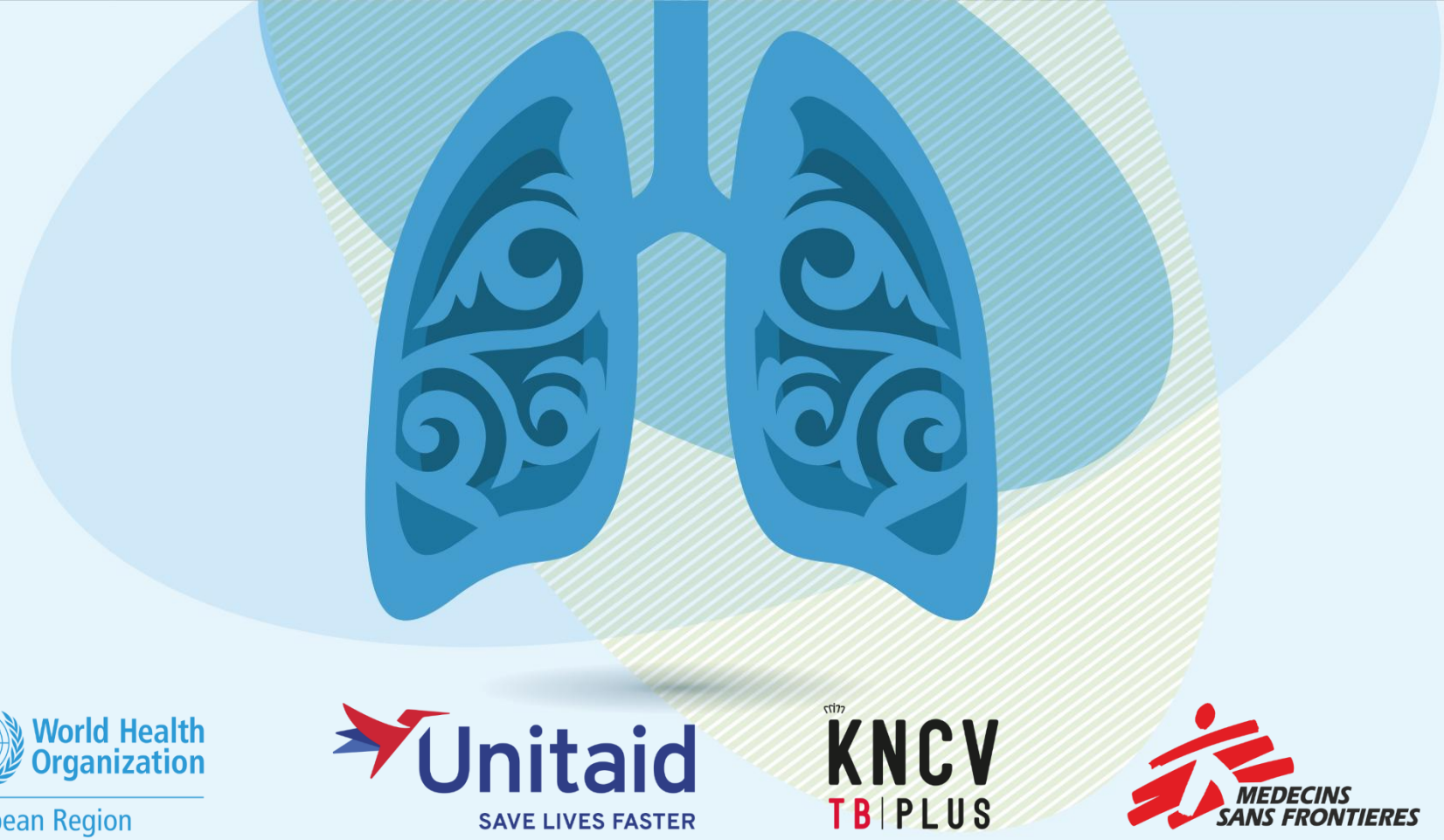


World Health Organization
European Region

Unitaid
SAVE LIVES FASTER

KNCV TB PLUS

MEDECINS SANS FRONTIERES

РЕГИОНАЛЬНЫЙ СЕМИНАР ПО ВОПРОСУ УСКОРЕННОГО ВНЕДРЕНИЯ

РУКОВОДСТВА ВОЗ ПО ПРОФИЛАКТИКЕ И ДИАГНОСТИКЕ ТУБЕРКУЛЕЗА И ЛЕЧЕНИЮ ТУБЕРКУЛЕЗА С ЛЕКАРСТВЕННОЙ УСТОЙЧИВОСТЬЮ (ЛУ-ТБ)

