

# Development of Fast Track System for Severe Trauma Patients Using 6 Sigma Technique

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## Background

Today's business requires innovative management in order to obtain excellent results and to fulfill the diverse needs of customers in a highly competitive industry.

## Purpose

The purpose of this study was to develop of a fast track system for severe trauma patients by using 6 Sigma..

## Methods

The sample for this study consisted of all trauma patients who visited to emergency medical unit(EMC) of general hospital located in Gyeonggi Province. Data were analyzed using frequency, percentage, mean, standard deviation, ANOVA and capability test. For data analysis, the SPSS/PC 12.0 program and Minitab 14+ PC program.

## Process Innovation

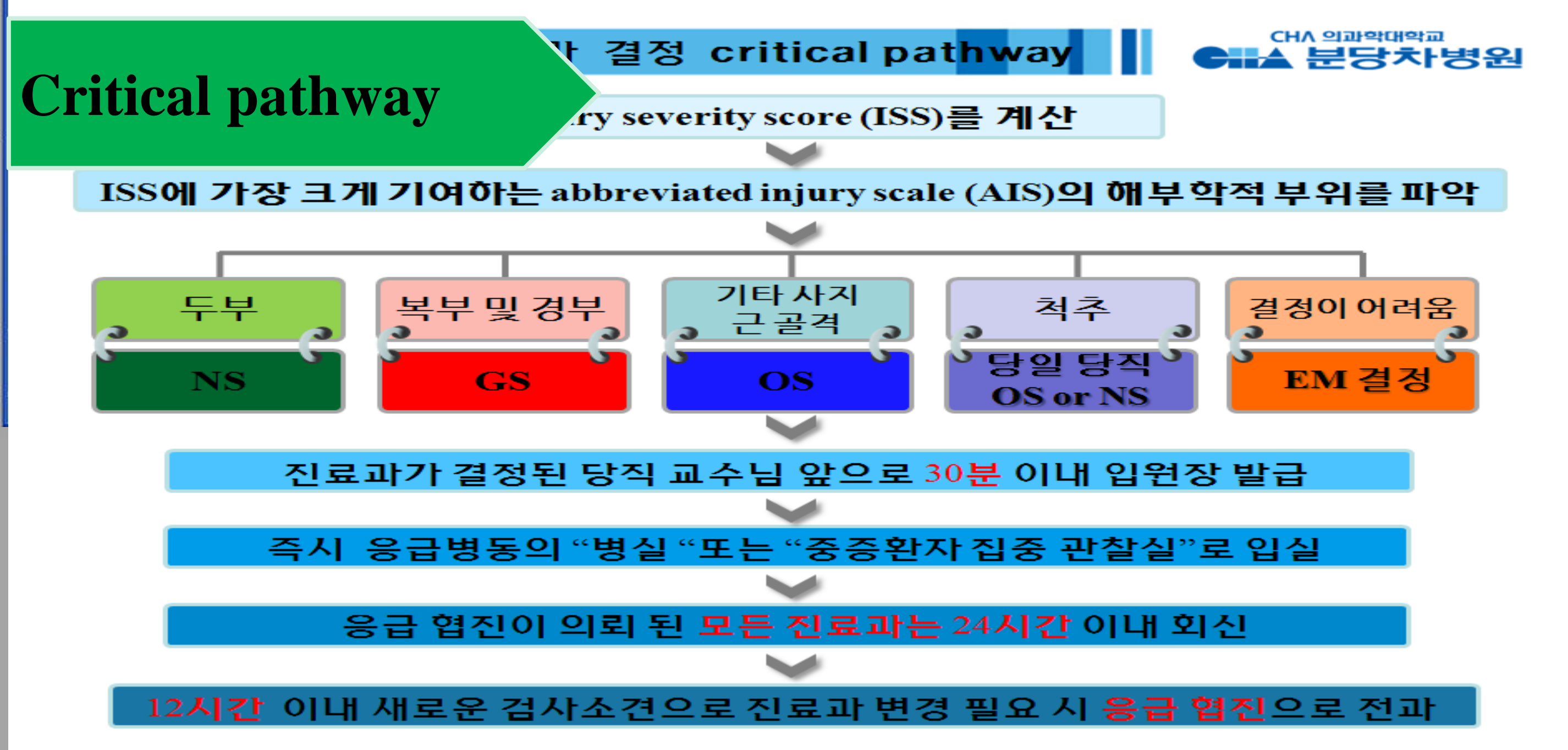
- Critical pathway for severe injury patients(call to admission in 60 minutes, length of emc stay in 180minutes)

