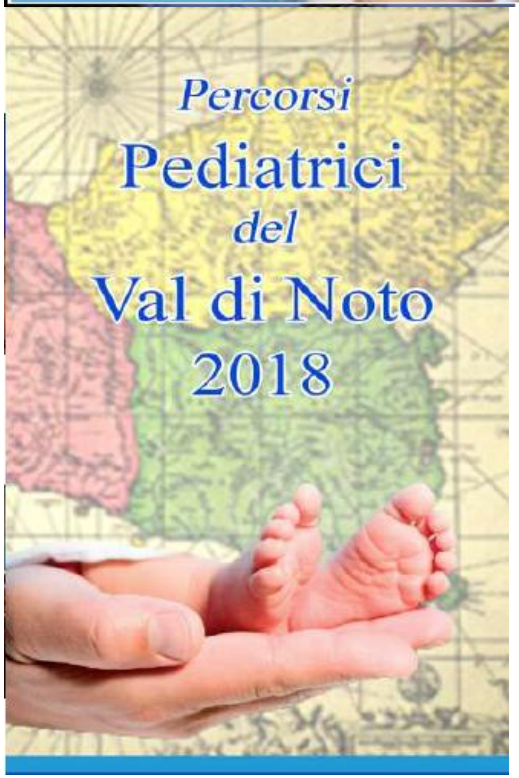
Percorsi Pediatrici Siciliani



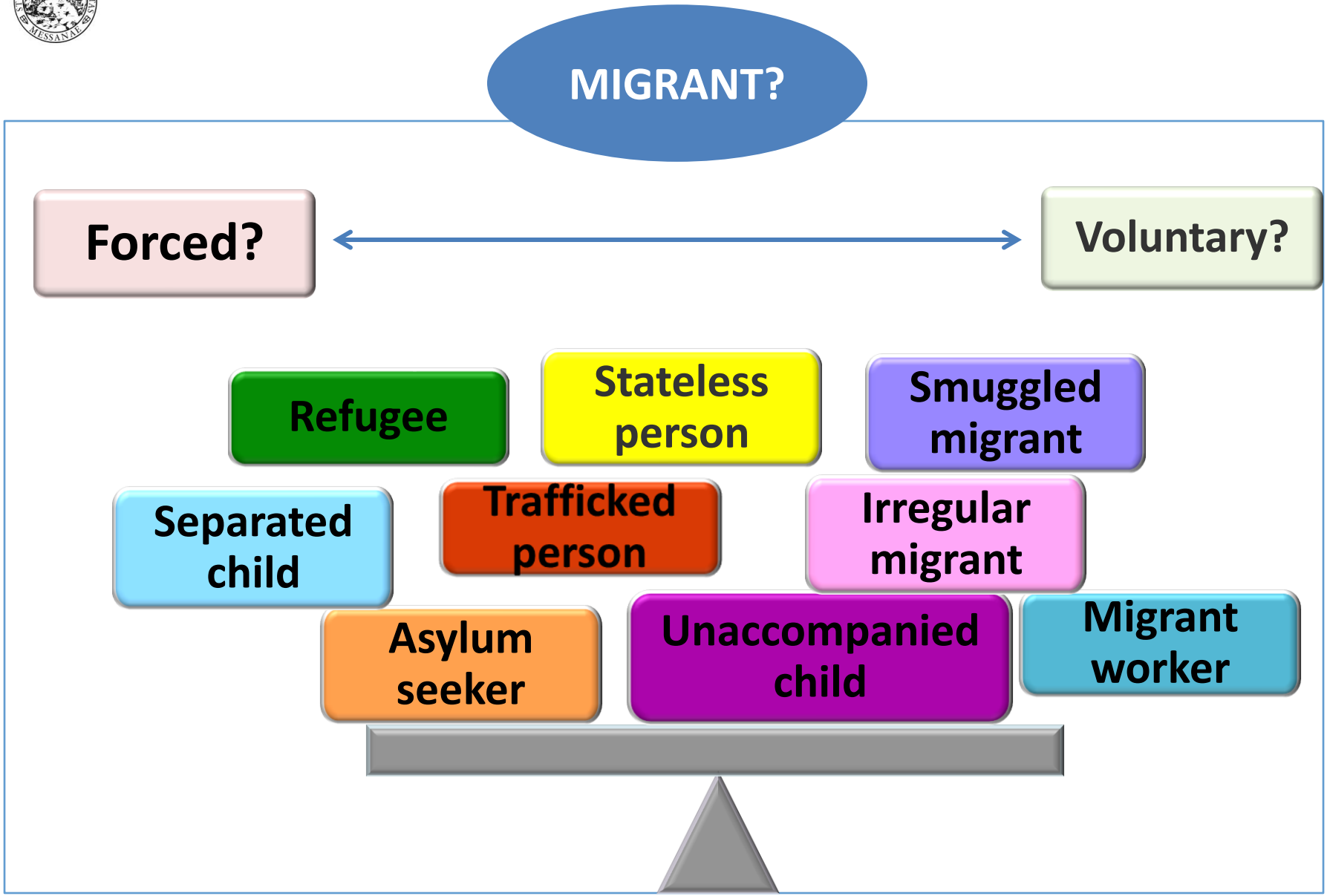
Università degli Studi di Messina
Dipartimento di patologia Umana dell'Adulto e dell'Età evolutiva

Il bambino migrante in PSP

Teresa Arrigo
UOC Pediatria d'Urgenza con PS ed OB

21 Aprile 2018

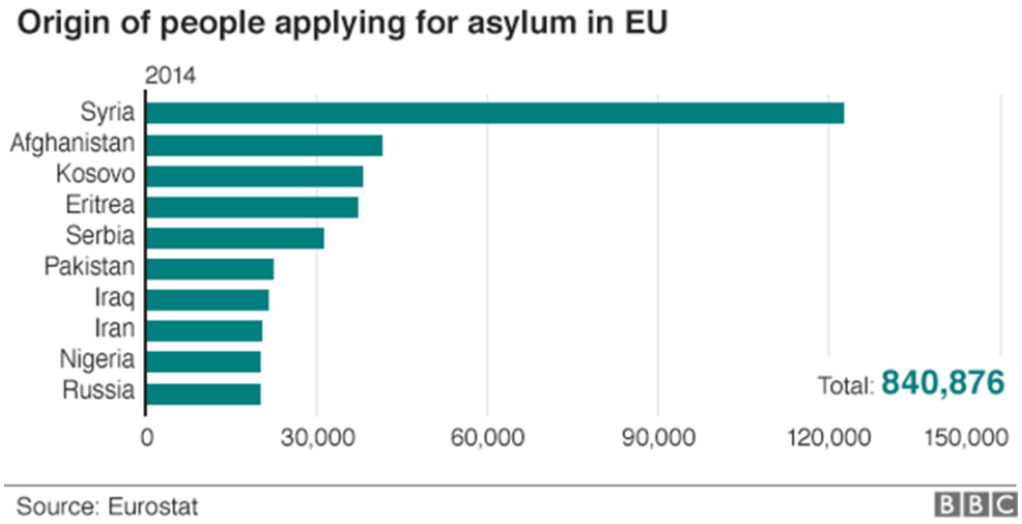
Europe's Migrant Crisis

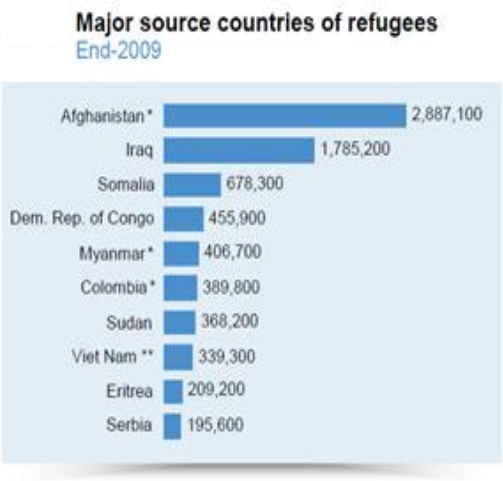

MIGRANT?
Forced?
Voluntary?
Refugee
Stateless person
Smuggled migrant
Separated child
Trafficked person
Irregular migrant
Asylum seeker
Unaccompanied child
Migrant worker

Definitions

- **Refugees -** fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinion.
- **Asylum-seekers -** refugee status not yet gained.
- **Internally displaced persons -** forced from habitual residence.

Rotte migranti





Why do people move?

