

AAIM Validation & Optimal Staffing Study

FNCE 2021 Clinical Nutrition Management Round Table

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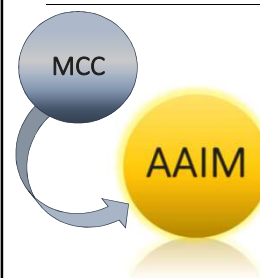
Disclosures

- No disclosures

Presentation outline

- **Study background, aims, and expected outcomes:** validation of the Academy/ASPEN indicators for the diagnosis of malnutrition (AAIM) and RDN staffing
- **General update on study status/progress:** site and participant enrollment and preliminary descriptive analyses
- Anticipated study timeline and ongoing and planned dissemination

Academy/ASPEN Indicators for the diagnosis of adult and pediatric Malnutrition



Why the name change?

1. Indicators have been referred to by many names across other small research studies
 - Academy and ASPEN were not recognized
 - Want to emphasize Academy and ASPEN as a trusted source of the indicators
2. "MCC" commonly used as an acronym for "Major Complications and Comorbidities" in the ICD-10 manual
 - Could lead to confusion when using or documenting the indicators in clinical practice
 - Distinct acronym will improve name recognition in clinical practice and in the medical literature

Study Background: Diagnosis of Malnutrition

- Malnutrition/undernutrition is underdiagnosed in hospitalized U.S. patients: studies based on ICD-10 codes vs. systematic assessment
- Patients with undernutrition have:
 - Longer hospital stays
 - Higher risk of readmission
 - Greater mortality
 than patients with similar clinical conditions that are not malnourished
- Underdiagnosis leads to missed opportunities for RDN treatment



Sources: Doley 2019; Kellert 2016; Tobert 2018; Carvalho-Salemi 2018; Hulst 2018

Study Background: AAIM Evidence Gaps

- AAIM is consensus-based
- Recent concurrent or predictive validation studies of the **adult** AAIM have some limitations:
 - Conducted at a single hospital or with a few hospitals
 - Some conducted only with a specific patient population (e.g., critically ill trauma patients)
 - Some did not include all indicators
 - Some conducted retrospectively
 - Most conducted outside the U.S.
- Unknown:
 - Validity of adult AAIM across hospitals and U.S. patient populations
 - Reliability of AAIM in adult population
 - Validity and reliability of AAIM in pediatric population



Sources: Hupeland 2020; Cammota 2020; Guerra 2015; Guerra 2016; Heller 2017; Medson 2018; Cammota 2018; Burch 2020; Huis 2020

Study Background: Staffing

Previous Academy study examined:

- Time and effort involved in RDN care in acute care facilities
- Current levels of RDN staffing
- Did not connect level of RDN care to medical outcomes



Hand, RK, B Jordan, S DeHoog, J Pavlinac, JK, Abrams, JS Parrott. Inpatient Staffing Needs for Registered Dietitian Nutritionists in 21st Century Acute Care Facilities [https://jandonline.org/article/S2212-2672\(15\)00119-7/fulltext](https://jandonline.org/article/S2212-2672(15)00119-7/fulltext)

Sources: Hand 2015

Study Background: Staffing Evidence Gaps

Unknown – Staffing:

- What level of RDN involvement is necessary to improve medical outcomes in patients who have been diagnosed as malnourished?



Study Goals/Objectives

To make the best case for widespread and consistent use of AAIM:

- Need to examine **validity and reliability** across many hospital sites, with many practicing RDNs and adult and pediatric patients with a variety of clinical conditions
- Need to understand if diagnostic tool can be improved or simplified
- Need to understand **staffing needs** to effectively implement malnutrition diagnosis and treatment across acute care settings



Study Design

All patients enrolled:

- Duration/type of initial nutrition care
- Sociodemographic information
- Malnutrition screener
- Medical history, medications, supplements
- Biomarkers of inflammation

Subset of 7-15 sites

Multiple RDNs (including expert) collect AAIM for the same patient (n=100 adults, 100 children)

Aim: reliability

Aim: Staffing estimates

Random subset, "1:1 at risk/not at risk" (n=600 adults, 600 children)

- AAIM
- Nutrition-focused physical exam

Aim: AAIM predictive criterion validity

Aim: AAIM construct validity

Subset of 10-15 sites
Bioelectrical impedance analysis (n=100 adults, 100 children)

Cohort study with approximately ~120 sites in adult and pediatric acute care hospitals across the United States

90 days later – data pulled from medical record for all patients enrolled:

- Dietitian follow-up care and patient nutrition outcomes
- **Medical outcomes:** mortality, morbidity, hospital readmissions, length of stay, health care costs
- APR-DRGs (patient disease severity)

From the Academy

Academy of Nutrition and Dietetics Nutrition Research Network: Rationale and Protocol for a Study to Validate the Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition Consensus-Derived Diagnostic Indicators For Adult And Pediatric Malnutrition and to Determine Optimal Registered Dietitian Nutritionist Staffing in Acute Care Hospital Settings

