

# Burn Moulage Made Easy (and Cheap)

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**Moulage is one of the key factors in suspending disbelief for those participating in a simulation scenario. Transforming a mannequin into a simulated patient with burns seems like an overwhelming task. Techniques for using makeup and toilet paper to make blisters and burns are presented. (J Burn Care Res 2013;34:e215–e220)**

When people see “Burnie” (Figure 1) for the first time, heads turn in his direction. Several questions are asked about whether he is a real person and then how it is done, whether it is hard and how much does it cost. People are astonished to find out that he is not a real person. Burnie is a medium-fidelity simulator (mannequin) moulaged to look like a patient with burns that can be used in burn simulation exercises.

Simulation use in nursing schools is on the rise and has been proven to result in higher skill adaptability as well as transference of knowledge to the clinical setting.<sup>1,2</sup> Simulation allows students to be placed at the bedside of a “patient” and to provide care for that patient in an environment conducive to learning. Therefore, expanding the use of simulation to a hospital educational setting is a logical step. The ability to “create” a specific patient using mannequins and moulage to expose staff to a low-frequency patient population is an ideal teaching method. Simulation involves the use of low-fidelity or high-fidelity human simulators to present a patient situation.

The difference between medium-fidelity and high-fidelity simulators (mannequins) has to do with the capabilities of the mannequin itself. Medium-fidelity mannequins are anatomically correct and have the ability to make sounds, such as scream in pain or grunt. The low-fidelity or medium-fidelity mannequins are less expensive and are more portable than the high-fidelity mannequins. High-fidelity mannequins

are anatomically correct, but also have the capability to represent human-like physiological reactions to stimulus.<sup>1</sup> That said, high-fidelity mannequins are also more expensive and more costly to maintain than low-fidelity or medium-fidelity mannequins.

Moulage is a technique that uses materials such as makeup and accessories, to simulate injuries or physical changes to a patient using a live person or a mannequin.<sup>3</sup> The purpose of moulage is to create a sense of realism for participants of simulation regarding a patient with burns, for instance. Moulage can be achieved using various makeup, clothes, hats, and toilet paper (see Burns and Blisters). Another consideration when using moulage is the time involved to create the “perfect” look. For Burnie, the first time took about 3 hours and four people. After several simulations, the time was shortened to approximately 30 minutes.

One of the goals of simulation is to have the participants suspend belief and truly involve themselves in the scenario. This is made possible with the use of mannequins or people who are moulaged



Figure 1. Burnie, my simulated burn victim.

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to match a patient population. The purpose of this article is to describe an easy and cost-effective way to moulage a mannequin or person into a patient with simulated burn injuries with the use of makeup and accessories as well as how to clean up after the simulation is completed.

## Burns and Blisters

The supplies needed for the moulage include petroleum jelly, 2-ply toilet paper (the cheaper, the better), and makeup (pink, brown, black, yellow) such as powdered eye shadow, makeup brushes of various sizes, and sponges. For an added effect, look for simulated or “fake” blood around Halloween. All of these products can be purchased at local “dollar” stores; most of the makeup supplies used for Burnie’s moulage cost fewer than \$2. Always be sure to test the makeup on a small inconspicuous area before applying to a large area. Red makeup, particularly lipstick and some Halloween makeup, will stain.

The next step is to decide the areas in which the patient will be burned. To start, it would be easiest to try arms or legs. This allows for the most space and is the easiest to remove (see Cleaning Up section) after the simulation is completed. Start with a small area to work on and then work up to a larger area. Prepare the skin by applying a thin layer of petroleum jelly on the area to be moulaged. Using a large makeup brush, apply a thin layer of pink makeup (for the appearance of “sunburn”). This will be considered your base coat and will be used for first-degree burns (Figure 2).



**Figure 2.** Petroleum jelly applied to face and neck with pink makeup applied in a swirl technique. Uneven texture gives a “realistic” look.

To create the appearance of deeper burns, take the 2-ply toilet paper and separate it into a 1-ply paper. Saturate the 1-ply paper with the petroleum jelly by rubbing in petroleum jelly and toilet paper in your hands like you are rolling a ball in your hand. Gently straighten out the paper (if it rips, still use it), and apply it to the area prepped with petroleum jelly and pink makeup in a wrinkled fashion (Figure 3). Be sure to wear gloves during the application of “skin”; petroleum jelly requires effort to remove from hands.

