Cooperazione Internazionale e Patologia Infettiva del Migrante

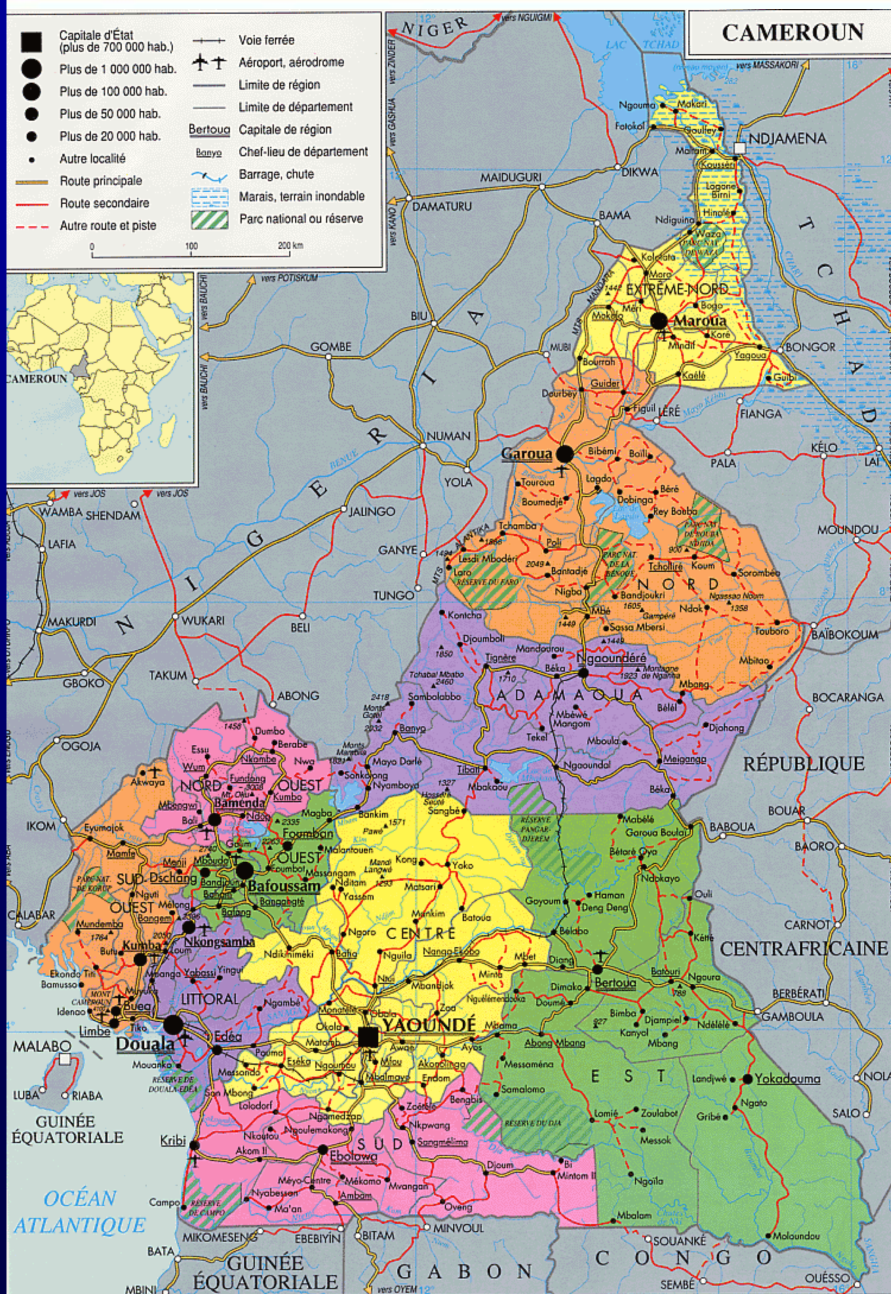
Rosario Cultrera

UO Malattie Infettive
Universitaria Azienda Ospedaliero
Universitaria di Ferrara

COOPERATION BETWEEN UNIVERSITÉ DES MONTAGNES, CAMEROON, AND UNIVERSITY OF FERRARA, ITALY

Università di Ferrara
fondata nel 1391

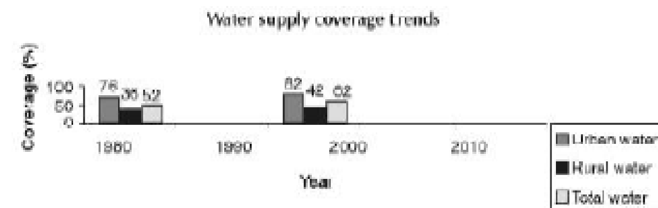
ANNEXE 1 : CARTE DU CAMEROUN

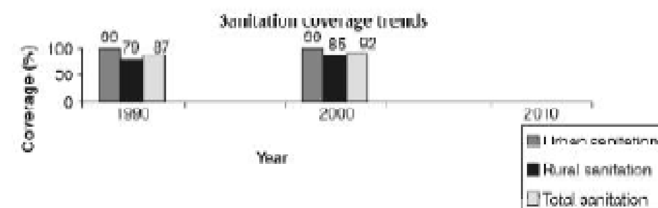


ANNEXE 2 : PRINCIPAUX INDICATEURS SOCIODÉMOGRAPHIQUES

INDICATEURS		VALEURS
Population générale (estimation)		18 millions
Population de moins de 15 ans		46 %
Enfants de moins de 5 ans		17 %
Femmes en âge de procréer		23 %
Population potentiellement active (15 – 49 ans) représente		44 %
Taux d'accroissement moyen annuel		2,8 %
Taux de fécondité (enfants par femme)		5,2
Espérance de vie à la naissance	Moyenne	53,3 ans
	Homme	52,5 ans
	Femme	54,1 ans
Taux moyen d'alphabétisation	Homme	81 %
	Femme	65 %
Taux net de fréquentation du cycle primaire		79 %
Produit Intérieur Brut par habitant (2005)		2299 USD
Indice de développement humain		0,532

Source : EDS III (2004) ; MICS 2006.

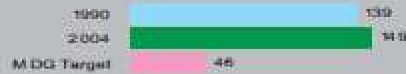




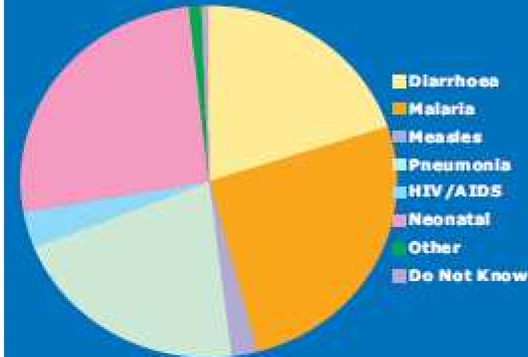
CAMEROON

Demographics

- Total under-five population 2,434,000
- Under-five mortality rank 25
- Under-one mortality rate 87
- Neonatal mortality rate 37
- Under-five mortality rate



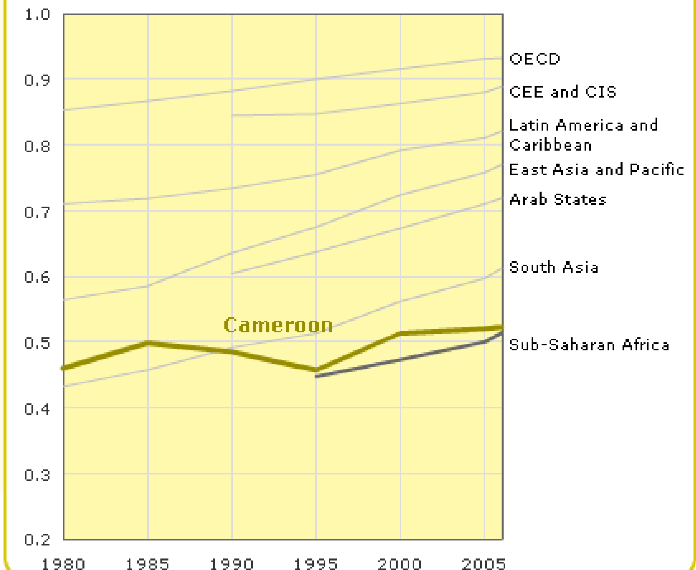
Epidemiological Profile



*These estimates are not country specific. Based on epidemiological profile #2 as described in Black RE, Morris SS & Bryce J. Where and why are 10 million children dying every year. *Lancet* 2003; 361: 2226-34.

Nutrition

- % low birth weight 11
- % under-fives stunted 32
- % under-fives underweight 18

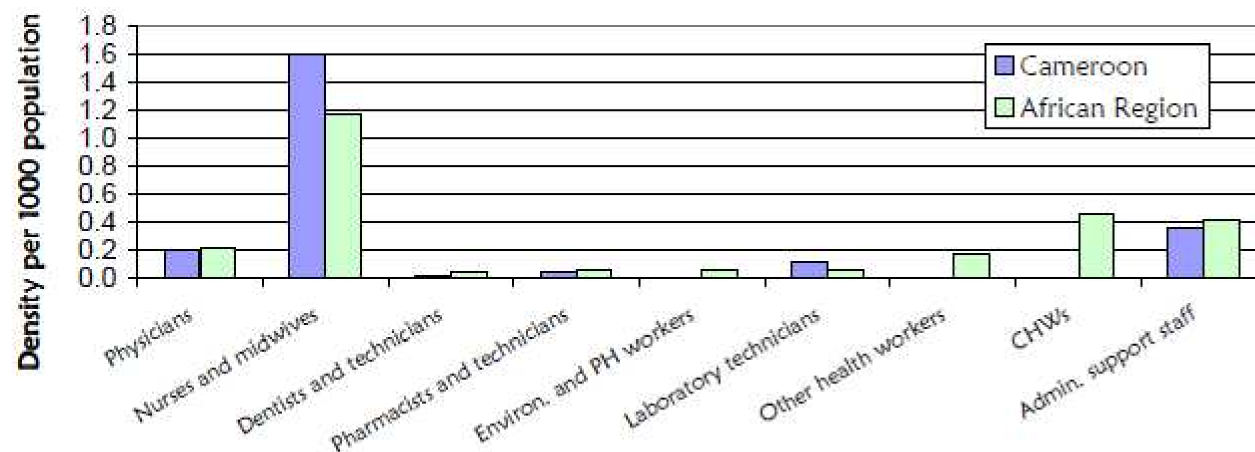


Source: Indicator table G of the Human Development Report 2009

Cameroon

Total numbers and densities of the health workforce in Cameroon (2004)

