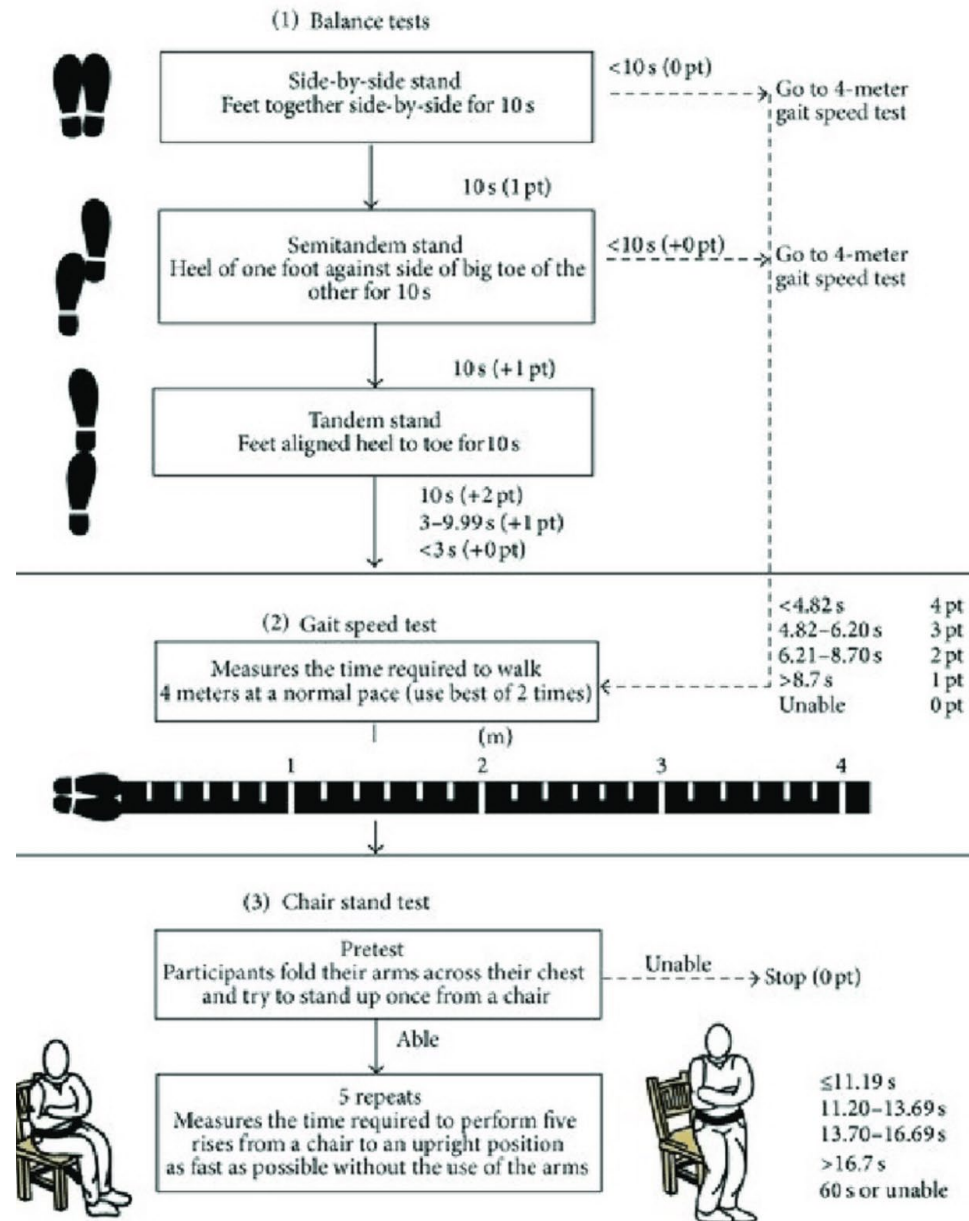
- Cognitive and Balance

## Other relevant co-morbidities

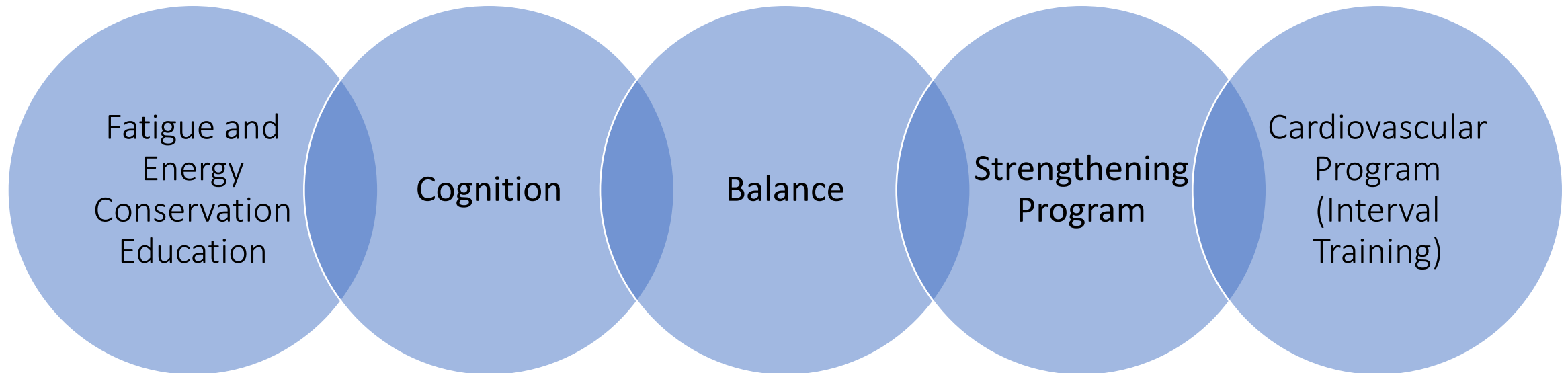
- Musculoskeletal



# SPPB<sup>5,6</sup>



# TOP Treatment<sup>7,8</sup>



# Next Steps...

- Working towards establishing TOP as a multi-disciplinary clinic with a collaborative approach
- Standardization of TOP in the BMT patient journey
- Early referral to therapy services and subsequent adherence to prospective surveillance model

# Questions?

Macy Hogan, PT, DPT  
[macy.hogan@franciscanalliance.org](mailto:macy.hogan@franciscanalliance.org)

# References

1. Barnes CA, Stout NL, Varghese TK Jr, et al. Clinically Integrated Physical Therapist Practice in Cancer Care: A New Comprehensive Approach. *Phys Ther.* 2020;100(3):543-553. doi:10.1093/ptj/pzz169
2. Ethun, C.G., Bilen, M.A., Jani, A.B., Maithel, S.K., Ogan, K. and Master, V.A. (2017), Frailty and cancer: Implications for oncology surgery, medical oncology, and radiation oncology. *CA: A Cancer Journal for Clinicians*, 67: 362-377. <https://doi.org/10.3322/caac.21406>