Livelihood – economic opportunity

War Conflict

Climate Change, Natural disasters

Persecution

Family reunification

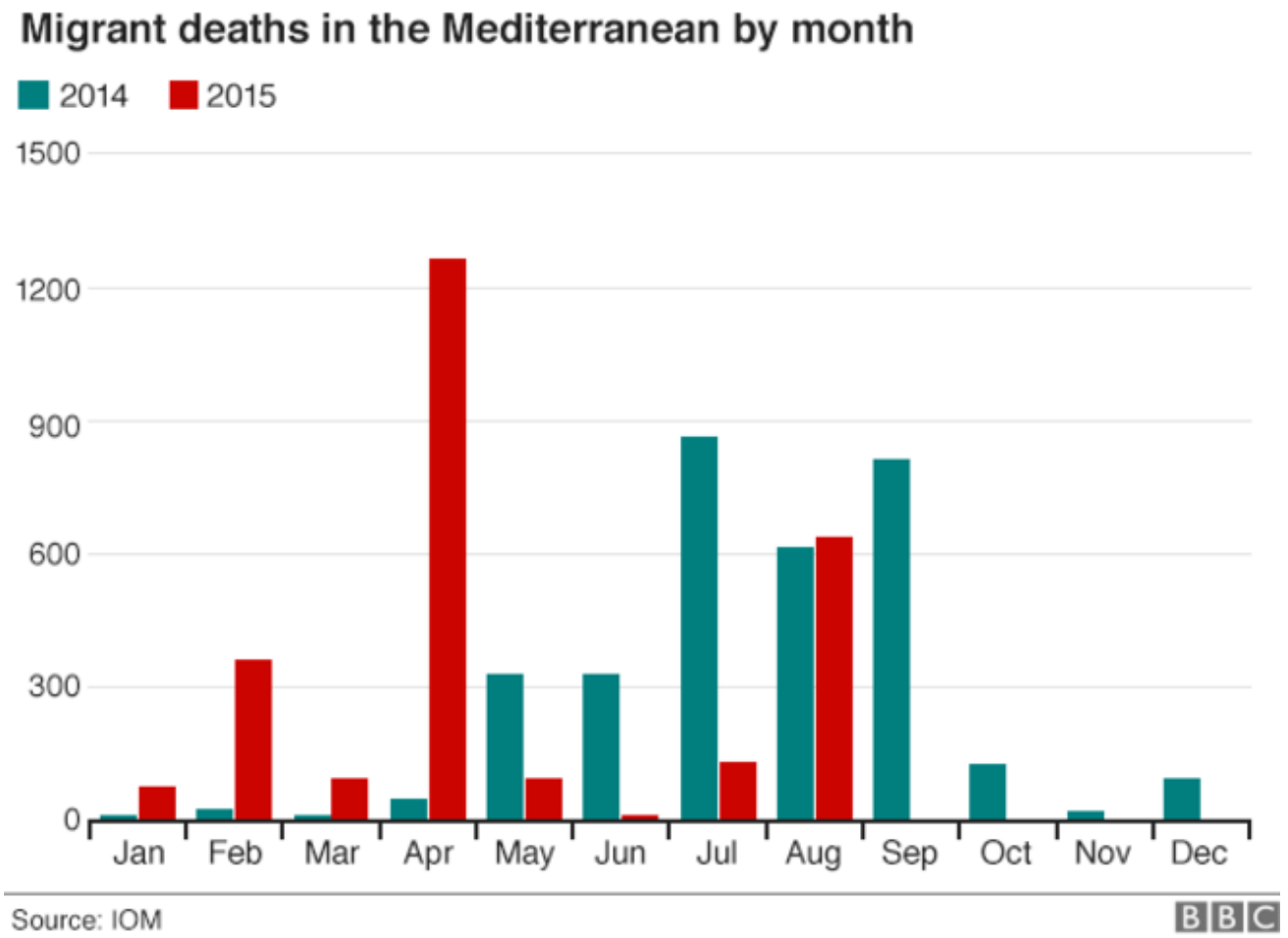
Food, water insecurity

Poverty

Discrimination stigma, prejudice

To access healthcare education

Violence, exploitation


Migrant deaths in the Mediterranean by month
2014
2015
1500
1200
900
600
300
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Source: IOM
BBC

Si chiamava **Aylan Kurdi** e **aveva tre anni**. Suo fratello di 5 è morto nello stesso modo.
La foto del bimbo senza vita sulla spiaggia di Bodrum in Turchia.

Giovedì 3 settembre 2015

"A dead child" said Stalin "is a tragedy. Two million are a statistic." A single photograph of a beach riveted world attention, converting Syrian refugees from statistics to tragedy. But the statistics remain.

HEALTHCARE POLICY *Vol.11 No.2, 2015*

Disembarkation in Italy, 2014-2016

Year	*Total disembarkation*	*UAMS*	*% UAMS*
2014	170.100	13.026	7,7
2015	153.842	12.360	8,0
2016	181.436	25.846	14,2
	Monthly data 2016		
January	5.273	645	12,2
February	3.828	691	18,1
March	9.676	1.344	13,9
April	9.149	1.861	20,3
May	19.925	2.468	12,4
June	22.371	3.515	15,7
July	23.552	3.181	13,5
August	21.294	3.158	14,8
September	16.975	2.138	12,6
October	27.384	3.771	13,8
November	13.581	1.887	13,9
December	8.428	1.187	14,1

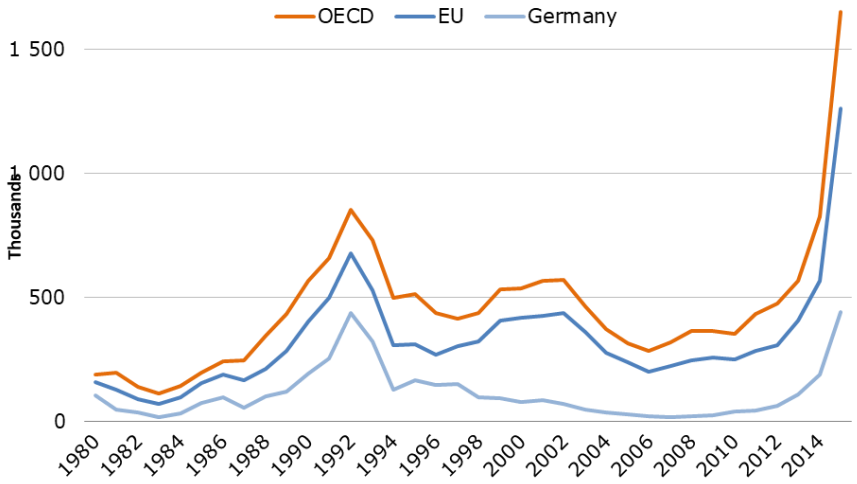
Source: ISMU on UNHCR data

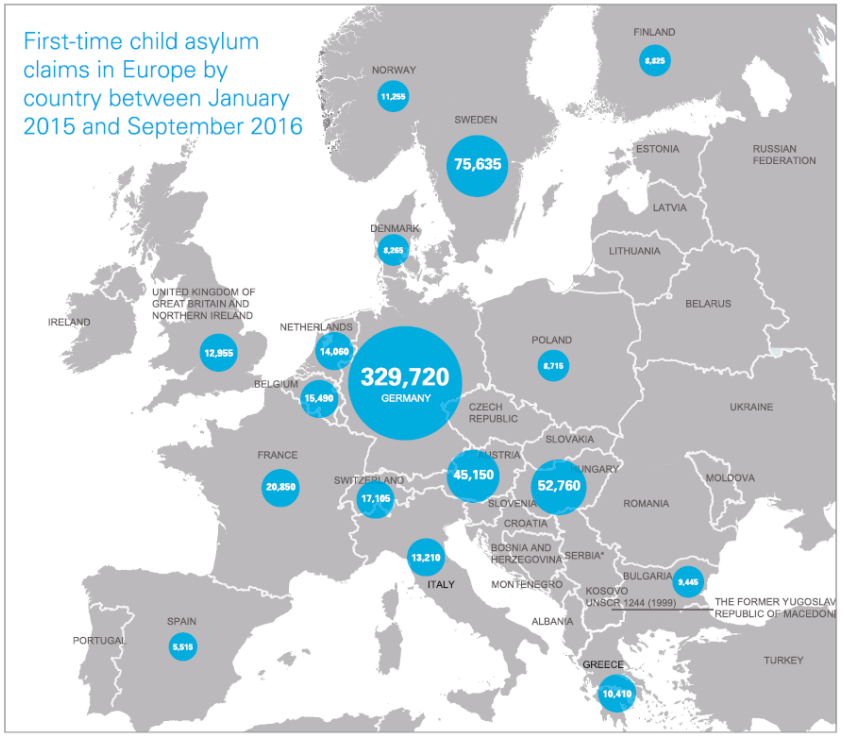
Nationalities of UAMs disembarked on 2016 (January-November)

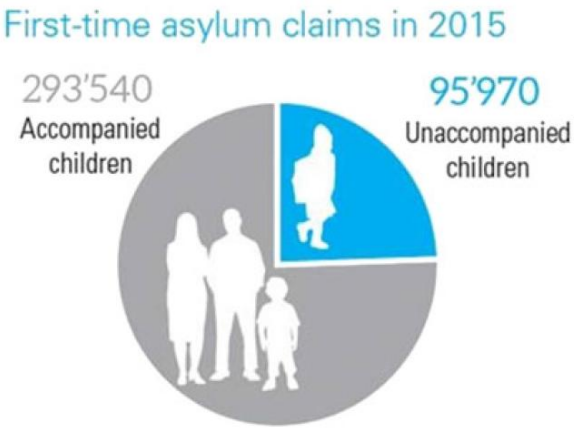
	UAMS	*% Value*
Nigeria	2.932	12,1
Eritrea	3.714	15,4
Guinea	2.225	9,2
Ivory Coast	1.613	6,7
Gambia	3.119	12,9
Sudan	431	1,8
Senegal	1.072	4,4
Mali	1.302	5,4
Somalia	1.535	6,4
Others	6.229	25,7
Total	*24.172*	*100,0*

Source: ISMU on UNHCR data

An unprecedented number of asylum applications in 2015 & persisting high levels in 2016







Map of first-time child asylum claims in Europe January 2015–September 2016 (UNICEF)

Child Care Health Dev. 2018;44:161–170.

Cosa fare?

Prendersi cura dei migranti




Fornire cure mediche




Sbarco n.
Profugo n.
Cittadinanza
Stato di nascita
Comune di nascita

Age determination in refugee children: A narrative history tool for use in holistic age assessment

Results: Four themes emerged: the significance of age; ways of remembering age; the refugee experience and its effect on age recall; and the reliability and permissibility of documentation. Age was significant, but understood and remembered differently with knowledge of an exact date of birth not required for functioning in participants' home societies. Information regarding age was embedded in narrative accounts, related to events and other people. Birth was not always registered, with birth and age-containing documentation obtained later in life. These documents often reflected cultural ideas regarding age, rather than recording true chronological age. The refugee experience profoundly affected the ability of people to remember their age by disrupting methods used to recall specific events, including birth.

What is already known on this topic

1 Age uncertainty is an increasingly common problem faced by medical professionals when interacting with refugee and asylum seeking children and impacts on social and educational functioning and medical care.
2 There are numerous methodological and ethical issues associated with the most commonly used age assessment modalities, that is, medical assessment and bone age imaging.
3 National and international guidelines promote a holistic approach to age assessment including narrative history alongside medical and imaging techniques but the perceived subjectivity of interviews mean their findings are given less weight than those of medical and imaging approaches.

