

2009 SUN



SUN SIMULATION
user™
NETWORK

Helping improve patient outcomes.



Improving Realism



Welcome to the
2009 Baltimore Sun!

Enhancing Realism



Blood, Sweat and Tears

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Be an Imagineer!!



- Leader in their Field.... Why??
- Imagination is only limited by _____!!!!!!
- When you are struggling with writing simulation, remember:
 - “ I have not failed, I’ve just found 10,000 ways that don’t work” – Thomas Edison

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Realism, Webster's way

"true and faithful portrayal of nature and of people in art and literature"

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Factors that are Required for a Successful Realistic Simulation

- Plausible Environment
- Plausible Responses
- Plausible Interactions
- Familiar Equipment
- Realistic Simulation Equipment

– Seropian, M. Technology, Computing and Simulation (2003) Anesth Analg

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What is Realistic?

- REALITY- A MATTER OF PERCEPTION
 - Instructor must have the ability to manipulate “on the fly”
- As long as participants perceive the environment and responses as plausible, then the simulation will remain intact

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Fidelity

- the quality or state of being faithful **b**: accuracy in details :
exactness²: the degree to which an electronic device (as a record player, radio, or television) accurately reproduces its effect (as sound or picture)

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Types of Fidelity

- Low Fidelity
- High Fidelity
- Equipment Fidelity
- Environmental Fidelity
- Psychological Fidelity

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Equipment Fidelity

- The degree to which the simulator duplicates the appearance and feel of the real system.
 - Example: A simulator that realistically mimics the layout of an aircraft cockpit.

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Environmental Fidelity

- The extent to which the simulator duplicates motion cues, visual cues, and other sensory information from the task environment.
 - Example: A flight simulator can be defined as high or low fidelity depending on whether or not the motion and video cues were turned on or off.

Psychological Fidelity

- Degree to which the *trainee perceives* the simulation to be a *believable surrogate* for the trained task or real patient encounter
- Allows learner to make conceptual sense of the scenario
- **Generally considered to be the most essential requirement for team training**
- ***Without suspending disbelief trainees are unlikely to behave in the simulation as they would in the real world!***
- ***As a result, the training will have little or no application to the post-training environment!!***

“Skillful blending of the three modes of thinking about realism [environmental, equipment, and psychological] will allow our trainees to ‘suspend disbelief,’ or to actively sign up for the ‘fiction contract’ that this is a situation with real relevance for them.”

Rudolph et al. Sim Healthcare. 2(3):161-163, Fall 2007.

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Fiction Contract

- Is a joint endeavor that students and the debriefer create
 - The instructor agrees to make the simulation as real as possible within the resource and technology constraints
 - Participants agree to do their best to act as if everything is real. (Suspend Disbelief!)
 - Instructor will state a fair and balanced assessment of simulator strengths and weaknesses
 - AKA – Introduction to Simulator

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“A successful scenario is not based on the realism of the simulation itself, but rather the alchemy of participants stepping into their roles, connecting with others in the scenario, and actively linking to their previous social, clinical, and psychological experience.”

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Rudolph et al. Sim Healthcare. 2(3):161-163, Fall 2007.
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Moulage

Examples of Patient Cases

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Hands On Experience



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Items We Use...

"Schkin"

Dish Soap

Washable Paints

Honey

Glycerin

Corn Syrup
Corn Syrup

Fiber Therapy



BEN NYE

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Nursing Modules

Nursing wounds can be added to the simulator for realism in wound assessment and care scenarios.

Modules in kit:

- Chest surgical incision with skin staples (lay on)
- Abdominal packing and irrigation wound (lay on)
- Abdominal surgical incision lay-ons, featuring:
 - Nylon sutures and penrose drain
 - Staples and penrose drain
- Infected colostomy stoma
- Lacerated hand
- Forearm suture module
- Gluteal and retro-gluteal pressure ulcer modules
- Thigh packing and irrigation wound
- Thigh suture module
- Thigh debridement module
- Below knee amputation
- Varicose vein leg with stasis ulcer



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Bleeding Control Modules

Designed to teach the rapid identification and effective management of bleeding control to prevent loss of life.

Bleeding wounds featured:

- Traumatic Amputation Arm
- Traumatic Amputation Thigh
- Gunshot Wound Arm (not pictured)
- Gunshot Wound Thigh

Includes: Appendages
Reservoirs with tubing (4)
Simulated blood (4)
Carry case

Extra additions:
Forced air bleeding control system



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Trauma Modules

Interchangeable trauma modules are for added realism in emergency trauma management.