Using a makeup brush, gently swirl pink over the top of the wrinkled toilet paper to establish matching skin color. The addition of varying shades of pink will enhance the appearance of the burned skin (Figure 4).

For second-degree and third-degree burn areas, the color scheme includes more colors and blisters. Blisters can be accomplished by placing a small amount of petroleum jelly, about a teaspoon, on the base coat; do not smooth it out, and apply a piece of 1-ply toilet paper over the top of the petroleum jelly. Allow the petroleum jelly to saturate the toilet paper (Figure 5). Next, add yellow and black areas, which gives the appearance of eschar and burned skin. This is accomplished by dabbing the brush and making starlike shapes on the skin. Several applications may be necessary to acquire the appearance of burned skin (Figure 6).

Apply pink/brown makeup with a brush on the top of the blister (very gently, the paper will rip) and



**Figure 3.** Applying petroleum saturated 1-ply toilet paper on top of the base allows for texture of the burned skin.



**Figure 4.** After applying the saturated toilet paper in a wrinkled fashion with gloved hands, apply pink makeup. Be very gentle while using the brush. If the toilet paper lifts from the base, it can be easily smoothed back on the base.

apply black around the edges of the blister with a small brush to give a burned appearance. Drops of simulated blood can be placed around the blister to enhance the appearance. Using a variety of colors and brushes will allow for a realistic looking burn (Figures 7 and 8). Remember that the skin and



**Figure 5.** Allowing the petroleum jelly to soak through the paper gives the appearance of weeping blisters.



**Figure 6.** Using a large makeup brush allows for scant application of black powder on top of the pink burn base, allowing for the perception of burned skin. The wrinkled petroleum saturated toilet paper gives a realistic appearance of burned skin that is seen before the initial debriding.

makeup is very fragile and will wipe off on you, your clothes, and other surfaces if there is contact.

### Inhalation Injuries

Inhalation injuries are easily reproduced on the mannequin by using the basic techniques for burns described earlier on the face and neck. The addition of black makeup specifically around the mouth and nose (Figure 5) enhances the appearance of an inhalation injury. For most mannequins, no petroleum jelly is required for this application. Using a small brush, black makeup can be dabbed around the outer aspects of the nose as well as in the nares (Figure 9).

Additionally, applying black makeup to the tongue and the teeth by using a small makeup brush and dabbing directly on the area will give an added appearance of smoke inhalation. If soot is desired, add black makeup to the petroleum jelly and apply



**Figure 7.** Finished product. Note the various colors of pink, black, and yellow that simulates an actual burn.



**Figure 8.** Finished product with blister. Again note the various color patterns of pink, black, and yellow. Black powder is applied around the actual blister to enhance the appearance.

to the tongue. To enhance the appearance, the addition of singed eye can be accomplished by using a small sponge and applying black makeup to the eyebrow area, and then a small brush can be used to



**Figure 9.** Application of black powder with a large makeup brush to the face, particularly around the mouth and nose gives the participant a realistic appearance of an inhalation injury.



**Figure 10.** Using a mixture of petroleum jelly and black powder across the eyebrows gives the appearance of burned skin, the addition of brown and yellow powder with a smaller brush will give the appearance of singed hair.

gently add yellow makeup to give the appearance of singed hair (Figure 10). Depending on the type of mannequin used for simulation, it is also possible to add “stridor” or “hoarseness,” which is a classic symptom for a patient who has an inhalation injury present.

## Electrical Injuries

Electrical injuries can be reproduced by creating an entrance and exit wound. Entrance wounds can be simulated by starting with the base coat of petroleum jelly and varying shades of pink to simulate burned skin. For the actual entrance, black makeup mixed with petroleum jelly should be applied in a circular motion to the area. The middle should be dark and solid, and begin thinning out as it reaches the outer circle. Simulated blood can also be placed around the edges of the injury (Figure 11).



