

# Preliminary Results of a Pilot Study Using Validated Nutrition Screening Tools to Investigate the Nutrition Evolution of Patients with Acute Myeloid Leukemia

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## Introduction

At Mayo Clinic, adult patients with Acute Myeloid Leukemia (AML) are treated in hospitalized inpatient, hospital-based outpatient, and traditional ambulatory outpatient settings. Access to a registered dietitian (RDN) varies in these settings and we hypothesize that this contributes to late identification of patients with potential increased nutrition risk. Because research on the nutrition evolution of patients with AML throughout the full continuum of treatment (induction through transplant) does not exist, specific nutrition intervention guidelines have not been established for this population.

## Objectives

Compare the Malnutrition Screening Tool (MST), Patient-Generated Subjective Global Assessment short form (PG-SGASF<sup>®</sup>) and the full Patient-Generated Subjective Global Assessment (PG-SGA<sup>®</sup>) in patients newly-diagnosed with AML. Describe what nutrition risk patterns exist among patients being treated for AML, from diagnosis through transplant (if applicable).

## Methods

Throughout treatment (beginning at diagnosis) subjects answered a series of questions about their nutrition status.

Three questions constituted the MST, and were asked verbally by the researchers:

- Have you recently lost weight without trying? (0 to 2 points)
- If yes, how much weight have you lost? (1 to 4 points)
- Have you been eating poorly because of a decreased appetite? (0 to 1 point)

Four questions are the patient-generated portion of the PG-SGA<sup>®</sup>, or "short form" PG-SGASF<sup>®</sup>. Subjects completed the PG-SGASF<sup>®</sup> questions using a touchscreen application (Pt-Global v. 2.6, pt-global.org). Patient-generated question domains include:

- Weight changes (current compared to one and six months ago).
- Food intake (over the past month)
- Symptoms that have kept subject from eating enough (in the past 2 weeks).
- Activities and function (over the past month)

Researchers conducted nutrition focused physical exam and chart review to complete the Professional section of the full PG-SGA<sup>®</sup>. Professional question domains include:

- Disease and comorbidities (i.e. chronic renal insufficiency, age >65)
- Metabolic demand (fevers and corticosteroids)
- Nutrition Focused Physical Exam to assess body composition of muscle, fat, and fluid status.

## Participants

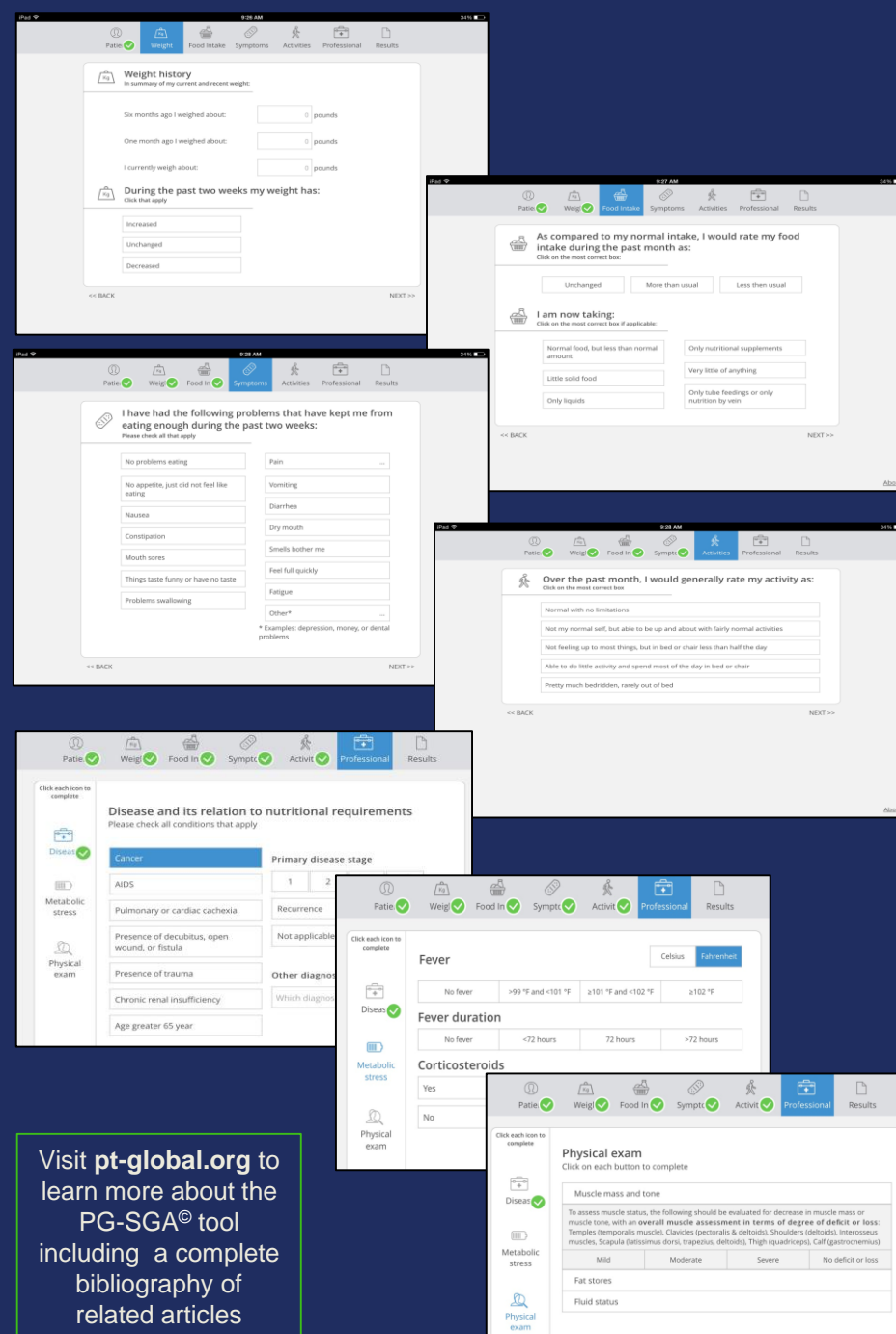
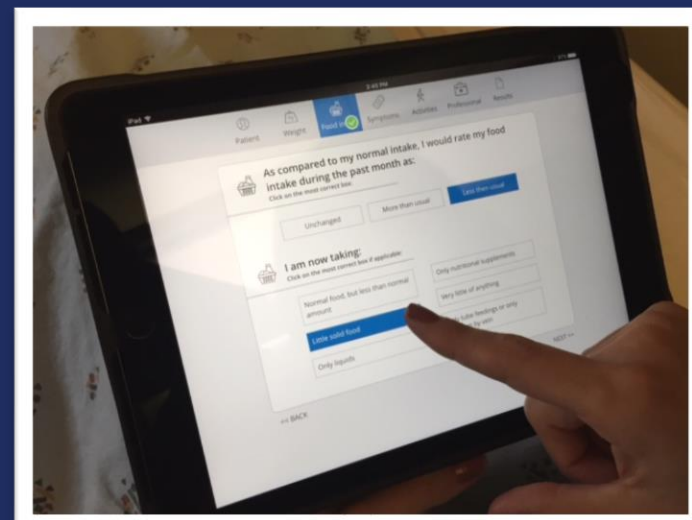
Adults with a new AML diagnosis, enrolled January 2017 through February 2018 (14 months).

