4 years of the GLIM criteria:

Strengths and weaknesses: where are we?

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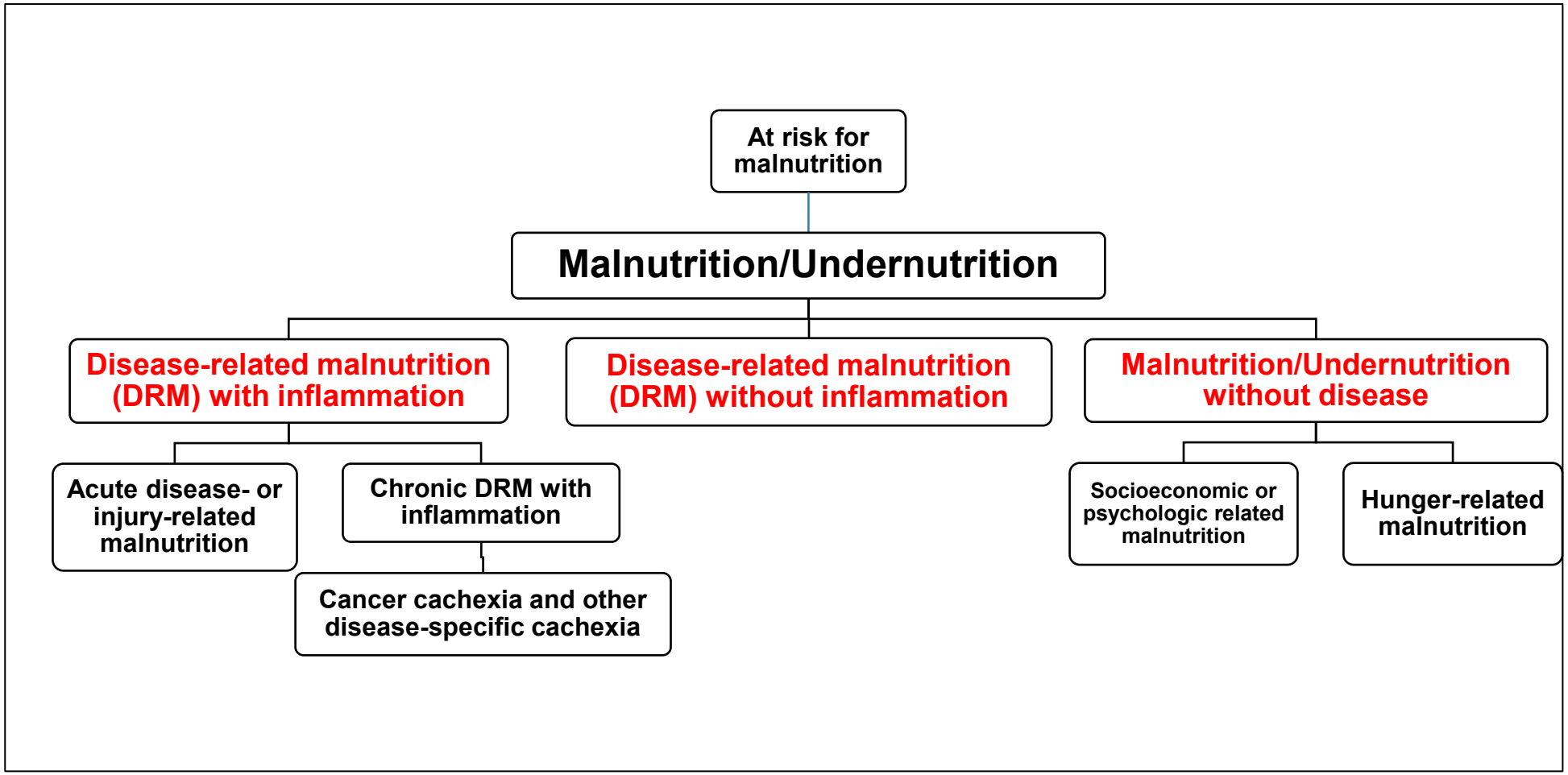
ESPEN

