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Management of penetrating abdominal and thoracic wounds in N'Djamena, Chad.

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AIM

To report the immediate and long-term epidemiological, clinical and therapeutic aspects of open abdominal and thorax injuries

Patients and Methods (1/2)

Place: emergency and general surgery ward in N'Djamena General Hospital

Type : Prospective from 01/01/2015 au 31/12/2016.

Study Population : 305 patients

Inclusion Criteria : open trauma to the thorax and / or abdomen operated, followed at the ward and consenting.

Patients and Methods (2/2)

Studied Variables

Epidemiological, clinical, para-clinical; therapeutic; evolution.

Physical and / or telephone checks programmed at 1.3, 6, 12 months. Data collection and analysis Entries and analyzes by Excel 2007 and SPSS18.0. Khi 2 test, positive if $p \leq 0.005$.

RESULTS (1/11)

Epidemiology

Frequency: 305 on 1128 surgical emergencies, 27%

Sex Ratio: 285 M (93,4%) and 20 W (6,6%) = 14:1

Medium age : 28,4 years ±8,31 years with 87% [20-39 years]

RESULTS (2/11)

Table I: socio-professional groups

Profession	**n**	**%**
Motor cycle driver (Clandoman)	**171**	**56,0**
Others	28	9,2
Students	28	9,2
Military	20	6,6
Trader	20	6,6
Farmer	16	5,2
Household	12	4,0
Sheep farmer	10	3,2
Total	**305**	**100**

RESULT (3/11)

Table II: circumstance of occurrence

Circumstance	**n**	**%**
Brawl	208	68,4
Aggression	75	24,6
Assault	13	4,3
Work accident	3	0,9
Autolysis	3	0,9
Domestic accident	2	0,6
Hypopotamus bite	1	0,3
Total	305	100

RESULTATS (4/11)

