**Appendix 1: Design of Pork Belly Model for Excisional and Shave Biopsy**

***“Realistic Simulation for Minor Surgery Teaching: Design and Evaluation of a Novel Pork Belly Model”***

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Wood Model

Materials

1 bottle - Wood glue $2.48

4 - 7/8” cup hooks $0.40

Sand paper (medium - 80 grit) $1.11

1 - 10x10x1” common board $2.10

1 - 6x10x1” common board $1.26

2 - Mini Bungee cords $0.48

Sand the surface and edges of both boards, ensuring there are no splinters or sharp edges. Glue the 6x10 board to the center of the 10x10 board, leaving about 2 inches of the 10x10 board showing on each side. Attach the cup hooks to the 4 corners of the model, making sure the “open” side of the cup hook faces away from the center of the model.

Pork Model

Materials

1 - 12 oz rectangular Pork belly $3.45

3-0 suture $2.58 \*

Incision and Drainage kit $6.97 \*

(includes straight Kelly, scissors, tweezers and scalpel)

Cut down the center of the pork belly on the meat (non-skin) side until you reach the fat/skin layer. Use scissors to undermine enough space for the balloon/cyst (see cyst model below). Close the incision using a running suture technique, however, do not tie off the knot when you reach the end. Cut the suture, leaving enough line (about 1 foot is safe) to tie later. Using a punch biopsy (anything above 4 mm is fine), make a hole at each corner of the pork. At this point, you can vacuum pack and freeze the model for long term storage until the day of the workshop. *Please note there are many minor surgery techniques used during this phase, so it may be educational and fun to have the residents participate in this construction phase of the model.*

Cyst Model

Materials

1 - Water balloon $0.01

Cottage cheese $1.76

10 mL syringe with tip cut off $0.27 \*

1 - 12 inch twine or string $0.01

 Scoop cottage cheese into the open syringe. Apply syringe to the balloon and deposit the cheese, then fill the balloon with some water and tie it off. The size of the water/cheese balloon (cyst) should be about the size of a ping pong or golf ball. Tie the twine to the water balloon. This will be used to help pull the cyst into place during the final assembly.

Finishing the model

Materials

Superglue (we used Gorilla Superglue Gel) $4.83

Needle driver

Scissors

On the day of the workshop, take the models out of the freezer and let it thaw. Loosen the sutures to allow placement of the “cyst”. Puncture a hole through the pork skin (this will represent the punctum of the cyst). Place some superglue around the hole to hold the cyst in place. Insert the twine/string through the hole and pull the cyst into place. Tighten and tie off the running suture. Cut off the balloon tag if desired but leave the knot intact. To attach the pork model to the board, attach the hook of the bungee cord into the corner holes in the pork (pre-cut using the punch biopsy) and attach the cord to the cup hooks.

\* readily available in clinic

**Cyst Model**















