



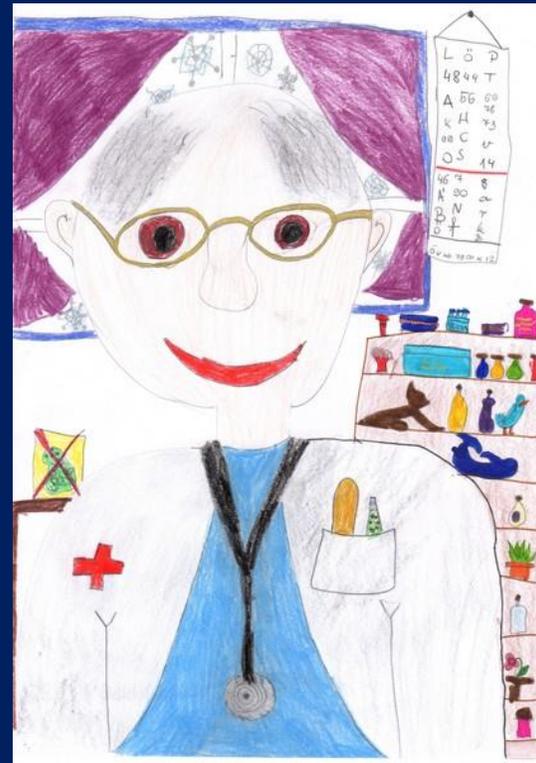
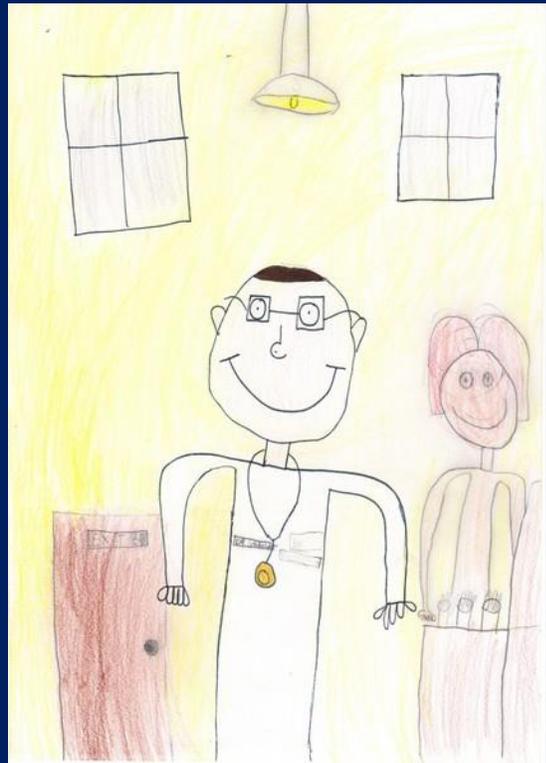
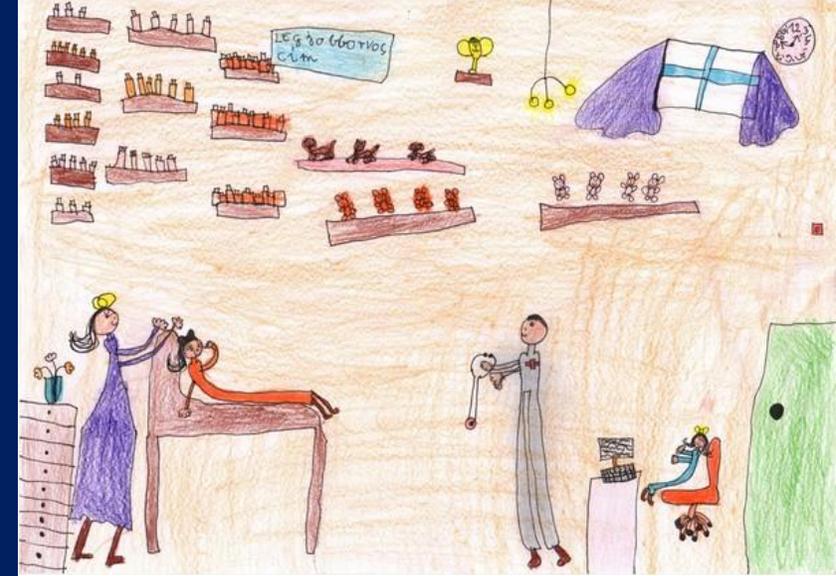
UNIVERSITY OF PÉCS
MEDICAL SCHOOL

Primary Care Pediatrics

György SÁNDOR MD
pediatrician and nephrologist

Pécs, 23.02.2021.





Structure of presentation



Main topics

- Why do we need primary care pediatricians (PCP)?
- Principles of care
- Characteristics of PCP
- Everyday routine activities – case presentations
- Communication – special aspects
- Prevention, screening
- New challenges
- Special years



**Why do we need primary care
pediatricians (PCP)?**



Characteristics of Pediatric Primary Care



TREATING ACUTE PROBLEMS

Infectious and non-communicable health conditions

FOLLOW-UP

Check and support (normal) development, prevention

MANAGEMENT

Organizing care, contact and cooperation with different professional and legal organizations

Characteristics of Pediatric Primary Care

Primary health care is described as accessible and affordable, **first contact, continuous** and comprehensive, and coordinated to meet the health needs of the individual and the family being served. (AAP)

Pediatric primary health care encompasses health supervision and anticipatory guidance; monitoring physical and psychosocial growth and development; age-appropriate screening; diagnosis and treatment of acute and chronic disorders; management of serious and life threatening illness and, when appropriate, referral of more complex conditions; and **provision of first contact care as well as coordinated management of health problems requiring multiple professional services.** (AAP)

Characteristics of Pediatric Primary Care

**Pediatrician (specialist)
Nurse(s)**

Health visitor

Parents

Child Protection National Organisation
Child Welfare and Social Organisation
Educational Counselling Service