MDP 710F1 교실임상/외전환자 리스트

환자번호	성명	나이/성별	진단명	수술명	퇴원예정일	비고
김옥준 W052-29-02	M/84세	11	2011-12-22 이환반 (R/D)Parkinson's disease			
김정환 W014-03-02	M/82세	65	2011-10-20 이회송 Spastic hemiplegia, Left dominant side	Cleansing & debridement Only		[합격증점의 포함기]
김옥준 W082-19-02	F/81세	11	2011-12-13 김태곤 Postconcussional syndrome			[합격증점의 포함기]
김정환 W082-19-02	F/81세	11	2011-12-13 김태곤 Postconcussional syndrome			[합격증점의 포함기]
홍승진 W056-09-08	M/88세	19	2011-10-09 박소문 Hypertensive encephalopathy			
김옥준 W003-01-02	F/80세	29	2011-11-25 이환반 Occlusion and stenosis of			

Emergency Radiology (CT, MRI.....)

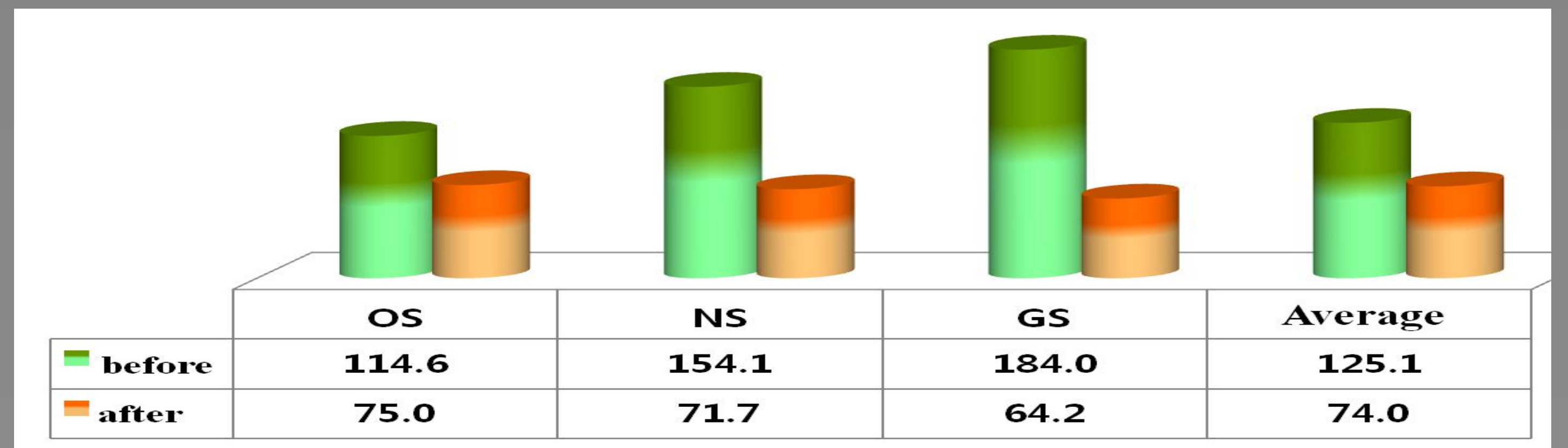
지명일자	등록번호	성명	나이/성별	검사명	응급	Mob	수단	진행	진료과	의뢰의	병동	병실	입력시간	PACS
2011-12-08	11453455	김범수	11Y M/M	XI 방사선 CD Copy				E(V) 실시	EM	김옥준			2011-12-08 23:08	N
2011-12-08				XI 방사선 CD Copy				E(V) 실시	EM	장준영			2011-12-08 22:37	N
2011-12-08				PA Skull AP & LI Lat	Y	Y		E(V) 보고	EM	노성현			2011-12-08 22:23	Y
2011-12-08				CI C-T Non Contrast Brain	Y			E(V) 보고	EM	노성현			2011-12-08 20:28	Y
2011-12-08				CI C-T Non Contrast Brain	Y			E(V) 보고	EM	이주혁			2011-12-08 19:24	Y
2011-12-08				CI Chest CT	Y			E(V) 보고	EM	이주혁			2011-12-08 19:24	Y
2011-12-08				CI Spine 3D CT	Y			E(V) 보고	EM	이주혁			2011-12-08 19:24	Y
2011-12-08				CI Abdomen + Pelvis 3D CT	Y			E(V) 보고	EM	이주혁			2011-12-08 19:24	Y
2011-12-08				PA Chest AP	Y	Y		E(V) 보고	EM	이주혁			2011-12-08 19:24	Y
2011-12-08				PA Pelvis AP	Y	Y		E(V) 보고	EM	이주혁			2011-12-08 19:24	Y