	Cameroon	Cameroon	Density per 1000 AFRO
Physicians	3124	0.192	0.217
Nurses and midwives	26042	1.598	1.172
Dentists and technicians	147	0.009	0.035
Pharmacists and technicians	700	0.043	0.063
Environmental and public health workers	28	0.002	0.049
Laboratory technicians	1793	0.110	0.057
Other health workers	16	0.001	0.173
Community health workers	n.a.	n.a.	0.449
Administrative and support staff	5902	0.362	0.411
Sum total	37752	2.317	2.626



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Direttore prof. ALESSANDRO MEDICI

PROJECTS

- To promote integrated projects for a correct preservation and utilization of natural resources
- To improve the socio-economic development
- To promote health components into agricultural development projects.
- To safe the region where is the Centre for promoting the socio-economic development and improving life quality for local people

ITALY

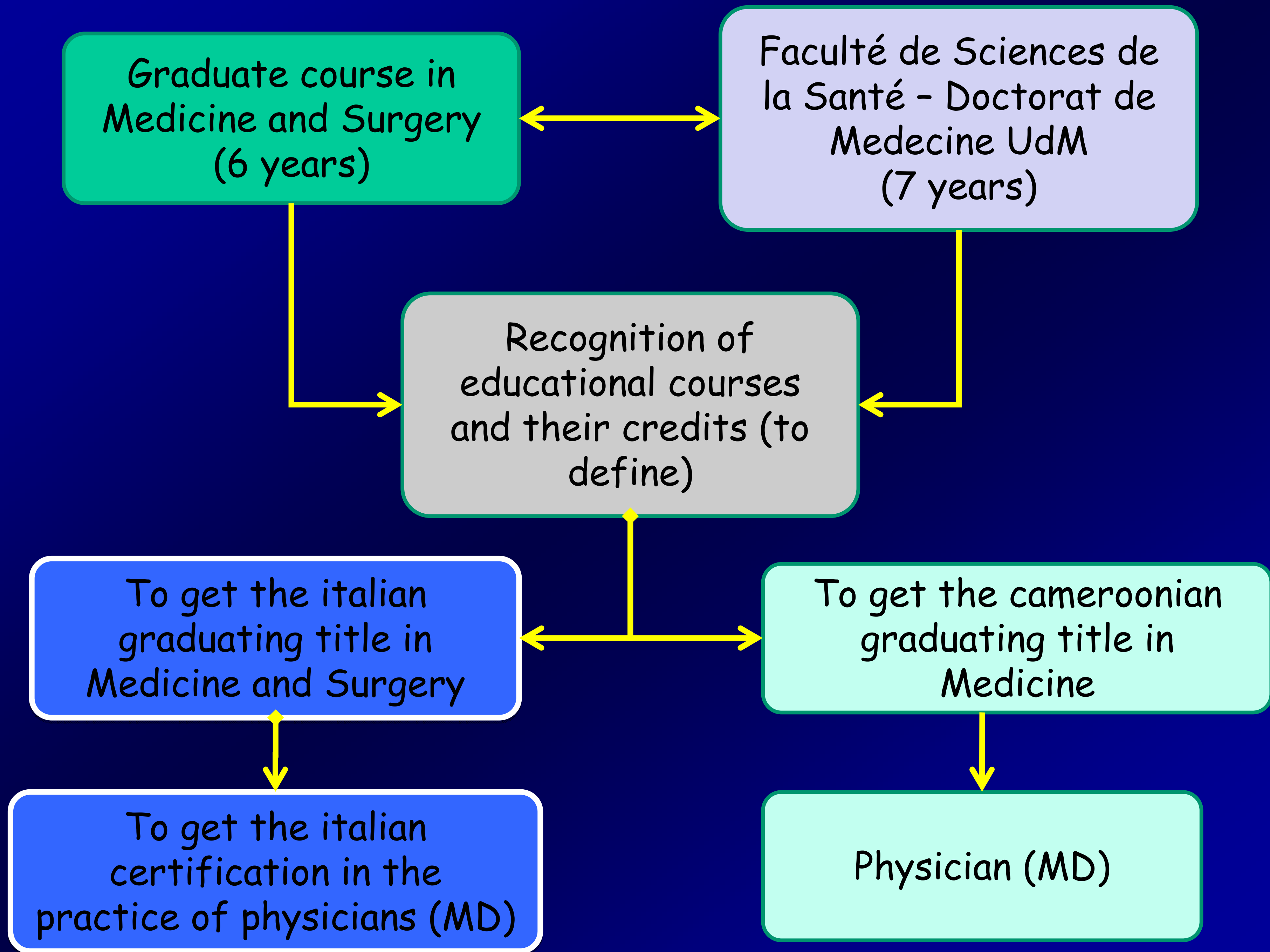
Graduating course in Medicine and Surgery (6 years)

Post-graduating course

certification in the practice of physicians

Medical Specialization (5 years)
Surgery Specialization(6 years)
Health Service Specialization (5 years)

- Doctorate (Ph.D.)
- Masters


Graduate course in Medicine and Surgery (6 years)
Faculté de Sciences de la Santé – Doctorat de Medecine UdM (7 years)
Recognition of educational courses and their credits (to define)
To get the italian graduating title in Medicine and Surgery
To get the cameroonian graduating title in Medicine
To get the italian certification in the practice of physicians (MD)
Physician (MD)

6° Year

Teaching:

A= basic
B= characterizing
C= analogous
D= student's choice
E= English language
F= internship

Primo Semestre

N	Insegnamento	SSD	TAF	Crediti T	Crediti P	Tot CFU	Ore frontali T + P	Tipo corso	Tipo esame	Docente
32	**Medicina interna III e medicina del territorio**					9		CI	S	
	Medicina interna	MED/09	B13	1	1 (F)		20			
	Genetica medica	MED/03	B11	2			16			
	Medicina del territorio	MED/09	B13	1	2 (F)		32			
	Ginecologia e ostetricia	MED/40	F		1 (F)		12			
	Pediatria generale e specialistica	MED/38	F		1 (F)		12			
33	**Chirurgia III ed emergenze medico chirurgiche**					14		CI	S	
	Chirurgia generale	MED/18	B9	5	4 (F)		88			
	Anestesiologia	MED/41	B15	2	2 (F)		40			
	Medicina interna	MED/09	B13	1			8			
-	**Prova finale**		E			7	35			

Secondo Semestre

N	Insegnamento	SSD	TAF	Crediti T	Crediti P	Tot CFU	Ore frontali T + P	Tipo corso	Tipo esame	Docente
34	**Pediatria**					10		CI	S	
	Pediatria generale e specialistica	MED/38	B11	4	2 (F)		56			
	Pediatria generale e specialistica	MED/38	B18	1			8			
	Psicologia dello sviluppo	M-PSI/04	C	2			16			
	Neuropsichiatria infantile	MED/39	B4	1			8			
35	**Medicina legale e del lavoro**					9		CI	S	
	Medicina legale	MED/43	B16	3	2 (F)		48			
	Medicina del lavoro	MED/44	B16	2			16			
	Psicologia del lavoro	M-PSI/06	C	2			16			
36	**Ginecologia e ostetricia**	MED/40	B12	6	1 (F)	7	60	CS	S	
-	**Prova finale**		E			4	20			

-	TOTALE CREDITI 6° ANNO					60				

FORMAZIONE
POSTLAUREA

Postgraduate Courses:

- ❖Dottorati di ricerca (Ph.D.)
- ❖Masters, corsi di perfezionamento (perfetioning courses), corsi di formazione (formation courses)
- ❖scuole di specializzazione non sanitarie (not-health specialization Schools)
- ❖esami di stato (certification about the exercise of the physician practice)
- ❖Istituto di applicazione Forense (Institute for enforcement Law)

Doctoral Schools - year 2011

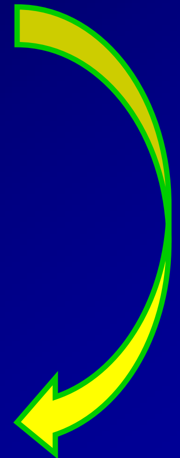
Starting from 2011 (26° cycle), the Ph.D. courses will be organized in three doctoral schools divided by macroareas. Each doctoral school will include several doctoral courses.

LIFE, HEALTH AND ENVIRONMENT SCIENCES Macroarea Med – Bio	SCIENCE AND TECHNOLOGY Macroarea Sci – Tec	HUMANITIES AND SOCIAL SCIENCES Macroarea Egus
1. Biochemistry, Molecular Biology and Biotechnology	1. Physics	1. Legal and Historical-Legal Comparison
2. Evolutionary and Environmental Biology	2. Mathematics and Computer Science	2. Constitutional Law
3. Molecular Pharmacology and Oncology	3. Earth Sciences	3. European Union Law
4. Biomedical Sciences	4. Engineering Science	4. Economics
5. Chemical Sciences	5. Technology of Architecture	5. Science and Technology for Archaeology and Cultural Heritage
6. Pharmaceutical Sciences		6. Humanities and Social Studies

Student
s

Bilateral cooperation UdM-UNIFE in progress

- Stage to obtain training credits (no. 20-30) about clinical teachings of the 5° - 6° year of courses of Medicine Faculty.
- To partecipate in a project of UNIFE (UdM) to draw up a thesis to obtain graduating title.
- Validation of italian graduating title in Cameroon (or of cameroonian title in Italy).