REGIONAL WORKSHOP ON ACCELERATED IMPLEMENTATION OF WHO GUIDELINES

ON TB PREVENTION, DIAGNOSIS, AND DRUG-RESISTANT TB (DR-TB) TREATMENT

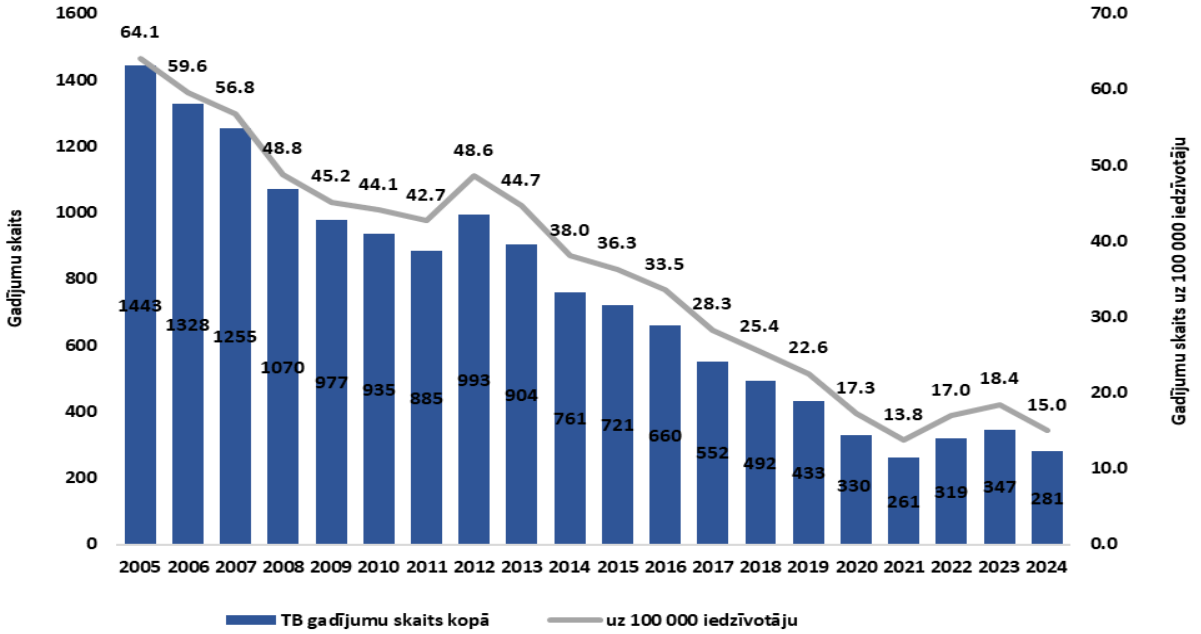
Latvia

Country experience on implementing nutritional interventions for people with TB and their households

Nutritional care in Riga East University Hospital Tuberculosis and Lung Disease Center

Līga Kukša
Head of WHO CC
Head of Department
Riga East Univerity Hospital

Laila Meija
Head of Department of Nutrition and Dietetic
Riga East Univerity Hospital
Assoc.prof. Riga Stradins University , Department of Rehabilitation



- **Situated in north-eastern Europe** with a coastline along the Baltic Sea,
- **Latvia has borders with Estonia, Russia, Belarus and Lithuania.**
- **It has linguistic links with Lithuania to the south, and historical and religious ties with Estonia to the north.**
- Latvia was welcomed as an **member of the European Union in May 2004.** (joined NATO)
- For centuries Latvia was **primarily an agricultural country**, with seafaring, fishing and forestry as other important economic factors.
- Like its Baltic neighbors, Latvia has made a rapid transition to the free market since the early 1990s.
- Incidence in 2024 is 15.0 (higher than average in EU)

