

# Sung J. CHOI

School of Global Health Management & Informatics  
College of Community Innovation and Education  
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## Employment

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Assistant Professor, School of Global Health Management and Informatics, University of Central Florida, Orlando, FL, Aug 2018–Present

Postdoctoral Fellow, Vanderbilt Owen Graduate School of Management, Nashville, TN, Aug 2016–Jun 2018

## Education

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Ph.D. Health Services Research, Policy and Administration — Area of Emphasis in Health Economics, University of Minnesota School of Public Health, Minneapolis, MN, Sep 2015

B.A. Biology, Grinnell College, Grinnell, IA, May 2007

## Honors, Awards, and Recognition

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Choi, S. J. (2020). Wiley: Top Downloaded Article during its first 12 months of publication in *Health Services Research*.

Choi, S. J. (2014). *Doctoral Dissertation Fellowship*. University of Minnesota.

Choi, S. J. (2011). *Student Research Day Delta Omega (Pi Chapter) Premier Poster: Family out-of-pocket health care burden and children's access to health care*. University of Minnesota.

Choi, S. J. (2008). *Graduate School Block Grant*. University of Minnesota.

Choi, S. J. (2008). *John Kralewski Family Fellowship*. University of Minnesota.

Choi, S. J. (2008). ***School of Public Health Dean's Scholarship***. University of Minnesota.

## Research and Scholarly Activities

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### Refereed Publications

Regarding author order, if there are fewer than 4 authors, then authors are listed in descending order of contribution, if there are 4 or more authors, then the most senior author is listed last, and the remaining authors are listed in descending order of contribution. Journal Citation Reports (JCR) impact factor provided when available, otherwise SCIMAGO rank provided. Impact Factor above 3.0 is considered high-impact within health services research and health informatics. Acceptance rate provided when available. In the field of Computer Science, refereed conference proceedings carry greater weight and prestige than journal publications.

\* Indicates student collaboration on publication.

14. Lee, J., Kim, H., & Choi, S. J. (2024). Do hospital data breaches affect health information technology investment? *Digital Health*, 10, 20552076231224164. <https://doi.org/10.1177/20552076231224164> (JCR Impact Factor 2023: 3.9)
13. Choi, S. J., Chen, M., & Tan, X. (2023). Assessing the impact of health information exchange on hospital data breach risk. *International Journal of Medical Informatics*, 177, 105149. <https://doi.org/10.1016/J.IJMEDINF.2023.105149> (JCR Impact Factor 2022: 4.9)
12. Choi, S. J., & Johnson, M. E. (2021). The relationship between cybersecurity ratings and the risk of hospital data breaches. *Journal of the American Medical Informatics Association*. <https://doi.org/10.1093/JAMIA/OCAB142> (JCR Impact Factor 2021: 7.942)
11. Lee, J., & Choi, S. J. (2021). Hospital Productivity After Data Breaches: Difference-in-Differences Analysis. *Journal of Medical Internet Research*, 23(7), e26157. <https://doi.org/10.2196/26157> (JCR Impact Factor 2023: 7.4)
- 10.\*Choi, S. J., & Dewan, N. (2021). Policy Priorities for Health Information Technology. *Journal of Health Care Finance*, 47 (3).  
<http://healthfinancejournal.com/index.php/johcf/article/view/247> (SCImago Journal Rank 2019: 0.187)
9. Choi, S. J., & Mortensen, K. (2020). Financial Trends of Florida Hospitals Pre and Post the Affordable Care Act. *Journal of Health Care Finance*, 47 (2). <https://healthfinancejournal.com/index.php/johcf/article/view/234> (SCImago Journal Rank 2019: 0.187)
8. Choi, S. J., Johnson, M. E., & Lee, J. (2020). An event study of data breaches and hospital IT spending. *Health Policy and Technology*, 9(3), 372–378.

<https://doi.org/10.1016/j.hlpt.2020.04.008> (JCR Impact Factor 2022: 6.0)

7. \* Anwar, A., Khormali, A., Choi, J., Alasmary, H., Choi, S.J., Salem, S., Nyang, D., & Mohaisen, D. (2020). Measuring the Cost of Software Vulnerabilities. *EAI Endorsed Transactions on Security and Safety*, 7(23).