What this paper adds

1 Refugees and asylum seekers often utilise a different understanding of age, as existing within a time-span rather than focused on a particular date and remember age as part of narrative accounts, related to events and other people.
2 Interviews provide an opportunity to explore the narratives of age that refugees utilise, gathering information that facilitates approximation of true chronological age.
3 The narrative history component of the Age Assessment Tool questionnaire provides a framework for conducting age interviews for use in age assessment of accompanied refugee children and asylum seekers.

The European refugee crisis and biological age—Is it right to use skeletal maturity as an estimate of chronological age?

It is common in the human biological sciences to use a maturational scale of functional ability such as developmental age, skeletal age or dental age.

However, it is widely recognised that these maturational scales are imperfectly correlated with chronological age. Skeletal age, for instance, has a standard deviation of ~ 1 year about any chronological age, meaning that 95% of the time a child's chronological age could be within ±2 years of any skeletal age.

It is scientifically indefensible to ignore the known imperfect association between maturity and age in order to decide who will or will not be granted the opportunities afforded by asylum in Europe.

ANNALS OF HUMAN BIOLOGY, 2016

Patologie di importazione

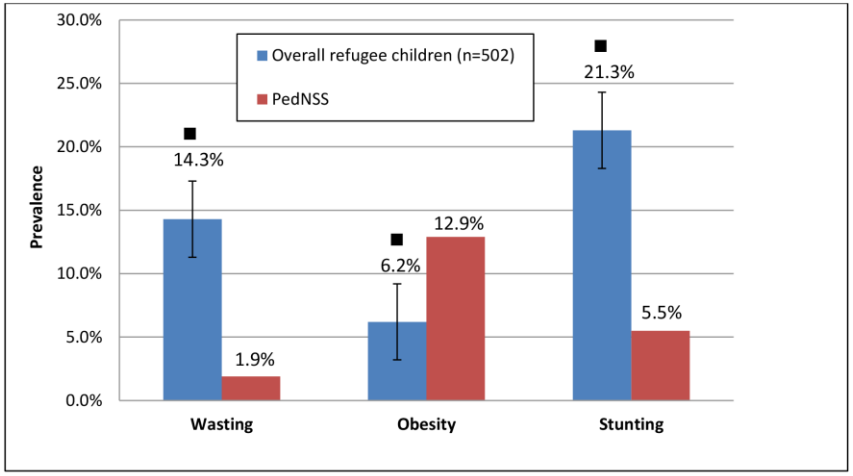
tutte le problematiche di salute che la persona si porta dietro a causa della propria provenienza

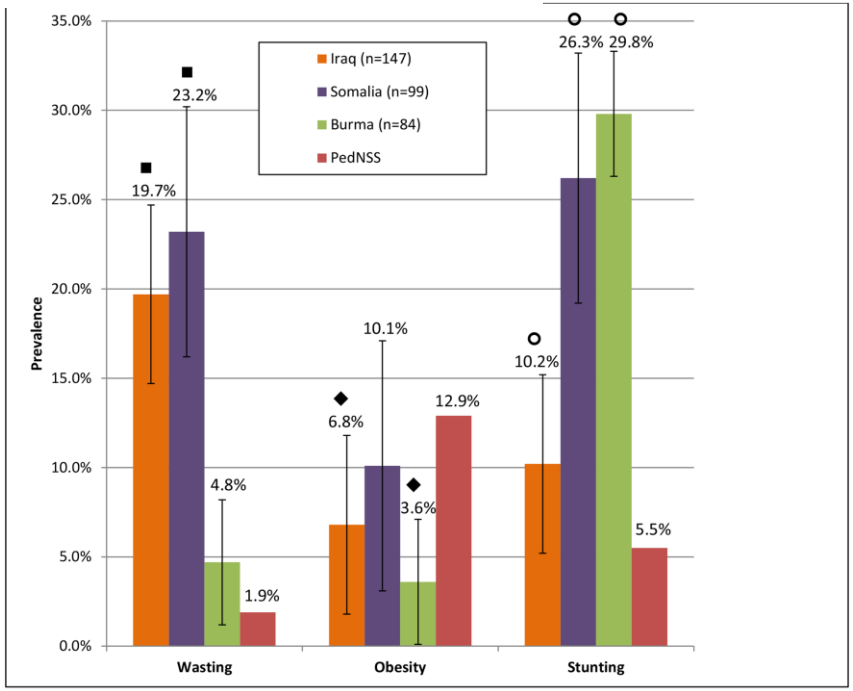
- **Origine genetica** (talassemia - anemia falciforme)
- Determinate da fattori carenziali per **abitudini alimentari** o esposizione a **sostanze tossiche** nel paese d'origine.
- **Malattie infettive** contratte nel paese d'origine (malaria - tbc- parassitosi intestinali – leishmaniosi- scabbia- aids ecc.)

Comparison of the Nutritional Status of Overseas Refugee Children with Low Income Children in Washington State

PLOS ONE
January 25, 2016

We analyzed anthropometric measurements of 1047 refugee children ages 0–10 years old to assess their nutritional status at the overseas medical screening examination prior to resettlement in WA from July 2012—June 2014. The prevalence estimates of the nutritional status categories were compared by country of origin. In addition, the nutritional status of refugee children age 0–5 years old were compared to that of low-income children in WA from the Center for Disease Control and Prevention's Pediatric Nutrition Surveillance System.





Patologie di adattamento

condizioni psicopatologiche a causa del **trauma** della migrazione

Patologie di acquisizione

legate a fattori di rischio cui l'immigrato viene sottoposto nel paese ospite e non ci sono differenze rispetto al cittadino italiano che si trova a subire a parità di classe di età le stesse condizioni morbigene.

D.S. 14 anni

- Il ragazzo è arrivato il 22/2 dal Gambia con uno sbarco illegale di 943 migranti
- Trasportato al PSP per:
  - Lieve rialzo termico (37.5°C)
  - Astenia
  - Mialgie diffuse
  - Difficoltà a camminare e mantenere la stazione eretta
  - Emissione di urine colore rosso-marrone

- Condizioni generali scadute
- Segni di disidratazione
- Parametri vitali nella norma(Sat O2, FC, FR)
- Temperatura corporea 37.6 °C
- Epatomegalia
- Riflessi tendinei scarsamente elicitabili senza clono a braccia e gambe
- Esame ematochimico:

  CPK 16.128 UI/L (81 x N), CK-MB 312 UI/L (12.5 x N), GOT 654 UI/L (15.5 x N), GPT 118 UI/L (2 x N), LDH 2.572 UI/L (6 x N), mioglobina 3.940 ng/ml (56 x N)
- Es. Emocromocitometrico, funzionalità renale ed elettroliti nella norma
- EGA normale (Ph 7.42, pCO2 40,4 mmHg, pO2 31.4 mmHg, BE -3,8, HCO 28.4 mmHg, Lac 13)

Beyond muscle destruction: a systematic review of rhabdomyolysis for clinical practice

Rhabdomyolysis etiology classification

Type	Cause	Examples
Acquired	Trauma	"Crush syndrome"
	Exertion	Intense muscle activity, energy depletion, electrolyte imbalance
	Ischemia	Immobilization, compression, thrombosis
	Illicit drugs	Cocaine, heroin, LSD
	Alcohol	Acute or chronic consumption
	Drugs	Dose-dependent, multiple interactions
	Infections	Bacterial, viral, parasitic
	Extreme temperatures	Hyperthermia, hypothermia, neuroleptic malignant syndrome
	Endocrinopathies	Hyper/hypo-thyroidism, diabetic complications
	Toxins	Spider bites, wasp stings, snake venom
Inherited	Metabolic myopathies	Glycogen storage, fatty acid, mitochondrial disorders
	Structural myopathies	Dystrophinopathy, dysferlinopathy
	Channel related gene mutations	RYR1 gene mutation, SCN4A gene mutation
	Others	Lipin-1 gene mutation, sickle-cell disease, "benign exertional rhabdomyolysis"

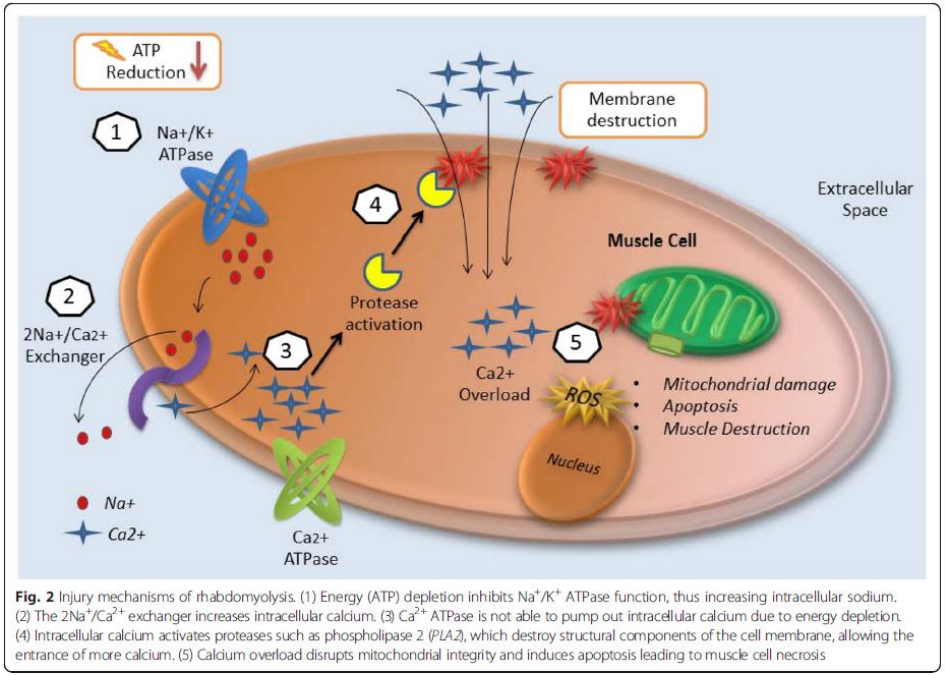


Fig. 2 Injury mechanisms of rhabdomyolysis. (1) Energy (ATP) depletion inhibits Na^+/K^+ ATPase function, thus increasing intracellular sodium. (2) The $2Na^+/Ca^{2+}$ exchanger increases intracellular calcium. (3) Ca^{2+} ATPase is not able to pump out intracellular calcium due to energy depletion. (4) Intracellular calcium activates proteases such as phospholipase 2 (*PLA2*), which destroy structural components of the cell membrane, allowing the entrance of more calcium. (5) Calcium overload disrupts mitochondrial integrity and induces apoptosis leading to muscle cell necrosis

