



## Start up meeting TRAMA Project

May 11th 2007

Dr. Arturo Pichardo  
Sistema de Centros de Rehabilitación  
Infantil Teletón  
México  
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## Introduction

- *We are the largest network of pediatric rehabilitation facilities in the private practice in México*
- *We are a non profit institution, attending more than 45,000 patients since 1999 in 9 facilities (we are already building 2 more) in the same number of states of the country*
- *Our main goal is the rehabilitation and the social integration of the children and their families, promoting the integration culture, family values and social participation, making a transcendental change on their life's and their families too.*
- *Our clinical interest is the neurological and musculoskeletal disability in newborn to 18 years ages*

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## Introduction

- *Our clinical model is comprehensive based on interdisciplinary team work*
- *The clinical leader of the team is a physical medicine and rehabilitation specialist leading PT's, OT's, speech and language therapists, psychologist for the child and for the family and social workers.*
- *We are divided in clinical modules named clinics*
- *We have too another nine medical specialists like pediatric orthopedic surgeons, pediatric neurologists, urologist, ophthalmologist, pediatricians, genetics, anesthesiologist, etc.*

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## Clinics

- *Cerebral palsy and brain injury*
- *Spina bifida and spinal cord injury*
- *Amputees, bone and joint disorders*
- *Neuromuscular disorders*
- *Genetical and congenital disorders*
- *Early stimulation*
- *Neurotherapy*

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## Introduction

- *For evaluation and diagnosis, we have X ray, CAT scan, EMG, EEG, Evoked potentials, audiometer and the Gait Analysis laboratory.*
- *For treatment we have some technologies like biofeedback, virtual reality, and robotic gait training, plus the traditional treatment advices of the physical medicine*
- *We applied many kind of therapies for the spasticity treatment, like botulinic toxinum, baclofen, tizanidine, also we have orthoses, prosthesis, orthopedic and neurological functional surgery.*
- *Each one of this treatments needs to be the most accurately and objective possible.*

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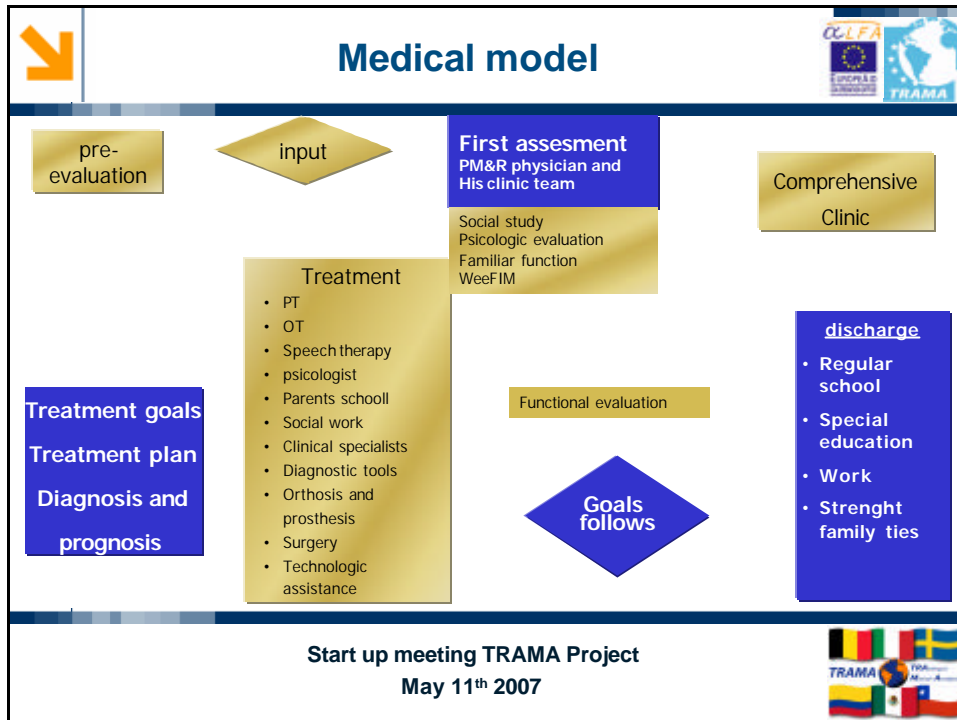


