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"IN CAMMINO PER IL MONDO: NEONATOLOGIA SENZA CONFINI"

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# LA CHIRURGIA PEDIATRICA NEI PAESI A BASSE RISORSE: SOGNO O REALTA'?

Esperienza preliminare di collaborazione tra la Chirurgia  
Pediatria di Siena ed il North Kinangop Catholic Hospital  
di Nairobi

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**Table 1**  
Pediatric surgical density in United States and selected countries in LMICs

Region/country (year of data)	Population (million) <sup>a</sup>	Population < 15 years (million) <sup>a</sup> (% of total pop)	Population < 18 years (million) <sup>a</sup>	No. of PS	PS/million total population	PS/100,000 <sup>b</sup> < 15 years	PS need <sup>c</sup> < 15 years (< 18 years)	PS deficit < 15 years (< 18 years)
<b>United States (2015)</b>	318.75 <sup>b</sup>	61.02 (18.99)	73.6 <sup>b</sup>	~1250	3.92	<u>2.05 (1.7 – 19</u> years old)	610 (736)	+640 (+514)
<b>Africa</b>								2792
Benin (2015)	10.45	4.54 (43.4)	4.99	2	0.19	0.06	45 (50)	43 (48)
Burkina Faso (2015)	18.93	8.56 (45.2)	8.64	8	0.42	0.09	86 (86)	78 (78)
Cameroon (2008)	18.06	7.46 (41.3)	10.81	5	0.28	0.07	74 (108)	69 (103)
Central African Republic (2008)	4.37	1.82 (41.6)	2.12	2	0.46	0.11	18 (21)	16 (19)
Cote d'Ivoire (2015)	23.27	8.84 (37.9)	9.56	30	1.29	0.34	88 (96)	58 (66)
Egypt (2009)	83.08	26.09 (31.4)	29.8	120	1.44	0.46	260 (298)	140 (178)
Ethiopia (2014)	93.88	41.67 (44.4)	46.35	4	0.04	0.01	400 (444)	396 (440)
Gabon (2008)	1.45	0.61 (42.1)	0.73	3	2.07	0.49	6 (7)	3 (4)
Ghana (2015)	26.33	10.1 (38.4)	11.42	11	0.42	0.11	101 (115)	90 (104)
Guinea (2015)	11.78	4.93 (41.9)	5.63	6	0.51	0.12	49 (56)	43 (50)
Kenya (2009)	39	16.48 (42.3)	21.02	10	0.26	<u>0.06</u>	166 (200)	156 (190)
<b>Madagascar (2014)</b>	22.6	9.28 (41.1)	11.06	2	0.09	0.02	92 (111)	90 (109)
Malawi (2008)	13.6	6.27 (46.1)	8.34	1	0.07	0.02	62 (83)	61 (82)
Mali (2008)	12	5.78 (48.2)	7.98	1	0.08	0.02	38 (80)	37 (79)
Mauritania (2015)	3.6	1.41 (39.2)	1.77	0	0	0	14 (18)	14 (18)
Niger (2015)	18.06	8.94 (49.57)	9.68	4	0.22	0.04	89 (97)	85 (93)
Nigeria (2015)	181.56	78.08 (43)	85.41	87	0.48	0.11	780 (854)	693 (767)