- Facility to obtain the italian certification of medical practice after an examination

Post-graduating MD

Certification for practice of physicians (request to Italian Ministry of Health for Cameroonian MD)

Examen to entry in:
- ✓Medical Specialization (5 years)
- ✓Surgery Specialization(6 years)
- ✓Health Service Specialization (5 years)

Contract with Italian Regional Health Service (25.000 – 27.000 euros/year, funding by Italian Ministry)

- ✓Doctorate (Ph.D.) (3 yrs) (15.000 euros/year, funding by Italian Ministry)
- ✓Masters

Post-graduating specialization schools

Examen to entry in:

- ✓Medical Specialization (5 years)
- ✓Surgery Specialization(6 years)
- ✓Health Service Specialization (5 years)

Contract with Italian Regional Health Service (25.000 – 27.000 euros/year, funding by Italian Ministry)

✓Reserved place for Cameroonian MD

(funding by UdM or other organization)

✓Surplus places

(funding by Italian Ministry of Foreign Affairs)

Teachers – researchers – MD

Stage in specific formative projects (2-3 months):

- ✓Molecular methods in human microbiology (*Mycoplasma* spp. – *Ureaplasma* spp., *Chlamidophila* spp, toxopalsma, HIV, HBV, HCV)
- ✓Endoscopic surgery (thorax, abdomen)
- ✓Diagnostic gastroenterological endoscopy
- ✓Pediatric surgery (palatoschisis)

CENTRO IN CAMEROUN

CENTRO IN CAMEROUN

ATTORI

- Università degli Studi di Ferrara
- Université des Montagnes, Banganté
- Center of Control of Neglected Tropical Diseases, WHO, Geneve
- Fondazione “Ivo de Carneri”

PROGETTO

- **Centro per le malattie neglette**: diagnosi, terapia e ricerca
- Didattica: Scuole di specializzazione, Dottorati di ricerca, seminari, corsi integrati con le attività della Facoltà Medica dell’UdM e di Ferrara
- Corsi UNIFE sulla cooperazione in campo sanitario e sull’accesso ai farmaci in PVS

Definizione recente (2003): malattie che, sotto vari aspetti, non godono dell'attenzione che meriterebbero

Tutte le malattie infettive “tropicali”, ad eccezione di:

- Malaria, tubercolosi, HIV/AIDS
- Malattie a potenziale epidemico/pandemico (es. influenze, etc.)
- Malattie prevenibili con la vaccinazione (es. morbillo, poliomielite)

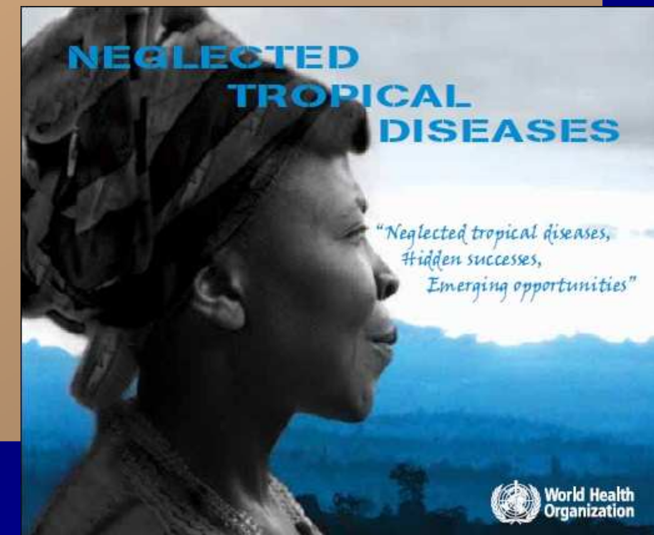
Malattie della povertà

NTDs = "grandi endemie" degli autori francofoni

Le malattie dimenticate

Diseases covered by NTD Department – WHO

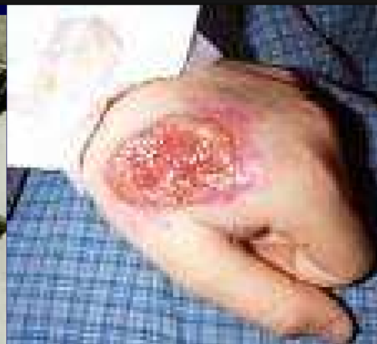
- Dengue/dengue haemorrhagic fever
- Buruli ulcer
- Leprosy
- Cholera
- Cysticercosis
- Dracunculiasis (guinea-worm disease)
- Foodborne trematode infections (such as fascioliasis)
- Hydatidosis
- Leishmaniasis
- lymphatic filariasis
- Onchocerciasis, schistosomiasis
- Soil-transmitted helminthiasis
- Trachoma
- Trypanosomiasis
- Yaws

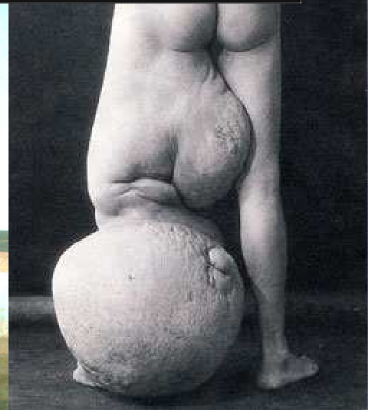


Le NTDs

- Oncocercosi:
  - Numero di persone infette: 37 M
  - 99% nel continente Africano
- Filariasi linfatica:
  - Numero di persone infette: 120 milioni
  - 40% nel continente Africano
- Schistosomiasi:
  - Numero di persone infette: 200 milioni
  - 85% nel continente Africano

- Tripanosomiasi umana africana (malattia del sonno):
  - 70.000 persone ammalate nel 2006
- Leishmaniosi:
  - 1,5-2 milioni di nuovi casi/anno
- Tripanosomiasi americana (malattia di Chagas):
  - 16-18 milioni di persone ammalate





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ANNO ACCADEMICO 2009/2010
CORSI OPZIONALI:

MEDICINA E CHIRURGIA:

Gli interventi sanitari nelle calamità e disastri (1 CFU)
Gli interventi di cooperazione in ambito sanitario (1 CFU)

FARMACIA:

Farmaci essenziali e malattie trascurate (2 CFU)

L'ACCESSO AI FARMACI ESSENZIALI NEI PAESI IN VIA DI SVILUPPO

Approfondimenti interdisciplinari su un'emergenza umanitaria

A cura di
Anna Siniscalchi e Paola Bergamini

UnifePress

Università degli Studi di Ferrara

Corso di Laurea in Infermieristica

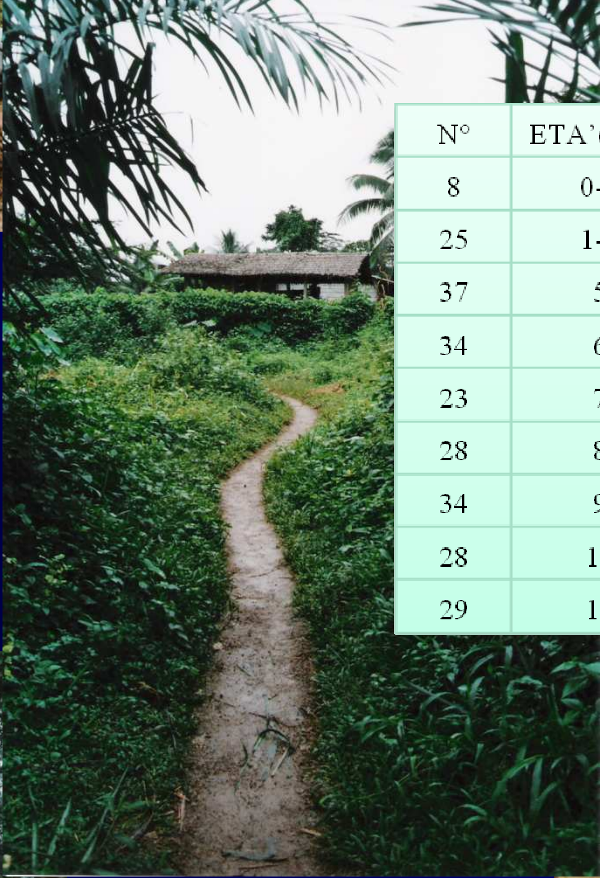
Trasmissione della malaria in area ad alta endemia sub-sahariana. Impiego di un progetto educativo e di indagini di laboratorio sul campo.

Relatore
Dott. Rosario Cultrera

Laureanda
Katia Mazzoni

Anno Accademico 2004-2005

Lobange



N°	ETA'(anni)	P.F.	P.V.	P.O.	P.M.	NEG.
8	0-1	3	7	0	0	5
25	1-4	7	20	0	5	3
37	5	6	27	0	0	6
34	6	4	28	0	2	5
23	7	3	18	0	1	4
28	8	1	26	0	2	2
34	9	5	25	0	1	4
28	10	4	19	0	4	3
29	11	3	18	0	3	6

Università degli Studi di Ferrara
Facoltà di Medicina e Chirurgia
Corso di Laurea in Infermieristica

DIFFUSIONE DELLE ENTEROPARASSITOSI IN VILLAGGI DEL CAMERUN SUD-OCCIDENTALE; VALUTAZIONE DI MISURE PROFILATTICHE ED EDUCATIVE

Relatore:
DOTT. ROSARIO CULTRERA

Laureanda:
SARA TINTI

Anno Accademico 2004-2005

Analisi coproparassitologiche

Ascaridosi 71%
Tricocefalosi 68%
Amebiasi 65%

- Consegna e ritiro provette con "persone chiave"
- Codice di identificazione non nominativo
- Campioni fecali in formalina 10%
- Concentrazione con metodo di Ridley; analisi al microscopio ottico in Italia

Metodo comunicativo

- Incontri
- Favola didattica
- Attività ludico-pedagogica
- Giornalino

- Incontro
- Confronto e aperta discussione
- Opuscolo informativo

Università degli Studi di Ferrara
FACOLTA' DI MEDICINA E CHIRURGIA
CORSO DI LAUREA IN INFERMIERISTICA

LA MALARIA IN ETÀ PEDIATRICA NEL NORD DEL CAMERUN. ANALISI DEL RUOLO INFERMIERISTICO

Relatore:
Dott. Rosario Cultrera

Laureanda:
Anatoline Keunzo Tolle

Anno Accademico 2005-2006

UNIVERSITÀ DEGLI STUDI DI FERRARA

Facoltà di Medicina e Chirurgia

Corso di Laurea in Infermieristica

IL RUOLO DELL'INFERMIERE NEL CONTROLLO DEL RISCHIO DI TRASMISSIONE DELL'INFEZIONE DA HIV DA MADRE A FIGLIO IN UN'AREA URBANA DEL CAMERUN

Laureando
Annisser Tsamo

Relatore:
Dott. Rosario Cultrera

Anno Accademico 2006-2007

PROTOCOL

Gastrointestinal infections in pre-school age (0-5 years): incidence, gravity of disease and genotype characterization of Rotavirus.