29 subjects:

- Consented to answering questions presented to them verbally and also on iPad tablet.
- 20 male, 9 female
- 21 to 77 years old (mean and median of 60 years)

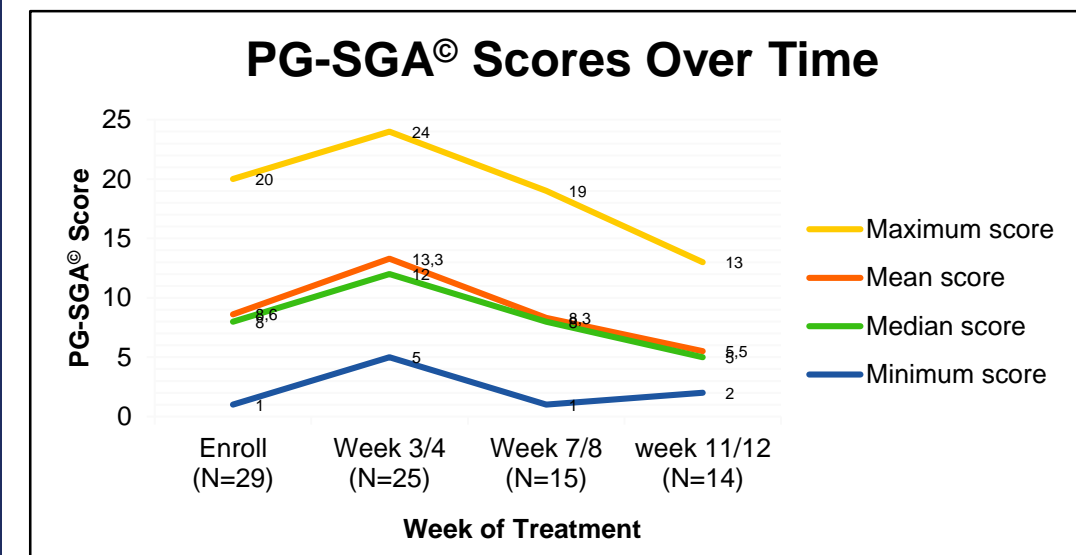
176 research visits:

- 1 to 13 visits per subject (mean and median of 6 visits per subject)



Visit [pt-global.org](http://pt-global.org) to learn more about the PG-SGA<sup>®</sup> tool including a complete bibliography of related articles