Rwanda (2014)	12.01	5.08 (42.3)	5.85	0	0	0	50 (59)	50 (59)
Senegal (2015)	13.98	5.89 (42.16)	6.88	15	1.07	0.25	60 (69)	45 (54)
Sierra Leone (2014)	5.61	2.35 (41.9)	2.89	1	0.18	0.05	32 (29)	31 (28)
South Africa (2015)	53.68	15.25 (28.43)	18.35	35 <sup>c</sup>	0.65	0.23	152 (184)	117 (149)
Tanzania (2015)	51.05	22.6 (44.3)	24.52	6	0.12	0.03	226 (245)	220 (239)
Togo (2015)	7.55	3.06 (40.6)	3.22	3	0.4	0.1	31 (32)	28 (29)
Uganda (2014)	34.76	16.49 (48.9)	20.16	3	0.09	0.02	170 (202)	167 (199)
Zambia (2010)	11.86	5.34 (45.1)	7.52	7	0.59	0.13	54 (75)	47 (58)
<b>ASIA</b>								5713
Bangladesh (2015)	168.96	53.4 (31.6)	56.87	161	0.95	0.3	534 (569)	375 (408)
Cambodia (2000)	12.21	5.12 (42)	5.56	24	1.97	0.47	52 (56)	28 (32)
China (2000)	1,261.83	302.23 (25)	320.87	1850	1.45	0.61	3022 (3206)	1172 (1356)
India (2015)	1,251.7	351.6 (28.09)	434.78	1001 <sup>b</sup>	0.8	0.28	2516 (4348)	2515 (3347)
Indonesia (2000)	224.78	68.72 (30.6)	85.41	20	0.09	0.03	688 (854)	668 (834)
Malaysia (2000)	21.79	7.61 (35)	9.43	17	0.78	0.22	77 (94)	60 (77)
Myanmar (2000)	41.73	12.43 (30)	16.2	8	0.19	0.07	124 (162)	116 (154)
Pakistan (2015)	190.09	65.01 (32.65)	73.84	170	0.85	0.26	650 (738)	480 (568)
Philippines (2015)	101	34.36 (34.02)	39.42	46	0.46	0.13	344 (394)	298 (348)
Sri Lanka (2015)	22.05	5.42 (24.58)	6.26	15	0.68	0.28	54 (63)	39 (46)
Thailand (2015)	67.98	11.84 (17.41)	15.11	166 <sup>c</sup>	2.44	1.4	118 (151)	+48 (+35)
<b>LATIN AMERICA</b>								+347
Brazil (2007)	190.01	48.17 (25.3)	58.87	721	3.79	1.5	482 (589)	+239 (+132)
Colombia (2015)	46.34	11.7 (24.9)	16.02	~46 <sup>c</sup>	0.98	0.4	116 (160)	70 (114)
Cuba (2015)	11.03	1.76 (16)	2.3	~93 <sup>c</sup>	8.43	3.29	18 (23)	+75 (+70)
Ecuador (2015)	15.87	4.44 (28)	5.57	~91 <sup>c</sup>	5.73	2.05	44 (56)	+47 (+35)
Peru (2010)	29.55	8.59 (29.1)	10.49	102	3.45	1.2	85 (105)	+17 (+3)
Nicaragua (2010)	5.89	1.99 (33.8)	2.4	57	9.78	2.87	20 (24)	+37 (+33)
Puerto Rico (2015)	3.6	0.64 (17.7)	0.78 <sup>c</sup>	8	2.22	1.25	6	+2
<b>MIDDLE EAST</b>								235
Saudi Arabia (2003)	24.29	9.7 (39.9)	10.27	50	2.06	0.51	98 (102)	48 (52)
Iraq (2015)	35	13.3 (38)	15.42	~75	2.1	0.57	133 (154)	58 (79)
Iran (2015)	81.82	19.39 (23.69)	21.77	64 <sup>c</sup>	0.72	0.33	194 (220)	130 (155)