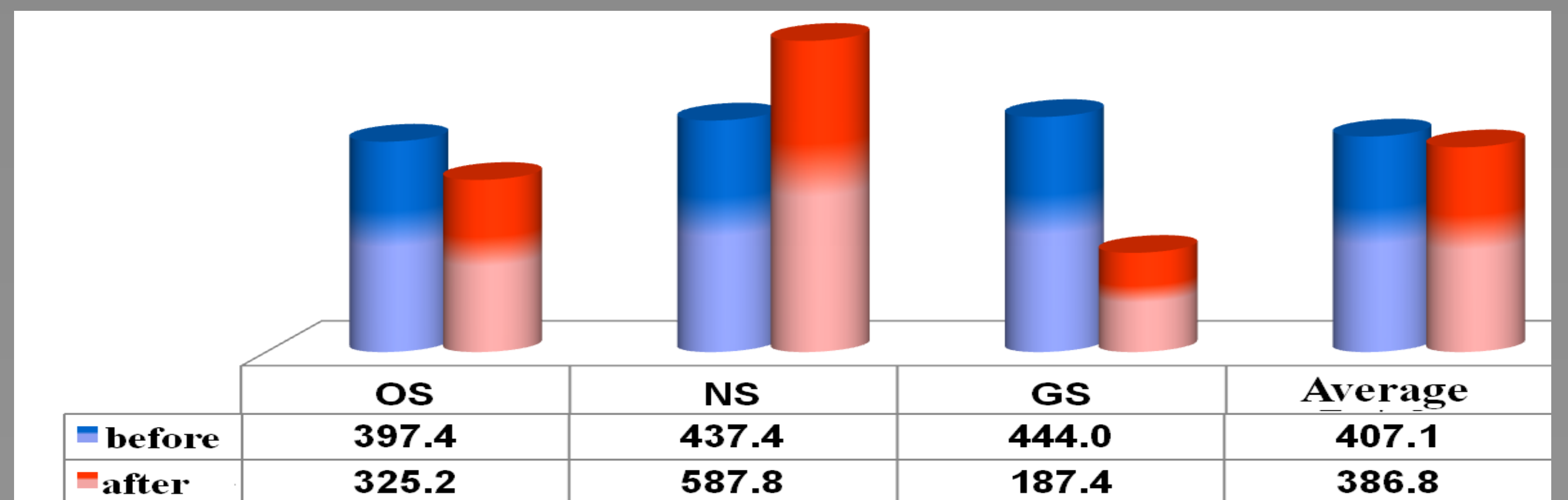
## Result (I)

This study revealed the success factors and the length of stay in EMC and call-admission time have an affirmative impact.

Graph1. Call time – Admission time



Graph2. Length of stay in EMC



## Result (II)

Meaningful factors for reducing the length of stay were call time, admission decision making time and consultation rate.

Table1. 6 sigma level and financial – nonfinancial outcomes

Classification	CTQ(Y)	item	before	target	after	
Nonfinancial outcome	Quantitative	Call ~ Admission	average	125.1minutes	60minutes(52%↓)	74minutes (41%↓)
			DPMO	654,982	340,590	457,962
	Length of stay in EMC	average	407.1minutes	180minutes (56%↓)	386.6minutes (5%↓)	
		DPMO	746,403	417,985	915,922	
Financial outcome	Accounting	• Fund for Severe trauma center : \$ 250,000 • Fund for Emergency medicine capabilities assessment : \$ 180,000				
		sigma	0.84	1.71	0.12(0.72↓)	

## Conclusion

The result of this study indicate that fast track system can help reducing mortality as well as complications in severe trauma patients, therefore, it is intended through this study to present a treatment guideline for severe trauma patients which can be utilized as th fundamental data for ultimate decrease of the mortality.

Key word : 6 sigma technique, severe trauma, fast track system, length of stay in EMC, call time – admission time.