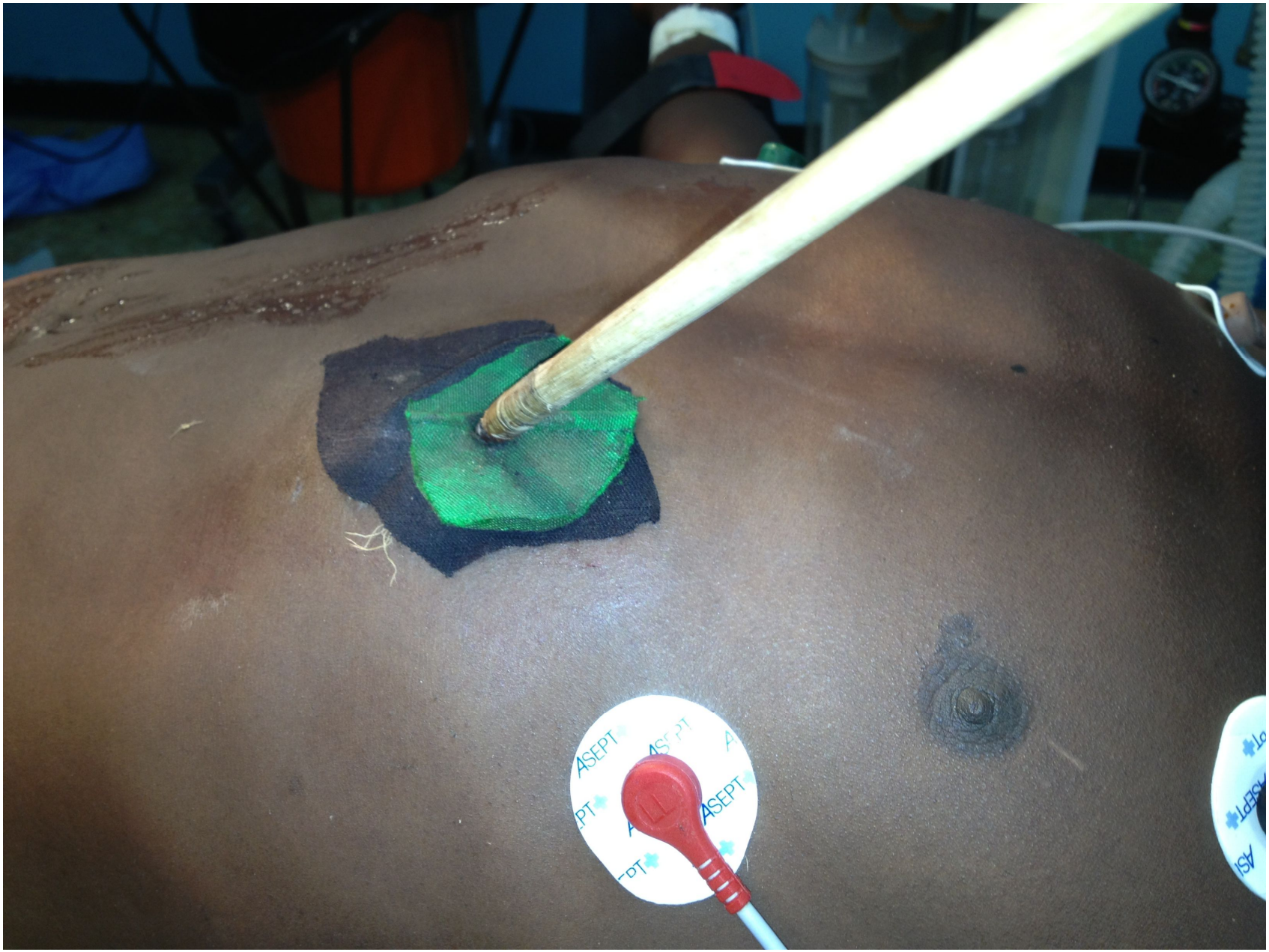
Table III: weak agent

Weak agent	n	%
White weapon	273	89,5
Firearm	15	4,9
Explosive device	13	4,4
Horn of beef	2	0,6
Bite of hippopotamus	2	0,6
Total	305	100

RESULTS (5/11)