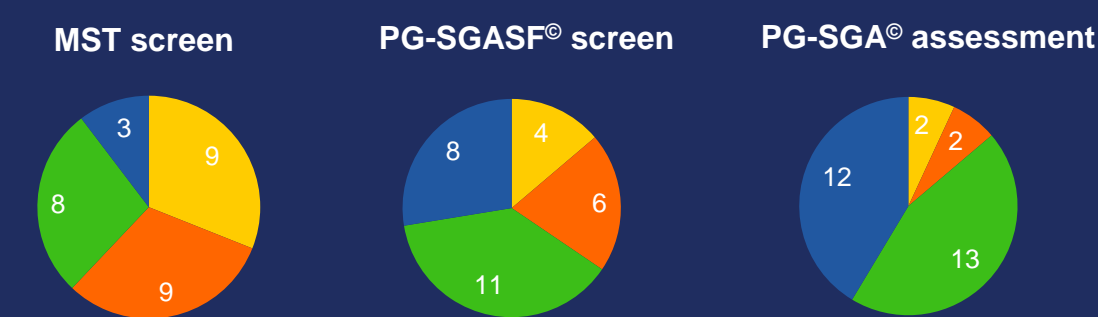
## Results



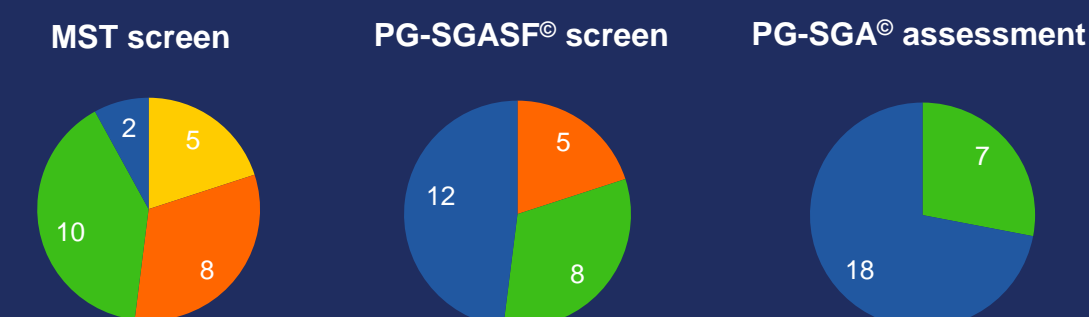
- Overall, subjects had the highest PG-SGA<sup>®</sup> scores around weeks 3&4 after enrollment.
- At weeks 3&4, 100% of study subjects had PG-SGA<sup>®</sup> scores in the two highest risk categories, consistent with requiring dietitian intervention or critical need for intervention.
  - At weeks 3&4 MST scores indicated >50% of subjects at no risk or low risk
- The largest contributor to PG-SGA<sup>®</sup> scores was the patient's self-identified symptoms.
- By weeks 7&8, PG-SGA<sup>®</sup> scores were in a general downward trend.

Risk Level	MST Score	PG-SGASF <sup>®</sup> scores	PG-SGA <sup>®</sup> scores	PG-SGA <sup>®</sup> triage recommendations
No Risk	0	0-1	0-1	No intervention required at this time
Low Risk	1	2-3	2-3	Patient & family education required
Medium Risk	2	4-8	4-8	Dietitian intervention required
High Risk	>2	≥9	≥9	Critical need for nutrition intervention

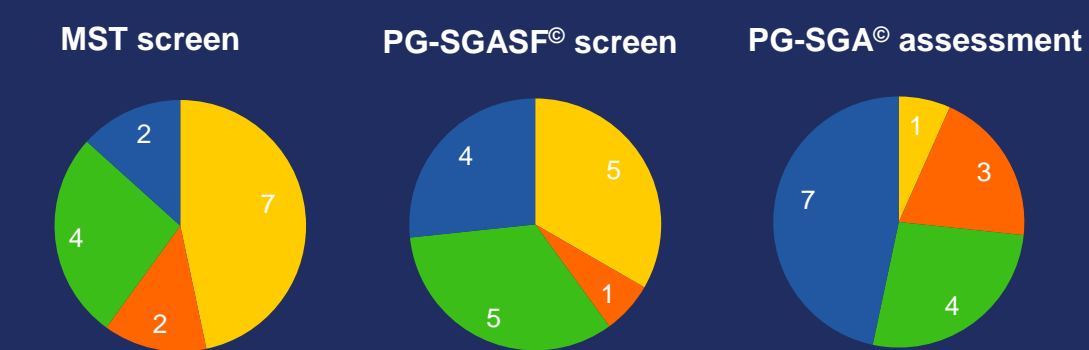
### Risk category distribution: at Enrollment (N=29)



### Risk category distribution: at week 3&4 (N=25)



### Risk category distribution: at week 7&8 (N=15)



## Future Direction

- Determine what correlations exist between nutrition risk scores and clinical outcomes in patients being treated for AML.
- Consideration of PG-SGASF<sup>®</sup> as the periodic screening tool in this patient population, for improving identification of types and degree of nutrition impact symptoms.
- Determine best timing for re-screening and re-assessment throughout treatment, and how to best meet the needs of AML patients in the ambulatory or hospital-based outpatient settings (i.e. less access to regular RDN visits.)
- Follow-up study evaluating the impact of dietitian-initiated interventions on nutrition risk scores in this patient population.

## Acknowledgements

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