

NEWLY DEVELOPED PSU INTRAOSSEOUS PUNCTURE MANIKIN

Wanaporn Anuntaseree¹, Sittichoke Anuntaseree²

¹Department of Pediatrics, ²Innovation Unit, Faculty of Medicine, Prince of Songkla University, Songkhla, Thailand 90110

*Corresponding Author's E-mail: awanapor@medicine.psu.ac.th

Background

- Intraosseous (IO) access is an emergency procedure in the medical students curriculum.
- In our institute, each year 200 sixth-year medical students and interns are required to demonstrate proficiency in this procedure.
- A barrier to the training is limited resources : high cost, unrealistic look and feel

Objective

- To design and construct a pediatric IO manikin to allow realistic and efficient training with a reasonable cost

Summary of work

- A pediatrician/inventor team developed a manikin based on a 1-year-old infant.
- The leg was made from silicone. A space was made at the anterior of the leg.
- An isolated replaceable tibial bone was pre-filled with a blood-like fluid.
- The model was tested by 10 pediatricians to ensure a realistic look and feel.
 - Tibial tuberosity landmark
 - A lifelike resistance when accessing the medullary cavity
 - The presence of a blood-like fluid when drawing on a syringe
- The cost was compared with the 2 other commonly used manikins.

Results

- A PSU IO manikin was successfully developed.



VDO clip

- The cost of manikins based on training 200 practitioners per year

	Price in US dollars (per year)			Price in Thai baht (per year)		
	PSU IO manikin	Imported manikin	Other Thai manikin	PSU IO manikin	Imported manikin	Other Thai manikin
First year	995	1,796	1,070	33,525	60,500	36,000
Following year	434	1,484	1,070	14,625	50,000	36,000

Discussion and Conclusion

- A PSU IO manikin was successfully developed at a much lower cost than the imported one.
- The keys to success
 - Good collaboration
 - Creativity
 - Application of materials science knowledge

Take home message

- In medical teaching we often encounter problems regarding overly expensive or unrealistic training manikins. Creative thinking can often overcome such problems.