PS, pediatric surgeons.

**Severa carenza di Chirurghi Pediatri**

**Meno dell'8% della popolazione  
pediatrica ha accesso alle cure  
chirurgiche.**

**Condividere la nostra preliminare  
esperienza di cooperazione.**



NORTH KINANGOP CATHOLIC HOSPITAL, NAIROBI



*“Un ponte lascia  
passare le persone,  
un ponte collega i  
modi di pensare,  
un ponte chiedo  
solamente  
un ponte per andare,  
andare, andare.”*



I SETTIMANA → 1 junior consultant +1  
resident: attività ambulatoriale.

II-III SETTIMANA → 1 senior  
consultant + 1 junior consultant +1  
resident: attività di sala operatoria  
giornaliera, attività di reparto ed  
ambulatoriale.



ATTIVITA' DIDATTICA/FORMAZIONE:  
Gestione del bambino chirurgico nei paesi a  
basse risorse.

**Cosa possiamo fare a NORTH KINANGOP?**



IV SETTIMANA → 1 resident: attività ambulatoriale, follow up pazienti chirurgici. Attività di sala operatoria elettiva/urgenza con il chirurgo del posto.

*“Questa partenza è la mia fortuna, un orizzonte che si avvicina...”*

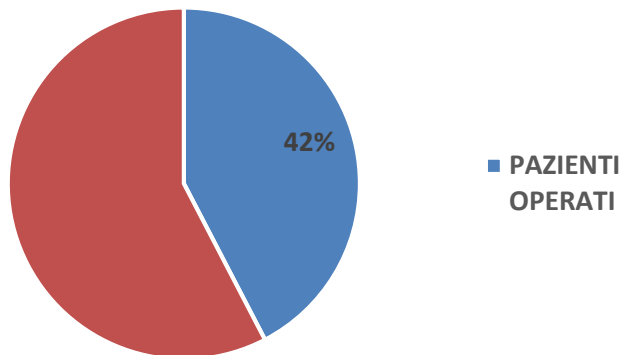
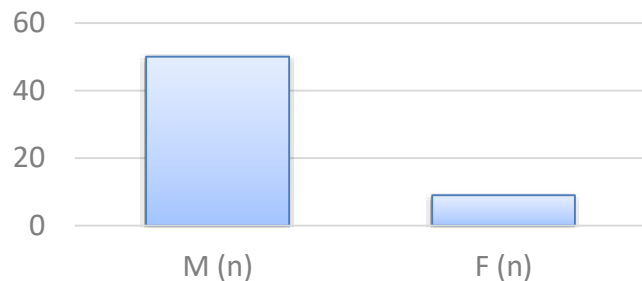


**Lavoro in tandem con il personale autoctono**  
**(staff anestesiologicalo, chirurgico ed infermieristico, amministrativo)**

- Condivisione delle attività chirurgiche e non
- Programmazione del follow up dei pazienti
- Pianificazione di azioni di miglioramento sulla base di modelli europei

Valutati in ambulatorio 59 bambini  
Età compresa tra 3 settimane e 14 anni  
(età media 7 anni)

### MASCHI vs. FEMMINE



PATOLOGIA	n
ERNIA OMBELICALE	16
CRIPTORCHIDISMO MONOLATERALE	8
CRIPTORCHIDISMO BILATERALE	6
FIMOSI	4
TESTICOLI RETRATTILI BILATERALI	4
IDROCELE	4
ERNIA INGUINALE	4
CRIPTORCHIDISMO + TESTICOLO RETRATTILE	4
IPOSPADIA	2
FISTOLA URETRALE	2
ERNIA EPIGASTRICA	2
TESTICOLO NON PALPABILE	1
GRANULOMA OMBELICALE	1
LICHEN SCLEROSUS	1
BALANOPOSTITE	1

PATOLOGIA	n
ERNIA OMBELICALE	16
CRIPTORCHIDISMO MONOLATERALE	8
CRIPTORCHIDISMO BILATERALE	-
FIMOSI	-
TESTICOLI RETRATTILI BILATERALI	-
IDROCELE	-
ERNIA INGUINALE	-
CRIPTORCHIDISMO + TESTICOLO RETRATTILE	-
IPOSPADIA	-
FISTOLA URETRALE	-
ERNIA EPIGASTRICA	-
TESTICOLO NON PALPABILE	-
GRANULOMA OMBELICALE	-
LICHEN SCLEROSUS	-
BALANOPOSTITE	-

## Multiple cases of umbilical hernias in children in rural Ghana

Ankur Talwar, Abhinav Talwar, Arunath Talwar

Five children—whose ages ranged from 3 to 11 years—attended our temporary medical camp complaining of variously sized protrusions in their abdomens pushing the umbilicus forward. The lesions had been present in all the patients since birth. All the children were spontaneous, normal vaginal deliveries, but none had been assessed by a doctor within the past 12 months. Interestingly, the remote village of Pataase, where we located our camp to provide basic medical care, in a rural area 25 km north of Cape Coast, the capital city of the Central Region of Ghana, was home to a total of 75 children—including the five (figure) with the umbilical protrusions.