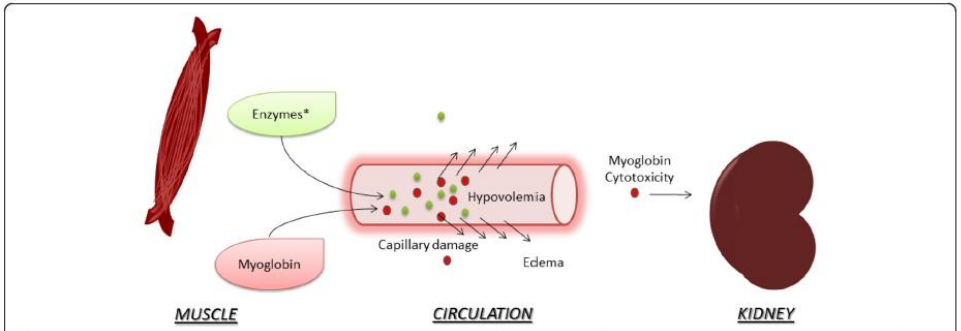
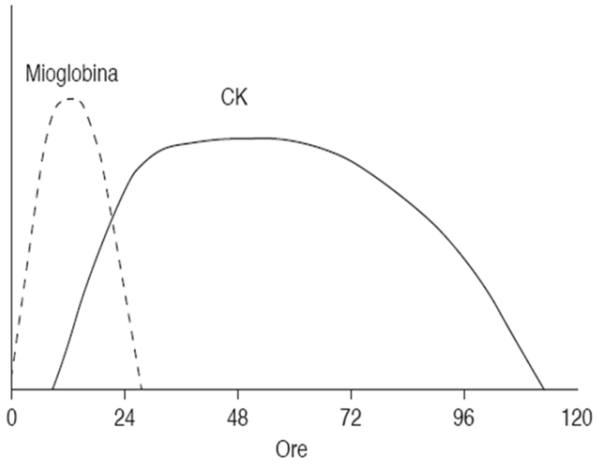
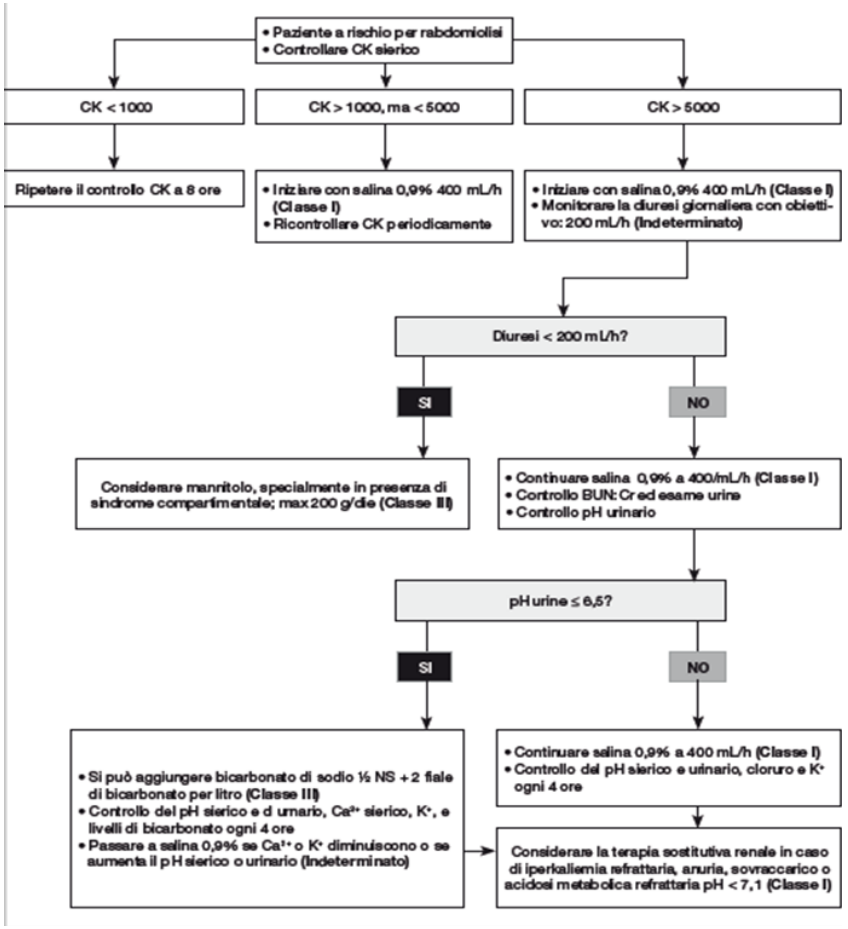


Fig. 3 Acute kidney injury in rhabdomyolysis. *Enzymes**: creatine kinase, aldolase, lactate dehydrogenase. After muscle destruction, myoglobin and enzymes released into the circulation damage capillaries, leading to leakage and edema. Hypovolemia and the decrease in renal bood flow is associated with acute kidney injury. Myoglobin cytotoxicity affects the kidney by lipid peroxidation and production of reactive oxygen species. Tubular obstruction by myoglobin is also associated with AKI

In the pediatric intensive care unit…

1. Placement of two peripheral venous accesses and femoral central venous access
2. Infusion of 400 mL/hr of normal saline (**Hyperhydration iv therapy**, i.e. maintenance fluid at 3 times the normal fluid requirements)
3. Urinary catheter placement for urine output monitoring with a **urine output requested of 200 to 300mL/hr**
4. Urine alkalinisation with sodium bicarbonate 1 mmol/kg/day (100 mL/hr) because of urine pH 5.5 with a urine pH requested of > 6.5
5. Infusion of 1g/kg albumin 5% (133 ml/hr) because of hypoalbuminemia
6. Further urine output restriction, so furosemide was rised to 4ml/h (0.2mg/kh/h)





	26/02	27/02	28/02	29/02	02/03	04/03	07/03	09/03	11/03	14/03
CPK	**16128***	**7706***	**4806***	**3803***	**2664***	**2062***	**2058***	**1929***	**1305***	**453***
CK-mb	252*	115*	116*	120*	81*	98*	100*	99*	41*	20
GOT	654*	465*	363*	253*	180*	140*	136*	135*	91*	51*
GPT	118*	113*	111*	111*	86*	74*	77*	104*	90*	56
LDH	2572*	2111*	1936*	1799*	1458*	1177*	1374*	1545*	1304*	693*
Myoglo	**3940***	**3209***	**2371***	**1674***	**1472***	**1267***	**1545***	**643***	**465***	**117***
Albumin	33*	43	43		40			42		41
K	4.8	3.6	3.4*	3.9	3.8	4.6	4.7	5.4*	5.2	4.7
Ca*	8.48	9.61	9.37	9.22	9.08	8.00*	8.68	8.67	9.58	9.09
P		6.2*	6.0*		4.4	3.6	4.0	3.8	3.8	4.0
PCR	4.00*	4.30*	4.40*	2.60*	1.00*	0.40	0.30	0.20	0.10	0.10

IgM e IgA anti Chlamydia pneumonia

Seriate hemogasanalysis
ECG
Chest X-ray
Electromyography

Fattori di rischio
Eccessiva attività muscolare
Immobilizzazione prolungata
Trauma muscolare diretto
Disidratazione
Temperature estreme (iper/ipotermia)
Infezione Virale, fungina, batterica
Tossine (Monossido Carbonio(CO), morsi e/o punture di vipera, ragni, api,vespe)
Miopatie sottostanti
Farmaci (valproate, paracetamolo, omeprazolo, fentanyl, metformina, ciprofloxacina, amoxicillina e insulina)
Sostanze d'abuso (alcool, cocaina, metamfetamine)

Venos , 6 anni irachena, durante la traversata clandestina con barcone sarebbe finita in mare aperto ove avrebbe stazionato per circa sei ore prima di giungere nelle coste della Sicilia sud-orientale.

Giunge in PSP in gravissime condizioni generali, stato soporoso.

Inizia protocollo reidratazione e.v.

Rx torace : "**area di consolidamento parenchimale in sede basale sn, obliterazione dei seni costo-frenici, accentuazione del disegno polmonare in sede peri-ilare bilateralmente "**

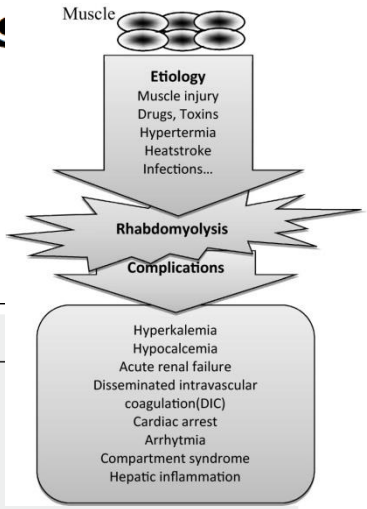
ed ECG ritmo sopraventricolare a FC 138 bpm, diffuse turbe del recupero.

TC encefalo "...**minime e puntiformi iperdensità bilaterali nel tentorio**".

