Dear editors and reviewers:

We would like to thank the editorial committee of the *World Journal of Clinical Cases* for giving us the opportunity to introduce easy-to-make simulators for point-of-care ultrasound. Our team has been concerned about the section that the reviewers and editors pointed out until the very last minute of the submission. We have been questioning whether it is right to judge and rank the respectable work of other researchers. Another reason for not ranking or judging others work is from the experience with the submission system of Baishideng Publishing Group. To our knowledge, the submission system of the Baishideng Publishing Group is the most considerate to authors. Our concern was not to go against the Baishideng Publishing Group's philosophy. Hence, in the initial version of the manuscript, we tried to focus on describing the methods rather than criticizing them. However, all authors strongly agree with issues pointed out by the reviewers and editors. Thus, in the revised version of the manuscript, we have provided our recommendations and suggested the pros and cons of the surrounding material in table. We have also included a method for producing the simulator in a mimetic diagram.

The point-by-point answers to the reviewers are as below.

Reviewer #2:

Specific Comments to Authors: This is an article on an interesting topic on "simple" simulation models for point-of-care ultrasound (POCUS) training and is essentially a "review" article looking at available published papers. The authors background in emergency medicine focuses the article to POCUS in an emergency and critical care perspective.

1. **The review seems comprehensive but will be more beneficial to readers if there is some interpretation and analysis by the authors to help guide on what are better models and also limitations and benefits. Otherwise it is not a "review" article but a purely "collative" article.**

Answer: Thank you for this important comment. We have discussed this issue discussed multiple times. Our team has been concerned about the section pointed out by the reviewers and editors until the very last minute of the submission. We have been questioning whether it is right to judge and rank the respectable work of other researchers. Hence, in the initial version of the manuscript, we tried to focus on describing the methods rather than criticizing them. However, all authors strongly agree with the issues that were pointed out by the reviewers and editors. Thus, in the revised version of the manuscript, we have further included a “final recommendations” section that states the most ideal methods of simulation in our experience (page 26). Further, we have included a table comparing the pros and cons of various simulation materials (Table 3). We hope that this will sufficiently reinforce such issues. Thank you very much.

The following paragraphs were added:

RECOMMENDATIONS OF THE AUTHORS

Each way of producing the simulator has both advantages and disadvantages. Hence, our recommendation on a single method may not be appropriate. In addition, the purpose and circumstances may be different for each institute. The surrounding material recommendation maybe an exception that is based on the review and the authors' experience, which is the closest in human tissue that has a similar sonographic appearance and resistance. In addition, limited studies have used a specific target simulator. It is difficult to recommend one method since all methods have advantages and are similar to real ones. It is best to choose a specific target simulator depending on the structure they wish to focus on. Using hand ultrasound, which is the easiest approach, a dummy that is very similar to real and a pericardiocentesis model that uses a rib cage and mannequin have been developed.

Based on the current review and our experience, we would like to recommend the below simulation models. It is important to add colors to make the models more real, but from an educational point of view, using a transparent simulator to learn the relative positions of the objects and where the ultrasound probe should be placed is more important. We thought that training using transparent simulators would be more helpful to novices who are unfamiliar with ultrasound and that colored simulators would be of great help in the subsequent steps. To increase the best ultrasound appearance, we recommend the following additives: the gelatin and Metamucil mixture[18] (12:4 tablespoons) and the PVC mixture model[19] (9:1:2 ratio [PVC polymer to softener to mineral oil]). We also recommend the modified PVC polymer model in terms of mimicking the skin resistance. If the PVC mixture ratio is practically complicated, we also recommend using hydrocolloid dressing materials (DuoDERMR CGF® dressings; ConvaTec, Skillman, NJ, USA) to secure the skin resistance or Schmidt Sports PHYSIO TAPE (THERABAND, Akron, OH, USA), which also has the effect of increasing realness [23] with the gelatin and Metamucil mixture[18] (12:4 tablespoons). Table 3 shows the advantages or disadvantages of the surrounding materials. For specific simulation models, we recommend using hand ultrasound with a dressing material form as a practical way of familiarizing the trainee with the basic sonographic appearance and physiology of the lungs. [16,45] For the pericardial model, we recommend the mannequin (Young et al.'s method), [38] which is a compilation of the previous methods. For mimicking the orbit, different recommendations may be provided depending on the tissue that was focused to visualize. Various types of materials have been used in several studies to represent vessels. It is our opinion that for most cases, veins may be best represented by balloons and arteries may be best represented by silicon or latex pipes. Although innovative, 3D printing models do not seem practical so far. Finally, we wish to point out that the aforementioned models have their own strongpoints, and the recommendations provided are only based on our opinion.

