ASTEC Publications

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Journal articles

1. Molzahn A., Lovett M., Biffar D., de Oliveira Almeida G., & Hamilton A. (2024). The Effect of Time Pressure on Surgical Skill Retention in Novices: A Randomized Controlled Trial. *Surgical Innovation*. https://doi.org/10.1177/15533506241273359
2. Hamilton, A. (2024). The Future of Artificial Intelligence and Surgery. *Cureus.* https://doi.org/10.7759/cureus.63699
3. Hamilton, A. (2024). Artificial Intelligence and Healthcare simulation: The shifting landscape of medical education. *Cureus*. https://doi.org/10.7759/cureus.59747
4. Lovett, M., Ahanonu, E., Molzahn, A., Biffar, D., & Hamilton, A. (2024). Optimizing individual wound closure practice using augmented reality: a randomized controlled study. *Cureus*. https://doi.org/10.7759/cureus.59296
5. Hughes, K. E., Islam, M. T., Co, B., Lopido, M., McNinch, N. L., Biffar, D., Subbian, V., Son, Y., & Mosier, J. M. (2023). Comparison of force during the endotracheal intubation of commercial simulation Manikins. *Cureus*. https://doi.org/10.7759/cureus.43808
6. Katz, J., Hua, H., Lee, S., Nguyen, M., & Hamilton, A. (2022). A dual-view multi-resolution laparoscope for safer and more efficient minimally invasive surgery. *Scientific Reports*, *12*(1). https://doi.org/10.1038/s41598-022-23021-2
7. Situ-LaCasse, E., Acuña, J., Huynh, D., Amini, R., Irving, S., Samsel, K., Patanwala, A. E., Biffar, D. E., & Adhikari, S. (2021). Can ultrasound novices develop image acquisition skills after reviewing online ultrasound modules? *BMC Medical Education*, *21*(1). https://doi.org/10.1186/s12909-021-02612-z
8. Hong, M., Rozenblit, J. W., & Hamilton, A. J. (2020). Simulation-based surgical training systems in laparoscopic surgery: a current review. *Virtual Reality*, *25*(2), 491–510. https://doi.org/10.1007/s10055-020-00469-z
9. Lee, S., Hua, H., Nguyen, M., & Hamilton, A. J. (2020). Further comparison of 4 display modes for a Multi-Resolution foveated laparoscope. *Surgical Innovation*, *28*(1), 85–93. https://doi.org/10.1177/1553350620957799
10. Adhikari, S., Situ-LaCasse, E., Acuña, J., Irving, S., Weaver, C., Samsel, K., Biffar, D. E., Motlagh, M., & Sakles, J. (2020). Integration of Pre-intubation ultrasound into Airway Management Course: A Novel Training program. *Indian Journal of Critical Care Medicine*, *24*(3), 179–183. https://doi.org/10.5005/jp-journals-10071-23370
11. Hughes, K. E., Biffar, D., Ahanonu, E. O., Cahir, T. M., Hamilton, A., & Sakles, J. C. (2018). Evaluation of an innovative bleeding cricothyrotomy model. *Cureus*. https://doi.org/10.7759/cureus.3327