Riga East University Hospital

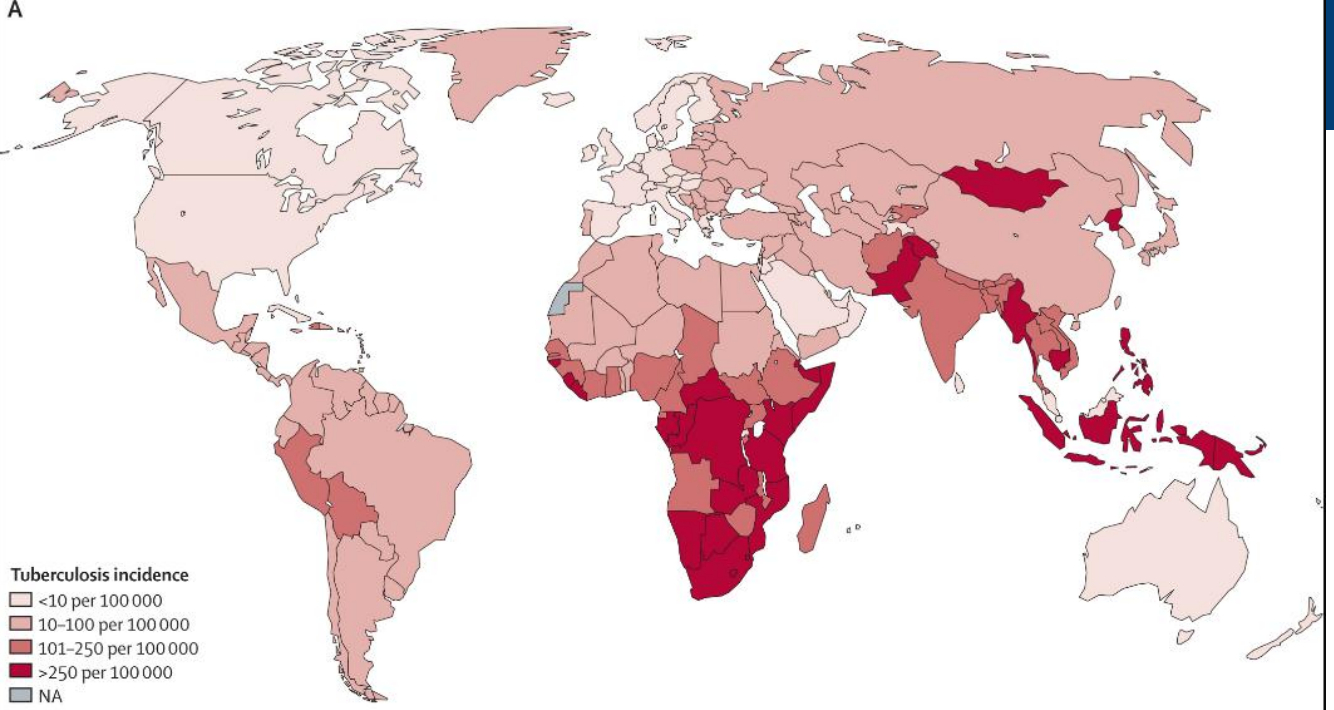
1800 beds

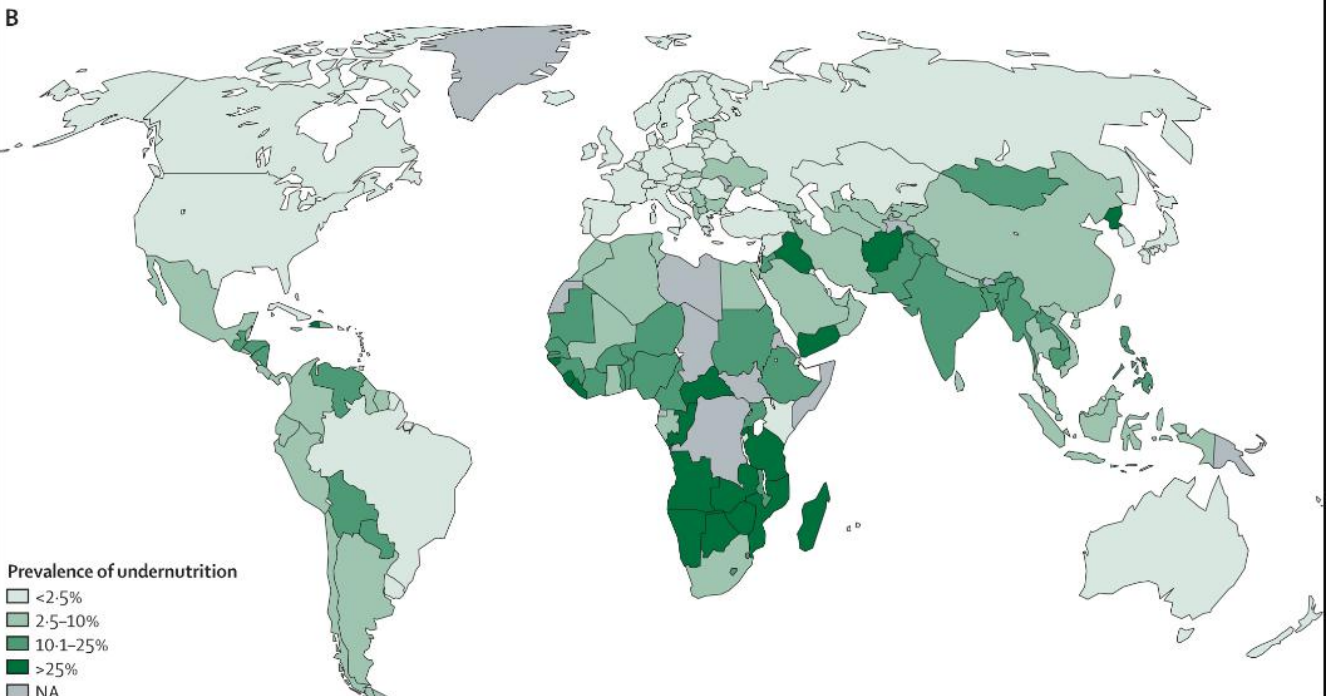
oncology
surgery
neurology
gastroenterology
internal medicine
gerontology
palliative care
tuberculosis and lung diseases:
230 beds

and more

The nutritional status of patients must be known

- Malnutrition and nutritional deficiencies are prevalent in clinical practice
- Largely undiagnosed
- Malnutrition leads to worse prognosis and higher costs
- **Can be influenced by nutritional treatment**





Malnutrition ↔ Tuberculosis

Underweight- Secondary Immunodeficiency

Sinha, Pranay, et al. "Food for thought: addressing undernutrition to end tuberculosis." The Lancet Infectious Diseases 21.10 (2021)

Tuberculosis ↔ Malnutrition

- Malnutrition is a major risk factor for tuberculosis
- Tuberculosis: catabolic disease - can lead to malnutrition
  - ➢inflammation-related cachexia, anorexia and malabsorption
- Malnourished patients:
  - Worse clinical course of disease
  - Toxicity and effectiveness of medicine