.

	ingresso	dimissione
Glucosio mg/dl	698	148
Na mmol/l	127	136
K mmol/l	3.4	4.7
pH	6.83	7.38
HCO3 mmol/l	3.3	24
Azotemia mg/dl	109	54
Creatinina mg/dl	1.2	0.4
Mioglobina ng/ml	>400000	85
CPK U/ml	43109	197
LDH U/l	4626	20
AST U/l	755	45
ALT U/l	344	53

Rare complications of pediatric diabetic ketoacidos



System	Dysfunction	Incidence
Vascular	Deep vein thrombosis	50% with central venous catheter placement[26,27]
Neurological	Cerebral edema	0.5%-1%[11-13]
	Cerebral venous thrombosis	Rare (2 known cases)
	Hemorrhagic or ischemic brain infarction	10% of intracerebral complications[32]
Musculoskeletal	Rhabdomyolysis	Unavailable; 10% of adults with DKA[43]
Respiratory	Pneumomediastinum	Unavailable; 50 documented cases over pediatric and adult populations[54,55,58]
	Pulmonary edema	Unavailable; described in study of 7 pediatric patients with DKA[63]
Gastrointestinal	Pancreatitis	2%[67]
	GI Bleed	No documented cases in children; 9% in adults with DKA[74]
Neurological	Memory dysfunction	Unavailable; described in study of 33 pediatric patients with remote history of DKA[79]

World J Diabetes 2015 February 15; 6(1): 167-174

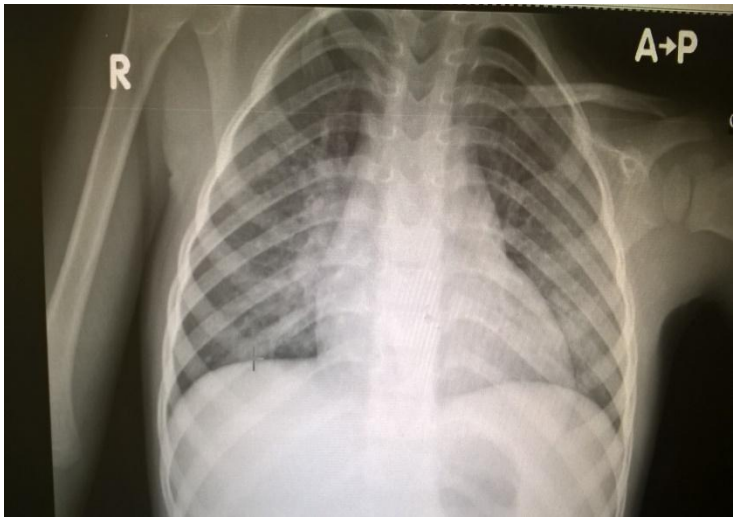
The most common causes of rhabdomyolysis in children are viral myositis, trauma, medications, and underlying metabolic diseases.

While rhabdomyolysis is more frequently described in patients with hyperosmolar hyperglycemic syndrome (HHS),it is also a well-documented phenomenon in **DKA.**

Rhabdomyolysis in the setting of diabetes is often subclinical, with risk factors being low pH and high serum glucose, BUN, creatinine, sodium, and osmolarity.

SAMAR, 6 anni, profuga giunta dal Sudan in uno sbarco di 442 migranti.

Giunge in PSP per febbre (38.8°c) tosse ed emoftisi.
Aspetto sofferente,
all'ascoltazione del torace **dispnea espiratoria e alla base di dx rantoli**
GB 15.800/mmc(N70%) – VES 73 -PCR 5.6 mg%.
nella norma funzionalità epatica e renale ed ECG.
RX torace : In campo polmonare medio a destra ,
in sede intercleido-ascellare ed in regione ilare,
si documenta la presenza di **sfumati addensamenti parenchimali**
Coltura aspirato gastrico (x 3 gg consecutivi, al mattino)
positiva per **Mycobacterium tuberculosis.**
Quantiferon positivo.



Clinical peculiarities of tuberculosis

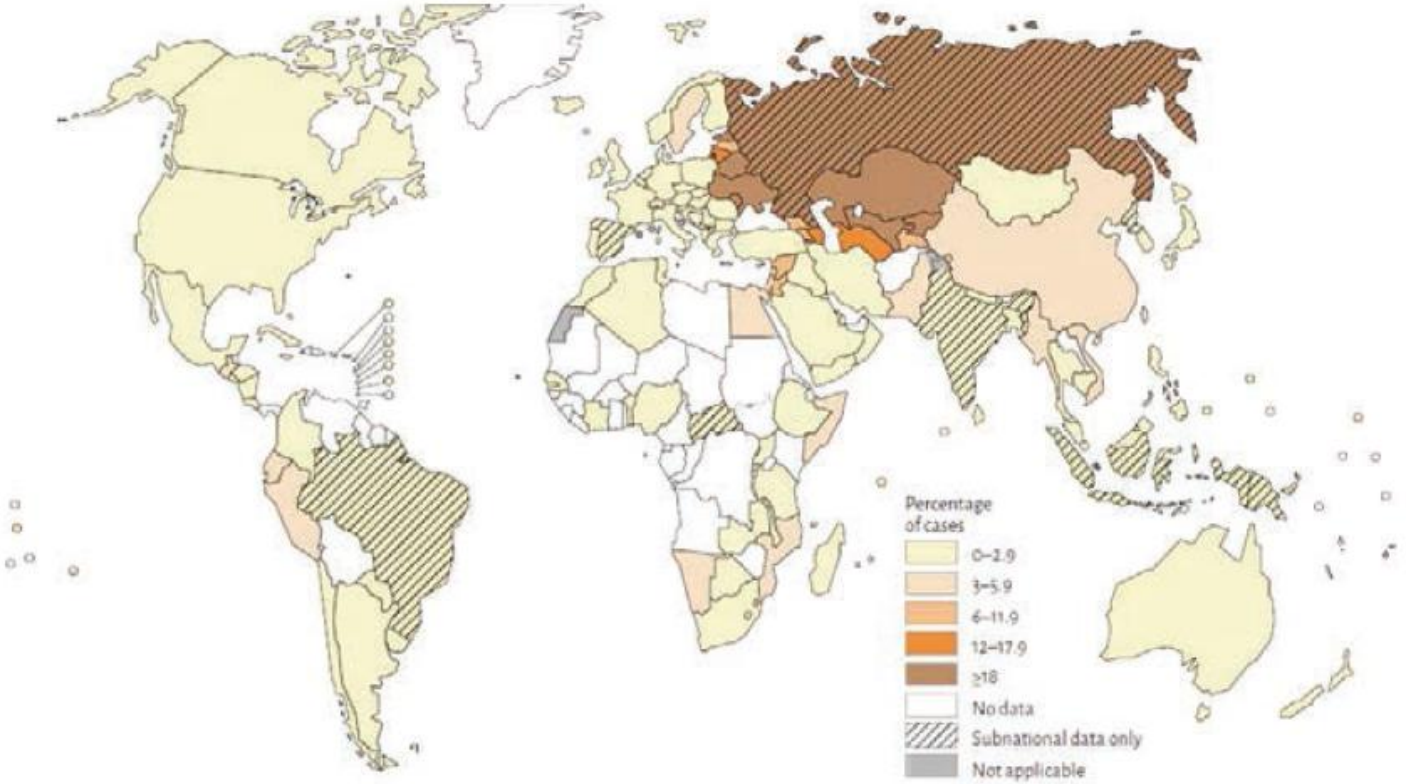
Area involved	Clinical presentation
More common	
Lungs and airways	Pneumonia, cavitary lesions, wheezing, laryngeal involvement
Lymph nodes	Enlargement of mediastinal, cervical, submandibular, supraclavicular, preauricular, submental and abdominal lymph nodes
Central nervous system	Meningitis, tuberculoma
Bones and skeletal muscles	Pott's disease, arthritis, cystic of bone, abscess of skeletal muscles
Less common	
Abdomen	Pneumatosis intestinalis, peritonitis, liver and splenic abscess, enterolithiasis, intestinal perforation
Genitourinary tract	Scrotum inflammation, hydrocele, calyceal destruction, ureteral strictures, small-capacity bladder, hydronephrosis, kidney calcification
Heart and vessels	Intracardiac tuberculoma, pseudoaneurysms
Oral cavity	Enlargement of the tonsils, rethropharyngeal abscess, granulomatous cheilitis
Eyes	Uveitis, episcleritis, optic neuritis, orbital tuberculoma
Skin	Scrofuloderma lesions, lupus vulgaris, tuberculosis verrucosa cutis

Anti-tubercular drugs	Dosages in children (mg/kg)
First-line anti-tubercular drugs	
Isoniazid	10–15 qd
Rifampicin	10–20 qd
Pyrazinamide	30–40 qd
Ethambutol	15–25 qd
Second-line anti-tubercular drugs	**Dosages in children** (mg/kg)
Capreomycin	15-30 qd
Kanamycin	15-30 qd
Amikacin	15-30 qd
Streptomycin	20-40 qd
Levofloxacin	7,5-10 qd in children aged ˃ 5 bid in children aged ⊠ 5
Moxifloxacin	7,5-10 qd
Ofloxacin	15-20 qd
Ethionamide	15-20 qd
Protionamide	15-20 qd
Cycloserine	10-20 qd
Para-amino-salicylic acid (PAS)	200-300 qd