Elizabeth Yaltes Jimenez PhD, RDN, LD, R-RE, Julie M. Long MS, MPH, RDN, Erin Lamers-Johnson MS, RDN, Lindsay Woodcock MS, RDN, LDN, Courtney Bliss MS, RDN, James Lee MS, J. Scott Parratt PhD, Rose K. Hand PhD, RDN, LD, FAND, Kathryn Kelley MPH, Jenica K. Abram MPH, RDN, LDN, Alison Steiber PhD, RDN

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Article now available online:

[https://jandonline.org/article/S2212-2672\(21\)00228-8/fulltext](https://jandonline.org/article/S2212-2672(21)00228-8/fulltext)

Site and Patient Enrollment

49 adult sites approved for data collection

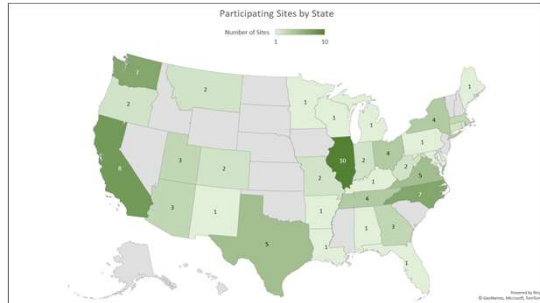
- 470 patients with staffing data from 34 sites
- 258 patients in AAIM validation subgroup from 34 sites

31 pediatric sites approved for data collection

- 271 patients with staffing data from 22 sites
- 144 patients in AAIM validation subgroup from 22 sites

As of: 9/16/2021

Location of Participating Sites n=95 sites



Sites that have completed the study

Adult: 10 sites

Have submitted follow-up medical and nutrition data for 174 participants (98 in AAIM subgroup)

Pediatric: 6 sites

Have submitted follow-up medical and nutrition data for 105 participants (50 in AAIM subgroup)

As of: 09/16/2021



Interrater Reliability of AAIM

One adult and two pediatric hospitals have IRB approval to collect IRR data

- An adult and pediatric site plan to begin IRR data collection in October 2021
- The second pediatric site started AAIM data collection September 2021 and will collect IRR data this fall



One additional adult hospital has agreed to collect IRR data and is working on IRB approval

Are we on track with sample sizes?

Still need some sites, especially pediatric – are you interested?

Power calculations are based on our "best guess" and are better with more initial information

- Best initial information for adult AAIM validation, on track
- Some initial information for pediatric AAIM validation, likely on track
- No initial information for staffing, aiming "big" within constraints of RDN time

Impacts of COVID-19 Pandemic on Study Timeline

Prospective data collection paused March-Sept 2020 and slow through Spring 2021

- Human subjects protection
- RDN availability – furloughs, layoffs, staffing changes, telehealth delivery of care
- IRBs focused on COVID-19 research approvals

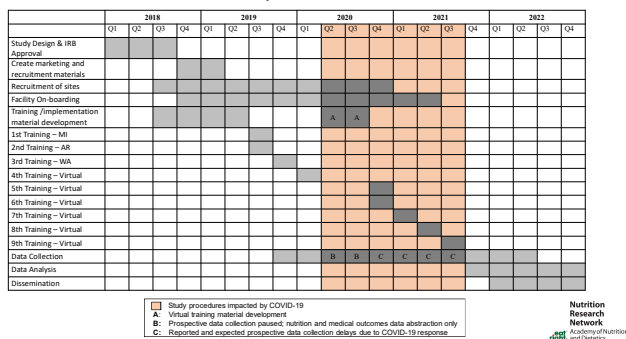


Impacts of COVID-19 Pandemic on Study Timeline

Adaptations

- Virtual training of RDNs (asynchronous/live)
- IRB approvals for:
 - Enrolling more participants per site
 - Collecting information on mode of care delivery
 - Phone consent
 - Additional investigators to support study activities

Study timeline



Preliminary Dissemination Plan

Focus/format	Venue	Date
Protocol		
Paper	JAND	May 2021
Poster	Nutrition 2021 (ASN)	June 7-10, 2021
Descriptive		
Session: Head, Shoulders, Knees and Toes: How NFPE can Strengthen your Pediatric Malnutrition Diagnosis	FNCE 2021	October 16-19, 2021
?	ASPEN 2022 Nutrition Science & Practice Conference	March 26-29, 2022
Results		
Session: Validation	FNCE 2022	October 8-11, 2022
Session: Staffing	CNM Symposium, FNCE 2023?	October 7-10, 2023
Paper(s)	JAMA, Pediatrics, JAND?	2022-2023

Academy and ASPEN
Indicators to Diagnose
Malnutrition (AAIM) and
Dietitian Staffing Study
CNM Webinar
September 23, 2021

Recording available to
CNM members found at
[Clinical Nutrition
Management DPG -
Current Year Webinars
\(cnmdpg.org\)](#)

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Questions or
comments?

Anything else
you would
like to know
from us?

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Thank you!

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