Ockenga et al., 2023; Thibault et al., 2021

Malnutrition and tuberculosis

- Effective screening and nutritional care of patients with malnutrition or at risk of malnutrition helps
  - ➢prevent malnutrition
  - ➢improve the overall nutritional status of patients, clinical outcomes
  - ➢reduce healthcare costs
- Inpatient nutrition has to meet the nutritional and energy needs of each patient

Ockenga et al., 2023; Thibault et al., 2021

ESPEN recommendations – course of action

Nutrition care process

- **Malnutrition risk screening**
- **Nutritional assesment**
- **Diagnostic procedure**
- **Nutrition care plan**
- **Nutritional care**
- **Monitoring and evaluating the effects**
- **Documentation**

Nutritional Assessment

T.Cederholm et al. Clinical Nutrition 36 (2017) 49-64

Definition of Malnutrition

State resulting from **lack of intake or uptake of nutrition** that leads to

altered body composition (decreased fat free mass) and body cell mass leading to

diminished physical and mental function and

impaired clinical outcome from disease

Result from:

- starvation;
- disease;
- advanced aging (e.g. > 80 years).

Cederholm, Tommy, et al. "ESPEN guidelines on definitions and terminology of clinical nutrition." Clinical Nutrition 36.1 (2017): 49-64.

Diagnosis of malnutrition: GLIM criteria

- Weight loss
- Low body mass index (BMI)
- Reduced muscle mass
- Reduced food intake or assimilation
- Disease burden/inflammation

Phenotypic Criteria:
- Weight loss
- Low BMI (kg/m2)
- Reduced muscle mass

Etiologic criteria:
- reduced food intake (≤50% of ER >1 week or any reduction for >2 weeks) or ↓assimilation or absorbtion
- Inflammation / disease

Dg: at least 1 phenotypic criterion and 1 etiologic criterion

Cederholm T., 2018

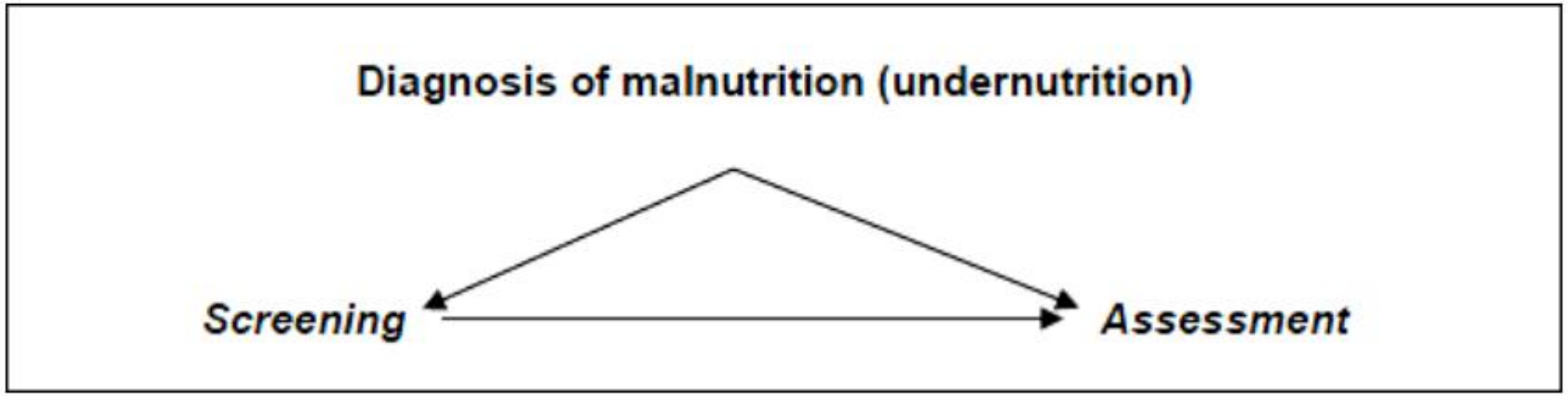
Prior to diagnosis
Nutritional Risk Screening (NRS 2002). Initial screening

		Yes	No
1	Is BMI < 20.5?		
2	Has the patient lost weight within the last 3 months?		
3	Has the patient had a reduced dietary intake in the last week?		
4	Is the patient severely ill? (e.g. in intensive therapy)		

Yes: If the answer is 'Yes' to any question, the final screening is performed.

No: If the answer is 'No' to all questions, the patient is re-screened at weekly intervals.

In practice



- Weight loss within 6 months
  - 5 – 10%
  - 10 – 20%
  - >20%

  (muscle mass)
- BMI (kg/m^2)
  - 18,5
  - 20
  - 22

+

Eat less

Severe disease

Nutritional assessment

- Much more **complex** and **detailed** process
- In all those **patients screened at risk**
- **Diagnostic process**
  - Basis for diagnosis decision
    - degree of malnutrition
    - complications
  - Nutritional treatment

Combination of subjective and objective parameters

- **Medical background**
- **Social and psychological history**
- **Physical examination + Anthropometry**
- **Functional assessment**
- **Laboratory parameters**
- **Nutrition history / assessment of food intake**