BMC Infectious Diseases 2014, **14**(Suppl 1):S4

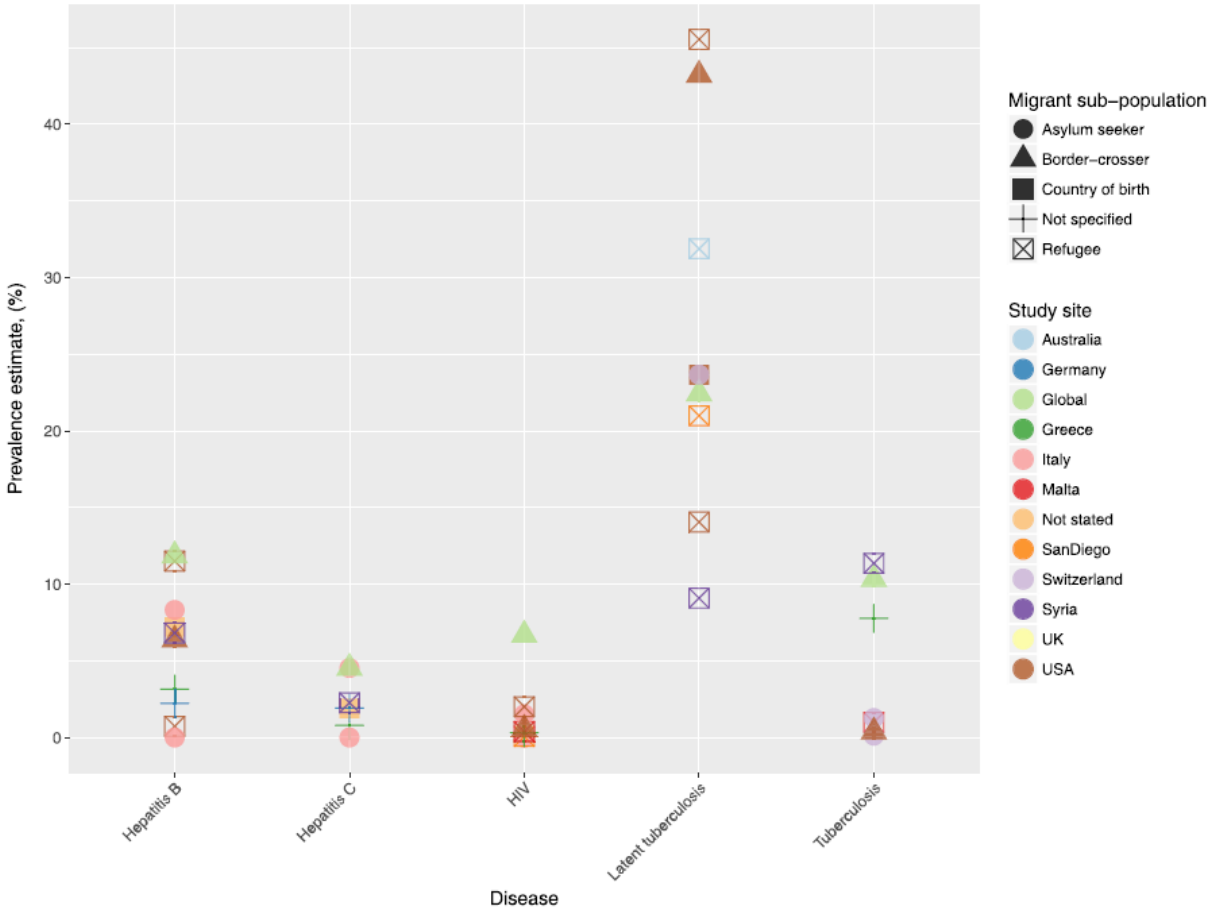
Tuberculosis 2015: burden, challenges and strategy for control and elimination

Infectious Disease Reports 2016; volume 8:6570



Percentage of new tuberculosis cases with MDR-T/B, 2015. Reproduced with permission from *Global Tuberculosis Report 2015*, WHO.[2]

Review of infectious diseases in refugees and asylum seekers—current status and going forward



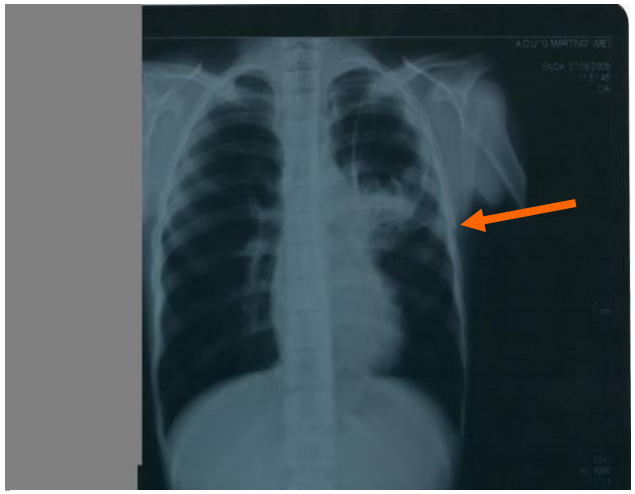
Prevalence estimates as reported in the included studies of a number of the infectious diseases of importance in the refugee and asylum seeker population in Europe in the 2010s. Colour indicates the study country and symbol indicates the migrant sub-population. Some studies report on more than one sub-population: in these cases only one is graphically depicted

Public Health Reviews (2017) 38:22

MAAZOUF 12 ANNI

DIFFICOLTA' A REPERIRE DATI ANAMNESTICI

tosse produttiva associata ad episodi di emoftisi da circa 1 settimana
Parametri vitali nei limiti
All'ascoltazione del torace: ridotta penetrazione dell'aria a sn
Non spleno, epato o linfomegalia

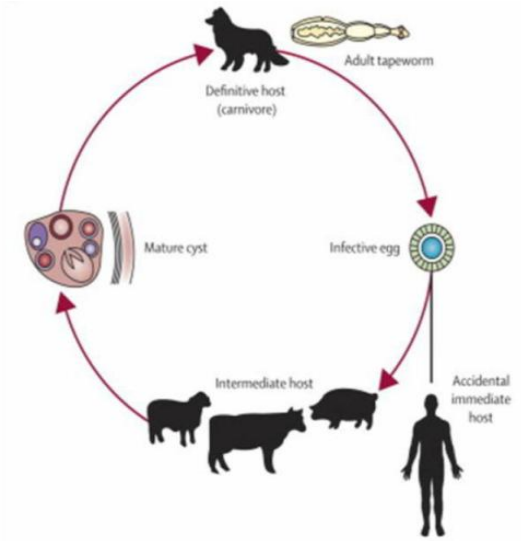


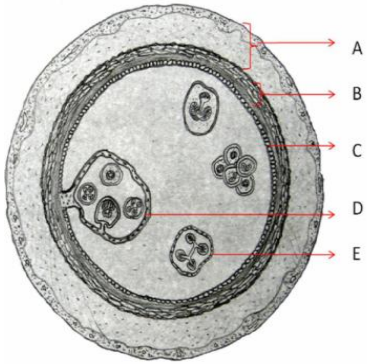
RX torace: Cisti idatidea

Es. Emocromo : Hb 9.4 gr/dl.
GB 8300/mmc (N 55%, L 41%, E42%).
Piastrine 405 000/mmc.
VES 32mm/h.
Ab anti-Echinococco (IHA) 1:2560

ALBENDAZOLO
EXERESI CHIRURGICA

PULMONARY CYSTIC ECHINOCOCCOSIS





Scheme of a hydatid cyst: **A)** pericyst membrane (inflammatory host reaction); **B)** laminated layer (parasite origin); **C)** germinal layer; **D), E).** Daughter cyst.

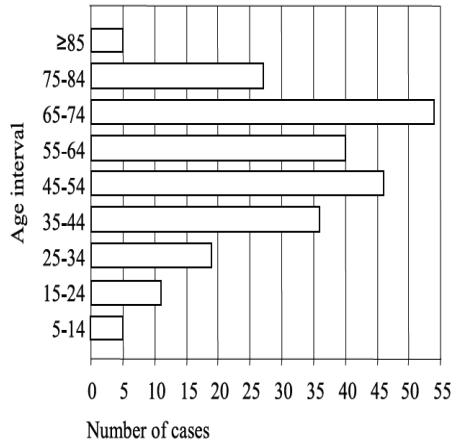
Curr Opin Pulm Med. 2010 May ; 16(3): 257–261

Cystic Echinococcosis in Spain: Current Situation and Relevance for Other Endemic Areas in Europe

PLoS NEGLECTED TROPICAL DISEASES

Key Learning Points

- Cystic echinococcosis (CE) remains one of the main zoonoses in both developing and developed countries, due to its complex clinical presentation, and causes a substantial number of cases in some areas.
- Recent analyses have shown that CE is a re-emerging disease with a remarkable economic impact in developed countries such as Spain.
- In spite of numerous studies, evidence-based and standardized/agreed approaches are still needed to define appropriate strategies for the epidemiological evaluation, immunodiagnosis, and clinical management of CE, among other aspects.
- The need for a continuous, homogeneous, and well-defined source of epidemiological data on human CE, improving the current EFSA reports, and modeling national registries after the European Registry for Alveolar Echinococcosis, is emphasized.



Age distribution of cystic echinococcosis human cases reported in Spain in 2006.

Pulmonary Diseases in Refugees and Migrants in Europe

Infectious diseases to be considered in asylum seekers according to country of origin

Country of origin	Number of asylum seekers in the EU (thousands)[1]	Infectious diseases that should be considered
Syria	707.6	CE, tuberculosis
Afghanistan	368.0	tuberculosis
Iraq	254.9	tuberculosis, CE
Albania	100.2	CE
Pakistan	97.8	tuberculosis
Kosovo	84.1	CE
Nigeria	78.9	tuberculosis, HIV, *Strongyloides stercoralis*, schistosomiasis
Eritrea	68.6	tuberculosis, HIV, *Strongyloides stercoralis*, schistosomiasis
Iran	67.9	tuberculosis, CE
Russia	49.8	tuberculosis (including MDR-TB), HIV, CE (regional)
Somalia	41.1	tuberculosis, *Strongyloides stercoralis*
Ukraine	34.5	tuberculosis (including MDR-TB), HIV

CE, cystic echinococcosis; MDR-TB, multidrug-resistant tuberculosis. [1] Source: Eurostat [3] for 2015 and 2016.

Respiration. 2018;95:273-286.