Tableau IV: delay of care

Delay of admission in hour	**n**	**%**
[0- 6]	**243**	**79,7**
[7- 24]	32	10,5
More than 24 h	30	9,8
Total	**305**	**100,0**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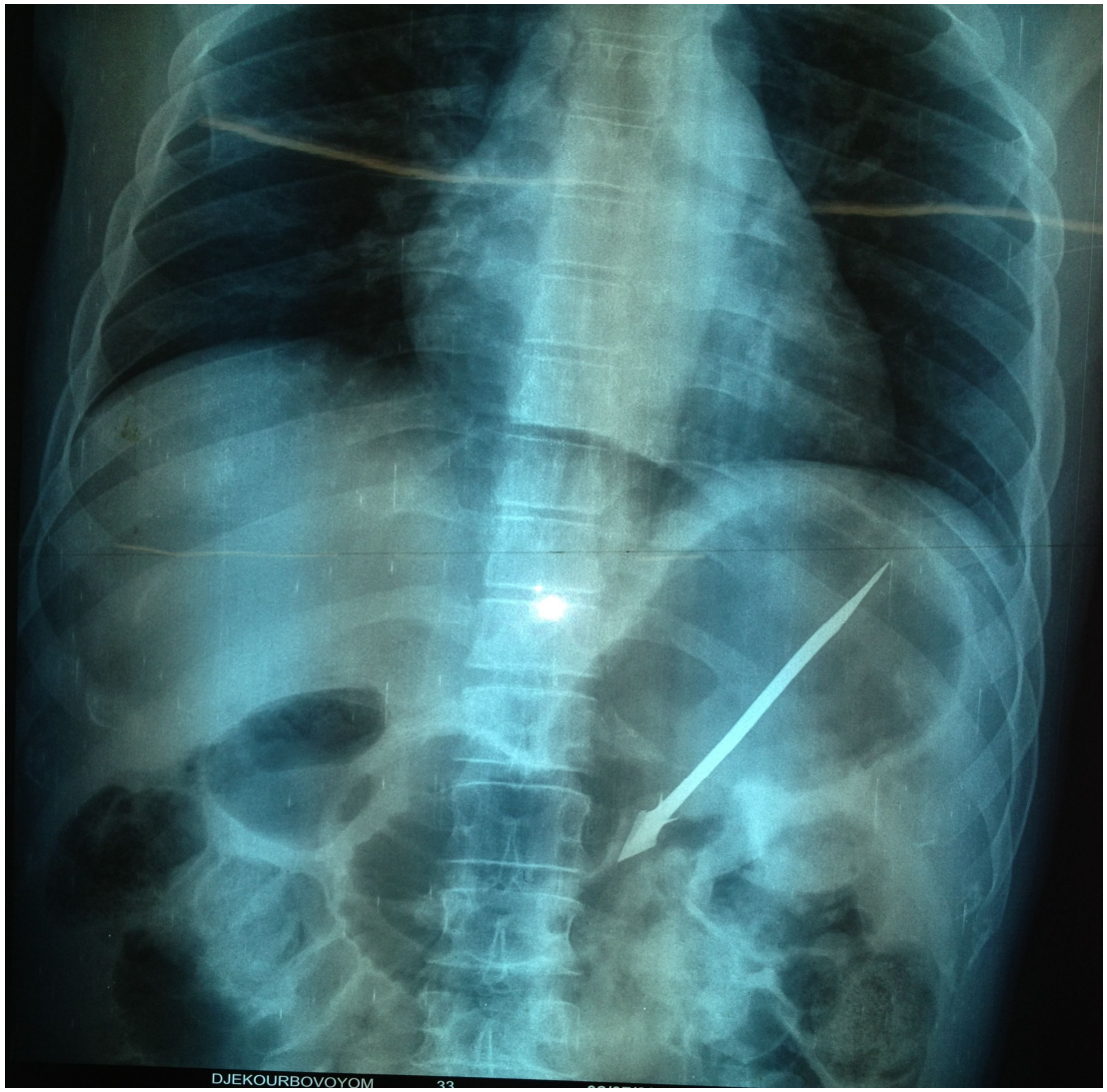
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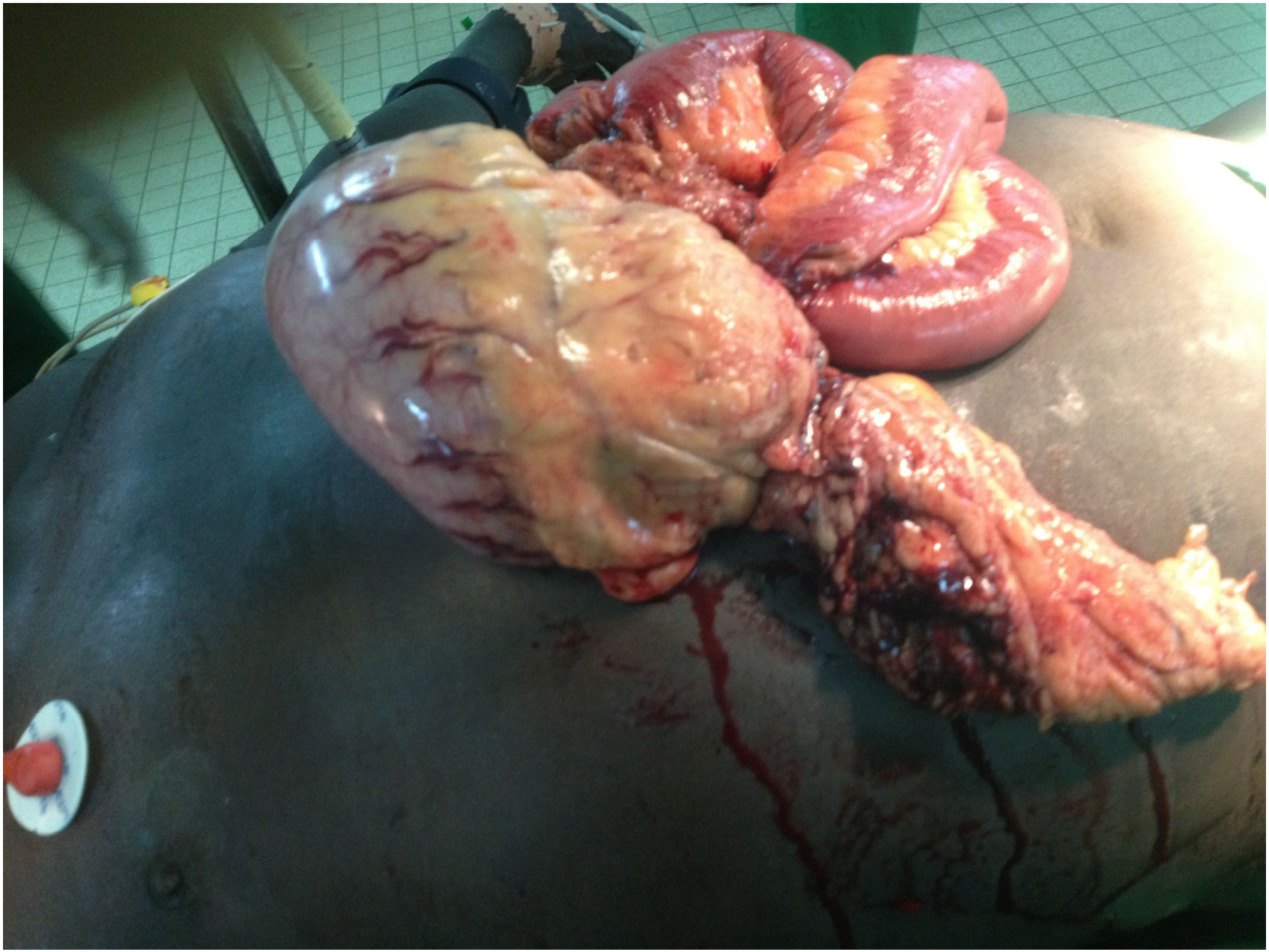