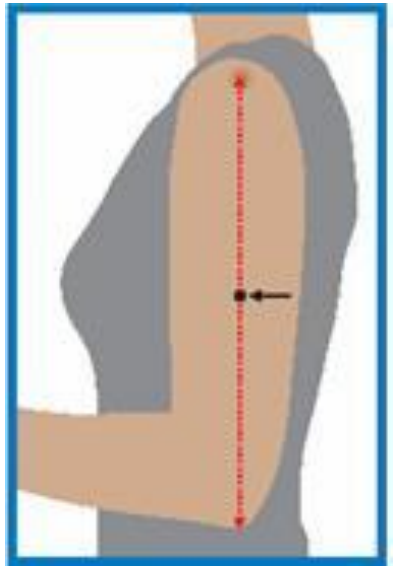
Alternative measurements

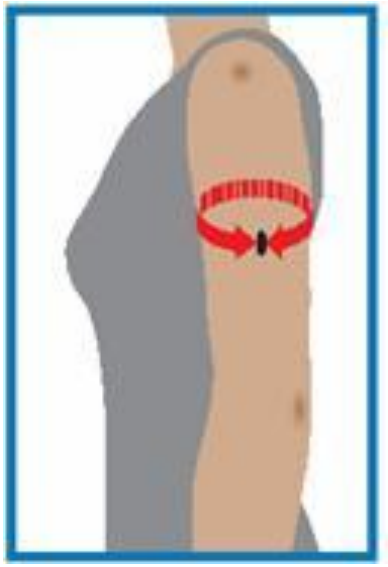
Estimating height

From

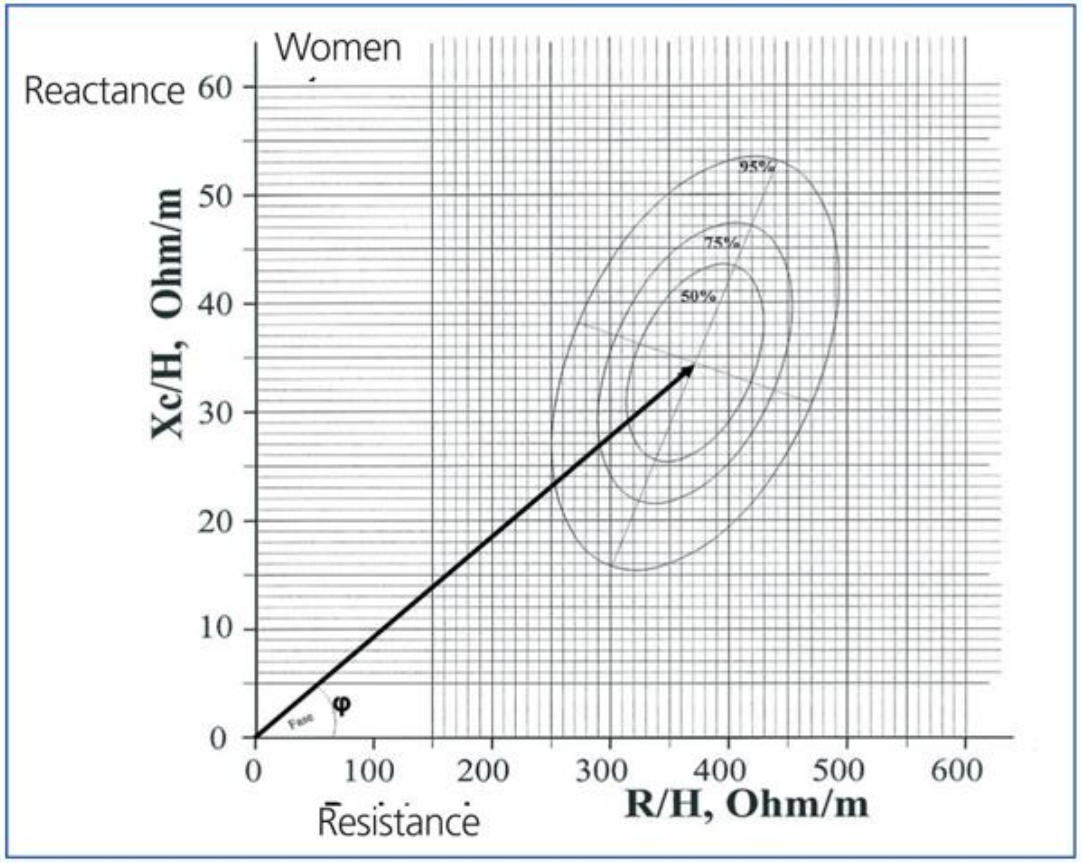
- **ulna length**
- **knee height**
- **demispan**

Estimating BMI





Body Composition



- FFM (fat -free mass)
- TBW (total body water)