Modules in kit:

- Projectile wounds – small and large calibre entry and exit wound
- Crushed foot – ® foot with exposed bone and soft tissue
- 1st, 2nd and 3rd degree burns – sleeve for ® arm
- Closed fracture – ® leg tibia and fibula
- Exposed viscera – abdominal lay-on
- Amputation – small toe of ® foot
- Impaled object – thigh
- Open fracture – femur
- Contused ankle and foot
- Trauma face overlay



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Nuclear, Biological & Chemical Kit

Important for clinicians, first responders, military personnel and educators to be able to recognise, diagnose, and treat the symptoms of nuclear, biological and chemical attacks.

Offers the ability to replicate the effects of toxic agents by producing realistic, frothy, body fluids that emanate from the tear ducts, mouth and nose.



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Examples of Moulage

Ruptured bowel:

- Use the directions for an impalement on the stomach.
- Fill a condom with prepared oatmeal.
- Press condom over impalement and squeeze.



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"Road Rash"

- Red, black lipstick
- Pond Filter/Sponge
- Slide in angles
- Little bit of schkin with gravel



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Lacerations

- Schkin
 - Petroleum jelly, cocoa, cornstarch
 - Red lipstick
 - Coagulated blood
 - Medium blood
 - Thin blood on site



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Impalements

- Same as lacerations
- Impale object
 - Plastic shard
 - Medium blood



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Compound Fractures

- Same as lacerations
- Impale bone
 - Chicken
 - Rib
- Cotton
- Red lipstick
- Rubber bands
- Coffee stirrers



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Set Up for Moulage

(apply liquid Latex and fiber therapy to area of skin)



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Time for Hands On!!



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Apply cold cream, Noxema or white foundation to area



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Let Dry!!



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Use sponge to apply blue/purple
from color wheel



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Blend together with sponge



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SCHKIN!

- Place enough schkin to area where you will make injury and blend it into the the area on simman.



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Applying color

- Apply necessary color from color wheels to make injury realistic



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Road Rash/Abrasion

- Use filter sponge and apply color from color wheel to show road rash and abrasions



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Bleeding from a Wound

- After coloring area where skin is located, apply stage blood as appropriate



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Seat Belt Bruising

- Use sponge and filter sponge to apply bruising color wheel in a pattern to represent an apparent bruise from a seatbelt.



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Gun Shot Wound

- Apply schkin
- Make a divot in the skin to represent a bullet hole.
- Optional: Place eraser head in wound to mimic bullet.
- Apply ash around area if GSW was at close range
- Use pourable stage blood out of GSW Wound.



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Impalement

- Build up Schkin and mold into area
- Apply color wheel
- Insert impalement into schkin
- Apply stage blood as appropriate



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Stabbing



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Examples of Burns/Blisters

Option 1:

- Mix fiber therapy with warm water to consistency of applesauce.
- Place mixture.
- Apply “road rash” around injury.
- Fill syringe with petroleum jelly, squirt “blisters” into base.
- “Bruise” with powder and add a little blood.
- Dust with fireplace ash.

**Original flavored
fiber therapy only.**



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Fiber Therapy With Warm Water



Pour on quickly! It is like applesauce and then sets up!

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Smooth Out



Using water, we smooth to about 1/8" thickness.

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Let It Dry



When none stays on the fingertips (test), it is ready for the next step.

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Making "Blisters"



We place the tip of a syringe filled with petroleum jelly under the fiber therapy and push...

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Blisters



... making simulated blisters.

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Blisters



It holds up well!

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Blisters



Then we tap on medium "blood"...

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Blisters



... and a little ash!

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Examples of Burns/Blisters

- Option 2:
- Apply liquid latex from Ben Nye to an area where you would like a burn/blister to appear.
- Let Air Dry to a dry/tacky consistency



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Designing of Burn

- Once to a dry/slightly tacky consistency, use cue tip to pull areas of the liquid latex apart to make appearance of burn/sliding skin.



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Apply blood from color wheel and ash/charcoal to wound, cover with petroleum Jelly



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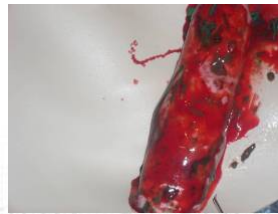
Example of Burn/Blister



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Intestines



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MOULAGE!!



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Fake Glass



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Ben Nye Kit



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<http://www.cert-la.com/education/moulage-recipes.pdf>

"Schkin" (simulated skin):

In a **large** bowl, mix together **all** of (2) 13 oz. jars of petroleum jelly, (3) 16 oz. boxes of corn- starch, and 2 - 6 tablespoons cocoa powder (depending on darkness of color desired). These 'homemade' kits have one bowl of the lightest (2 T. cocoa powder) and one bowl of the darkest (6 T. cocoa powder). You don't want it too sticky nor too dry. Best to mix the cocoa powder into the cornstarch before adding the petroleum jelly. You can begin mixing with a spatula, but eventually will need to use rubber gloves and knead with both hands to get it all totally mixed. Clean up with paper towels, then wash your hands/tools with warm water and soap.

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Cleaning Supplies



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