UNIVERSITA' DEGLI STUDI DI FERRARA
FACOLTA' DI MEDICINA E CHIRURGIA

CORSO DI LAUREA IN MEDICINA E CHIRURGIA

Evaluation of rotavirus and intestinal parasite infections in a paediatric population in the urban areas of Bangangté and Baffoussam, Cameroon.

Preliminary results.

RELATORE:
Professor Rosario Cultrera

CORRELATORI:
Professor Lysette Kouemeni
Dottor Pierre Marie Futsing

LAUREANDA
Elisa Vanino

Progetto “Cameroun”
Infezioni intestinali da parassiti e rotavirus in una popolazione pediatrica 0-5 aa

51 bambini 1-5 aa
5 bambini > 5 aa

Diarrea, peso, febbre, altra sintomatologia, residenza, istruzione materna

Es. coproparassitologico diretto e con concentrazione

Ricerca diretta di RV, PCR, genotipizzazione

FORM 1

Questionnaire /FORM 1/formulaire

Evaluation of Rotavirus and Parasite Intestinal Infections in young population in Bangangté, Cam
Evaluation des infections intestinales à parasites et à rotavirus au sein de la population infant
Banganté, Cameroun

Subject code /code du patient ☐☐☐☐, ☐☐ ☐☐/ ☐☐
Name of the region, 1st and 3rd name and surname' letters/ years of birth)
(Initial du nom de la région, 1ere et 3eme lettres du nom et du prénom/ année de naissance)

Date of birth: ☐☐ ☐☐ ☐☐☐☐
Date de naissance

Sex: female ☐ male ☐
Sexe : feminin Masculin

Weight_________________Kg
Poids

Place of origin________________ rural ☐ urban ☐
Provenance rural urbain

Breast feeding no ☐ yes ☐ how long_____________months
Allaitement maternel no oui combien de temps

Any sisters/brothers in the family ☐ ☐☐ how many ☐☐
Avez-vous des soeurs/frères dans la famille Combien

Presence of gastrointestinal infection in common-low: ☐☐☐
Y a-t-il quelqu'un qui souffre d'une infection gastro-intestinale dans votre famille

Attendance of school: ☐☐☐
L'enfant frequente-t-il une école

Date of recruitment/visit: ☐☐ ☐☐ ☐☐☐☐
Date du recrutement/visite (enregistrement)

Date of the symptom's beginning: ☐☐ ☐☐ ☐☐☐☐
Date du début de symptomes

Date of sample collection: ☐☐ ☐☐ ☐☐☐☐
Date du prelevement

EVALUATION OF SEVERITY OF GASTROENTERITIS USING THE RUUSKA VESIKARI SCALE:
Evaluation de la sévérité des gastro-enterites à l'aide de l'echelle de RUUSKA VESIKARI

Days of diarrhea 1-4 ☐ 5 ☐ ≥6 ☐
Nombre de jours de diarrhee

Episodes of diarrhea/24h 1-3 ☐ 4-5 ☐ ≥6 ☐
Nombre d'épisodes de diarrhée/24h

Days of vomiting: 0 ☐ 1 ☐ 2 ☐ ≥3 ☐
Nombre de jours de vomissement

Episodes of vomiting/24h: 1 ☐ 2-4 ☐ ≥5 ☐
Nonbre d'épisode de vomissement/24h

Temperature (°C): ≤37 ☐
Température
37.1-38.4 ☐ days/jours ☐☐
38.5-38.9 ☐ days/jours ☐☐
≥39 ☐ days/jours ☐☐

Dehydration: no ☐ light ☐ moderate/severe ☐
Déshydratation non légère modérée/ Sévère

Treatment no ☐, rehydration ☐ , hospitalization ☐
L'enfant a-t-il pris des medicaments à l'hôpital(non?), rehydratation, hospitalisation

Laboratory diagnosis ____
Diagnostic de laboratoire

Parasite_______________ Bacteria_______________ Rotavirus_______________
Parasite Bactéries Rotavirus

Others ______________________________days/jours ☐☐
Autres

The doctor
Médecin traitant

FORM 2

Evaluation of Rotavirus and Parasite Intestinal Infections in young population in Bangangté, Cameroon

***Evaluation des infections intestinales à parasites et à rotavirus au sein de la population infantile à Banganté*, Cameroun**

Object: Letter of authorization of recruitment

Dear Lady,

We would like to ask you the authorization to recruit your child for a clinical research made by the Université des Montagnes (Cameroon) and the University of Ferrara (Italy) in collaboration with the Hospitals of the District of Bangangté and the Hospital of Bangoua (Cameroon), the Hospital of Cuneo and the Hospital of Lecce (Italy). The aim of this clinical research is to evaluate the prevalence of the intestinal pathogens, including viruses and parasites among children less than 5 years old and from 6 to 10 years old affected by acute diarrhea in Bangangtè and Bangoua. We also want to evaluate the possible correlation with the clinical features, considering diarrhea as one of the main cause of mortality and morbidity throughout the world. During the clinical visit we fill in a form to collect all data about the symptoms from your child, to determine the severity of the diseases. We will eventually collect a stool sample that will be screened for rotaviruses and/or any intestinal parasites.

The participation of your child to this study is voluntary (not compulsory) and it will be an honor for us that you and your child participate. If you'll give us your consent, we assure you that all the data will be maintain anonymous and that the stool sample, after laboratory analysis, will be destroy.

Thank you for your kindly attention.

Name and Surname/*Nom et Prenom*

Signature

CAMEROON

Epidemiological Country Profile on HIV and AIDS

World Health Organization

UNAIDS

Epidemic estimates

Estimated adult HIV (15-49) prevalence %

Number of people living with HIV

Annual number of AIDS deaths

Adult (aged 15–49 years) HIV prevalence in Cameroon provinces and Yaoundé & Douala cities, Population-based survey, 2004

Coverage estimates (%)

Estimated antiretroviral therapy coverage (%)

Estimated percentage of pregnant women living with HIV who received antiretrovirals for preventing mother-to-child transmission

Trends in behaviours

Percentage of women and men aged 15-49 who have had sexual intercourse with more than one partner in the last 12 month

Percentage of women and men aged 15-49 who have had more than one partner the past 12 months reporting the use of a condom during their last sexual intercourse

Urban and rural adult (15-49) HIV prevalence (%)

Year	Urban	Rural
2004	6.7	4.0

Project for collaboration between Université des Montagnes (UdM) and University of Ferrara (UniFE) on HIV-HBV/HCV coinfection

Aim of study

Aim of this project is to realise a scientific and clinical collaboration between our Infectious Diseases Section and clinical structures of Université des Montagnes (UdM).
Principal field of study will be HIV-infection, especially in association with chronic viral hepatitis.
The project will develop in three phases:

- A preliminary phase of epidemiological evaluation.
- A second phase of elaboration and application of strategies to improve clinical management of patients with HIV/HBV/HCV infection.
- A third phase of consolidation of optimal clinical practice for a large number of patients.

Phase I

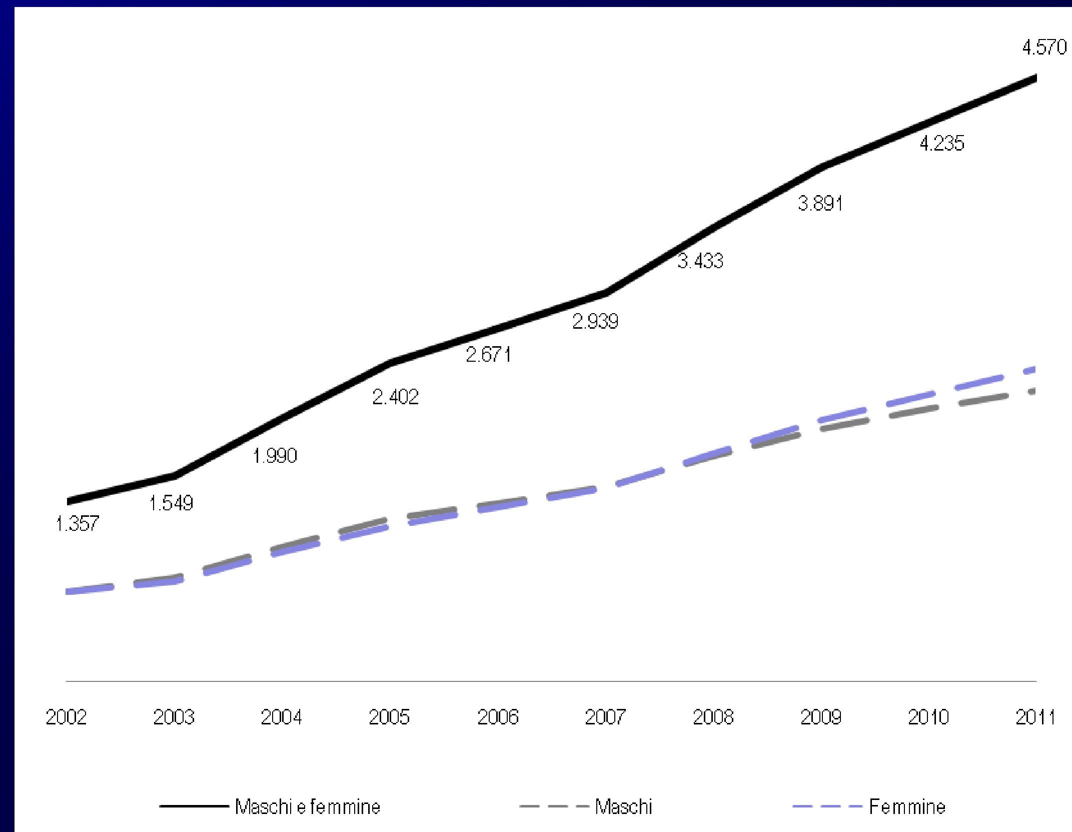
Data about West Region of Cameroon

The West Region of Republic of Cameroon has a surface area of 13.892 km^2, representing about 3% of national territory; it has a population of 1.720.047 inhabitants and a population density of 123,8 inhabitants/km^2. (Data from 3rd General Census of Population, 2005).
Age distribution??????????????????????????????????
Number of health structures???????????????????????????????????
Approximate health care personnel??????????????????????????
System of drug distribution???????????????????????????????
Type of hepatitis B vaccine used and percentage of population vaccinated????????