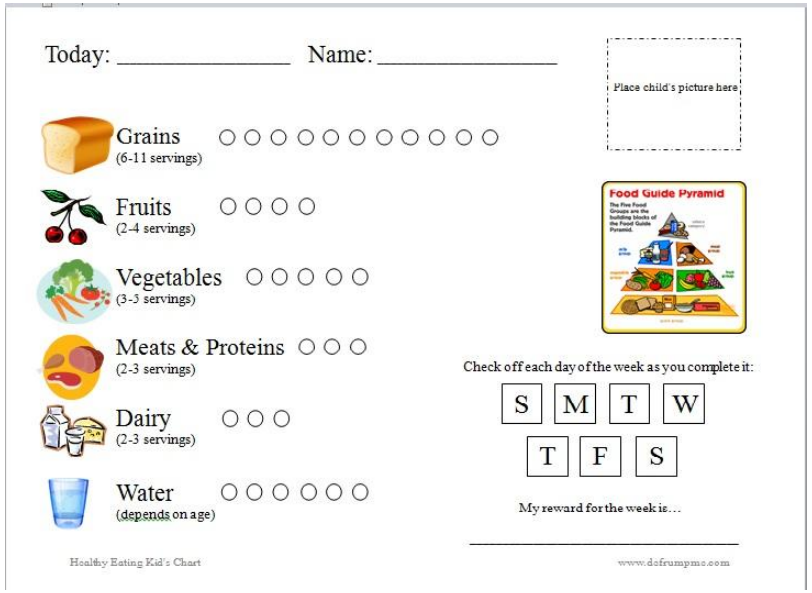
ESPEN GUIDELINES
Bioelectrical impedance analysis

PhA

Assessment of food intake ↔ Energy expenditure

- Food intake charts
- 24 h dietary recall
- Food diaries

- FFQ



Fluid balance

Result of assessment Evaluation

- Relation to the malnutrition
  - Disease or condition
  - Social and psychological status
  - Nutrition history
- **Energy, protein and fluid needs**
- **Micronutrient needs**

Diagnosis→Nutrition care plan→Nutrition therapy

Malnutrition can be treated!

Treatment

- Food
- Inflammation
- Muscle mass

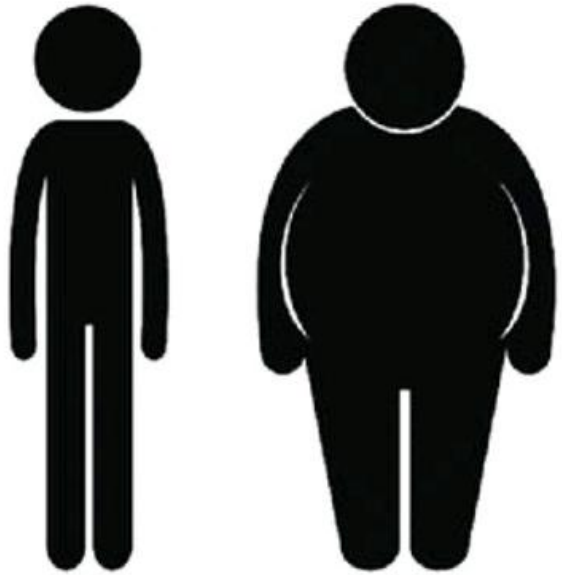
https://medlineplus.gov/malnutrition.html

Malnutritoon - tuberculosis

- Recognise: screening 1/monthly
- 30 kcal /kg /d
- 1g protein/kg/d
- Nutritional support during treatment:
  - ↑ treatment adherence
  - Prevention of malnutriton
- Perioperative nutritional support
  - Better outcome

Recognize malnutrition

1. **BMI (< 20.5** kg/m^2**)**
2. **Weight loss (5%)**
3. **Eat less**
4. **Severe ilness**
5. **Seniors**



https://www.osmosis.org/learn/Malnutrition

Hospital electronic health record system

- Weight
- Hight
- Food intake (%)