3. Klepin HD, Geiger AM, Tooze JA, et al. Geriatric assessment predicts survival for older adults receiving induction chemotherapy for acute myelogenous leukemia. *Blood.* 2013;121(21):4287-4294. doi:10.1182/blood-2012-12-471680
4. Gregory A. Abel, Heidi D. Klepin, Frailty and the management of hematologic malignancies, *Blood*, 2018, Figure 1.
5. Fritz S, Lusardi M. White paper: "walking speed: the sixth vital sign" [published correction appears in *J Geriatr Phys Ther.* 2009;32(3):110]. *J Geriatr Phys Ther.* 2009;32(2):46-49.
6. Liu, M. A., DuMontier, C., Murillo, A., Hshieh, T. T., Bean, J. F., Soiffer, R. J., Stone, R. M., Abel, G. A., & Driver, J. A. (2019). Gait speed, grip strength, and clinical outcomes in older patients with hematologic malignancies. *Blood*, 134(4), 374–382. <https://doi.org/10.1182/blood.2019000758>
7. Coleman EA, Coon S, Hall-Barrow J, Richards K, Gaylor D, Stewart B. Feasibility of exercise during treatment for multiple myeloma. *Cancer Nurs.* 2003;26(5):410-419. doi:10.1097/00002820-200310000-00012
8. Bartels FR, Smith NS, Gørlov JS, et al. Optimized patient-trajectory for patients undergoing treatment with high-dose chemotherapy and autologous stem cell transplantation. *Acta Oncol.* 2015;54:750–758.