Early intervention Prevention



METHODS – SCREENING

Regular physical examination

Parental informations – maternal concerns

Blood spot analysis

Hip joint US

Cranial and abdominal US

Eye tests

Hearing tests

metabolic disorders

luxation

strabismus

deafness

Urine analysis

IgA nephropathy

UTI – VUR

Blood pressure

Body weight, height

Skin abnormalities

Metabolic syndrome

Overweight, obesity

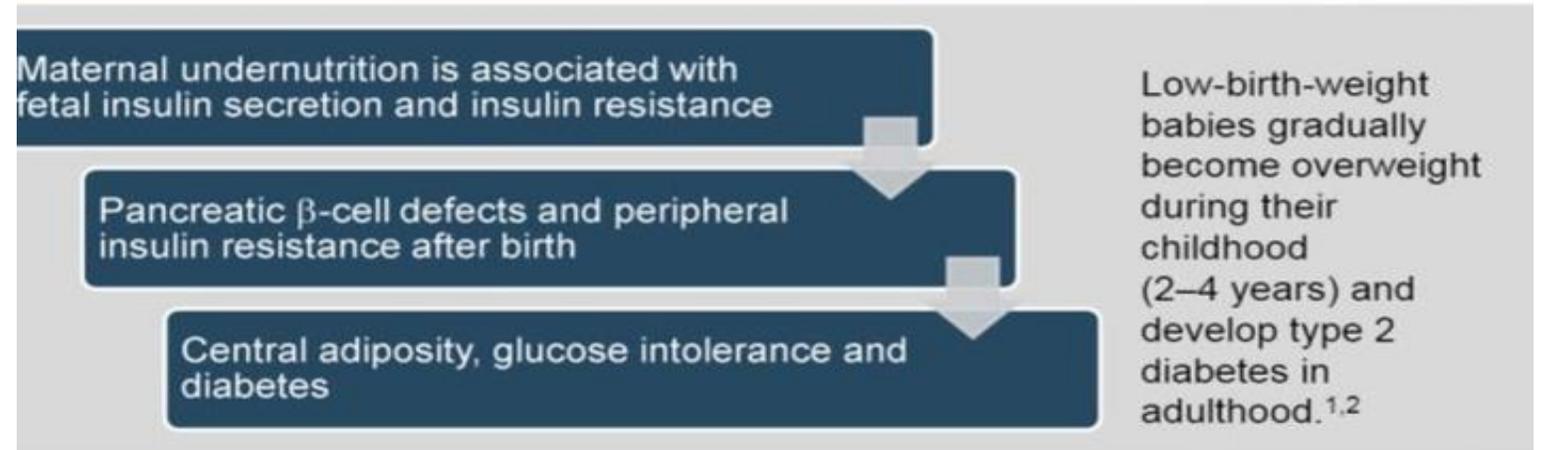
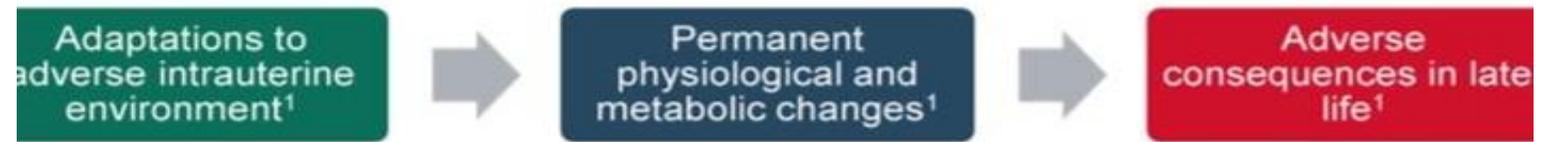
Rash, petechia



„ ... an apple a day keeps the doctor away ... „



Barker's Hypothesis



Optimal prenatal nutrition, due to its effect on birth weight, can decrease the risk of obesity in adulthood.³

1. Lee Boo HA, et al. *Australian and New Zealand J Obstetr Gynaecol*. 2006;46:4–14. 2. Ibáñez L, et al. *J Clin Endocrinol Meta*. 2006;91(6):2153–2156. 3. Tang Z, et al. *Matern Child Nutr*. 2013;9(Suppl 1):105–119.



Barker's hypothesis – early life events have a significant effect on adverse later life events and morbidity – **early nutritional intervention** is needed

Maternal undernutrition¹



- 20% of maternal deaths
- Adverse pregnancy outcomes
- Childhood mortality and stunting

Prenatal multiple
micronutrients

Decrease SGA by 9%

Balanced energy and
protein intake

Decrease SGA by 31%

Daily iron supplementation
during pregnancy

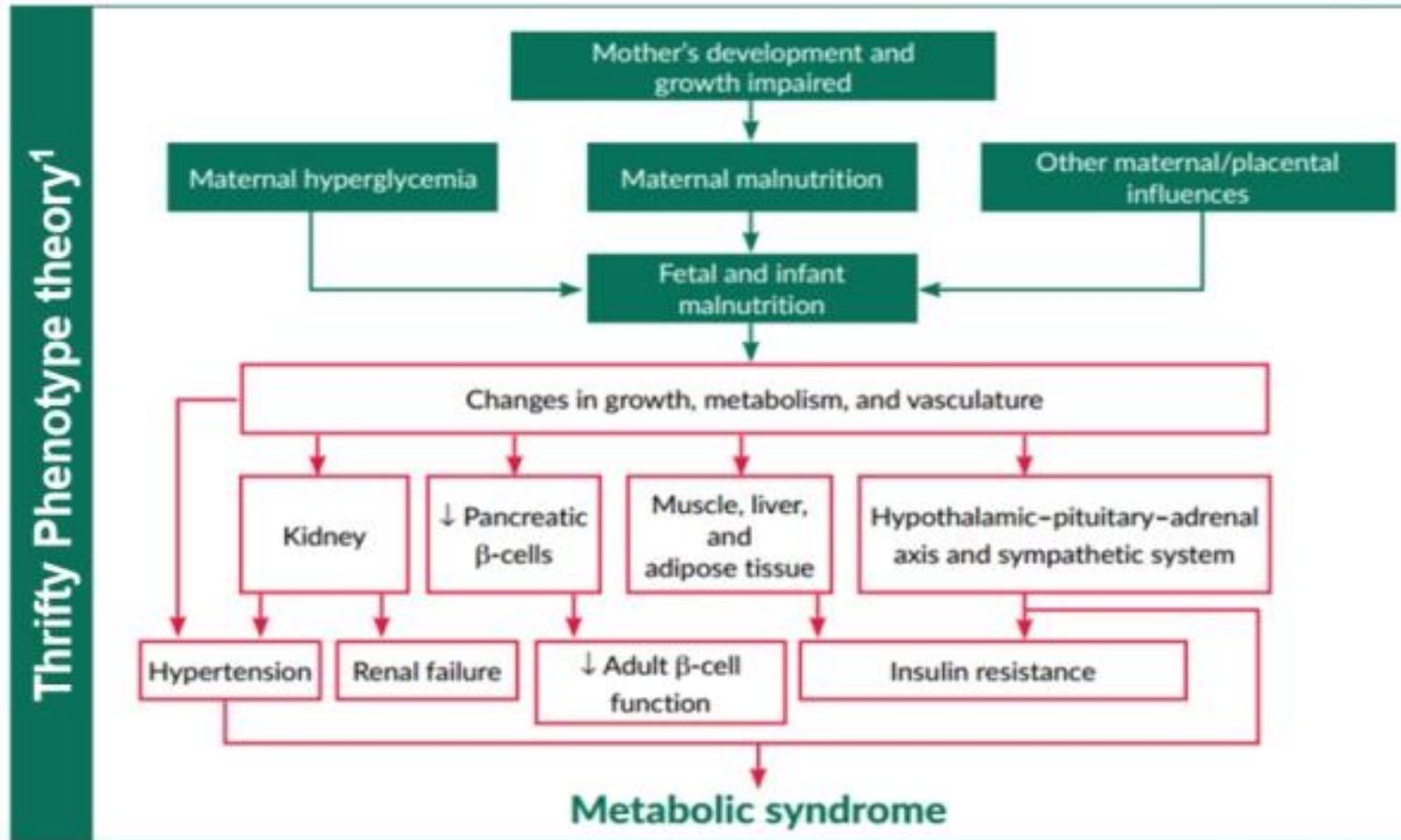
Reduce low birth weight by 20%

Nutritional interventions aimed at improving birth weight, tackling adolescent anemia with family planning activities can break the intergenerational cycle of growth failure and convert it into a virtuous cycle²