**Figure 11.** Entrance wound can be simulated by starting with the pink base, add a center area of solid black. Then using a smaller brush, star pattern the outer edge by dabbing. The final touch is to add simulated blood around the center solid black area.

The exit wound will be created in a similar fashion. The main difference is that the center area is much bigger. To increase the effect of the exit wound, application of petroleum saturated toilet paper can be added to the center portion (Figure 12).

For most electrical burns, escharotomies are part of their care. To simulate an escharotomy, start with the base coat, then add the petroleum-saturated toilet paper, and apply pink, yellow, and black makeup to create the burned appearance. Take a long piece of petroleum-saturated toilet paper and make two rolls, the width of a pencil and 5 inches long. Apply the rolls to the base and flatten them leaving approximately half-an-inch between the two rolls. Connect the two rolls together at each end to form an opening. Apply pink and black makeup to the top of the rolls in a dabbing fashion. The last step is to take your finger and wipe down the middle of the rolls, leaving the original skin color (Figure 13). Clothes and Accessories

Using clothes and accessories can make a difference in the look of the simulated patient. Clothes can be purchased at a thrift store or can be obtained as donations from staff who are cleaning out closets. Clothes can be burned for effect, for example, Burnie dropped a cigarette on his pants, and the pants caught fire and burned his leg. To fit the scenario, the jeans were cut to match the site of the burn, and then the edges of the hole was burned using a lighter (Figure 14).

For the purpose of simulation exercises, the pants and shirt that Burnie was wearing is cut down the back so that it is easy to expose the burned areas to get an accurate burn percentage. The inclusion of a shirt, hat, or shoes adds to the appearance of your patient.



**Figure 12.** Exit wound is simulated by starting with a large base area (exit wound should be larger than entrance wound), adding a larger black center. In this picture, a mixture of petroleum jelly and black powder was used. Simulated blood could also be added to this wound.



**Figure 13.** Escharotomy site is simulated by starting with the base, adding rope-like pieces of petroleum saturated toilet paper and flattening it to the base. The muscle in the middle is simulated by wiping the makeup off in the middle of the two ropes. Note the piece of “skin” that is lifting, which actually gives a very realistic look of peeling burned skin.

If an inhalation injury is desired, use petroleum jelly on the face and apply the pink base makeup, then add shades of brown and yellow. Be careful around the eyes if using a person. Apply black makeup to the eyebrows, nose, mouth, teeth, and tongue (see Inhalation section). Another added effect is to burn a nasal cannula and attach it on top of the makeup using a hot glue gun. The hot glue will not hurt a mannequin; it is very ill-advised if using a person.

## Maintenance

Mannequins can be prepared for the simulation activity 1 to 2 days before the actual activity. After several simulation experiences, it has been discovered that the longer the moulage is on the mannequin, the more realistic the appearance of the injuries. During the simulation itself, participants



**Figure 14.** Laboratory staff burned the edges of the jeans to give the appearance of burned clothes. This also enhanced the simulation with the smell of burned clothes.

should be cautioned on the possibility of transfer of moulage. To assist with “protection” of the moulage, clothes should be precut for easy removal for the assessment/exposure portion of the simulation. Touch ups will be needed between simulations and require only a small amount of time. A tool kit containing addition makeup and brushes would be helpful.

### **Cleaning Up**

After the simulation, remove the makeup and simulated skin as early as possible. Makeup tends to get harder to remove if it sets in the petroleum jelly for a long period of time (more than a week). By applying petroleum jelly on the skin first, the removal of makeup after the completion of the simulation should be simple. First, use a towel or paper to remove the makeup and skin and discard it. This material will not be reusable. Removal of the remaining petroleum jelly and makeup can be accomplished by using cold crème or a dish detergent that removes grease.

### **CONCLUSION**

By using these easy and inexpensive methods and materials, it is possible to create a simulated burn patient. Costs for creating superficial, partial-thickness, and full-thickness (or first, second, and third degree) burns for Burnie was less than \$20, and most of the supplies will be used for future simulations. If there is no mannequin available to moulage, then use a person. That will give an added benefit of a talking patient who can interact and facilitate the simulation. By using moulage effectively, it is possible to have participants suspend belief and immerse themselves into the simulation activity.

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