Pulmonary Diseases in Refugees and Migrants in Europe

Overview of parasitic pulmonary infections in refugees: diagnosis and treatment

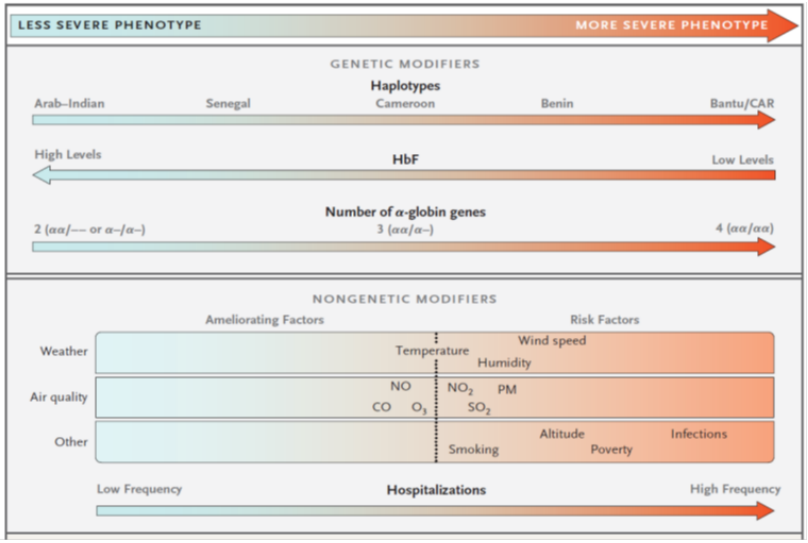
Disease	Causative organism	Diagnosis	Treatment
Cystic echinococcosis	*Echinococcus granulosus*	serology (IgG-ELISA); imaging (X-ray, CT)	albendazole 400 mg b.i.d. (15 mg/kg/day if <60 kg); surgical resection; watch and wait
Amebiasis	*Entamoeba histolytica*	stool microscopy (low sensitivity); serology; antigen detection; PCR; imaging	metronidazole 750 mg t.i.d. (7–10 days), tinidazole 800 mg t.i.d. (5 days); paromomycin 25–35 mg/kg/day divided into 3 doses (7 days) or diloxanide furoate 500 mg t.i.d. (10 days) or iodoquinol 650 mg t.i.d. (20 days) to eradicate intestinal infection; surgical drainage may sometimes be needed
Strongyloidiasis	*Strongyloides stercoralis*	identification of stool larvae (microscopy, agar plate method); serology; PCR	ivermectin 200 μg/kg single dose (not for hyperinfection); albendazole (not as effective)
Paragonimiasis	*Paragonimus westermani*	eggs in sputum and stool; serology ELISA; imaging (X-ray, CT)	praziquantel 75 mg/day for 3 days; triclabendazole 10 mg/kg twice for a single day
Gnathostomiasis	*Gnathostoma spinigerum*	larvae in biopsy; immunoblot detecting specific 21- or 24-kDa antigenic bands	albendazole 400 mg twice daily for 21 days; alternatively ivermectin 200 μg/kg for 2 consecutive days
Tropical pulmonary eosinophilia	*Wuchereria bancrofti* and *Brugia malayi*	eosinophilia and high IgE, filarial-specific IgE and IgG, response to treatment with DEC (*W. bancrofti* serology)	DEC 5 mg/kg/day for 4 weeks; steroids

CT, computed tomography, DEC, diethylcarbamazine, ELISA, enzyme-linked immunosorbent assay, PCR, polymerase chain reaction.

Respiration. 2018;95:273-286.

- C.M. 14 anni, profugo, provenienza dalla Costa d'Avorio
- Lamenta **astenia marcata e dolore** (di intensità moderata) a livello addominale
- EO: aspetto sofferente, **subittero** alle sclere, MV ridotto alle basi. Fc 80/m. Soffio diastolico al focolaio aortico 3/6. Lieve **epatosplenomegalia**. Micropapule su addome e cosce con lesioni da grattamento. Linfonodi di 1,5cm massimo laterocervicale destro, ascellare bilaterale. T38°C.
- **GR 2.880.000/mmc-** GB 12.050/mmc(N70,E 1, L 23,E 6%)- **Hb 7.7gr**%-MCV 83 fl- Piastrine 328.000/mmc. AST 66 U/L [0 - 42]-ALT 65 U/L [0 - 50]- GGT 227 U/L. VES 99.
- Ecocardio: **ipertrofia ventricolare sinistra concentrica senza ostacolo all'efflusso con massa ventricolare sx 443 g (+4.7DS).VSDD +2.3DS**; Buona funzione globale di pompa (EF 67%). Valvola aortica tricuspide con regolare apertura delle semilunari. Al doppler normale flussimetria transvalvolare anterograda. **Insufficienza di grado moderato** (vena contracta 6mm); presenza sulle **cuspidi aortiche** (sopratutto sulla sinistra) di piccole immagini iperecogene attribuibili in prima ipotesi a **vegetazioni.**
- Eco addome: Fegato di dimensioni modicamente aumentate, normale per caratteri ecostrutturali. Nel lume della colecisti identificabili alcune concrezioni calcolotiche, la maggiore delle quali presenta dimensioni massime di 14 mm circa. **Milza con dimensioni aumentate, ad ecostruttura marcatamente disomogenea.** Reni in sede, il sinistro con morfologia globosa, entrambi con sfumata iperecogenicità del parenchima midollare
- **Avvia terapia reidratante, antidolorifica e antibiotica**

HbA2		***2,7%***	***v.n.***	***2***	***3,5***	
HbF		***4,7%***	***v.n.***	***0***	***2***	
Hb Anomale	***HbS= 84%***			***assenza di bande patologiche***		



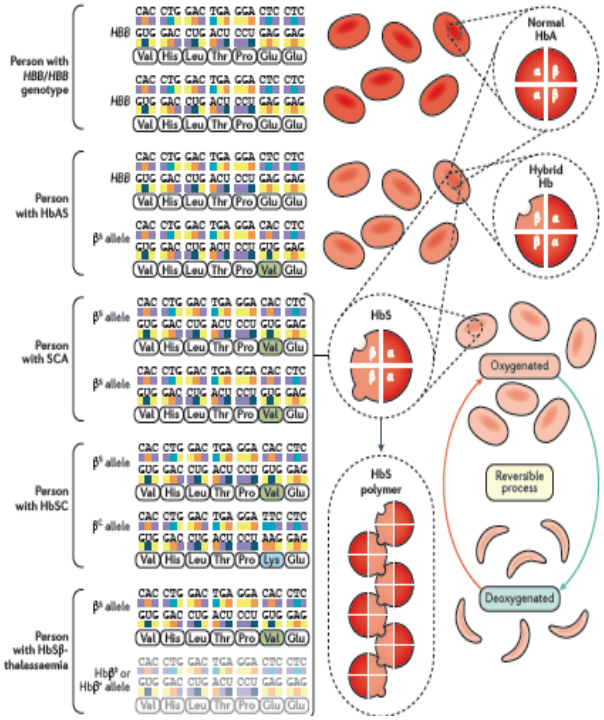
N ENGL J MED 376;9 NEJM.ORG MARCH 2, 2017

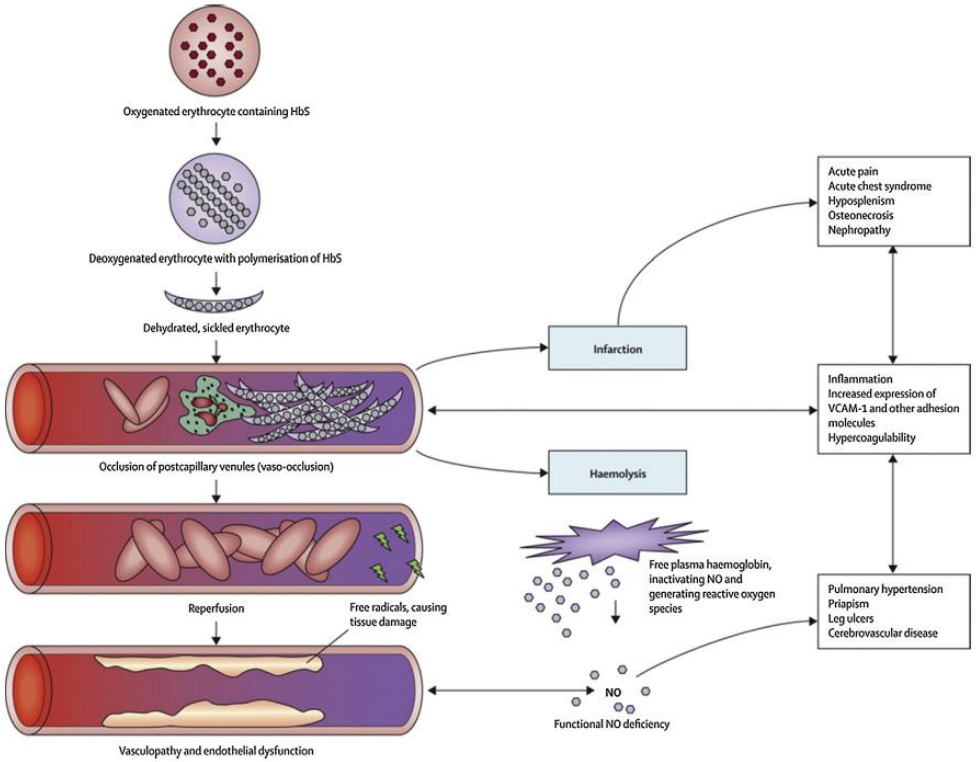
Genotypes and phenotypes of different sickling disorders

	% of Hb Type/Total Hb in a Typical Patient					
Genotype	**HbS**	**HbA**	**HbF**	**HbC**	**HbA2**	**Clinical Course**
Not SCD						
HbAA (normal)	—	96	2	—	2	No manifestations
HbAS (trait)	45	50	2	—	2	No manifestations[a]
SCD						
HbSS	95	—	3	—	2	Severe
HbSC	48	—	3	47	2	Moderate
HbS β^0	93	—	2	—	5	Severe
HbSβ^+ (moderate)	85	6	5	—	4	Moderate
HbS-β^+ (mild)	70	23	3	—	4	Mild

Emerg Med Clin N Am ■ (2014)