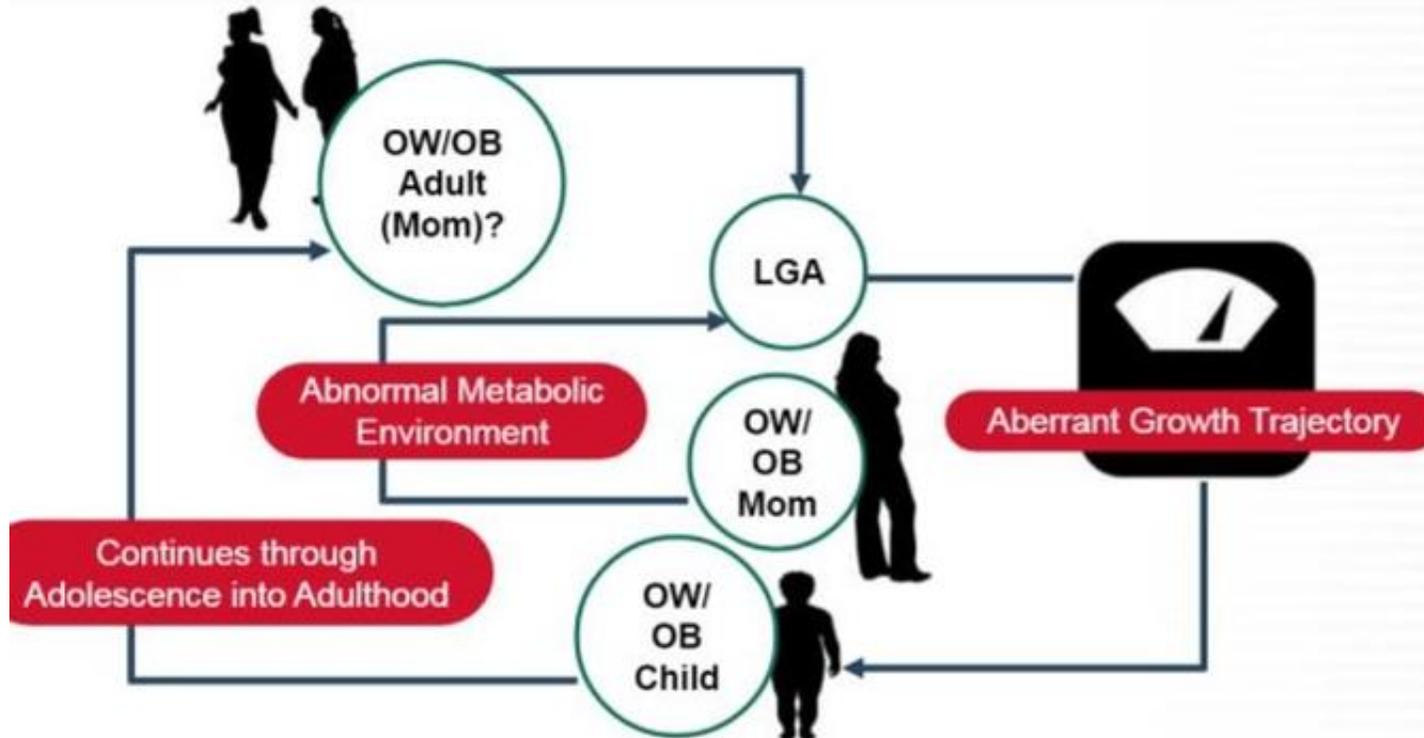
Early (maternal) nutritional intervention may reduce the risk of stunting

Programming in Early Life for Future Health of the Child



Flow-chart of pathophysiological alterations, leading to metabolic syndrome

Obesity Begets Obesity: Intergenerational Cycle



Maternal obesity is a risk factor for pediatric obesity.^{1,2}

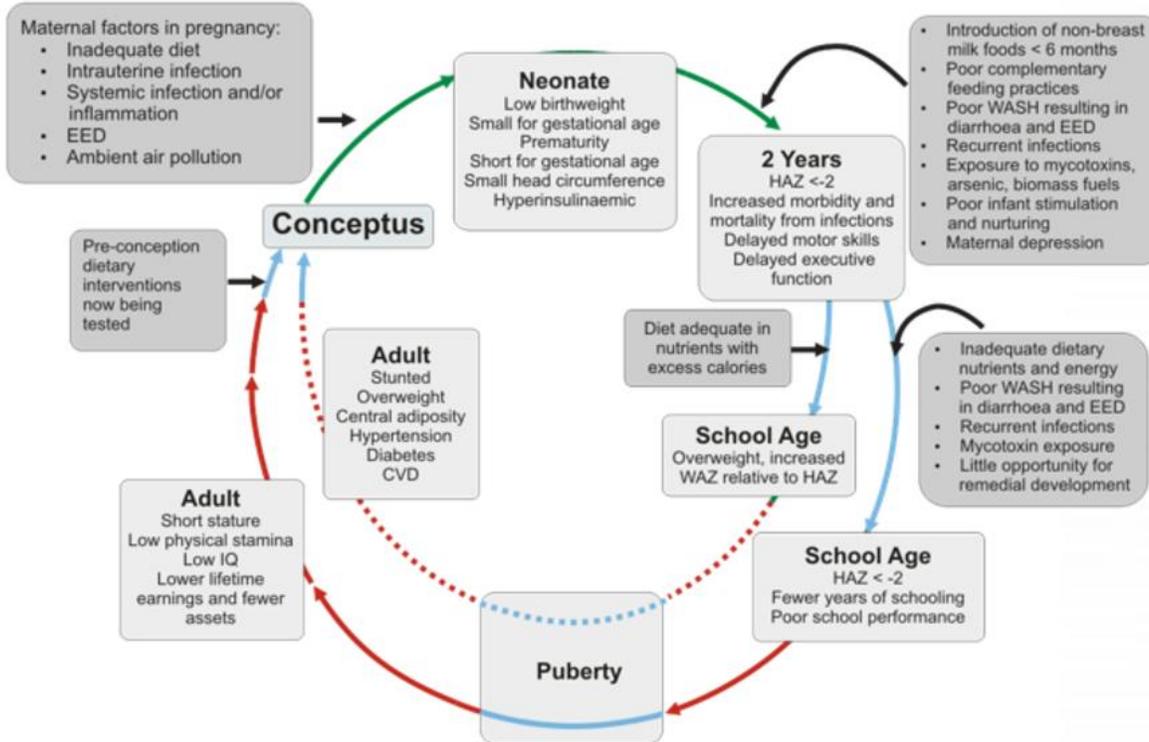
Large-for-gestational age; OW/OB: Overweight and obese.

