

# CLUBFOOT MOULAGE FOR INFANT MANIKIN

A SIMVENTORS PRESENTATION

IMSH DELIVERS: BRINGING LEARNING TO LIFE, 2021



SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021

# WELCOME



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BFA / Lauren is a Simulation Operations Specialist at Samuel Merritt University in Oakland, CA. They enjoy a fast paced work environment that fosters continuous learning opportunities, creative problem solving, and space to create streamlined processes. Outside of work, you are equally likely to find them nose deep in a good book or running lights and sound for a local theater company.

# WHY CREATE CLUBFOOT MOULAGE?

In 2019, simulation educators at Samuel Merritt University worked with faculty from the departments of podiatry, physician assistant and pediatric nursing to create a new interprofessional simulation scenario. This new scenario required three members of an interprofessional team to work together to assess a newborn with a foot deformity.

In order to present a high fidelity simulation experience, the simulation educators requested that simulation operations specialists create a clubfoot moulage. The manikin needed to present during orientation with no foot deformities and during simulation with a clearly apparent deformity. It was necessary that the deformity be highly realistic and easily recognizable as clubfoot for all learners. Due to rapid turnaround time between simulation sessions, it was also crucial that the clubfoot moulage be quick & easy to remove.

# IF YOU CAN'T BUY IT, MAKE IT YOURSELF

I was unable to identify any existing clubfoot moulage available for purchase, but was confident I could create a low-cost high fidelity solution primarily utilizing on-hand resources.

I was able to alter a spare SimBaby Classic right leg to represent an internally rotated clubbed foot. The final moulage fulfills all of the requirements of the simulation:

- Fast and simple to add and remove the moulage from the manikin
- Low cost
- Recognizable as clubfoot for all learners

# SUPPLIES NEEDED



LAERDAL SIMBABY CLASSIC  
LOWER LEG ASSEMBLY



APOXIE SCULPT  
MODELING COMPOUND



METAL STRAIGHT PINS



REFERENCE PHOTOS:  
INTERNALLY  
ROTATED RIGHT  
CLUBBED FOOT



SUPER GLUE



E6000 ADHESIVE

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# TOOLS NEEDED



DREMEL ROTARY TOOL



NEEDLE NOSE PLIERS  
WITH WIRE CUTTER



HAMMER



SAFETY GLASSES



N95 MASK



GLOVES



MEASURING CUPS (2)



PLASTIC SPOONS



DRAPE OR CHUX

# GETTING STARTED

- Remove skin and veins from SimBaby leg and set aside
- Use Dremel and cutoff wheel to cut through SimBaby leg just above the ankle
- Use Dremel and cutoff wheel to cut through standard SimBaby leg just below “toes”
- Remove additional material with Dremel and grinding stone or sanding band so that leg pieces will sit at the desired new angles
- Insert 2 metal pins into the cut ends of each of the 2 smaller leg pieces
- Push the smaller leg pieces into their new locations using the pins
  - Use hammer if needed
- Use a small amount of super glue to ensure the metal pins are secure



Dremel  
Cut- Off  
Wheel



Dremel  
Grinding  
Stone



Dremel  
Sanding  
Band



# SCULPTING

- Once the leg is pinned securely into its new position, prepare the Apoxie Sculpt
  - Wear disposable gloves to measure equal parts of A & B
  - Always retrieve parts A & B with different tools
  - Mix together for 2 minutes until thoroughly combined. Apoxie should be a uniform color.
  - Allow mixed product to rest 5 minutes before use
    - Working Time Line Guide:
      - 1/2 hour: Sticky & most adhesive
      - 1 to 2 hours: Easy to work with
      - 2 to 3 hours: Setting up, formable detail
      - 24 hours: Hard, cured & waterproof
- Once Apoxie Sculpt is prepped, sculpt the clubfoot.
  - Apoxie Sculpt can be used to fill in gaps.
  - A final thin layer covering the entire foot should be added once the foot is sculpted to increase stability.
- Allow to cure for 24hrs.



# FINAL STEPS

- Once Apoxie Sculpt is fully cured, pull the SimBaby leg skin over the new foot.
  - If the clubfoot has an extreme angle, heat the skin with a hairdryer to help it adjust to the new angle
- To quickly switch the legs on the SimBaby Classic just squeeze and pull gently to remove the pin at the knee joint.



# RESULTS

Samuel Merritt University ran multiple sessions of the IPE Pediatric Clubfoot Scenario in Fall 2019, utilizing the clubfoot moulage.

Feedback from faculty and learners was positive regarding realism and the impact of the switch between a standard leg during orientation and a clubbed foot during simulation.

SMU has plans to run this scenario regularly.

Simulation educators have requested that simulation operations specialists expand the moulage to additional infant manikins.

# QUESTIONS?

Send me an email at  
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