THE EUROPEAN SOCIETY FOR CLINICAL NUTRITION AND METABOLISM

ESPEN Guidelines on Definitions and Terminology

Malnutrition diagnosis template



Cederholm et al. Clin Nutr 2017

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Several efforts to find a malnutrition diagnosis tool for global acceptance

- Subjective Global Assessment (SGA) 1987
- Patient-Generated (PG)-SGA 1995
- Mini Nutritional Assessment (MNA) 1999

Serious lack of consensus

- Cachexia (by Evans) 2008
- Protein Energy Wasting (kidney) 2008
- ESPEN 2010
- Cancer cachexia (by Fearon) 2011
- AND/ASPEN 2012
- ESPEN 2015

Global Leadership Initiative on Malnutrition - The GLIM Pathway to Consensus 2016-2019

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu

ESPEN Endorsed Recommendation

GLIM criteria for the diagnosis of malnutrition – A consensus report from the global clinical nutrition community☆

T. Cederholm [a, b, *, 1], G.L. Jensen [c, 1], M.I.T.D. Correia [d], M.C. Gonzalez [e], R. Fukushima [f], T. Higashiguchi [g], G. Baptista [h], R. Barazzoni [i], R. Blaauw [j], A. Coats [k, l], A. Crivelli [m], D.C. Evans [n], L. Gramlich [o], V. Fuchs-Tarlovsky [p], H. Keller [q], L. Llido [r], A. Malone [s, t], K.M. Mogensen [u], J.E. Morley [v], M. Muscaritoli [w], I. Nyulasi [x], M. Pirlich [y], V. Pisprasert [z], M.A.E. de van der Schueren [aa, ab], S. Siltharm [ac], P. Singer [ad, ae], K. Tappenden [af], N. Velasco [ag], D. Waitzberg [ah], P. Yamwong [ai], J. Yu [aj], A. Van Gossum [ak, 2], C. Compher [al, 2], GLIM Core Leadership Committee, GLIM Working Group[3]

Clinical Nutrition 2019
- also published in JPEN and JCSM

The GLIM procedure for the diagnosis of malnutrition

Risk screening

At risk for malnutrition
Use validated screening tools

Diagnostic Assessment

Diagnostic Criteria

All five criteria have to be assessed

Phenotype
- Weight loss
- Low BMI/underweight
- Reduced muscle mass

Etiology
- Decreased food intake or absorption
- Disease burden/inflammatory condition

Diagnosis

Meets criteria for malnutrition diagnosis
Requires the combined fulfilment of at least 1 Phenotypic criterion and 1 Etiologic criterion

Severity grading

Determine severity of malnutrition
Severity determined based on phenotypic criteria

GLIM bibliometry Jan 2019 - April 2023

GLIM original paper bibliometry (Scopus)

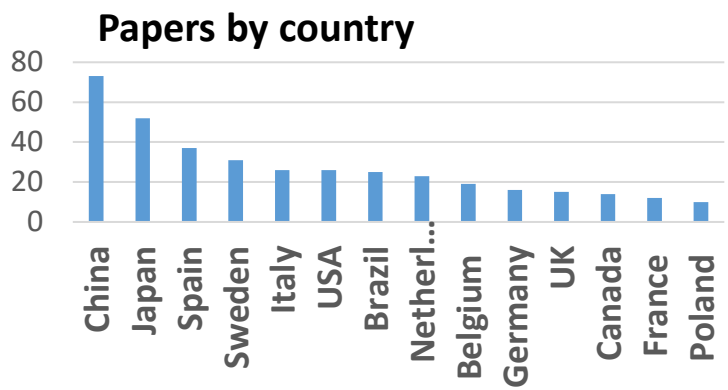
Clinical Nutrition	Publ. Feb 2019:	1035 citations
J Parent Enteral Nutr	Publ. Feb 2019:	248 citations
J Cach Sarc Muscle Wast	Publ. Jan 2019:	295 citations
		1678 citations