## Introduction

- *Since the beginning we thought to have a precise diagnostic tool for increase our biomechanical point of view*
- *Almost 90% of our patients have mobility compromise because their disability*
- *So it's very important to know their movement patterns*
- *And it's very important too follows their treatments and improvements*
- *There are some reasons to have a Gait Analysis laboratory*

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## CRIT Estado de México



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## The gait analysis lab



### CRIT Estado de México

- *6 infrared BTS strobe-cameras @ 100Hz*
- *1 AMTI force plate for ground reaction forces measurement*
- *2 digital cameras for sagittal/frontal planes*
- *VAB for digital video recordings*
- *1 Elite Clinic 2002 datalogger*
- *1 PC host @ 1.6GHz - 523MB RAM.*
- *DOS: WIN 2000 NT*
- *GaitEliClinic software v.2.9*
- *1 Telemetric EMG - 8 channels*

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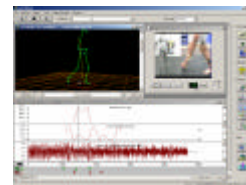
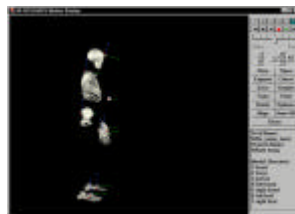
## The gait analysis lab

### CRIT Estado de México

- *One Physical Medicine and Rehabilitation physician is on charge of the clinical interpretation of the trials*
- *One rehabilitation Engineer is on charge of the instrumentation, technical support and biomechanical criteria of the cases*

*Dr. Juan Carlos Pérez Moreno  
Ing. Eduardo Gutierrez G.*

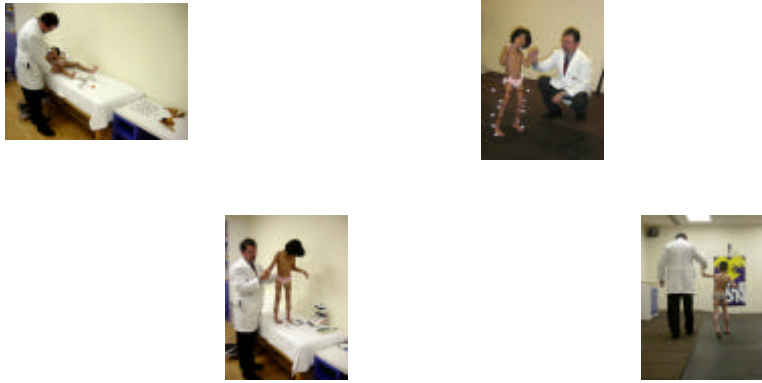

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 **Gait Analysis lab**  
**Estado de México**  
**1999-2007**






- 1840 patients
- 2574 studies
- 1.3 studies/patient




  


- 70% Cerebral palsy
- 5% neuromuscular deformities
- 5% Amputees
- 10% Spina bifida
- 6% High performance athletes
- 2% without pathologie
- 1% Other causes

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 **CRIT Occidente**





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## CRIT Occidente



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## The gait analysis lab







### CRIT Occidente

- *6 infrared BTS strobe-cameras @ 100Hz*
- *1 KISTLER force plate for ground reaction forces measurement*
- *1 Elite Motion datalogger (2000 model)*
- *1 PC host @ 1.2GHz - 256MB RAM*
- *DOS: WIN 98*
- *GaitEliClinic software v.1.9*
- *1 Telemetric EMG - 8 channels*

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 **The gait analysis lab**   


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**CRIT Occidente**

• *One Physical medicine and rehabilitation physician is on charge*

*Dra. Ariadna Anandy Cedillo Madariaga*

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 **Gait Analysis lab**     
**Occidente**  
**2004-2007**


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- 643 patients
- 964 studies
- 1.5 studies/patient




  

- 83% Cerebral palsy
- 3% neuromuscular disorders and deformities
- 2% Bone and joint diseases
- 7% Development delay
- 3% genetical and congenital disorders
- 2% Other causes

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 **Gait Analysislab**  
Estado de México  
Occidente

### Investigation lines

- Spastic gait
- Gait analysis before and after Botulinic toxinum infiltration
- Orthoses gait in spina bifida
- Pre and post orthopedic functional surgery in spastic gait
- Pre and post robotic re-training of the gait
- Normal gait patterns

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**CRIT**  
ESTADO DE MEXICO

**“El amor y la ciencia al servicio de la vida”**

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