RESULTS (6/11)

Surgical Treatment	**n**	**%**
Laparotomy	188	61,6
Thoracic Tube	97	31,8
Thoracic drain+Laparotomy	17	5,6
Thoracotomy	2	0,6
Thoraicc Tube+debredement	1	0,4
Total	**305**	**100,0**

RESULTS (7/11)

Table VI: indication for laparotomy

Indication	**n**	**%**
Peritonitis	130	63,5
Eviscerations	39	15,1
Hemodynamic instability	29	14,1
Ballistic wounds	15	7,3
Total	205	100

Table VII: seat of the wounds and gestures.

Seat	n	(%)	Gesture	n
Small intestine	102	46	Suture	74
			Resection/anastomosis	28
Colon	33	14,9	Suture	21
			Resection/anastomosis	8
			Colosstomy	4
Liver	18	8,2	Suture	
Diaphragme	17	7,7	Suture	9
Stomac	26	11,9	Suture	
Spleen	6	2,7	Splenectomy	4
			Suture splénique	2
Pancreas	2	0,9	Suture	2
Meseneèry	17	7,7	Suture	22

RESULTS (9/11)

Table VIII: length of stay

Length of stay	**n**	**%**
0-9	265	86,9
10-19	31	10,1
20-29	5	1,6
30 and +	4	1,4
Total	305	100

Medium stay : 7,84 ±6,57 days, extremes of 0 and 71 days

RESULTS (10/11)

EVOLUTIONARY ASPECTS

''Early '' complications : 19,7% (parietal wall suppuration)

Intra hospitalière mortality : 16 patients (5,3%)

Presumed cause of death : 75% hemorraic shock

Average cost of care : 785 €

RESULTS (11/11)

LATE EVOLUTIONARY ASPECTS

Average follow up of 8 months

✓Complications in 26 former opereted patients (9%). Readmited.
(adhesive intestinal occlusion, dysembowelment, pyothorax, pleural encystages)

✓Physical injury that led to : stoppage or change of job (16,6%)

Deaths : 10 (4,5%)

DISCUSSION (1/6)

Epidemiology

✓Frequency : 27%

(Kaboro (2007) : 25%; Ayité (1996) 0,7%; Monneuse (2004) 8,2% in Tchad, Togo, France)

Violence +++. Cultural contexte, tolerance of white weapons.