Screening / Thresholds indicators

- Lost weight
- Eat less
- BMI

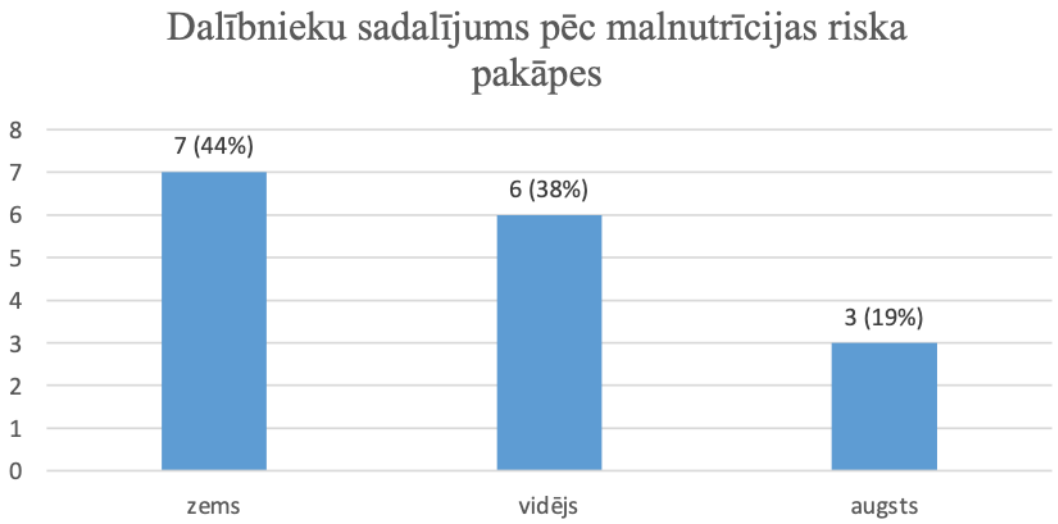
  <20 if <70 y,

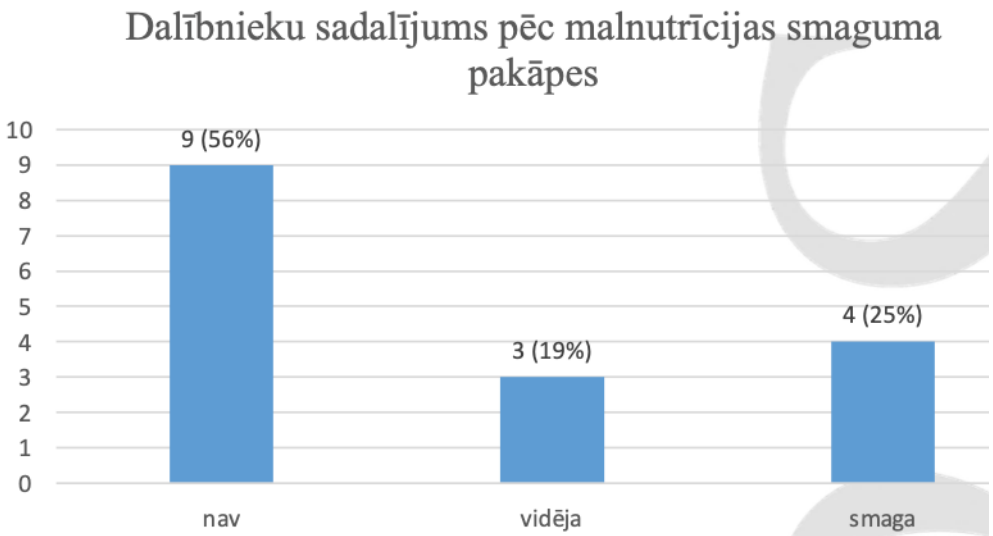
  <22 if ≥ 70y

Hospital electronic health record system "Palma"

Atrašanās vieta	Vēstures numurs	Aktuālie darbi	Ēdināšana	Sākuma datums	Aprūpes līmenis (27.02)	Darbības	Malnutrīcijas skrīnings	Risku novērtējum
3.Tuberkulozes un pleiras slimību nodaļa / 9. palāta	061672025	5 2	OD / OD / OD	04.02.2025 13:22	D: 4 | N: 2 D: 2 | N: 2			
3.Tuberkulozes un pleiras slimību nodaļa / 11. palāta	093612025	5 2	OD / OD / OD	22.02.2025 18:43	D: 2 | N: 2 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 15. palāta	092462025	5 1	OD / OD / OD	21.02.2025 09:51	D: 4 | N: 2 D: 2 | N: 2			
3.Tuberkulozes un pleiras slimību nodaļa / 12. palāta	066922025	7	OD / OD / OD	07.02.2025 07:26	D: 2 | N: 2 D: 1 | N: 2			
3.Tuberkulozes un pleiras slimību nodaļa / 6. palāta	096442025	3	OD / OD / OD	24.02.2025 09:41	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 16. palāta	101622025	3	OD / OD / OD	26.02.2025 17:17	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 4. palāta	098102025	4	OD / OD / OD	25.02.2025 09:11	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 3. palāta	051462025	7	OD / OD / OD	29.01.2025 13:21	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 2. palāta	084892025	2	OD / OD / OD	18.02.2025 08:42	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 1. palāta	061562025	6	OD / OD / OD	04.02.2025 11:56	D: 1 | N: 1 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 1. palāta	636242024	6	ID-N / ID-N / ID-N	23.12.2024 16:06	D: 2 | N: 2 D: 1 | N: 1			
3.Tuberkulozes un pleiras slimību nodaļa / 8. palāta	066282025	4	OD / OD / OD	06.02.2025 14:44	D: 1 | N: 1			