Background

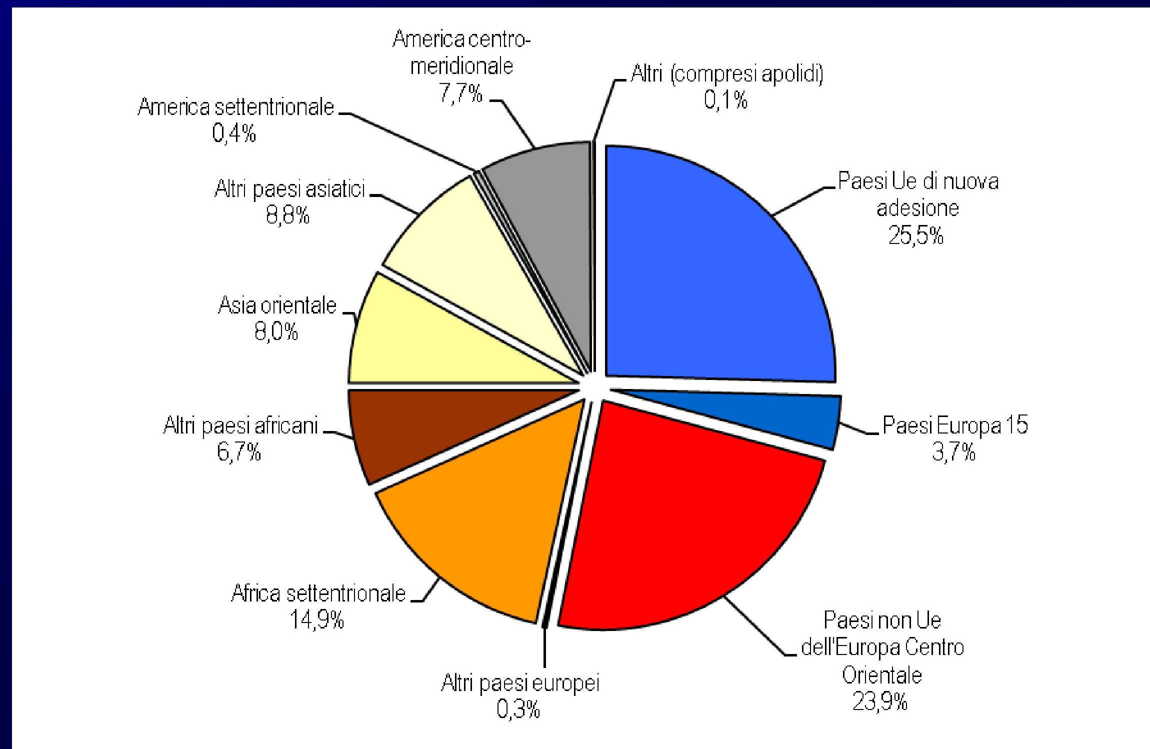
As in many African countries, HIV-infection is a major health topic in Cameroon, with an increasing number of people living with HIV/AIDS (610.000 on 12/31/2009) and an estimated prevalence of 6,9% among adults[1].
The impact of HIV/AIDS in a mayor Cameroonian teaching Hospital was evaluated by Kengne et al. in 2001: data from this study showed HIV as the major cause of hospitalization and death in this service, with an admission and bed utilization rates accounted for 20.1% and 17%, respectively.[2]
The HIV-viral hepatitis co-infection is a field of big interest, because HIV is known to worsen hepatitis prognosis and some studies seem to show also that HBV and HCV can accelerate AIDS progress in HIV patients[3-5]. On the other hand, the increasing use of antiretroviral therapy in Cameroonian population[6] leads to predict a longer life expectancy in HIV-positive patients, which will lead these people to deal increasingly with chronic viral hepatitis and their long-term complications[7].
Few data are available about HIV and viral hepatitis co-infection in Cameroonian population; anyway, some recent studies found a high rate of HBV (8,3%) and HCV (12,4%) active infections in HIV-positive patients starting HAART in Yaoundé; that is the reason why authors strongly recommend to perform HBsAg and anti-HCV systematically in HIV positive patients before initiating HAART[8,9].
Other important issues are the "occult" HBV infection (HBsAg-negative subjects with circulating HBV-DNA and/or cccDNA in liver cells) and delta hepatitis (HDV).
Occult HBV is poorly known in African population, but it is expected to be a significant problem whether in HIV-positive or HIV-negative patients, due to the high exposure to HBV in African regions; HDV is known to be highly prevalent in Cameroon[10], but data on triple infection HIV/HBV/HDV are lacking.

Stranieri residenti in Italia al 1° gennaio - Anni 2002-2011 (migliaia)



Dati ISTAT

Stranieri residenti in Italia per area geografica di cittadinanza – 1° gennaio 2011



Dati ISTAT

Stranieri residenti per sesso, provincia e regione al 1°gennaio 2011 (valori assoluti e variazione percentuale)

Province e regioni	M	F	MF	Var.% MF su 2010
Piacenza	19.495	19.232	38.727	7,1
Parma	26.757	28.312	55.069	9,8
Reggio nell'Emilia	34.355	34.705	69.060	7,0
Modena	44.584	44.762	89.346	8,2
Bologna	48.514	54.295	102.809	8,5
Ferrara	12.006	15.288	27.294	11,2
Ravenna	21.520	22.091	43.611	7,2
Forli'-Cesena	20.427	21.140	41.567	6,9
Rimini	15.070	18.044	33.114	8,5
Emilia-Romagna	**242.728**	**257.869**	**500.597**	**8,2**

Dati ISTAT

Malattie infettive a possibile trasmissione per trasfusione di emoderivati

HIV
HBV
HCV
Treponema pallidum

Cytomegalovirus
HSV1-2, HHV-6, HHV-7, HHV-8
Epstein Barr Virus
Parvovirus B19
HAV, HGV
TTV
HTLV-I, HTLV-II
Chikungunya
West Nile Virus
Dengue
Polyomavirus (JCV, BKV)

Malaria
Trypanosoma cruzi (Malattia di Chagas, tripanosomiasi americana)
Trypanosoma gambiense/Trypanosoma rhodesiense (tripanosomia africane)
Babesia
Filariosi

SORVEGLIANZA DELLE MALATTIE INFETTIVE TRASMISSIBILI CON LA TRASFUSIONE (SMITT): ANNO 2005

Vanessa Piccinini, Francesca Vulcano, Serena Palmieri,
Liviana Catalano, Adele Giampaolo e **Hamisa Jane Hassan**
Dipartimento di Ematologia, Oncologia e Medicina Molecolare, ISS

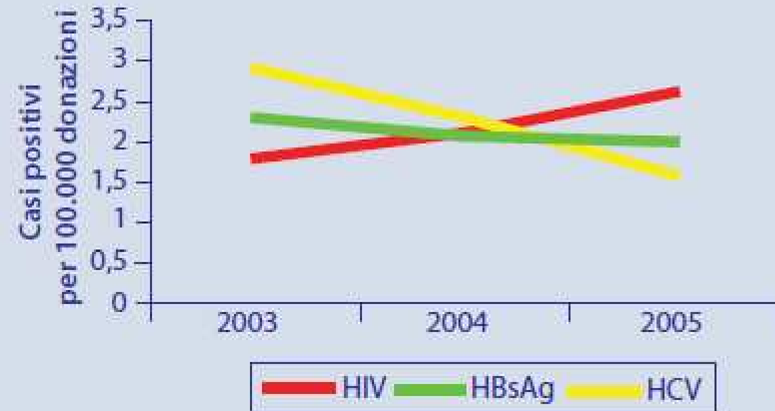
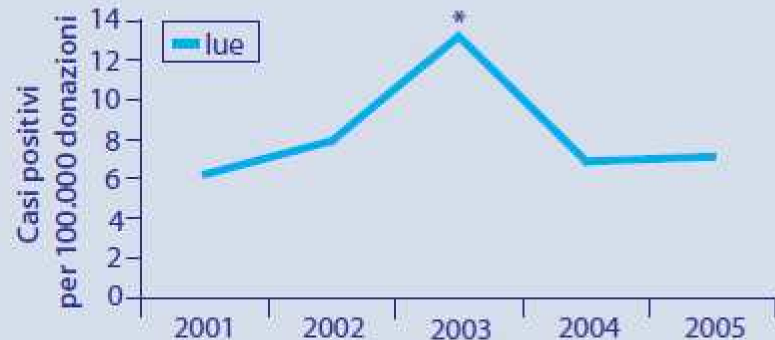


Figura 1 - Incidenze in Italia negli anni 2003-2005 (per 100.000 donazioni)



(*) Vedi il paragrafo "Conclusioni" nel *Notiziario dell'Istituto Superiore di Sanità* del 2004 (9).