<https://eudl.eu/doi/10.4108/eai.13-7-2018.164551>

6. Choi, S. J., & Johnson, M. E. (2019). Understanding the Relationship Between Data Breaches and Hospital Advertising Expenditures. *The American Journal of Managed Care*, 25(1), e14–e20. <https://pubmed.ncbi.nlm.nih.gov/30667613/> (JCR Impact factor 2020: 2.229)

5. Choi, S. J., Johnson, M. E., & Lehmann, C. U. (2019). Data breach remediation efforts and their implications for hospital quality. *Health Services Research*, 54(5), 971–980. <https://doi.org/10.1111/1475-6773.13203> (JCR Impact factor 2020: 3.402; Altmetric Attention Score of 1491 which is in the 99th percentile)

4. Choi, S. (2017). Hospital Capital Investment During the Great Recession. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 54. <https://doi.org/10.1177/0046958017708399> (JCR Impact factor 2018: 0.769)

3. Choi Yoo, S. J., Nyman, J. A., Cheville, A. L., Kroenke, K. (2014). Cost Effectiveness of Telecare Management for Pain and Depression in Patients with Cancer: Results from a Randomized Trial. *General Hospital Psychiatry*, 36(6), 599.

<https://doi.org/10.1016/J.GENHOSPPSYCH.2014.07.004> (JCR Impact factor 2018: 3.220)

2. Karaca-Mandic, P., Choi-Yoo, S. J., Lee, J., & Scal, P. (2014). Family Out-of-Pocket **Health Care Burden and Children’s Unmet Needs or Delayed Health Care**. *Academic Pediatrics*, 14(1), 101–108. <https://doi.org/10.1016/j.acap.2013.10.005> (JCR Impact factor 2018: 2.537)

1. Karaca-Mandic, P., Choi Yoo, S. J., & Sommers, B. D. (2013). Recession Led To A Decline In Out-Of-Pocket Spending For Children With Special Health Care Needs. *Health Affairs*, 32(6), 1054–1062. <https://doi.org/10.1377/hlthaff.2012.1137> (JCR Impact factor 2023: 9.7)

## Refereed Conference Proceedings

2. \*Alkinoon, M., Choi, S. J., & Mohaisen, D. (2021). Measuring Healthcare Data Breaches. *Information Security Applications: 22nd International Conference, WISA 2021, Jeju Island, South Korea, August 11–13, 2021, Revised Selected Papers*, 265–277. [https://doi.org/10.1007/978-3-030-89432-0\\_22](https://doi.org/10.1007/978-3-030-89432-0_22) (Acceptance rate: 38.7%)

1. Choi, S. J., & Johnson, M. E. (2017, June). Do Hospital Data Breaches Reduce Patient Care Quality? *Proceedings of the Sixteenth Workshop on the Economics of Information Security*. <https://doi.org/10.48550/arXiv.1904.02058>

## Working Papers

- Chen, M., Chen, Y., Choi, S. J., Hertelendy, A., Schuetz, S. Health Information Sharing and Analysis. Work in progress.
- Chisholm, L., Choi, S., Tapasak, B., Pritchett, C. Racial/ethnic disparities in Cochlear Implants and potential determinants that influence disparities in Cochlear Implants among children. Work in progress.
- Choi, S.J., McCullough J. Hospital Finances and the COVID-19 Pandemic. Work in progress.
- Choi, S.J., Lee, J. The Landscape of Ransomware Attacks in Healthcare: Comparisons Across Regions and Industries. Work in progress.

## Non-Refereed Publications

- Abraham, J. M., Karaca-Mandic, P., & Choi Yoo, S. J. (2015). **The ABCs of children’s health: Potential impact of the Patient Protection and Affordable Care Act.** In A. J. Reynolds, A. J. Rolnick, & J. A. Temple (Eds.), *Health and Education in Early Childhood: Predictors, Interventions, and Policies* (pp. 327–345). Cambridge University Press. <https://doi.org/10.1017/CBO9781139814805.017>
- Blewett, L., Karaca-Mandic, P., Ricards, J., Choi, S. J., & Huang, T. Y. (2014). *Using insurer filings to monitor the private health insurance market*. SHADAC.

## Grants and External Funding

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**National Science Foundation (NSF) recognizes multiple Principal Investigators as “Co-PIs” and** does not infer any distinction in scientific stature among multiple PIs. However, National Institute of Health (NIH) does not recognize Co-PI.

## Proposals Awarded

Choi, S.J. (2024). CCIE Summer Research Initiative. *University of Central Florida*.  
12.5% of 9-month salary

Choi, S.J. (2023). CCIE Summer Research Initiative. *University of Central Florida*.  
12.5% of 9-month salary

Choi, S.J. (2022). CCIE Summer Research Initiative. *University of Central Florida*.  
12.5% of 9-month salary

PI:Chisholm, L., Co-PI:Pritchett, C., & Co-PI:Choi, S. J. (2022). Racial/Ethnic Disparities in Cochlear Implants among Children: The Role of Family and Social Determinants of Health. *University of Central Florida Downtown Interdisciplinary Research Initiative*. Buyout Award: \$2,500.

PI:Choi, S. J. (2020). Understanding the Interplay Between Privacy Policies and Security of Healthcare Firms. *University of Central Florida Seed Funding ER1 Exploratory Research Award*. Total Award: \$26,166.