12. Lee, S., Hua, H., Nguyen, M., & Hamilton, A. J. (2018). Comparison of six display modes for a multi-resolution foveated laparoscope. *Surgical Endoscopy*, *33*(1), 341–351. https://doi.org/10.1007/s00464-018-6445-0
13. Ng, V., Plitt, J., & Biffar, D. (2018). Development of a novel ultrasound-guided peritonsillar abscess model for simulation training. *The Western Journal of Emergency Medicine*, 172–176. https://doi.org/10.5811/westjem.2017.11.36427
14. Grisham, L. M., Vickers, V., Biffar, D. E., Prescher, H., Battaglia, N. J., Jarred, J. E., Reid, S. A., & Hamilton, A. J. (2016). Feasibility of air Transport simulation Training: a case series. *Air Medical Journal*, *35*(5), 308–313. https://doi.org/10.1016/j.amj.2016.02.008
15. Hamilton, A. J., Prescher, H., Biffar, D. E., & Poston, R. S. (2015). Simulation trainer for practicing emergent open thoracotomy procedures. *The Journal of Surgical Research*, *197*(1), 78–84. https://doi.org/10.1016/j.jss.2015.04.037
16. Prescher, H., Grover, E., Mosier, J., Stolz, U., Biffar, D. E., Hamilton, A. J., & Sakles, J. C. (2015). Telepresent intubation supervision is as effective as In-Person supervision of procedurally naive operators. *Telemedicine and E-Health*, *21*(3), 170–175. https://doi.org/10.1089/tmj.2014.0090
17. Amini, R., Kartchner, J. Z., Stolz, L. A., Biffar, D., Hamilton, A. J., & Adhikari, S. (2015). A novel and inexpensive ballistic gel phantom for ultrasound training. *World Journal of Emergency Medicine*, *6*(3), 225. https://doi.org/10.5847/wjem.j.1920-8642.2015.03.012
18. Napalkova, L., Rozenblit, J. W., Hwang, G., Hamilton, A. J., & Suantak, L. (2014). An optimal motion planning method for computer-assisted surgical training. *Applied Soft Computing*, *24*, 889–899. https://doi.org/10.1016/j.asoc.2014.08.054
19. Prescher, H., Biffar, D. E., Galvani, C. A., Rozenblit, J. W., & Hamilton, A. J. (2014b). Evaluation of a navigation grid to increase the efficacy of instrument movement during laparoscopic surgery. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, *24*(9), 656–659. https://doi.org/10.1089/lap.2014.0016
20. Thompson, J. L., Grisham, L. M., Scott, J., Mogan, C., Prescher, H., Biffar, D., Jarred, J., Meyer, R. J., & Hamilton, A. J. (2014). Construction of a reusable, High-Fidelity model to enhance extracorporeal membrane oxygenation training through simulation. *Advances in Neonatal Care*, *14*(2), 103–109. https://doi.org/10.1097/anc.0000000000000054
21. Zimmerman, H., Latifi, R., Dehdashti, B., Ong, E., Jie, T., Galvani, C., Waer, A., Wynne, J., Biffar, D., & Gruessner, R. (2011). Intensive laparoscopic training course for surgical residents: program description, initial results, and requirements. *Surgical Endoscopy*, *25*(11), 3636–3641. https://doi.org/10.1007/s00464-011-1770-6

22. Riojas, M., Feng, C., Hamilton, A., & Rozenblit, J. (2011). Knowledge elicitation for performance assessment in a computerized surgical training system. *Applied Soft Computing*, *11*(4), 3697–3708. https://doi.org/10.1016/j.asoc.2011.01.041
23. Feng, C., Rozenblit, J. W., & Hamilton, A. J. (2010). A computerized assessment to compare the impact of standard, stereoscopic, and high-definition laparoscopic monitor displays on surgical technique. *Surgical Endoscopy*, *24*(11), 2743–2748. https://doi.org/10.1007/s00464-010-1038-6

Conference papers

1. Collins, C., Lovett, M., Biffar, D., Hamilton, A., Holder, K., Holcomb, M., Yonsetto, P., & Weinstein, R. (2019). *The use of remote and traditional faciliation to evaluate telesimulation to support interprofessional education and processing in healthcare simulation training*. 2019 Spring Simulation Conference (SpringSim). https://doi.org/10.23919/springsim.2019.8732914
2. Hamilton, A., Lovett, M., Biffar, D., Kanda, J., Rozenblit, J., & Weinstein, R. (2019). *When Hollywood Inspires Medicine: New concepts in the design and architecture of medical simulation facilities to support Inter-Professional Healthcare Education and training*. 2019 Spring Simulation Conference (SpringSim). https://doi.org/10.23919/springsim.2019.8732918
3. Lovett, M., Biffar, D., Hamilton, A., Katz, J., Lee, S., Hua, H., & Nguyen, M. (2019). *Evaluation of learning curve and peripheral awareness using a novel multiresolution foveated laparoscope*. 2019 Spring Simulation Conference (SpringSim). https://doi.org/10.23919/springsim.2019.8732872
4. Peng, K. S., Hong, M., Rozenblit, J., & Hamilton, A. J. (2019). *Single shot state detection in Simulation-Based Laparoscopy training*. 2019 Spring Simulation Conference (SpringSim). https://doi.org/10.23919/springsim.2019.8732863
5. Hong, M., Rozenblit, J. W., & Hamilton, A. J. (2017). *A simulation-based assessment system for computer assisted surgical trainer* (p. 3). 2017 Spring Simulation Conference (SpringSim). https://doi.org/10.5555/3108760.3108763
6. Rozenblit, J. W., Yilmaz, L., Sametinger, J., Ören, T. I., Madey, G. R., Sierhuis, M., & Antonio, Y. Z. T. U. S. (2016). *Modeling of a transfer task in computer assisted surgical training*. 2016 Spring Simulation Conference (SpringSim). https://dl.acm.org/doi/10.5555/2962678.2962682
7. Nikodem, J., Wytyczak-Partyka, A., Klempous, R., & Rozenblit, J. (2015). *Prototyping a laparoscopic skill trainer based on virtual reality and image processing*. Conference on Computer Aided Systems theory. https://doi.org/10.13140/RG.2.1.1784.6641
8. Prescher, H., Biffar, D. E., Galvani, C. A., Rozenblit, J. W., & Hamilton, A. J. (2014). *Surgical Navigation Pointer facilitates identification of targets in a simulated environment* (Vol. 46, Issue 10, p. 35). Society for Computer Simulation International. https://doi.org/10.5555/2685617.2685652