Figura 2 - Incidenza della lue negli anni 2001-2005

Tabella 2 - Incidenza su donazioni da donatori periodici (anno 2005)

Marcatore	Incidenza per 100.000 donazioni da donatore periodico
HIV	2,6
HBsAg	2,0
HCV	1,6
Lue	7,1

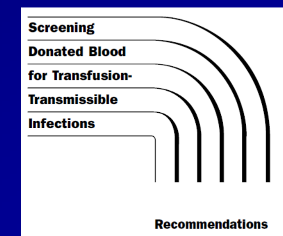
Tabella 3 - Prevalenze su donazioni da donatori nuovi (anno 2005)

Marcatore	Prevalenze per 100.000 donazioni da donatore nuovo
HIV	18,5
HBsAg	284,2
HCV	199,1
Lue	116,9

Emerging and re-emerging infections

Every blood screening programme has to face ongoing challenges. Reports of newly identified infections or re-emerging infections appear regularly in the scientific literature, including reports of their transmission through the route of transfusion. Examples include variant Creutzfeldt Jakob disease, West Nile virus, babesiosis, dengue and chikungunya. There are also infections for which there is a theoretical risk of transmission, but where no cases of transmission have yet been identified or proven, such as severe acute respiratory syndrome (SARS).

Blood transfusion services should develop contingency plans that ensure surveillance for emerging infections, assessment of their transmissibility by transfusion and the actual likelihood of transmission, the diseases associated with transmission, and action to be taken in the event of increasing incidence of infection, including to pandemic level.



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Emerging and re-emerging infections

Recommendations

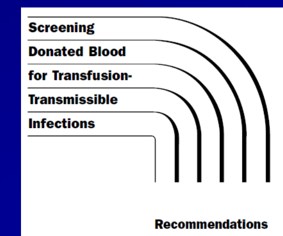
1.Laboratory screening for any potential or known transfusion transmissible infection, other than for the four mandatory infections, should be considered only if:

- There is a proven risk of transmission of infection to recipients
- The transmission carries a significant disease risk
- An appropriate screening assay is available.

2.Blood screening programmes should include strategies for confirmatory testing and blood donor management.

3.When there is a *proven risk of transfusion-associated transmission* but no appropriate screening assays are available, donor selection criteria should be developed to identify and defer potentially infected donors for an appropriate period of time.

4.When there is a *theoretical risk of transfusion-associated transmission* and no appropriate screening assays are available, donor selection criteria may be developed to identify and defer potentially infected donors for an appropriate period of time.



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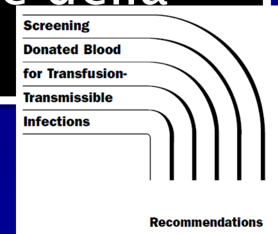
Malattie infettive a possibile trasmissione per trasfusione di emoderivati

TTV

Il virus si trasmette mediante trasfusione e infusione di preparati concentrati di fattore VIII e IX
In Giappone, nel 47% dei pazienti con epatite fulminante non A-nonG e nel 46 % di pazienti con epatite cronica a eziologia sconosciuta.
La prevalenza del virus in donatori abituali, in assenza di manifestazioni cliniche, è bassa: 1,9% in Scozia, 10% in Inghilterra, 12% in Giappone, 16% in Pakistan e 3,2% in Italia. Prevalenze elevate sono riportate in popolazioni rurali africane, fino all' 83% in Gambia, e in alcune popolazioni indigene del Sud America e della Nuova Guinea, con stime fino al 74%



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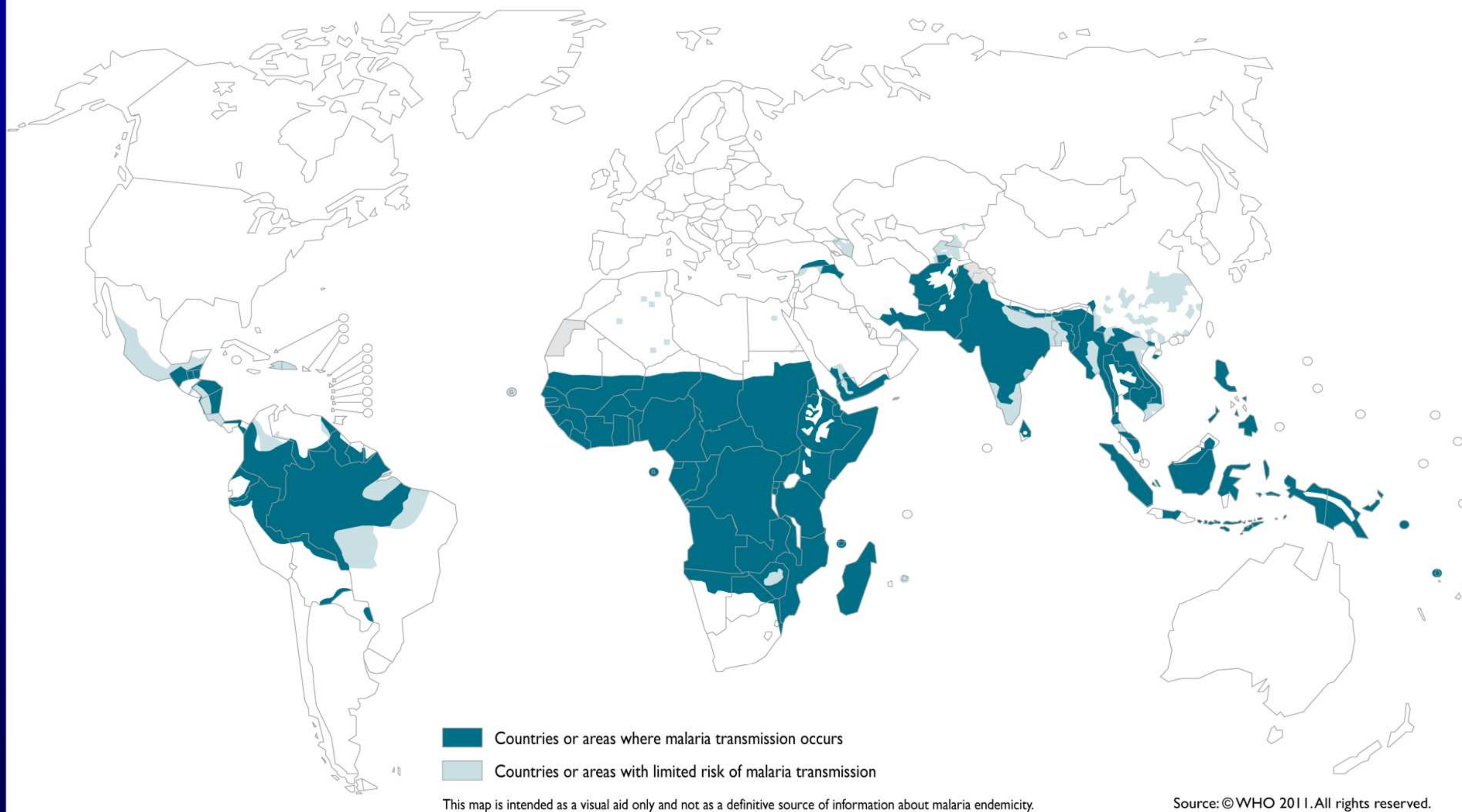

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World Health Organization

Malaria surveillance in Italy: the 2000-2008 national pattern of imported cases

R. Romi[1], D. Boccolini[1], S. D'Amato[2], C. Cenci[2], M. G. Pompa[2], G. Majori[1]

Table 1 – General features of imported malaria in Italy 2000-2008. In brackets the relative frequencies (%) by nationality with respect to the total reported cases.

Features	Total cases	Italians	Foreigners
Malaria cases	6,377	1,756	4,621
Autochthonous	9	7	2
Imported	6,368	1,749 (27.5%)	4,619 (72.5%)
P. falciparum	5,301 (83.1%)	1,284 (73.1%)	4,017 (87.0%)
P. vivax	536 (8.4)	284 (16.2)	252 (5.5)
P. ovale	413 (6.5)	153 (8.7)	260 (5.6)
P. malariae	105 (1.6)	31 (1.8)	74 (1.6)
Mixed infections	22 (0.3)	4 (0.2)	18 (0.4)
*Africa	5,922 (93.0%)	1,511 (86.4%)	4,411 (95.5%)
Asia	296 (4.6)	142 (8.1)	154 (3.3)
C.S. America	123 (1.9)	71 (4.1)	52 (1.1)
Oceania (Pap.NG)	27 (0.4)	25 (1.4)	2 (0.04)
Deaths	27	20	7
P. f. fatality rate	0.51%	1.56%	0.20%

*autochthonous cases (N=9) not considered

Giornale Italiano di Medicina Tropicale Vol. 15, N. 1-4, 2010

First autochthonous malaria case due to *Plasmodium vivax* since eradication, Spain, October 2010

P Santa-Olalla Peralta (psantaolalla@msps.es)[1], M C Vazquez-Torres[1], E Latorre-Fandós[2], P Mairal-Claver[3], P Cortina-Solano[4], A Puy-Azón[4], B Adiego Sancho[5], K Leitmeyer[6], J Lucientes-Curdi[7], M J Sierra-Moros[1]

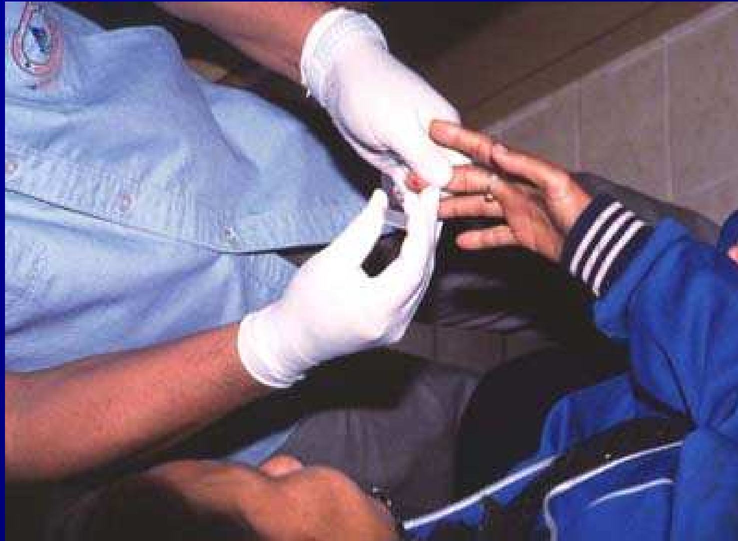
Article published on 14 October 2010

Plasmodium vivax malaria in a Romanian traveller returning from Greece, August 2011

S A Florescu[1,2], C P Popescu[1,2,3], P Calistru[1,2], E Ceausu[1,2], M Nica[1,2], A Toderan[1], M Zaharia[1], P Parola (philippe.parola@univmed.fr)[3,4,5]

Euro Surveill. 2011;16(35):pii=19954. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19954

Article published on 1 September 2011



Distribution of cases of *Trypanosoma cruzi* infection, based on official estimates and status of vector transmission, worldwide, 2006–2009

Estimated number of cases

- <1 000
- 1 000–99 999
- 100 000–999 999
- >=1 000 000
- No officially estimated cases

Status of vector transmission

- Countries without vector transmission
- Countries with accidental vector transmission
- Countries with ongoing vector transmission

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World Health Organization

Chagas disease (American trypanosomiasis)

An estimated 10 million people are infected with *Trypanosoma cruzi* (the parasite that causes Chagas disease) worldwide, mostly in Latin America.
Chagas disease was once entirely confined to the Region of the Americas – principally Latin America – but it has now spread to other continents.
Chagas disease is curable if treatment is initiated soon after infection.
Up to 30% of chronically infected people develop cardiac alterations and up to 10% develop digestive, neurological or mixed alterations, for which specific treatment may become necessary.
Vector control is the most useful method to prevent Chagas disease in Latin America.
Blood screening is vital to prevent infection through transfusion and organ transplantation.