The three older boys were aged 11 years, 8 years, and 5 years. The two younger boys, whose mother is pictured with them, were identical twins and 3 years old. On physical examination, the umbilical protrusions were all reducible and painless. The aetiological abdominal wall defect under the protruding umbilicus was easily felt, so we made a diagnosis of an umbilical hernia in all the children. We referred all five patients to the nearest hospital for further assessment.

Umbilical hernia is a common condition found in children. The incidence ranges from 10 to 25% of newborn babies, and it appears to be more common among African populations for reasons that are not well understood. The condition is also associated with babies that are either premature or of low birthweight. In utero, the umbilical cord passes through the umbilical ring—a defect in the linea alba—to reach the fetal circulation. After birth, the umbilical ring usually closes spontaneously, with closure occurring within the first 5 years of life, but it may take up until the child reaches teenage years. Without closure, the small intestine can herniate through the umbilical ring; the extent of the fascial opening of the umbilical ring—not the size of the herniation—determines the likelihood of spontaneous closure. Often, the umbilical hernia is reducible—as in our cases. The situation is most serious when the hernia is incarcerated and becomes irreducible: such patients

will complain of tenderness and firmness, and erythema will be seen around the hernia. At this stage the umbilical hernia may become strangulated and even rupture.

Management of umbilical hernia begins with observation. If it is reducible and slowly decreasing in size, the recommendation is to watch and wait. Children with large umbilical hernias that do not appear to decrease within the first 2 years of life are candidates for surgical correction. Surgical intervention is certainly indicated in incarcerated umbilical hernia.

### Contributors

We were all involved in writing the manuscript. ArT took the photograph and ArT examined the patients and made the diagnosis. Written consent was obtained from the mother of the twins and the parents of the other children.