KB, et al. *Int J Environ Res Public Health*. 2012;9:1263–1307. 2. Troesch B, et al. *Nutrients*. 2015;7:6016–6037.



Healthy children will become healthy parents – this cycle can be interrupted
Epigenetic factors

Human Potential Trapped in the Intergenerational Cycle of Malnutrition



Green → first 1000 days

Blue → growth spurt, chance for catch-up

Red → stunting can no longer be improved

Dashed line → overnutrition

First 1000 Days of Life is the Most Critical Period



Determinant of fetal growth, cognition, stunting, subsequent obesity, and NCD in adulthood¹

Difficult to reverse stunting after 2 years of life²

Stunted children lose about 3.2 cm in adult stature for each decrement in HAZ* at the age 2 years^{3,4}

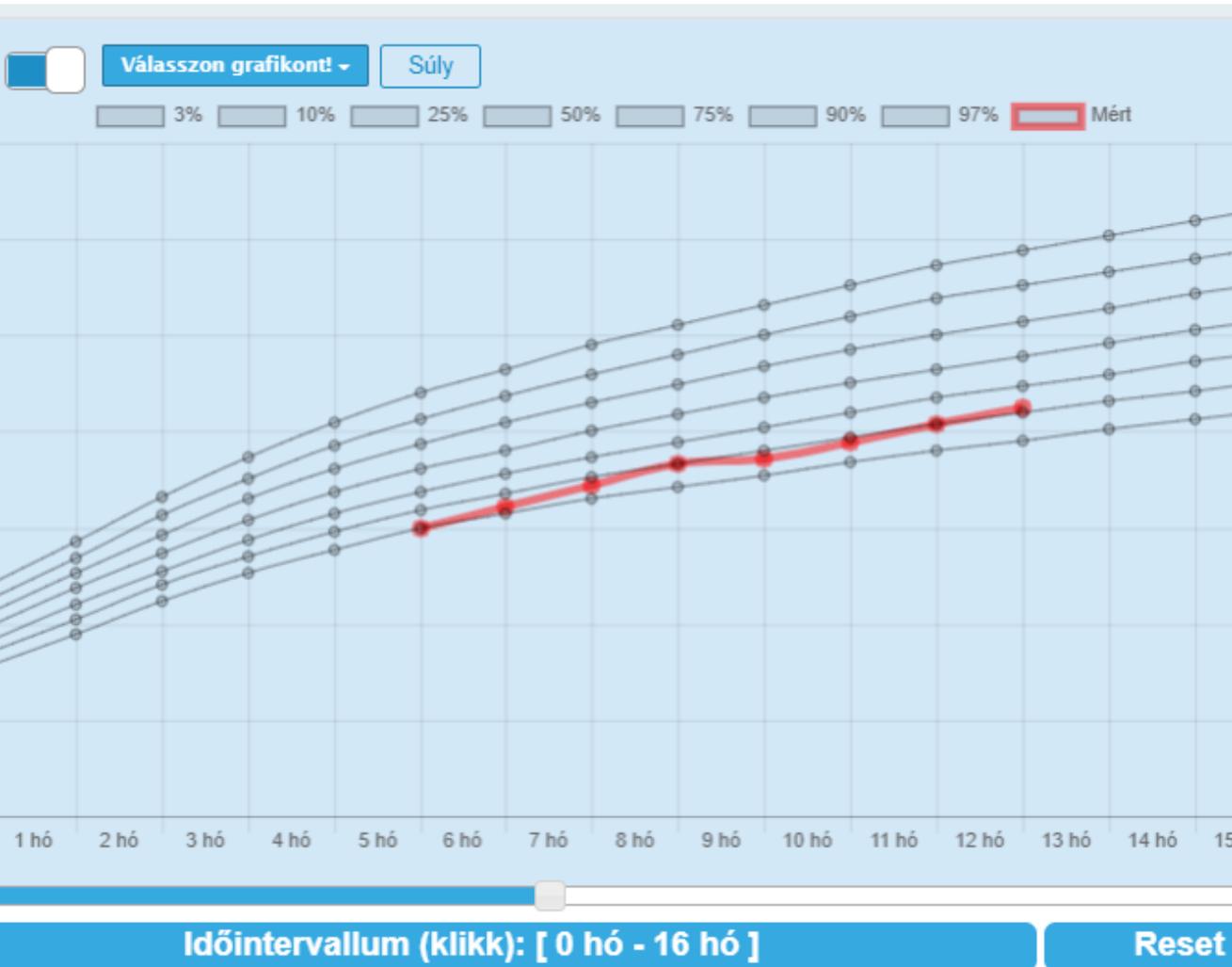
HAZ: Height-for-age z score, NCD: Non-communicable diseases; *per a pooled analysis of five long-standing prospective cohort studies.

1. Black RE, *et al. Lancet*. 2013;382(9890):427–451. 2. WHO. Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition. 2013. 3. Victoria CG. *Lancet*. 2008; 371(9609): 340–357 4. Prendergast AJ, *et al. Paediatr Int Child Health*. 2014;34(4):250–265.