>400 papers in PubMed –

”Global Leadership Initiative on Malnutriton OR GLIM” as search term

>250 validation/application studies

- Criterion validity
- Predictive validity



Current GLIM missions

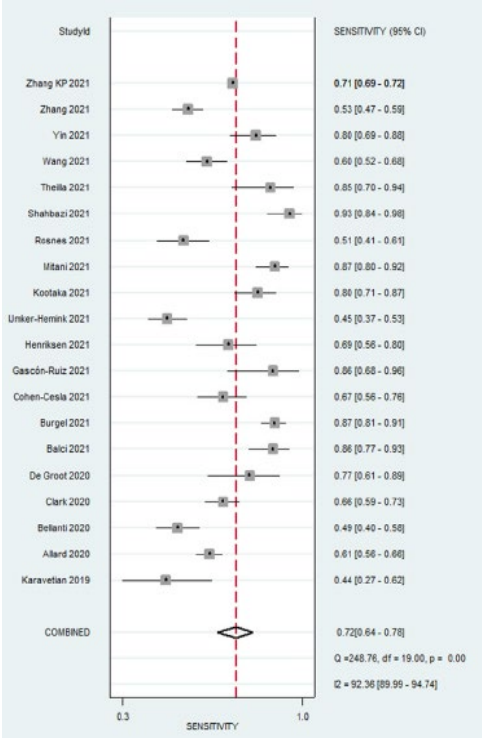
- Validation studies
  - Criterion validity – compared to standard
  - Predictive validity – ability to predict negative outcomes
- Implementation
- Criterion specification
  - Muscle mass methodology and cut-offs
  - How to define disease burden/inflammation?
- ICD coding for ICD-11 (WHO)
- GLIM up-date every 4-5 years

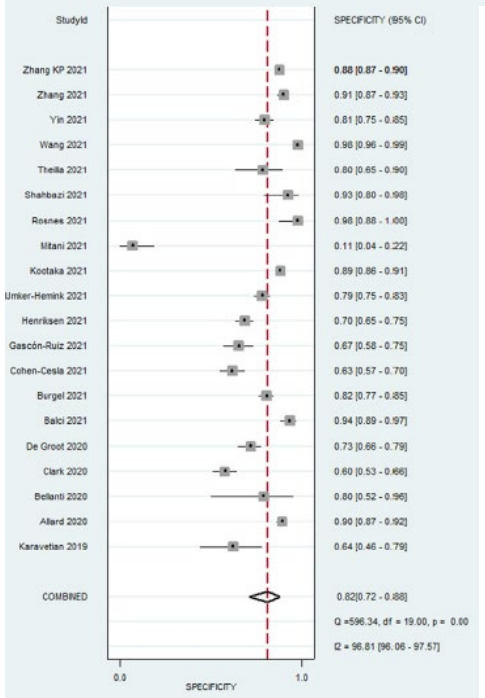
GLIM criterion validity – a meta-analysis

- **20 studies, >10.000 patients**
- **Cancer (7), hospitalized (8), CKD (2), ICU (2), CVD (1)**
- **13 countries**
- **15 used either SGA or PG-SGA as semi-gold comparator**

Results

- **Amalgamated sensitivity 0.72** (true positives)
- **Amalgamated specificity 0.82** (true negatives)





Conclusion:
The GLIM criteria "have the potential to be used as the gold standard for diagnosing malnutrition"

