ASTEC Publications

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Journal articles

1. McLemore, K., Molzahn, A., & Hamilton, A. (2024). Using Artificial Intelligence to Train Medical History Taking. SimZine. https://doi.org/10.69079/SIMZINE.A25.N18.00047
2. Ghimire, R., Kharel, S., Giri, S., & Hamilton, A. (2024). The Growing Need for Web-Based Simulation in Low- and Middle-Income Countries. Journal of Nepal Medical Association. https://doi.org/10.31729/jnma.8814
3. Hamilton, A., Molzahn, A., & McLemore, K. (2024). The Evolution from Standardized to Virtual Patients in Medical Education. Cureus. https://doi.org/10.7759/cureus.71224
4. 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
5. Hamilton, A. (2024). The Future of Artificial Intelligence and Surgery. Cureus. https://doi.org/10.7759/cureus.63699
6. Hamilton, A. (2024). Artificial Intelligence and Healthcare simulation: The shifting landscape of medical education. Cureus. https://doi.org/10.7759/cureus.59747
7. 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
8. 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
9. 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
10. Situ-LaCasse, E., Acuña, J., Huynh, D., Amini, R., Irving, S., Samsel, K., Patanwala, A. E., Biffar, D., & 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
11. Hong, M., Rozenblit, J. W., & Hamilton, A. (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

12. Lee, S., Hua, H., Nguyen, M., & Hamilton, A. (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
13. Adhikari, S., Situ-LaCasse, E., Acuña, J., Irving, S., Weaver, C., Samsel, K., Biffar, D., 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
14. 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
15. 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
16. 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
17. Peng, K. S., Hong, M., Rozenblit, J., & Hamilton, A. (2019). Single shot state detection in Simulation-Based Laparoscopy training. 2019 Spring Simulation Conference (SpringSim). https://doi.org/10.23919/springsim.2019.8732863
18. 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
19. Lee, S., Hua, H., Nguyen, M., & Hamilton, A. (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
20. 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
21. Hong, M., Rozenblit, J. W., & Hamilton, A. (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
22. Grisham, L. M., Vickers, V., Biffar, D., Prescher, H., Battaglia, N. J., Jarred, J. E., Reid, S. A., & Hamilton, A. (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
23. 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
24. Hamilton, A., Prescher, H., Biffar, D., & 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
25. Prescher, H., Grover, E., Mosier, J., Stolz, U., Biffar, D., Hamilton, A., & 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
26. Amini, R., Kartchner, J. Z., Stolz, L. A., Biffar, D., Hamilton, A., & 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
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28. Napalkova, L., Rozenblit, J. W., Hwang, G., Hamilton, A., & 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
29. Prescher, H., Biffar, D., Galvani, C. A., Rozenblit, J. W., & Hamilton, A. (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
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32. Prescher, H., Biffar, D., Meinke, L. E., Jarred, J. E., Brooks, A. J., & Hamilton, A. (2014). Video-guided versus direct laryngoscopy: Considerations for using

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33. Prescher, H., Biffar, D., Rozenblit, J., & Hamilton, A. (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
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39. Feng, C., Rozenblit, J. W., Hamilton, A., & 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
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41. Feng, C., Rozenblit, J. W., & Hamilton, A. (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
42. 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
43. 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. (2024, January 20-24). 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. [Oral Presentation]. 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].