2. **It will be useful also in some areas to have illustrations for the more complex models described rather than refer the reader to look up the references themselves.**

Answer: Thank you for this important comment. We agree that some models are complicated, especially pericardiocentesis (cardiac tamponade) models. In the revised version of the manuscript, we have included a new illustration depicting the key points of the methods described in the "heart, pericardial effusion, pericardial sac, vessel, trachea, and esophagus" section (Figure 2). In addition, we have also included a common way to produce the simulator (Figure 1). Thank you.

The following figure legend has been added:

Figure 1. General method to produce the simulator. The surrounding material and specific simulator are used in a container box. A. The surrounding material or wax is

used to form a base in a container box prior to the specific simulator insertion. B. When the base material solidifies, the specific simulator is glued with an adhesive. C. The process of inserting the surrounding material. D, E. The surrounding material can be inserted at once or may be split into two depending on the purpose of the project. At this time, air bubble is removed using a spoon.

S specific simulator

Figure 2. The process of making some specific simulator that is complicated to make. A. Simulator for confirming the placement of the endotracheal tube. A (a) beef gelatin powder (90 mL) and 60 mL of orange-colored psyllium fiber (Metamucil sugar free; P&G, Cincinnati, OH, USA) mixed with 500 mL of boiling water in a 1-L container. A 10-mL syringe with the tip cutoff. A (b) The two holes are separated by a gap between the trachea and esophagus; they are 5 mm from the wall of the margins of the surrounding materials to achieve a real sonographic appearance. Two holes were made using a 10-mL syringe with the tip cutoff once the surrounding material was completely ready. A (c) White arrow shows the trachea. Black arrow shows the esophagus. A (d) The simulation with the block in the hole that represented the esophagus did not show the double tracheal sign and showed tracheal intubation. In B. Pericardiocentesis simulator B (a) Prick a hole in a ping-pong ball and fill with water. It represents a heart. B (b) The ball then is inserted into a balloon or a 250 cc saline bag, which represents the pericardium. B (c) The balloon is filled with water to show the pericardial fluid. B (d) A spoon or a syringe is used to remove the bubbles. B (e) the simulator is used in an order as in figure 1, with an artificial rib cage or a dummy. The

posterior portion of the artificial rib cage and posterior portion of a dummy are removed so that it can be used as a container. C. Vessel simulator such as latex or balloon are inserted in process figure 1.

Reviewer #3:

3. **<u>Specific Comments to Authors: SPAM is a commercial product. You should describe it as SPAM®.</u>**

Answer: Thank you for this comment. We have revised the manuscript accordingly.

Science editor:

The review is interesting and well-written,

4. **<u>however, it will be more beneficial to readers if there is some interpretation and analysis by the authors to help guide on what are better models and also limitations and benefits.</u>**

Answer: Thank you for this important comment. As noted in the answer to reviewer #2, we have discussed this issue multiple times. We have been questioning whether it is right to judge and rank the respectable work of other researchers. However, all authors strongly agree with issues that were pointed out by the reviewers and editors. Thus, in the revised version of the manuscript, we have provided our recommendation and suggested the pros and cons of surrounding materials in a simple chart (page 26). Furthermore, we have included a table comparing the pros and cons of various simulation materials (Table 3). We hope that this sufficiently reinforces such issues. Thank you very much.