Intervention – population based and targeted programmes

Early intervention - prevention



Healthy breast fed infant

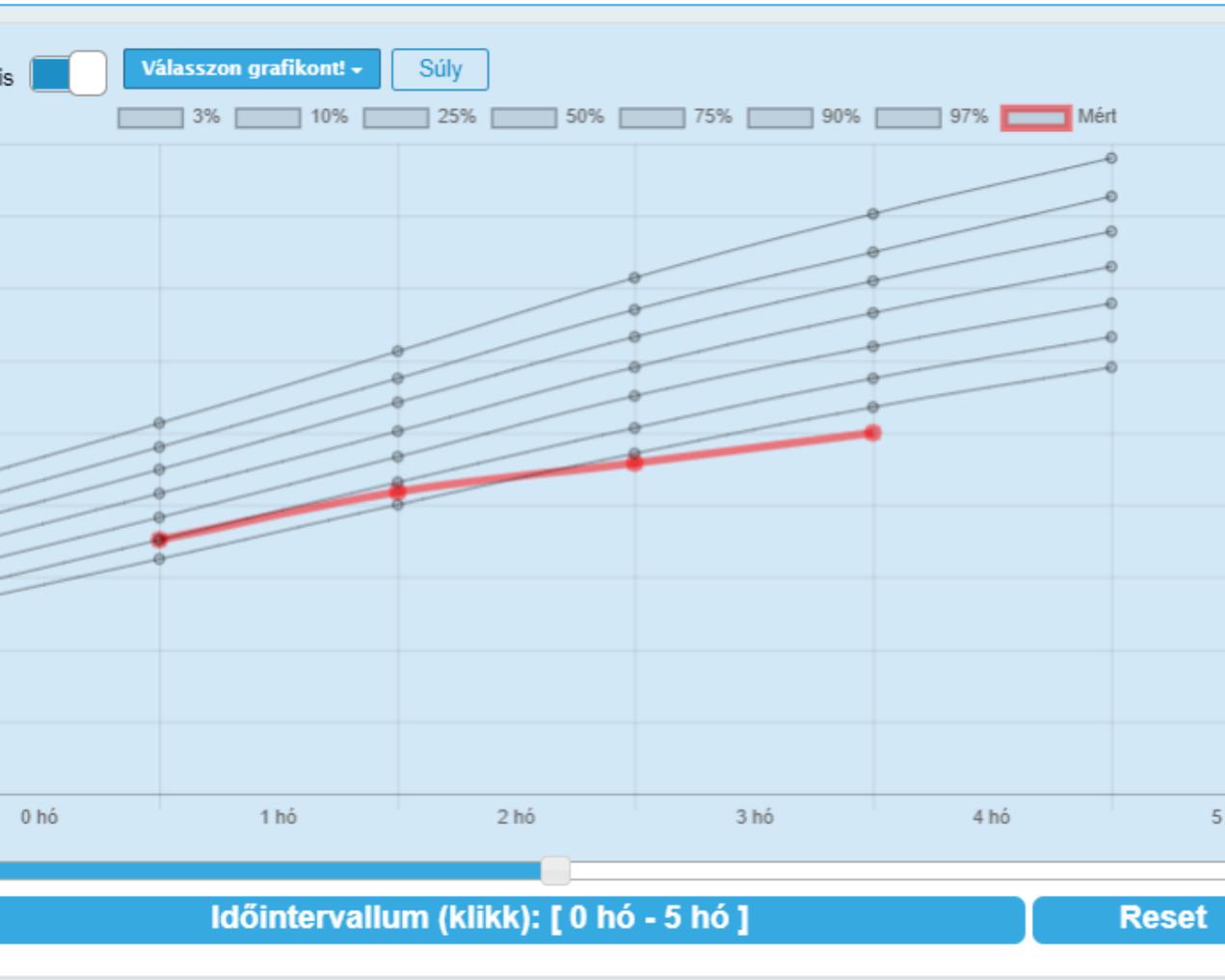
No relevant perinatal history

Introduction of solid foods started at
6 mo

GER, diarrhoe, UTI excluded

Excessive motor activity

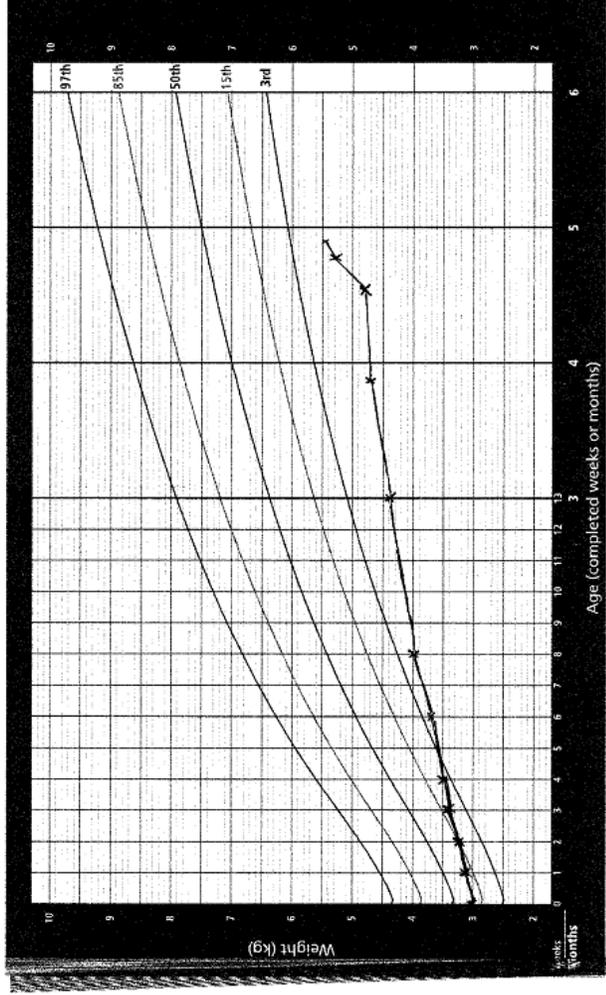
Early intervention - prevention



Healthy breast fed infant
No relevant perinatal history
GER, UTI excluded

Weight-for-age BOYS

Birth to 6 months (percentiles)



Early intervention - prevention

Healthy breast fed infant
No relevant perinatal history
GER, UTI excluded

Formula feed added at 4 mo 2 weeks

Health related behaviour

Series of wise decisions !

Competent immune system –
physical activity, normal sleeping
pattern, play a lot, proper fluid intake,
balanced diet

No miracle cure in OTC products

Be aware of benefits of early
intervention and screening



Gatekeeper



Gatekeeper- cases of insect bites - consequences



e m e r g e n c y

4 years old boy

Fever: 5 days

Red spots on the skin

Bleeding caused minor trauma

Malaise, fatigue

Pale skin



Gatekeeper- cases of unilateral latheothoracic exanthema



Gatekeeper - case presentations



Communication

Parent – child – pediatrician triangle



Asymetry

Professional – laymen

Help – asking for help

Experience, routine – fears, concerns

Decision making (patient/parent)

Social-cultural differences

Children's competence

Sensomotor phase (0–2 year)

Preoperative (2–7 year)

Real thinking phase (7–12 year)

Formal thinking (>13 year)