9. Prescher, H., Biffar, D. E., Meinke, L. E., Jarred, J. E., Brooks, A. J., & Hamilton, A. J. (2014). *Video-guided versus direct laryngoscopy: Considerations for using simulation to teach inexperienced medical students* (Vol. 46, Issue 10, p. 36). https://doi.org/10.5555/2685617.2685653
10. Prescher, H., Biffar, D. E., Rozenblit, J., & Hamilton, A. J. (2014). *The comparison of high definition versus stereoscopic display on standardized fundamental laparoscopic skill procedures* (Vol. 46, Issue 10, p. 48). Society for Computer Simulation International. https://doi.org/10.5555/2685617.2685665
11. Rozenblit, J. W., Feng, C., Riojas, M., Napalkova, L., Hamilton, A. J., Hong, M., Berthet-Rayne, P., Czapiewski, P., Hwang, G., Nikodem, J., Shankaran, A., & Rao, A. (2014). *The Computer Assisted Surgical Trainer: Design, models, and implementation* (Vol. 46, Issue 10, p. 30). Society for Computer Simulation International. https://doi.org/10.5555/2685617.2685647
12. Valenzuela, M. L., Rozenblit, J. W., & Hamilton, A. J. (2014). *A Predictive Analytics toolbox for medical applications*(Vol. 46, Issue 10, p. 25). Society for Computer Simulation International. https://doi.org/10.5555/2685617.2685642
13. Feng, C., Rozenblit, J. W., Hamilton, A. J., & Wytyczak-Partyka, A. (2009). *Defining spatial regions in Computer-Assisted laparoscopic Surgical training*. 16th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems. https://doi.org/10.1109/ecbs.2009.18
14. Feng, C., Rozenblit, J., & Hamilton, A. (2008). *Fuzzy Logic-Based Performance Assessment in the Virtual, Assistive Surgical Trainer (VAST)*. 15th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems. https://doi.org/10.1109/ecbs.2008.51
15. Feng, C., Rozenblit, J. W., & Hamilton, A. J. (2007). *A hybrid view in a laparoscopic surgery training system*. 14th Annual IEEE International Conference and Workshops on the Engineering of Computer-Based Systems. https://doi.org/10.1109/ecbs.2007.6
16. Haniffa, H., Rozenblit, J., Peng, J., Hamilton, A., & Salkini, M. (2007). *Motion planning system for minimally invasive surgery*. 14th Annual IEEE International Conference and Workshops on the Engineering of Computer-Based Systems. https://doi.org/10.1109/ecbs.2007.56
17. Feng, C., Haniffa, H., Rozenblit, J., Peng, J., Hamilton, A., & Salkini, M. (2006). *Surgical training and performance assessment using a motion tracking system*. 2nd European Modeling and Simulation Symposium. http://mbdl.arizona.edu/publications/pdfs/Feng2006aa.pdf