T. cruzi **can also be transmitted by**:

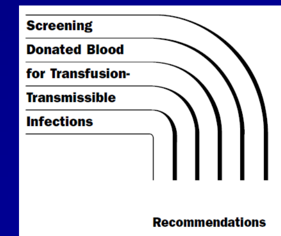
- food contaminated with *T. cruzi* through for example the contact with triatomine bug faeces
- blood transfusions using blood from infected donors
- passage from an infected mother to her newborn during pregnancy or childbirth
- organ transplants using organs from infected donors
- laboratory accidents.

Chagas disease (American trypanosomiasis)

Non-endemic countries

To prevent the transmission of Chagas disease through the route of transfusion in non-endemic countries:

1. All donors with a history of Chagas disease should be permanently deferred.
2. If screening tests for Chagas disease are not available, all donors with an identified risk of Chagas disease should be identified and permanently deferred.
3. If screening tests for Chagas disease are available, all donors with an identified risk of Chagas disease should initially be deferred for six months since their last return from an endemic area. Their subsequent donations should then be screened for evidence of infection using a highly sensitive Chagas antibody enzyme immunoassay.



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WHO comparative evaluation of serologic assays for Chagas disease

TRANSFUSION 2009;49:1076-1082.

Marcia M. Otani, Elizabeth Vinelli, Louis V. Kirchhoff, Ana del Pozo, Anita Sands, Gaby Vercauteren, and Ester C. Sabino

TABLE 4. Sensitivity, specificity, and 95 percent CIs for each of the 19 assays under evaluation as compared to the final serologic status (n = 430 specimens)

Assays	Sensitivity (95% CI)	Specificity (95% CI)	Company	City/country
EIA assays				
HBK 401 Hemobio Chagas	100 (97.8-100)	99.62 (97.9-100)	Embrabio	Brazil
Chagas ELISA	97.62 (94.0-99.3)	97.71 (95.1-99.2)	Ebram	Brazil
Chagatek ELISA	99.40 (96.7-100)	99.24 (97.3-99.9)	Laboratório Lemos	Argentina
Premier Chagas IgG ELISA Test	94.04 (89.3-97.1)	100 (98.6-100)	Meridian Diagnostics	US
Test ELISA para Chagas	99.40 (91.2-98.1)	99.62 (97.9-100)	BIOSChile	Chile
Bioelisacruzi	98.21 (94.9-99.6)	99.24 (97.3-99.9)	Biolab-Mérieux	Brazil
Abbott Chagas Anticorpos EIA	99.40 (96.2-100)	98.09 (95.6-99.4)	Abbott Laboratories	US
Chagas test *IICS*, ELISA	97,02 (93.2-99.0)	99,24 (97.3-99.9)	IICS Univ de Asunción	Paraguay
Chagatest ELISA	98.81 (95.8-99.9)	99.62 (97.9-100)	Wiener lab	Argentina
Bioelisa Chagas	100 (97.8-100)	99.24 (97.3-99.9)	Biokit	Spain
Chagas Hemagen	100 (97.8-100)	96.56 (93.6-98.4)	Hemagen Diagnósticos	US
Hemagglutination assays				
Chagas HAI Imunoserum	97.62 (94.0-99.3)	78.62 (77.2-83.4)	Polichaco	Argentina
Teste Chagas–HAI	88.09 (82.2-92.6)	59.92 (53.7-65.9)	Ebram	Brazil
Imuno-HAI Chagas	100 (97.2-100)	95.80 (92.6-97.9)	WAMA	Brazil
Chagas Hemagen HA	92.26 (87.1-95.8)	89.31 (84.9-92.8)	Hemagen Diagnósticos	US
Hemacruzi	99.40 (96.7-100)	97.33 (94.6-98.9)	Biolab-Mérieux	Brazil
PA assays				
Serodia–Chagas	100 (97.2-100)	97.70 (95.1-99.2)	Fujirebio	Japan
ID-Chagas antibody test	97.02 (93.2-99.0)	99.62 (97.9-100)	DiaMed-ID	Switzerland
Rapid test				
Chagas Stat-Pak*	94.08 (89.1-97.3)	95.75 (92.1-98.0)	Chembio Diagnostic Systems	US
Confirmatory assays				
RIPA	100 (97.8-100)	100 (98.6-100)	University of Iowa	US
WB	100 (97.8-100)	97.3 (94.6-98.9)	bioMérieux	Brazil
IB	98.2 (94.9-99.6)	99.6 (97.9-100)	Innogenetics	Belgium
IF	98.2 (94.9-99.6)	98.0 (96.7-99.8)	bioMérieux	Brazil

* Could only be analyzed with 152 positive specimens and 212 negative specimens (n = 364 specimens). The 16 positive missing samples were from Group C. In the best scenario, if all missing samples were correctly assigned by the test, the sensitivity and specificity would increase to 94.60 (90.1-97.5) and 96.6 (93.6-98.4), respectively.

Distribution of human African trypanosomiasis (*T. b. gambiense*), worldwide, 2008

Number of reported cases, 2008

- >1 000
- 100–1 000
- <100
- 0 cases reported
- Endemic countries (no data available)
- Non *T. b. gambiense* endemic countries

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Map Production: Control of Neglected Tropical Diseases (NTD)
World Health Organization

Distribution of human African trypanosomiasis (*T. b. rhodesiense*), worldwide, 2008

Number of reported cases, 2008

- >=100
- <100
- 0 cases reported
- Endemic countries (no data available)
- Non *T. b. rhodesiense* endemic countries

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Distribution of countries or areas at risk of dengue transmission, worldwide, 2008

Countries or areas at risk of dengue transmission

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DENGUE

La dengue è diffusa in regioni tropicali e sub-tropicali principalmente nelle aree urbane e sub-urbane. La prevalenza globale è cresciuta notevolmente nelle ultime decadi. Risulta endemica attualmente in oltre 100 Paesi dell'Africa, delle Americhe, dell'est Mediterraneo, dell'Asia sud-est, del Pacifico ovest. Sono ora a rischio di contrarre la dengue circa 2,5 miliardi di persone e l'OMS stima circa 50 milioni di casi di dengue ogni anno.

La dengue è una infezione trasmessa all'uomo da una zanzara del genere *Aedes* che accquisisce l'infezione dopo un pasto ematico di persone infette. Dopo circa 8-10 giorni, la zanzara infetta è in grado di trasmettere il virus a soggetti recettivi per tutto l'arco della sua vita. La zanzara femmina infetta è in grado di trasmettere il virus anche alla prole per via transovarica.

Benché si pensi che l'uomo sia l'ospite principale del virus, alcuni studi hanno dimostrato che la scimmia può fungere da serbatoio dell'infezione.

DENGUE

Emergence of DEN/DHF

Prior to 1960:

After 1960:

DENGUE

La dengue è causata da almeno quattro distinti virus che sono però strettamente correlati fra loro:

La risposta immune conseguente all'infezione da parte di un virus è permanente ma conferisce una parziale efficacia verso gli altri tre tipi di virus.

Vi sono prove che il ripeteresi di infezioni da virus-tipi diversi aumenta il rischio di complicanze che conducono alla febbre dengue emorragica.

La febbre emorragica dengue è una complicanza della malattia principale che è stata descritta per la prima volta negli anni cinquanta nelle Filippine e in Thailandia, diffusa in molti paesi asiatici dove è tra le principali responsabili di ospedalizzazione e morte infantile.