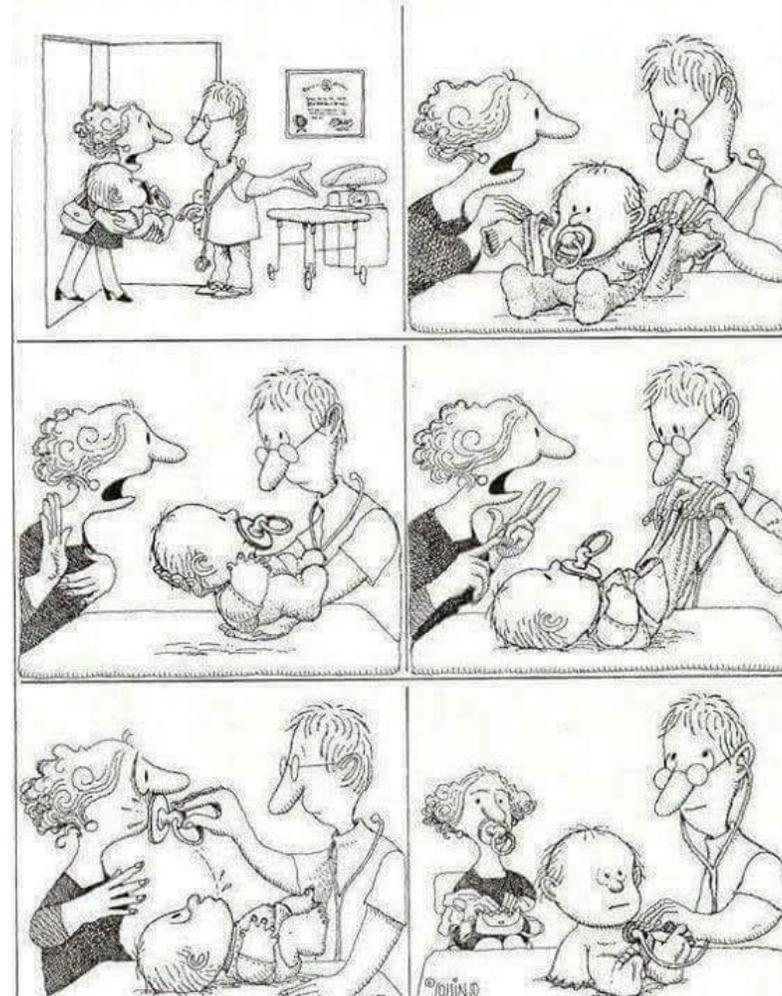
Parental attitudes

Supporting (60–70%)

Normalisation

Invalidate

Keeping distance



Every single word counts!

- Speak accordingly (parent or child)
- Be precise
- Be open-minded
- Don't try to be too sweet or funny
- Respect children demand of information
- Check signals of non-verbal communication
- Formulate clear recommendations
- Ask for reinforcement (understand? clear?)
- Ask for feedback information



What happened?

upper respiratory tract infection

black, closed clothes

unusual behaviour, nervous, introverted

history: atopic dermatitis

social history: divorced parents



EMERGENCIES

Suicidal or homicidal intent

Psychosis

Drug overdose

Dangerous or destructive, out-of-control
behavior

Panic attack

Abuse / neglect

WHAT TO DO?

call parents, inform them

sending home alone

refer to a hospital

refer to an outpatient service (appointment)

inform special services – Children Protection
Network

Bullying

Cyber bullying

7 out of 10 young people

37% - highly frequent basis

20% - on a daily basis

54% of FB users reported

Impact is serious – destroying self-esteem



Patient education

Health related behaviour, attitude



Lost of healthy years of life expectancy (2016)

Lack of physical activity

Unhealthy diet

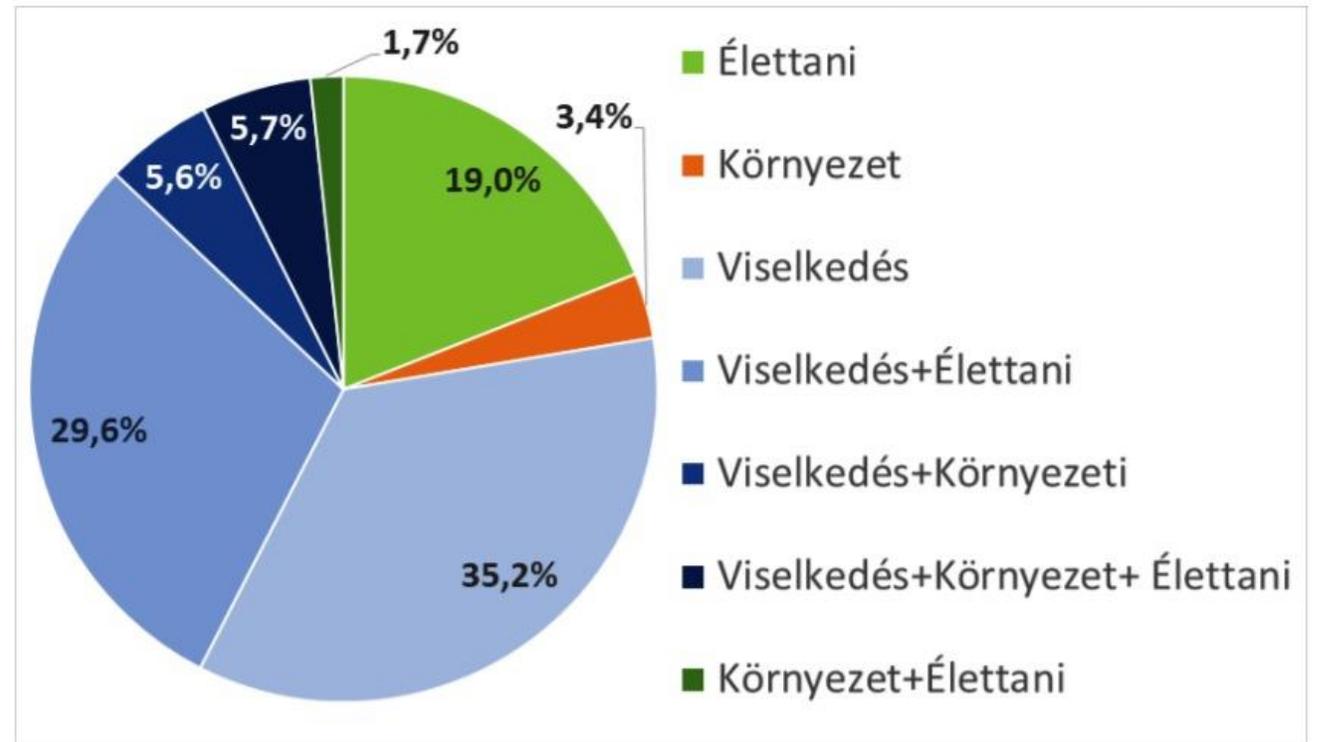
Smoking

Alcohol consuming

Disturbed sleeping

Mental health issues - anxiety

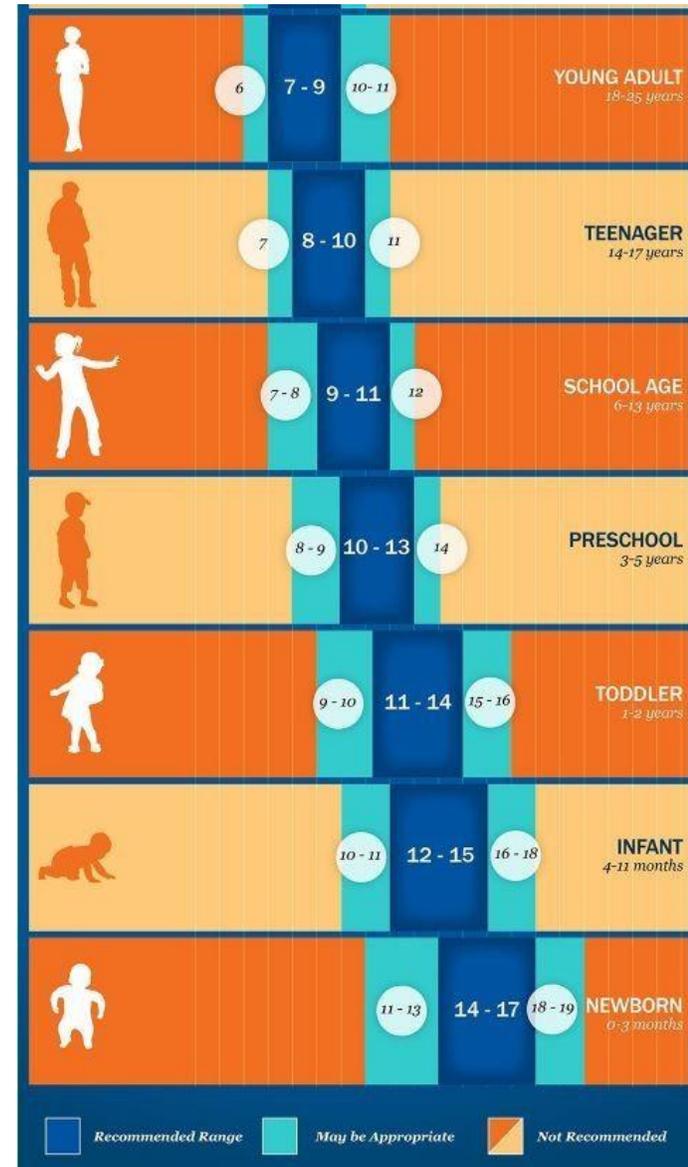
: Egészségveszteségek (ELEV) megoszlása kockázati tényezők csoportjai között, Magyarországon, 2016