✓Medium age : 28, 4 years

(Idem in Africa: Ohene-Yeboah (2010), Choua (2011), Dieng (2003) de 24,8 to 27,7years)

✓Sexe Ratio : 14/1

(Samuel (2009), Malawi = 27,5; Gaudeuille (2007), RCA = 4,7)

DISCUSSION (2/6)

Circumstance of occurrence

✓Brawls : 68,4%

✓Aggressions : 24,6% (Allodé (2011), Bénin, Ayité (1996), Togo, Masso-Misse, Cameroun)

Occidental series: aggressions, autolysis +++

Weak agent

✓ White weapon : 89,5%

✓ Firearm : 9,3% (Bauz (2007) RSA, Koffi (1992)Cote d'Ivoire, Samuel (2009) Malawi,

20,7% to 49%. Revolvers and assault rifles, explosives.

64% to 79,8% in USA, Todd (2014)

DISCUSSION (3/6)

Support time

✓ ≤ 6 h (79,5%) but > 24 h (10%) evacuation of injured ++++ problem

Ivatury (1987) USA, 30 minutes, transport médicalisé. Mattox (1982); plaies thoraciques, biais.

Organ lesion

✓ Small intestin (46%) 23 to 74% , lenght and position (Benissa (2003), Maha (2014), Sano(2010)

✓ Colon (14,9%) 6,3 to 33,7% (Asuquo (2012), Monzon(2002), Bala (2012))

- **Diaphragm (7,7%)** diagnosis is difficult (scanner). To suspect in thoraco abdominal wounds

DISCUSSION (4/6)

Organ lesion

✓ **Liver** (8,2%) Depend of the weapon: 14,6-33% (Ohene-Yeboah, Bala (2010))

✓ Spleene (2,7%) Splenectomy is often the rule.

Firearms wounds: medium of 4 organ lesion. No changes in our context. Few than most african studies (best control of arms traffic ?). Novelty = attacks.

✓ Thoracic wounds: ++ anterior wall is exposed. Gesture : thoracic tube

Litterature: +80% OK. Bias: only hemodynamicaly stable patients join to hospital (Mattox, 1982)

DISCUSSION (5/6)

« Early » morbidity: parietal wall suppuration post laparotomies

Idem ealswher in africa:(Choua, 2011 ; Fall, 2002 ; Maha, 2014 ; Mnguni, 2012 ; Asuquo, 2012 ; Ohene-Yeboah)

Medium hospital stay: 7,8 days, ++ thoracic wounds (11-9 days other studies of same ward (Choua 2009, 2014)

Laparotomy is systematic: ++ day of stay

- Deaths: hypovolemic shock (severity of thoracic wounds, postp peritonitis)
- Firearms, 12-18% (Bège, 2012): multiple wounds. Non medicazed transportation. Delay.

DISCUSSION (6/6)

Costs

Emergency care provided by the State (estimated at 70% of 748 €, ie 523,6 €, gap of 224,4 €. Far from the minim national salary that is 91 €).

Originality of this study: remote continuos monitoring even by mobile phone :

✓Morbidity and mortality initialy non suspected !

✓Physical ijury: 15,6% stop permanent work or change job ou changent métier

✓Medico-economic cost. Tobe determined by mathematical modeling

CONCLUSION

- ✓**Open chest / abdomen injuries approximately ¼ surgical emergencies**
- ✓**Concerned adult young male**
- ✓**Most concerned weak agent: white weapon. Circomstance: brawls and aggressions**
- ✓**Explosive attacks : bad prognosis**
- ✓**High medico-economic cost**

THANKS ! Lacs of Ounianga. World Heritage of UNESCO, 2012.