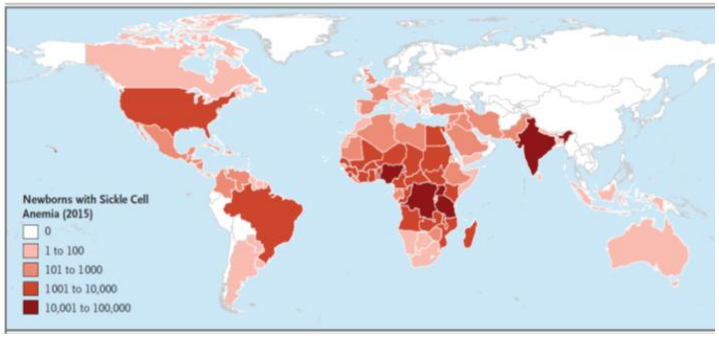
Sickle Cell Disease in the Emergency Department

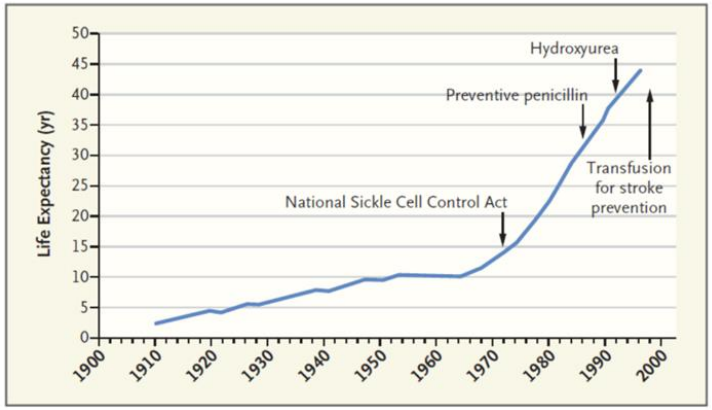




Pathophysiology of SCD. HbS, sickle hemoglobin; VCAM, vascular cell-adhesion molecule.

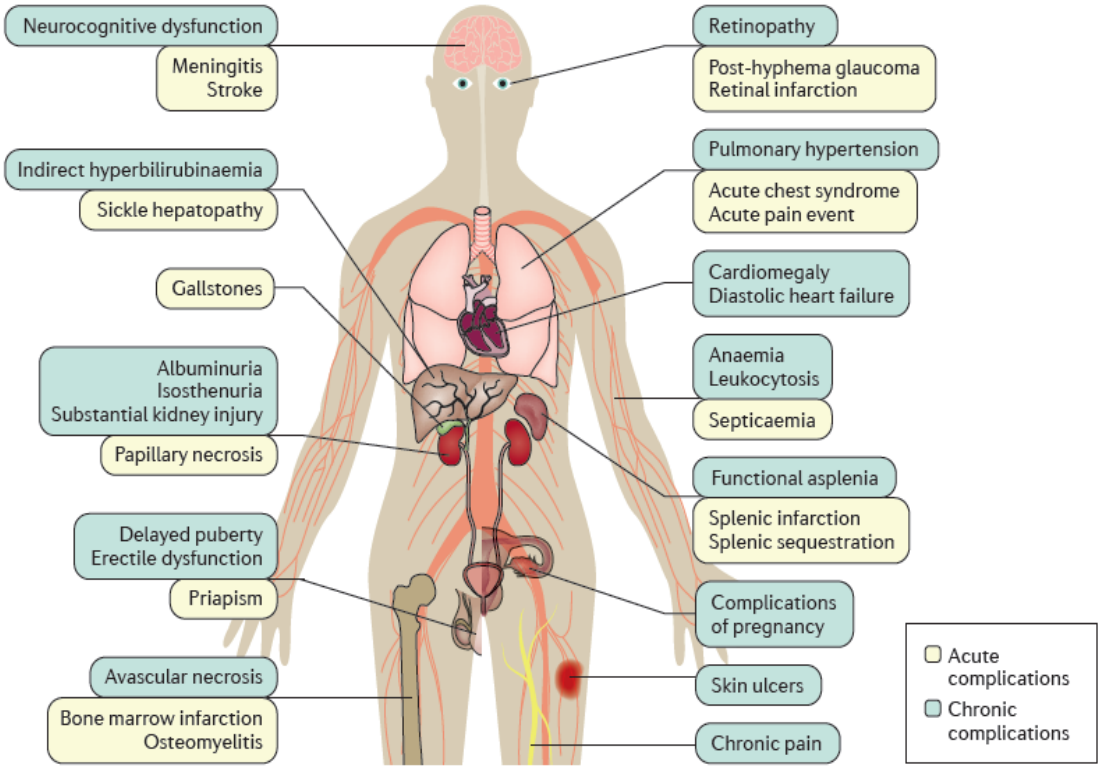
Sickle Cell Disease





Increases in Life Expectancy in Persons with Sickle Cell Disease, 1910–2000.

N Engl J Med 2017;376:1561-73.

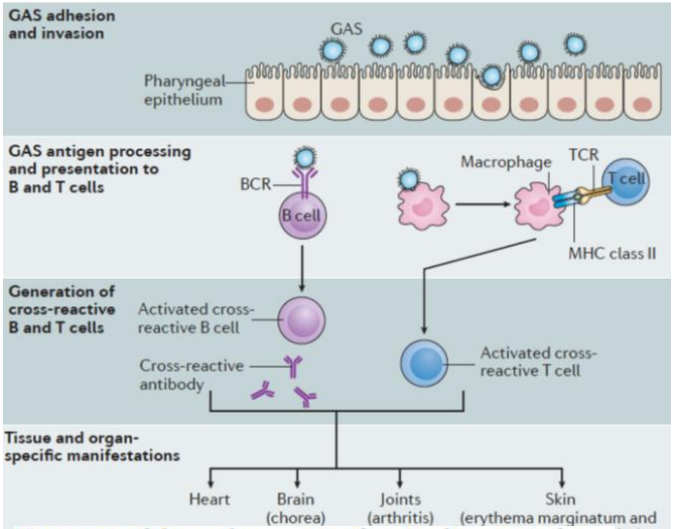


Sickle cell disease clinical complications.

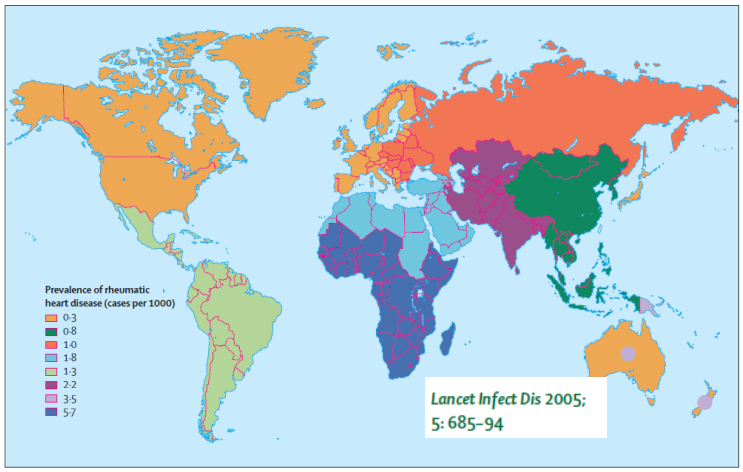
NATURE REVIEWS | DISEASE PRIMERS

2018

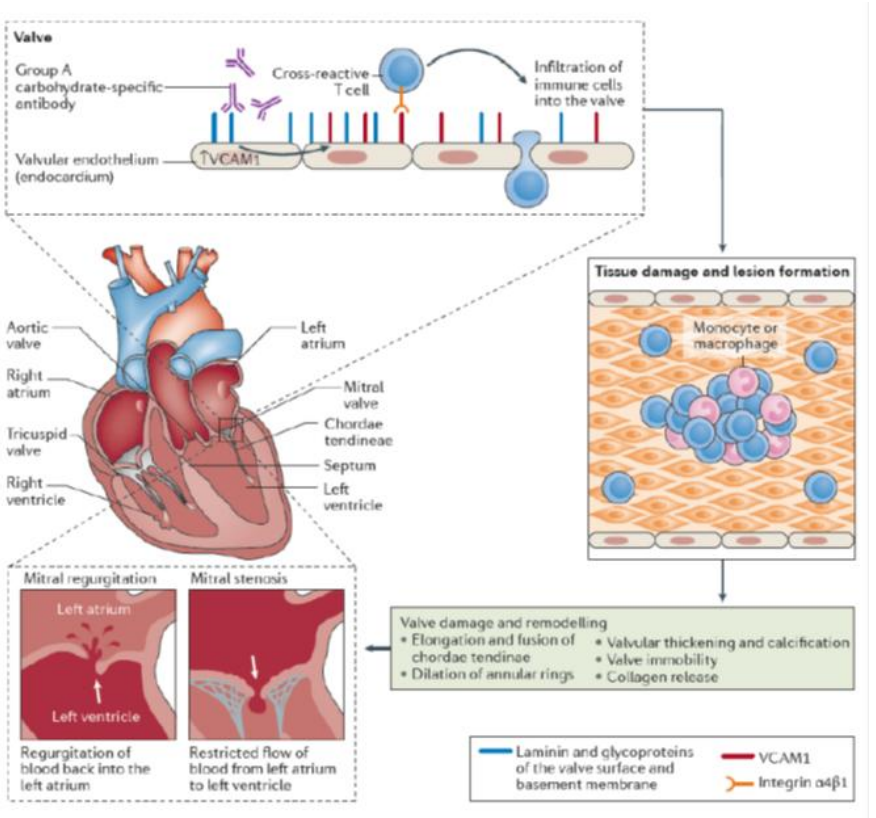
The global burden of group A streptococcal diseases



Overview of the pathogenesis of acute rheumatic fever



Prevalence of rheumatic heart disease in children aged 5–14 years



Pathogenesis of carditis in acute rheumatic fever (VCAM1: Vascular cell adhesion molecule 1).

Oklahoma Health Sciences Center; 2016-2017

Giuramento di Ippocrate

.. .. .. Consapevole dell'importanza e della solennità dell'atto che compio

e dell'impegno che assumo, giuro:

***di curare ogni paziente** con eguale scrupolo e impegno, **prescindendo da etnia, religione, nazionalità, condizione sociale e ideologia politica** e promuovendo l'eliminazione di ogni forma di discriminazione in campo sanitario …*

Grazie per l'attenzione