Sleeping pattern and quality

- Sleep pattern alterations may be an early symptom of a mental illness
- Sleep debt destabilizes frontal lobe
- Lack of sleep worsens all mood disorders
- Parent with sleep debt is more irritable

- Sleep diary may be useful
- Consider role of media / phone (screentime)
- Consider obstructive sleep apnea
- Work on sleep first or simultaneously



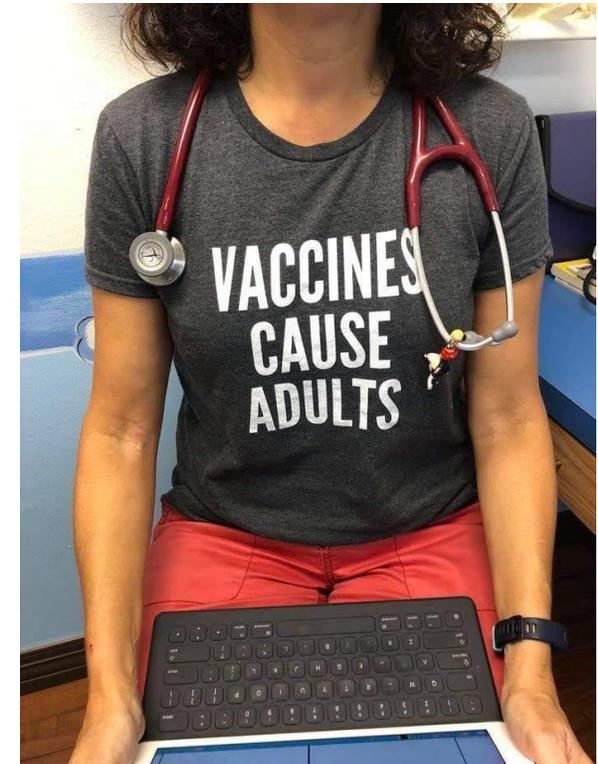
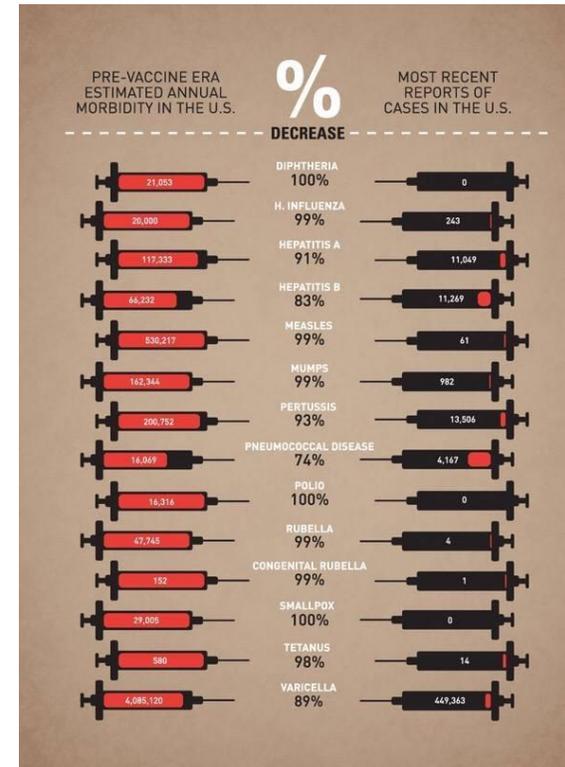
VACCINATION

Mandatory and voluntary inoculations

Understand first, than accept

Facts, professional issues

Personal experiences !?



Pandemic

MIS-C, long COVID



WHO list of global threats to health 2019

Air pollution and climate change

Noncommunicable diseases

Threat of a global influenza pandemic

Fragile and vulnerable settings, such as regions affected by drought and conflict

