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Open Fractures of the Tibia in Children

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The results of treatment of 46 children with gravely open fractures were reviewed at the Orthopaedic and Traumatology Department of the Miguel Couto Emergency Hospital at Rio de Janeiro from 1990 through 1992.

The tibia was fractured in 18 patients. Ages ranged between four and 12 years. Sixteen were boys and two were girls; nine white; nine black; 10 left leg; eight right leg. All injuries were incurred in automobile crashes. The lesion was isolated to the tibia in 15 of these patients. The other three children had associated trauma, two with cranial trauma and one with a compartment syndrome. The Gustillo classification (Type I, II, and III) was used. All fractures were treated initially with early irrigation and debridement, and were stabilized with screws, K-wire, external fixation or cast. Complication occurred in four children as infection (two) and delayed union (two) that needed soft tissue coverage or bone graft.

It is concluded that external fixation or K-wire stabilization had good results and that treatment of the complications was difficult and slow.

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Theory and Practice of Staged, External Fixation in War and Peacetime

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External fixation owes its renaissance to the rapidly rising frequency of severe road accidents, civilian and military mass casualties, local wars, and terrorist attacks. The management of extremity injuries in such conditions are detailed. It is emphasized that the aim is to achieve rapid transport of the casualties out of the area of the calamity. A new methodology is based upon the combined use of a disposable and sophisticated fixation device applied using a common pin system. During initial management, the inexpensive, single-use device is adjusted and, after transportation, it can be altered for the use of Orthofix devices.

These single-use fixators are introduced to demonstrate that they function with favorable results in peacetime surgery and are cost-effective. None of the presently existing so-called war fixator systems respect the budgetary requirements and logistic aspects of mass-casualty management. In the third world and underdeveloped countries, there are no funds available during war or in peacetime, to treat such difficult situations in a professional manner. The costs of surgical management sometimes are so high that they cause socioeconomic dilemmas even in developed countries. The system described (Manuflex) seems to address this dilemma.

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Penetrating Trauma: Severity, Cost, and Reimbursement

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Objective: To study the injury severity, hospital and physician charges, reimbursement ratios, and governmental reimbursement responsibility for penetrating trauma experienced at a Level-I trauma center in the United States.

Methods: Consecutive penetrating trauma patients admitted to a Level-I trauma center in the USA from 1988–1990 were studied in respect to injury severity score, total charges of hospitalization, reimbursement ratios, and the burden of tax-based governmental reimbursers.

Results: In this Level-I trauma center, during a two-year period, 307 males (88.7%), mean age 31 years, were victims of penetrating trauma: 155 gun shots (50.5%), and 182 stabbings (49.5%); 39 females (11.3%), mean age 32, were victims of penetrating trauma: 23 gun shots (59.0%) and 16 stabbings (41.0%).

	Patients	Gun Shots	Stab Wounds
Total Charge	\$4,604,011	\$2,973,483	\$1,630,528
Mean Charge	13,306	6,704	10,727

Mean Charges per ISS Range*

ISS Range	Patients	Gun Shots	Stab Wounds
1–16	7,889	9,871	6,524
17–24	20,254	20,550	194,822
25–34	36,510	35,624	39,392
35–44	125,375	125,374	125,378
45–54	44,849	91,331	21,608
>55	36,079	36,079	0

*patients who died in <24 hours excluded

Payor Mix	Total% Charge	Total Charge	Reimburse %	Gun Shots	Stabbing
				%Total Charges	% Total Charges
Medicaid	\$2,244,451	49	44	26	22
Medicare	191,853	4	80	4	1
County	489,037	11	26	10	0
State	256,400	5	80	6	0
Federal	193,100	4	24	1	3
Total Government Payors	\$3,374,841	73	46	47	26

Data will be presented on suicide, homicide, pediatric, and geriatric patients.

Conclusion: The costs of penetrating trauma are immense, increase with severity until the ISS exceeds 45, are borne primarily by tax-base supported reimbursers, and are a source of bad debt for trauma centers.