Abstracts and Presentations

1. Partica C., Biffar D., & Smith D. *Simplify your strategies: Lessons learned from an innovative 2-year IPE pilot program.* [Oral Presentation]. International Meeting on Simulation in Healthcare 2024, San Diego, CA.
2. Molzahn A., Lovett M., Biffar D., de Oliveira Almedia G., & Hamilton A. (2022, January 15-19). *The role of sympathetic modulation on long-term retention of information during clinical simulation.* [Oral Presentation]. International Meeting on Simulation in Healthcare 2022, Los Angeles, CA.
3. Molzahn A., Lovett A., Biffar D., de Oliveira Almedia G., & Hamilton A. (2022 May 18). *The role of stress on long-term retention of information during surgical simulation.* Department of Surgery Research Symposium 2022, University of Arizona, Tucson, AZ.
4. Biffar D., Lovett M., Lopido M., & Hamilton A. (2021, January 09-March 31). *Strengthen your modelmaking skills with a step-by-step demonstration.* [Virtual Presentation]. International Meeting on Simulation in Healthcare 2021, virtual.
5. Lovett M., Phung M., Biffar D., Hamilton A., Lee B., & Tzou D. (2020, May 15-18). *Development of a low-cost, high-fidelity simulator for ultrasound-guided percutaneous nephrolithotomy (PCNL) training.* [Poster Abstract]. American Urological Association 2020 Meeting, Washington, DC.
6. Cahir T., Gondal A., Biffar D., & Ghaderi I. (2018, April 11-14). *Smartphones as telemonitoring tools for training in the Fundamentals of Laparoscopic Surgery (FLS) skills.* [Poster Abstract]. Scientific Session of the 16th World Congress of Endoscopic Surgery, Seattle, WA.
7. Hughes K., Ahanonu E., Cahir T., Biffar D., Hamilton A., & Sakles J. (2018, January 13-18). *Evaluation of an innovative bleeding cricothyrotomy model.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2018, Los Angeles, CA.
8. Ng V., Prescher H., Barbosa A., Biffar D., & Hamilton A. (2017, January 28-February 1). *Development of an ultrasound pericardiocentesis model for simulation training.* [Oral Presentation]. International Meeting on Simulation in Healthcare 2017, Orlando, FL.
9. Lovett M., Reid S., Prescher H., Biffar D., Fiorello A., & Hamilton A. (2016, January 16-20). *Development and testing of a thoracostomy assessment tool through self, peer, and expert evaluation in a simulation environment.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2016, San Diego, CA.
10. Ng V., Prescher H., Reid S., Biffar D., & Hamilton A. (2016, January 16-20). *A comparison of porcine and synthetic models for lateral canthotomy and cantholysis work in progress.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2016, San Diego, CA.

11. Livingston J., Grisham L. & Biffar D. (2014, October 27). *Using Tablets in Debriefing Student Performance in ASTEC* [Oral Presentation]. 2014 AMES/OMSE FID Series, Tucson, AZ.
12. Dreifuss B., Prescher H., & BIffar D. (2014, January 25-29). *Developing a novel drain loop skin abscess model for training intern ED residents.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2014, San Francisco, CA.
13. Frazier A., Prescher H., Biffar D., & Hamilton A. (2014, January 25-29). *Using rotational casting techniques to create hollow viscous organs.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2014, San Francisco, CA.
14. Grover E., Mosier J., Sakles J., Prescher H., Biffar D., Stolz U., & Hamilton A. (2014, January 25-29). *Telepresent intubation instruction is as effective as in-person when instructing naïve intubators in a simulated setting.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2014, San Francisco, CA.
15. Prescher H., Biffar D., Tomasa L., Berg M., Grisham L., Mathesen Y., Theodorou A., & Hamilton A. (2014, January 25-29). *A seven-year collaboration between 3 colleges to learn interprofessional skills during a CPR team behavior simulation.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2014, San Francisco, CA.
16. Prescher H.,Biffar D., Tomasa L., Berg M., Grisham L., & Hamilton A. (2013, November 1-6). *Breaking Barriers in Health Care Education: The Impact of Interprofessional CPR Training* [Poster Abstract]. 2013 Association of American Medical Colleges Annual Meeting, Philadelphia, PA.
17. Livingston J., Prescher H., Grishamn L., & Paxton J. (2013 May 4). *Using a self-assessment tool and individual video review to enhance learner participation in group debriefings of neonatal resuscitation simulations: A pilot study.* [Poster Abstract]. Western Group on Education Affairs 2013, San Francisco, CA.
18. Biffar D. & Hamilton A. (2013, January 26-30). *Playing Frankenstein: Make artificial tissue come to life!* [Oral Presentation]. International Meeting on Simulation in Healthcare, Orlando, FL.
19. Biffar D., Poston R., Prescher H., & Hamilton A. (2013, January 26-30). *Using interprofessional education to improve robotic cardiothoracic surgery training.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2013, Orlando, FL.
20. Livingston J., Grishamn L., & Prescher H. (2013, January 26-30). *Using tablet computers to enhance learner participation in group debriefings in neonatal resuscitation program simulations: A pilot study.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2013, Orlando, FL.
21. Prescher H., Biffar D., Galvani C., & Hamilton A. (2013, January 26-30). *The comparison of high definition versus stereoscopic display on standardized*