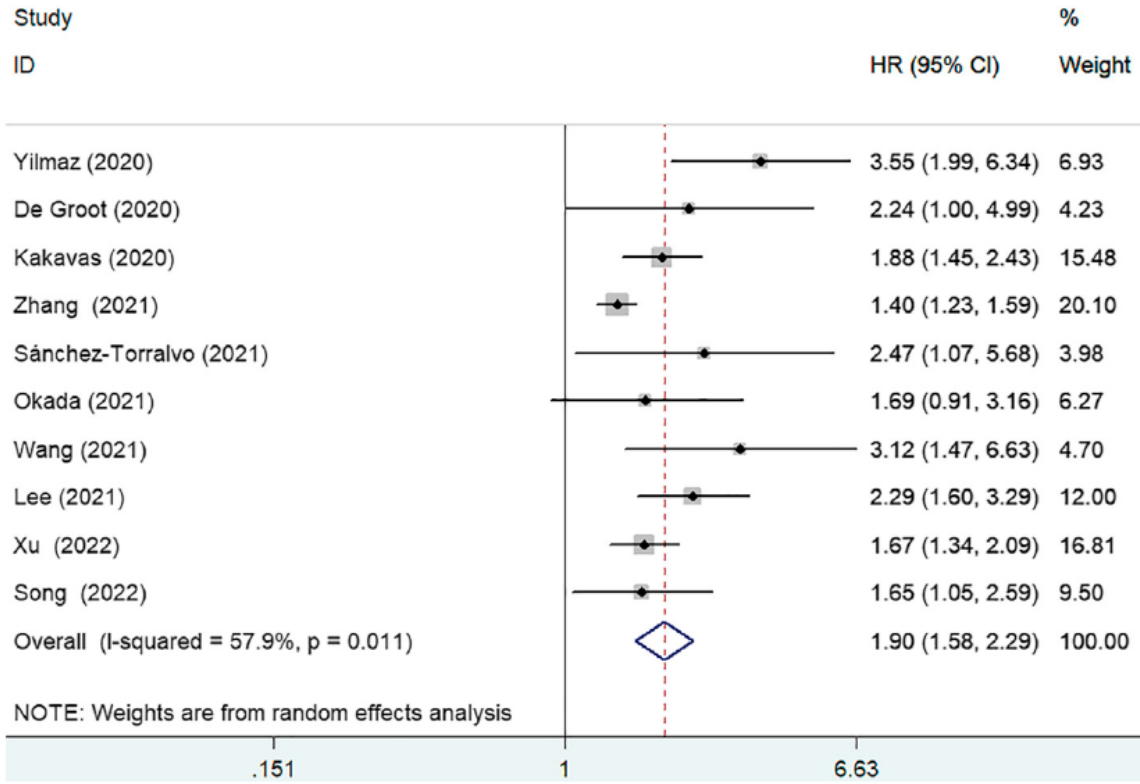
Huo et al. Clin Nutr 2022

GLIM predicitve validity in cancer - a meta-analysis

- 12 studies, 7.000 patients
- 7 countries
- Overall survival – main outcome
- Malnutrition prevalence 12%-88%

Results

HR 1.90 (95%CI 1.56-2.29) for OS if normal nutrition acc. to GLIM



Conclusion:
The GLIM criteria "have the potential to improve survival stratification in patients with cancer "