- Weight loss?
- Eat less during last week?
- BMI - thresholds





Klintsone L., bachelor's thesis, 2023

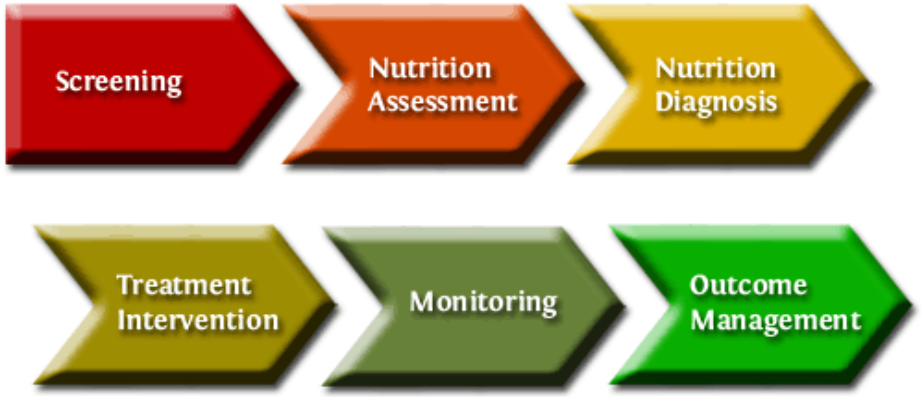
Indirect calorimetry

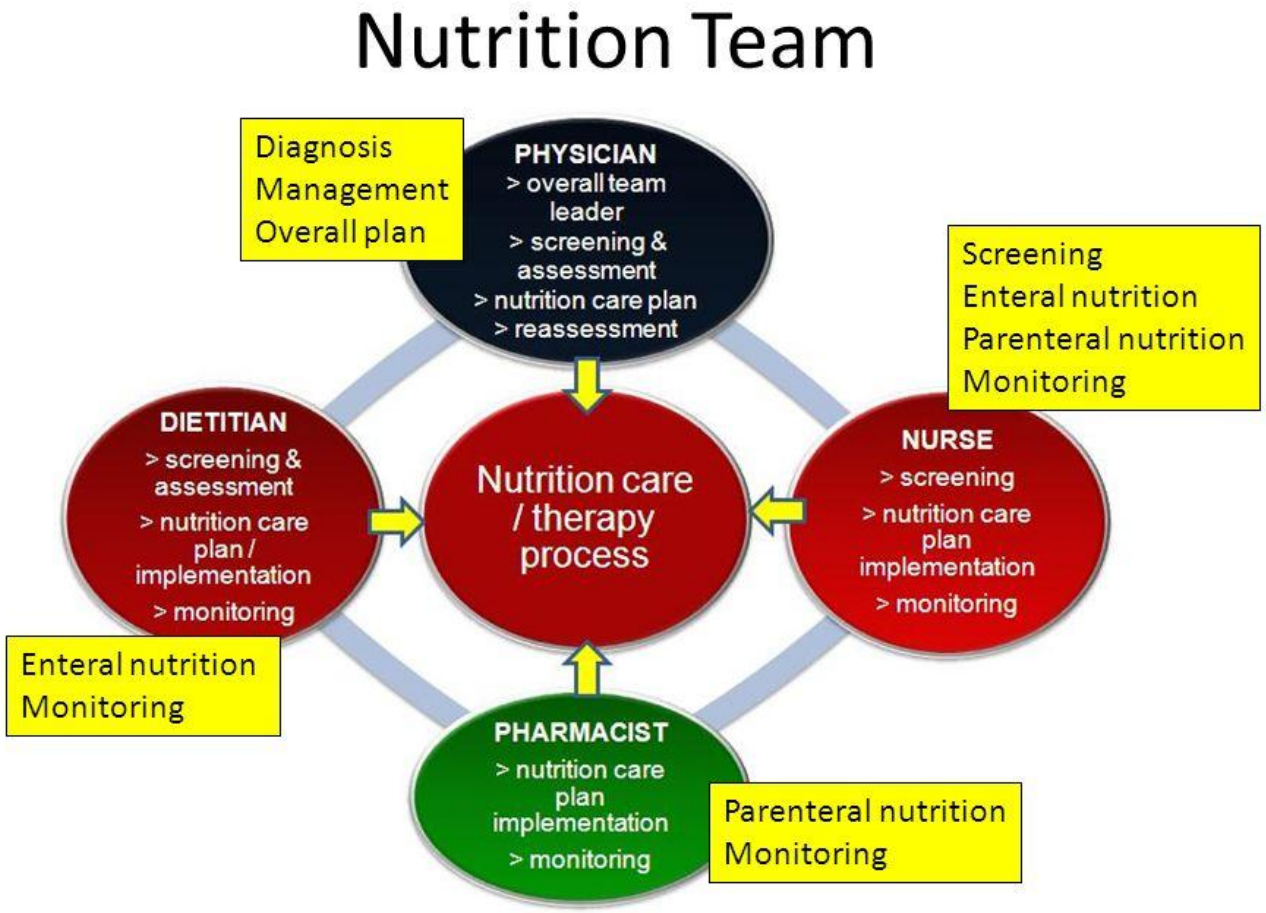
the most exact practicable method for energy expenditure measurement

kcal/d	Median	IQR
Measured BMR	1593	1506 -1910
Calculated BMR	1395	1278 - 1596

Required, calculated	2200 kcal/d
Consumed	2600 kcal/d

Klintsone L., bachelor's thesis, 2023





- to identify the patients at risk
- to start nutritional intervention
- monitor outcome

Malnutrīcijas diagnozes noteikšanas rīks

Uzmanību!

Šis rīks paredzēts tikai ārstiem un ārstniecības personām, kas reģistrētas ārstniecības personu reģistrā, lai pa malnutrīciju un tās pakāpi.

Pēc anketas aizpildīšanas informācija par pacientu netiek saglabāta.

Uztura dienasgrāmata

- Elektroniski pildāma dienasgrāmata (word formātā)
- Printējams dienasgrāmatas variants (pdf formātā)

Kas ir malnutrīcija

Malnutrīcija rodas, ja pacients nepietiekami uzņem uzturvielas, kas rada ķermeņa uzbūves izmaiņas muskuļu un orgānu masā.

Malnutrīcija ir slimība. Slimības kodi: E 44.0; E 43.0.

Plašāk...

Ko ēst, ja ir malnutrīcija

Thank you for your attention!