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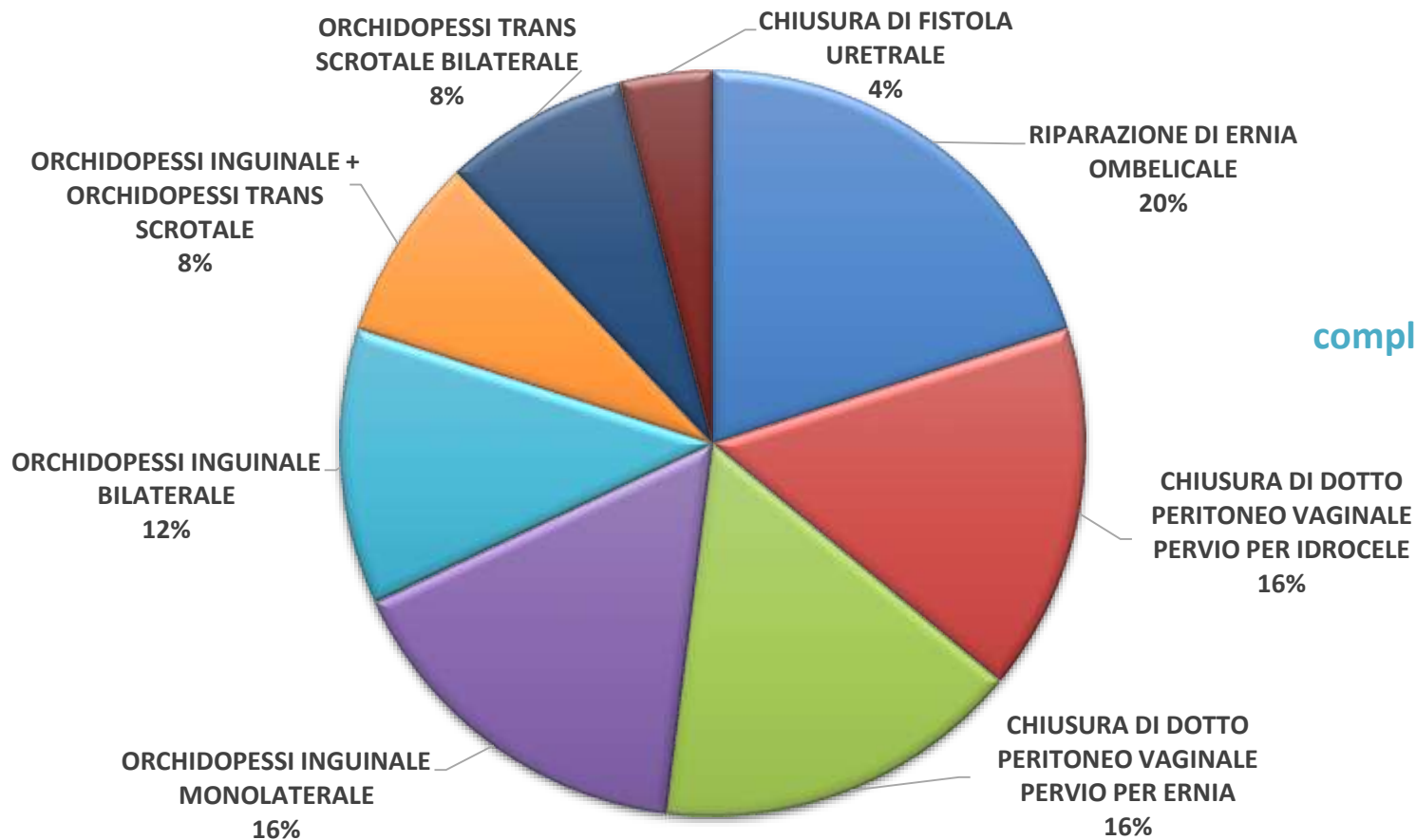


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Figure: Multiple umbilical hernias  
Children of various ages with umbilical hernias of various sizes.

Procedura più eseguita:  
**ORCHIDOPESSI (44%)**



**NESSUNA**  
complicanza intra o post  
operatoria

**27 bambini programmati**  
per la **PROSSIMA**  
**MISSIONE**



La Chirurgia Pediatrica in Africa ha avuto un'evoluzione più lenta rispetto a quella europea e del nord-America.

Con il passare dei decenni, tuttavia, e con l'aumento del tasso di sopravvivenza della popolazione neonatale, le patologie di interesse chirurgico hanno iniziato a contribuire in maniera significativa sia alla morbidità che alla mortalità infantile.

Nonostante gli sviluppi moderni, la Chirurgia Pediatrica rimane una chirurgia d'élite.

Malnutrizione/Patologie Infettive

Penuria di risorse umane  
specialistiche

Patologie Malformative

Traumi

Riservata ed accessibile solo ad una  
piccola parte di popolazione

Centralizzata solo in ospedali  
pediatrici

Altamente costosa

## RAZIONALE del nostro progetto di **cooperazione**:

Lavorare **in team** con il personale in loco (anestesisti, infermieri, chirurghi), **supportarli** numericamente in determinati periodi dell'anno per smaltire le liste d'attesa e **pianificare** sulla base del nostro modello organizzativo, l'attività chirurgica pediatrica.

## OBIETTIVO FUTURO:

Renderli autonomi nell'eseguire interventi di chirurgia pediatrica maggiore.

Competenze tecniche

Gestire condizioni critiche (TIN, RIA)

ORIZZONTE REMOTO



**“Non esiste un orizzonte tanto lontano che  
non si possa trascendere o superare”**  
Beryl Markham, *West with the Night*





Grazie!