Distribution of visceral leishmaniasis, worldwide, 2009

Average number of reported cases, 2005-2009

- <1 000
- 1 000–4 999
- 5 000–24 999
- >=25 000

- Previously reported cases
- No cases reported

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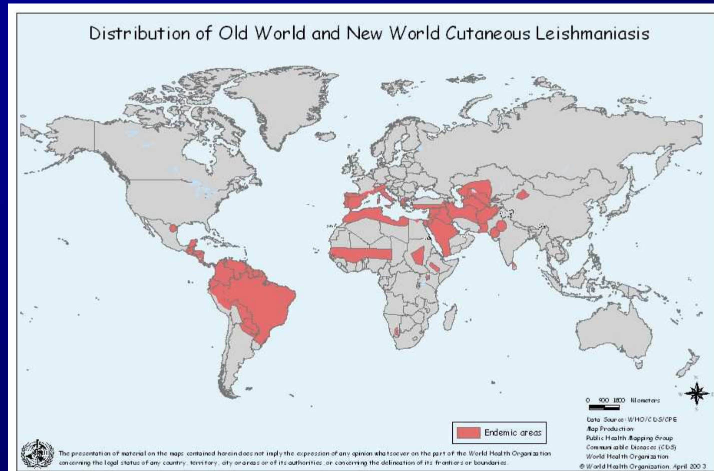
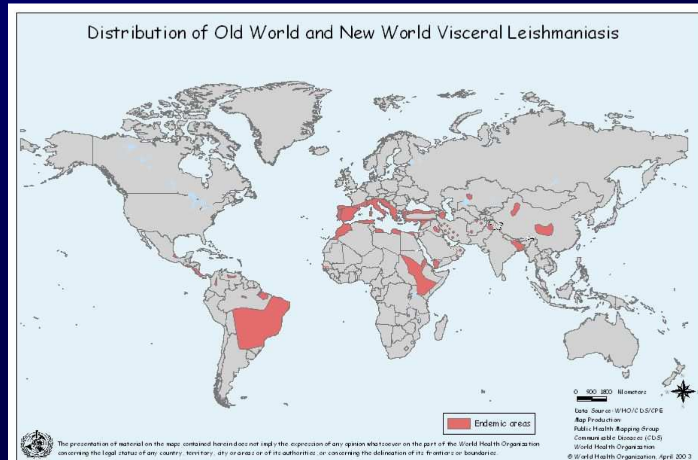
Leishmaniosi





È endemica in 88 Paesi

350 milioni a rischio d'infezione

12 milioni di infetti

1,5-2 milioni di nuove infezioni ogni anno

Distribution and status of preventive chemotherapy for lymphatic filariasis, worldwide, 2010

- Endemic countries and territories implementing MDA *
- Endemic countries and territories
- Endemic countries and territories where the target was achieved and MDA stopped
- Non-endemic countries and territories
- Not applicable

* MDA - Mass Drug Administration

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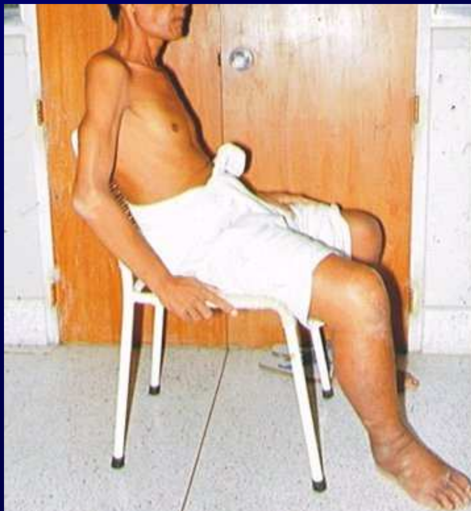
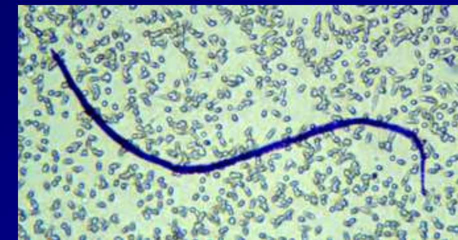
Filariosi linfatica

La filariosi linfatica è un rischio per circa 1 MILIARDO di persone in 80 Paesi del mondo. Oltre 120 MILIONI di persone sono infette e oltre 40 MILIONI è seriamente malato e menomato dalla malattia. Un terzo di queste vive in India, un terzo in Africa, un terzo nel Sud-est Asiatico, sul Pacifico, nelle Americhe. È in continuo aumento nelle aree endemiche. Tra le cause principali è da riconoscere la rapida e non-pianificata espansione urbanistica con la creazione di numerosi ambienti idonei alla replicazione dei vettori (fattori URBANISTICI).





Distribution of Buruli ulcer, worldwide, 2008

Number of reported cases, 2008

- >=1 000
- 500–999
- 100–499
- <100
- Previously reported cases
- No cases reported

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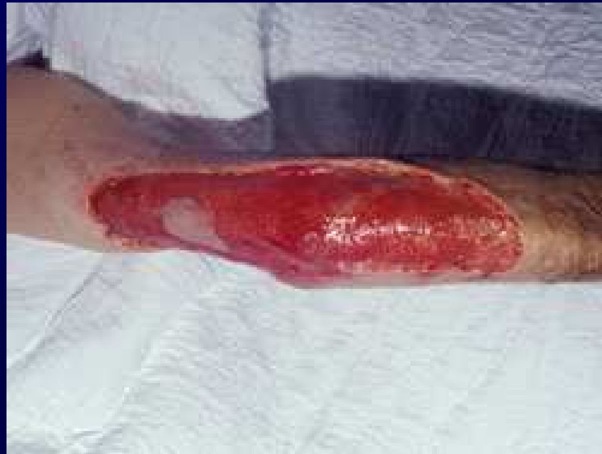
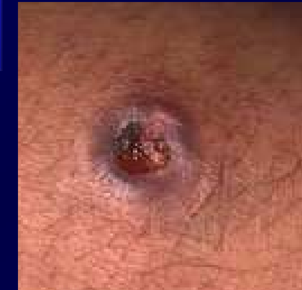
Ulcera di Buruli

L’ulcera di Buruli è causata da *Mycobacterium ulcerans* che provoca estese ulcere cutanee prevalentemente agli arti superiori ed inferiori. I pazienti, se non trattati, subiscono gravi disabilità funzionali come limitazione funzionale dei movimenti articolari e gravi danni estetici.



Ulcera di Buruli



Scarse sono le conoscenze sulle modalità di trasmissione:
Vettori (insetti acquatici dell'ordine *Hemiptera*)?
Trauma antecedente?

La malattia è presente in oltre 30 Paesi tropicali e sub-tropicali.

La scarsa conoscenza della malattia e la sua distribuzione focale principalmente nelle aree rurali contribuiscono a sottostimare la reale incidenza dell'ulcera di Buruli.

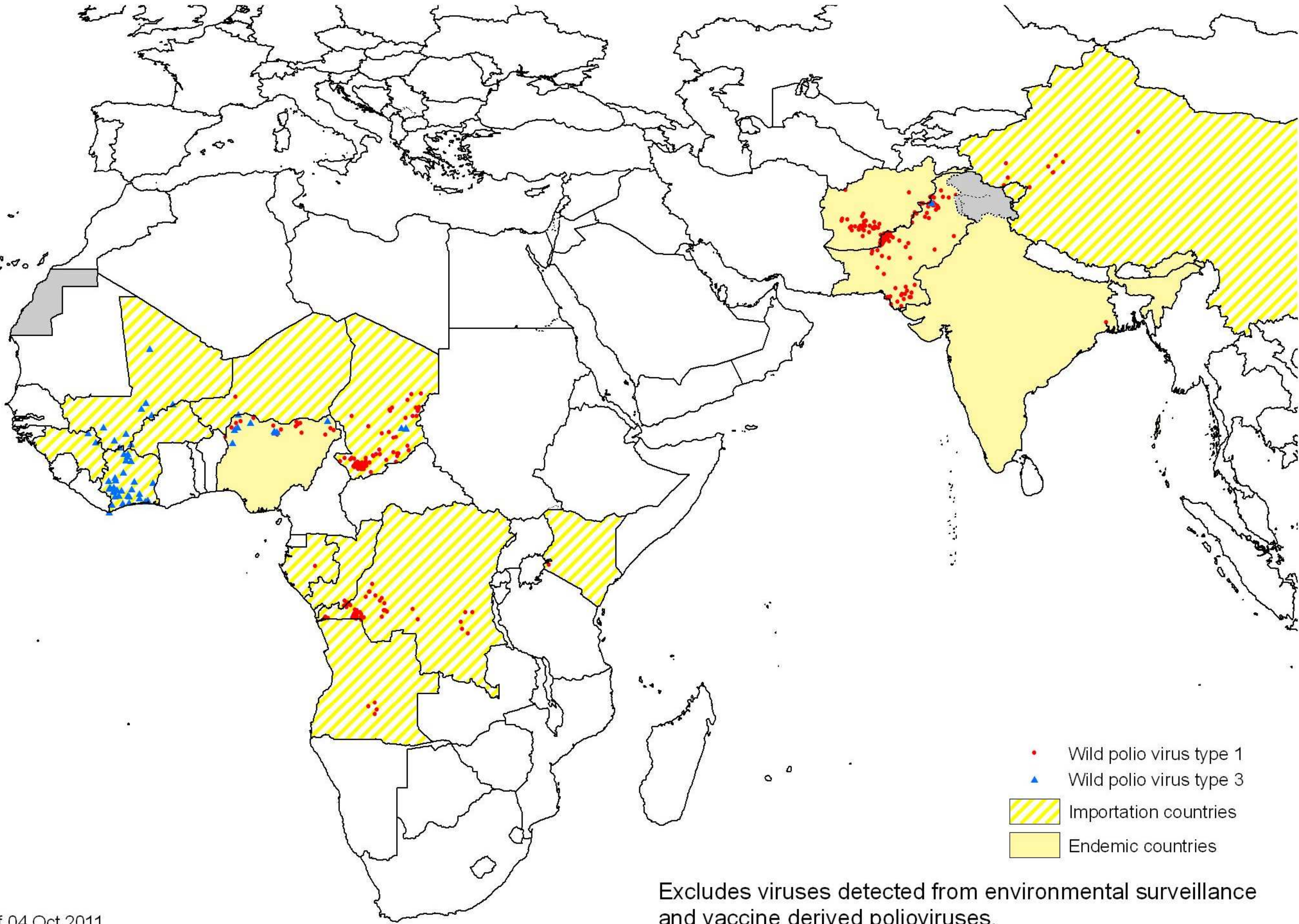
1978-2006: circa 24.000 casi in Costa d'Avorio

1989-2006: circa 7.000 casi in Benin

??-2003: circa 11.000 casi in Ghana

Un aumento di casi riportati in Camerun, Congo, Gabon, Sudan, Togo, Uganda, Nigeria, Cina, Brasile

Wild Poliovirus - 2011



Data at HQ as of 04 Oct 2011

Hanoi, 19 dicembre 2001

"Sono grato alla vita. A volte nella solitudine del viaggio, nel crepuscolo del sonno, sorrido, e quasi piango, a pensare quanto vedo, a quanto sento scorrermi intorno, al profumo degli occhi che incrocio, e al sapore di questa vita colorata, una macedonia di gioie, rabbia, piacere e tristezza, schiaffi e dolci carezze"