Antimicrobial resistance

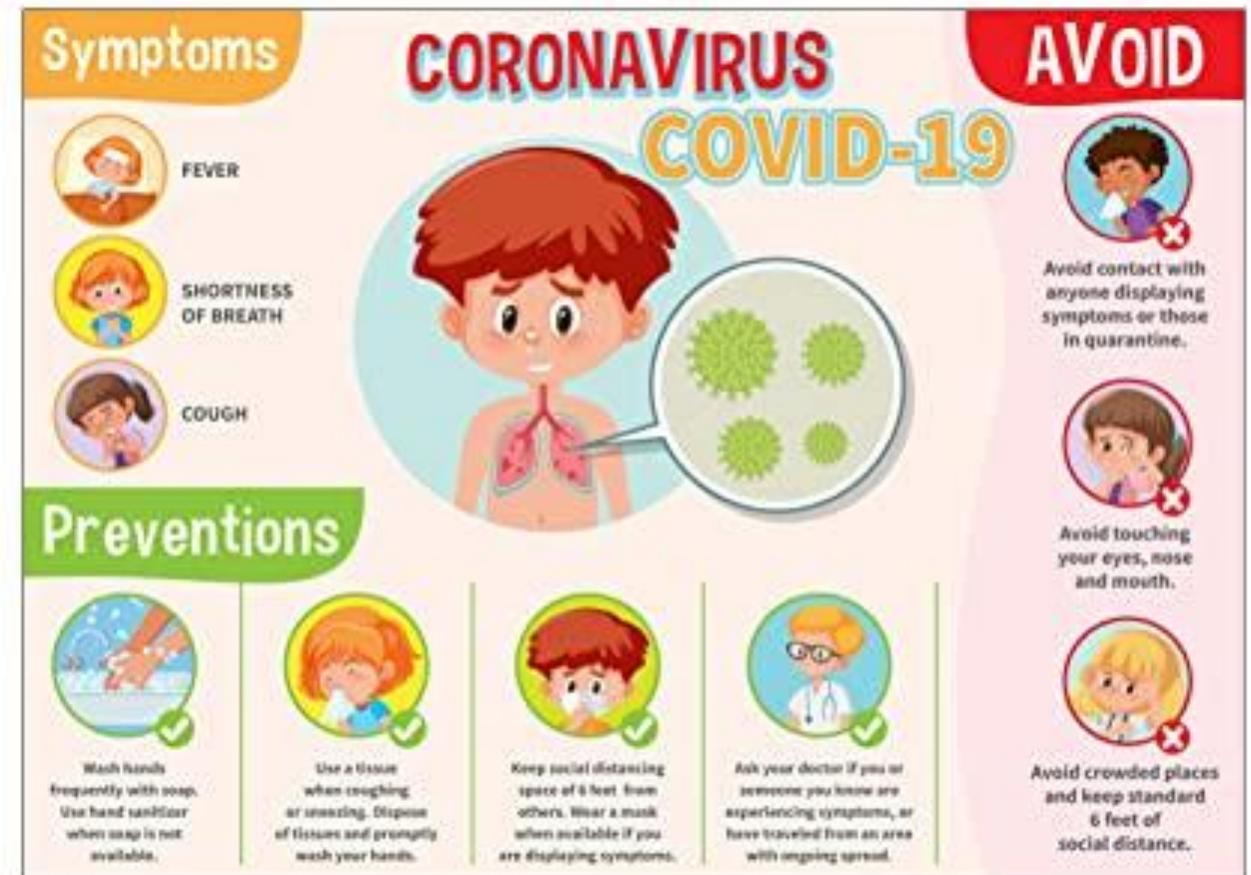
Ebola and high-threat pathogens

Weak primary care

Vaccine hesitancy

Dengue

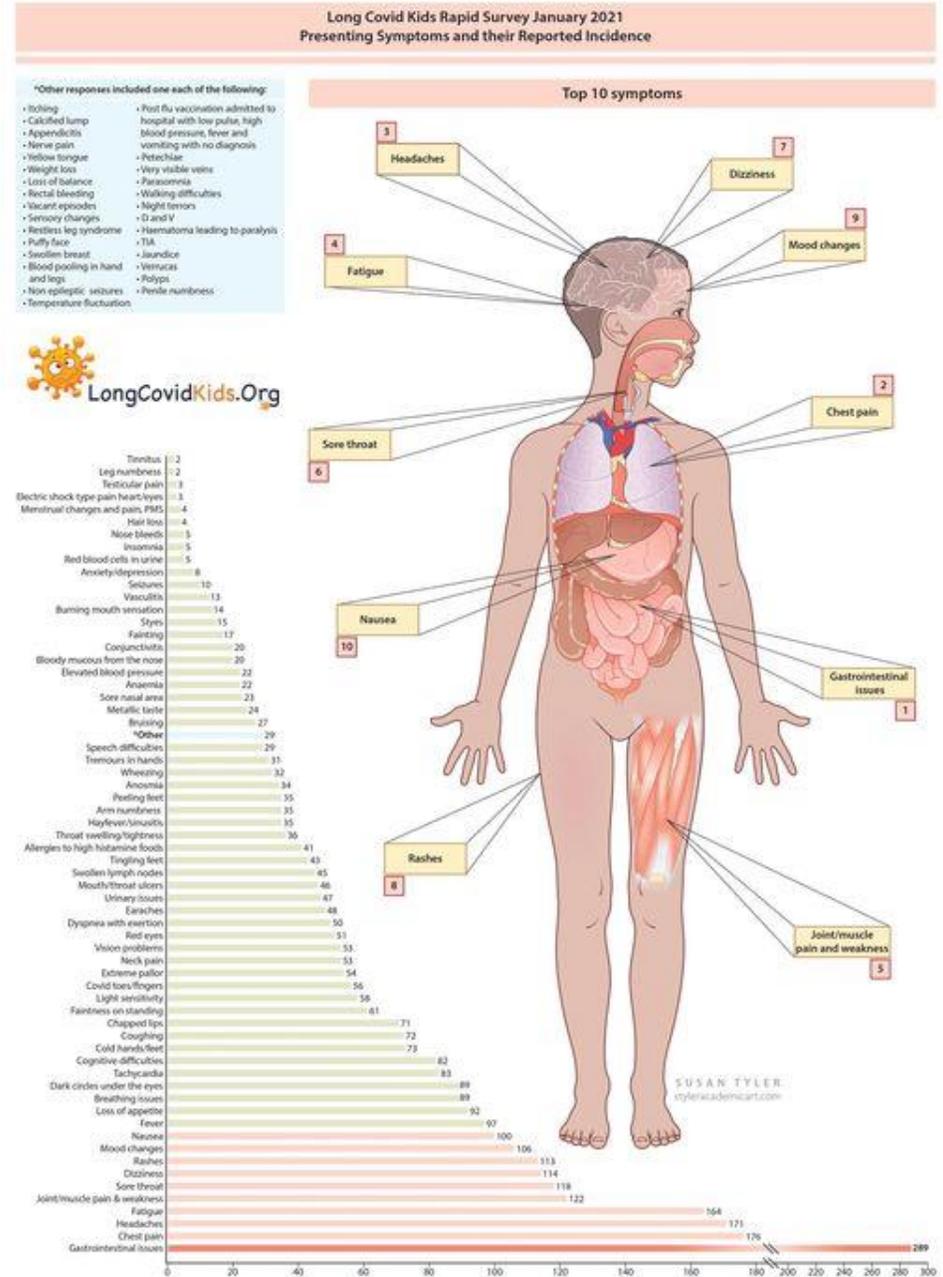
HIV



P a n d e m i c

Long COVID

Even following symptomless COVID infection
Mental issues are emerging
No clear recommendations



MIS-C

Rare, serious condition
Prominent cardiovascular abnormalities
4–6 weeks after COVID (even symptomless)

Table 3. CDC Case Definition for MIS-C

Criteria

- An individual aged < 21 years presenting with fever^a, laboratory evidence of inflammation^b, and evidence of clinically severe illness requiring hospitalization, with multisystem (≥ 2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic, or neurological); **AND**
- No alternative plausible diagnoses; **AND**
- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 weeks prior to the onset of symptoms

^aFever > 38.0°C for ≥ 24 hours, or report of subjective fever lasting ≥ 24 hours

^bIncluding, but not limited to, 1 or more of the following: an elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, D-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6), elevated neutrophils, reduced lymphocytes, and low albumin

Summary



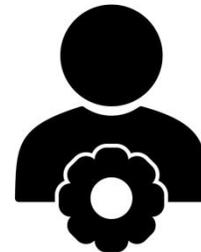
TREAT

Common conditions, infectious diseases, definitive treatment – gatekeeper



SCREEN, PREVENT

Find rare conditions and alterations disturbing normal development



MANAGE, ORGANIZE

Provide up-to date care, educated staff, collect data, networking



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Thank you for your attention !

Pécs, 2021. január 12.