Xu et al. Clin Nutr 2022

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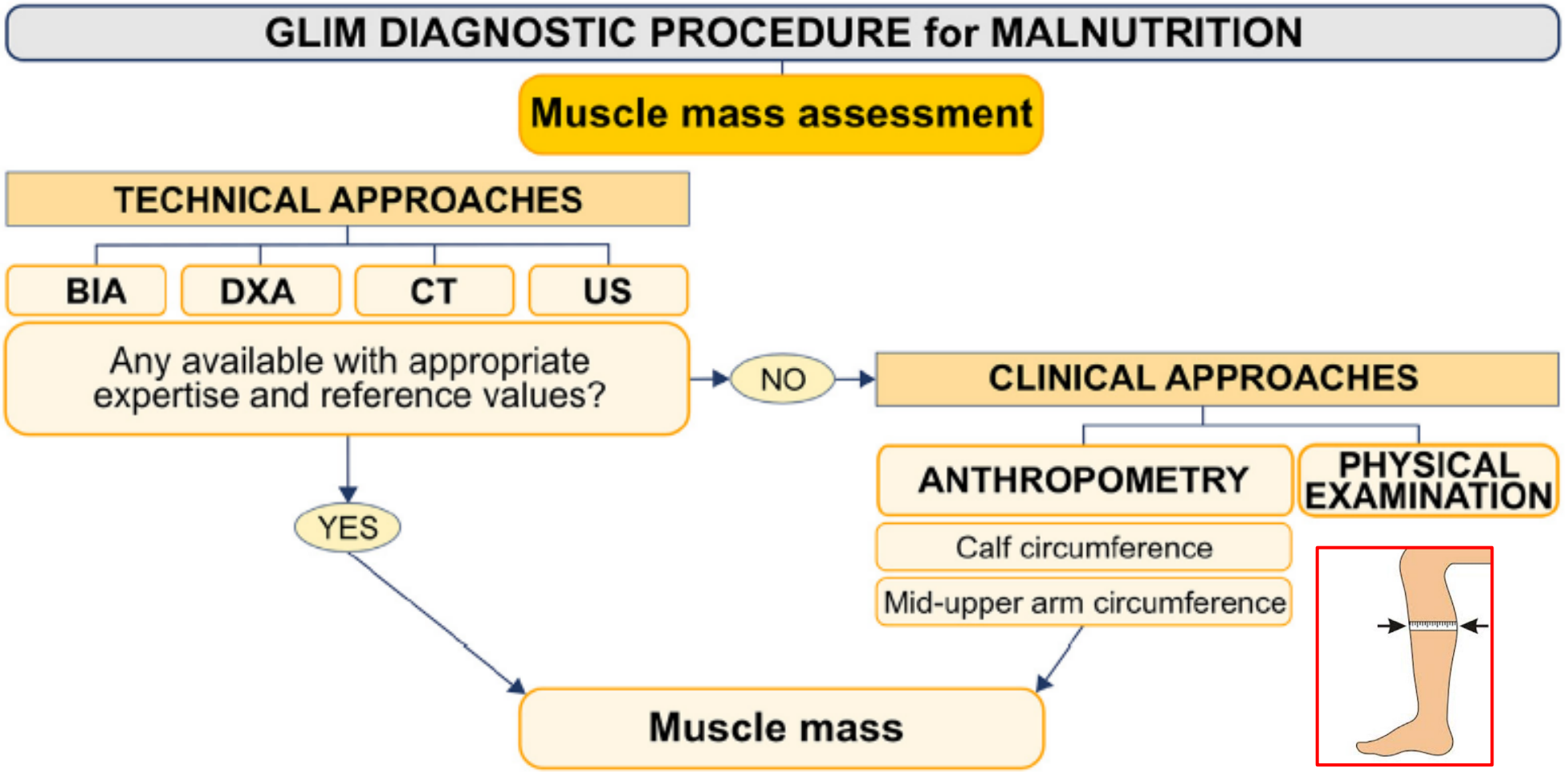
GLIM Body Composition Initiative 2019-2022



Barazzoni R et al. Clin Nutr 2022

Current GLIM missions

- Validation studies
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- Implementation
- **Criterion specification**
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  - **How to define disease burden/inflammation?**
- ICD coding for ICD-11

GLIM Inflammation Criterion Working Group

Co-chaired by Gordon Jensen & Tommy Cederholm

- Statement 1: The occurrence of **acute or chronic disease, infection or injury** that is often associated with inflammatory activity may fulfil the GLIM disease burden/inflammation criterion...
- Statement 2: The **listed acute conditions;** e.g. critical illness, major infection, ARDS, SIRS, …
- Statement 3: The **listed chronic conditions;** e.g. CHF, COPD, Crohn's, RA, CKD, liver cirrhosis, AD…
- Statement 4: The **listed diseases that have no clear or less perceived inflammatory components**, will not fulfil the inflammation criterion; e.g. depression, GI strictures, dysphagia post-stroke…
- Statement 5: **Laboratory markers** indicating inflammation, like **se-CRP**, may **support** the confirmation…
- Statement 6: **Acute** inflammation is indicated by **CRP-levels 30-100 mg/l** (moderate), **>100 g/l** (severe)
- Statement 7: **Chronic** inflammation is indicated by serial measures of **CRP-levels >3-5 g/l**.
- Statement 8: Clinical judgement decides when laboratory markers are indicated…

In preparation

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- ICD coding for ICD-11 (WHO)
- **GLIM up-date every 4-5 years**

Thanks