Fundamental Laparoscopic Skill procedures. [Poster Abstract]. International Meeting on Simulation in Healthcare 2013, Orlando, FL.

22. Biffar D., Jarred J., Prescher H., Culliney S., Grisham L., & Hamilton A. (2012, September 13-14). *Improving quality of care by training first responders with high-fidelity medical simulations: A collaboration between Arizona Simulation Technology and Education Center and Northwest Fire District* [Poster Abstract]. Arizona Rural Health Conference, Tucson, AZ.
23. Biffar D. & Grisham L. (2012, February 1). *How mobile can you go? Making the most out of your patient simulator outside of the training facility*. [Oral Presentation]. 2012 Human Patient Simulator Network Conference, Tampa, FL.
24. Biffar D., Hamilton A. Grisham L., Jarred J., Prescher H., Brooks A., & Meinke L. (2012, January 28-30). *For the inexperienced, video laryngoscopy is superior to direct laryngoscopy in the training of airway management.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2012, San Diego, CA.
25. Grover E., Mendelson J., Valdez S., Jarred J., Biffar D., Theodorou A., Grisham L., Prescher H., & Hamilton A. (2012, January 28-30). *Interprofessional Education: Pediatric Intensive Care Unit (PICU) Simulation Training Program.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2012, San Diego, CA.
26. Livingston J. & Jarred J. (2012, January 28-30). *High-fidelity simulation of the neonate with hydrops fetalis.* [Poster Abstract]. International Meeting on Simulation in Healthcare 2012, San Diego, CA.
27. Huang Z., Feng C., Rozeblit J., & Hamilton A. (2011, January 23-25). *Is the dominant hand always better in minimally invasive surgery? A computerized hand-eye coordination training experiment.t* [Poster Abstract]. International Meeting on Simulation in Healthcare 2011, New Orleans, LA.
28. Feng C., Huang Z., Riojas M., Rozenblit J., & Hamilton A. (2009, February 1). *Usability study of computerized surgery training and assessment system.* [Poster Abstract]. Medicine Meets Virtual Reality 2009.
29. Feng C., Rozenblit J., & Hamilton A. (2007, February 1). *Data fusion in a laparoscopic surgery training assistive system.* [Poster Abstract]. Medicine Meets Virtual Reality 2007.
30. Salkini M., Johnson S., Knapp A., & Hamilton A. *The future: Can we teach surgery remotely?* [Poster Abstract].
31. Salkini M., Johnson S., Knapp A., & Hamilton A. *Simulation gains resident satisfaction in laparoscopy training.* [Poster Abstract].
32. Hamilton A., Salkini M., & Knapp A. *Will low-cost disposable simulated tissues replace high-cost virtual reality surgical trainers?* [Poster Abstract].

33. Lovett M., Biffar D., Collins C., Holder K., Holcomb M., Yonsetto P., Weinstein R., & Hamilton A. *Pilot study: Evaluation of interprofessional education through telesimulation using remote and live simulation.* [Poster Abstract].
34. Knapp A., Salkini M., Gellerman J., & Hamilton A. *Virtual reality check: New medical simulation lab changes the way doctors are trained and patients are treated.* [Poster Abstract].
35. Salkini M., Knapp A., Gellerman J., & Hamilton A. *Laparoscopic simulation: Who can be trained?* [Poster Abstract].
36. Patel B., Berger M., Krupinski E., Knapp A., Hamilton A., & Gatenby R. *Can a hybrid simulator mitigate the unevenness of diagnostic radiology training experience in the management of iodinated radiologic contrast media reaction?* [Poster Abstract].
37. Knapp A., Tischler M., DeLuca D., Salkini M., & Hamilton A. *Expanding simulation into the basic science medical school curriculum.* [Poster Abstract].