PI:Chisholm, L., Co-PI:Emrich, C., Co-PI:Neuberger, L., & Co-PI:Choi, S. J. (2020). Chronic Conditions Among Older Adults: The Role of Social and Physical Determinants. *University of Central Florida Downtown Interdisciplinary Research Initiative*. Buyout Award: \$2,500.

Choi, S. J. (2020). Office of Research Mentoring Program Award. *University of Central Florida*.

## Proposals Submitted

PI: Choi, S., Co-PI: Noblin, A., & Co-PI: Zhang, W. (2022). Collaborative Research: CUE-T: Networks of Action for Training in Ethical Computing through Production Pedagogy. **NSF. Total Requested: \$128,805; Choi's Credit Split: 34%, Choi's Effort 3.75%, Choi's Personnel Budget Requested: \$23,885.**

PI:Choi, S. J., Co-PI:Mohaisen, D., & Co-PI:Noblin, A. (2021). SCH: Understanding the interplay between privacy policies and security of healthcare firms to improve the quality of care. **NSF. Total Requested: \$608,499; Choi's Credit Split: 40%, Choi's Effort 11.111%, Choi's Personnel Budget Requested: \$31,050.**

## Presentations at Refereed Professional Conferences

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### National and International

24. Choi, S. J. (2023). Podium: The Relationship Between Health Information Exchanges and Hospital Data Breaches. *Conference on Health IT and Analytics, Washington, DC.*
23. Choi S. J. (2023) Virtual: Do Hospital Data Breaches Affect Health Information Technology Investment? *Association of University Programs in Health Administration Academic Forum at Healthcare Information and Management Systems Society.*
22. Choi, S. J. (2022). Poster: The Relationship Between Health Information Exchanges and Hospital Data Breaches. *American Society of Health Economists, Austin, TX.*
21. Choi, S. J. (2022). Virtual: The Relationship Between Health Information Exchange and Hospital Data Breaches. *Production and Operations Management Society.*
20. Choi, S. J. (2022). Podium: Barriers to Cybersecurity and Patient Data Privacy for Hospitals. *Association of University Programs in Health Administration Academic Forum at Healthcare Information and Management Systems Society, Orlando, FL.*
19. Choi, S. J. (2021). Geographic Variation in Health Care Data Breaches. *AcademyHealth, Virtual.*
18. Choi, S. J., & Lee, J. (2021). Virtual: The Effect of Security Breach on Productivity. *Western Economic Association International.*
17. Choi, S. J. (2020). The relationship between hospital data breaches and cyber security ratings. *European Health Economics Association, Oslo, Norway (In-Person Meeting Canceled Due to COVID-19).*
16. Choi, S. J. (2020). An Event Study of Data Breaches and Hospital IT Spending. *American Society of Health Economists, St. Louis, MO (In-Person Meeting Canceled Due to COVID-19).*
15. Choi, S. J. (2020). Podium: The Relationship between Hospital Data Breaches and Cyber Security Ratings. *AcademyHealth, Boston, MA (In-Person Meeting Canceled Due to COVID-19).*
14. Choi, S. J. (2020). Poster: Financial Trends of Florida Hospitals Pre and Post the Affordable Care Act. *AcademyHealth, Boston, MA (In-Person Meeting Canceled Due to COVID-19).*
13. Choi, S. J. (2020). Poster: The Impact of Health Care Data Breaches on Hospital Finances: Evidence from Florida. *AcademyHealth, Boston, MA (In-Person Meeting Canceled Due to COVID-19).*

12. Choi, S. J. (2019). Podium: Event study of data breaches and hospital IT spending. *Conference on Health IT and Analytics, Washington, DC.*
11. Choi, S. J. (2019). Poster: Understanding the relationship between data breaches and hospital advertising expenditures. *American Society of Health Economists, Washington, DC.*
10. Choi, S. J. (2018). Podium: Data Breaches and Hospital Advertising. *Conference on Health IT and Analytics, Washington, DC.*
9. Choi, S. J. (2018). Podium: Are Data Breach Remediation Efforts Impacting Care Quality? *Digital Information Policy Scholars Conference George Mason University, Fairfax, VA.*
8. Choi, S. J. (2018). Virtual: Do Some Hospital Data Breaches Lead to Increased Mortality Rates? *4A Data Security & Privacy Symposium, Philadelphia, PA.*
7. Choi, S. J. (2017). Podium: Do hospital data breaches reduce patient care quality? *Conference on Health IT and Analytics, Washington, DC.*
6. Choi, S. J. (2017). Podium: Do hospital data breaches reduce patient care quality? *International Health Economics Association World Congress, Boston, MA.*
5. Choi, S. J. (2017). Podium: Do hospital data breaches reduce patient care quality? *Workshop on the Economics of Information Security, La Jolla, CA.*
4. Choi, S. J. (2014). Podium: Impact of financial reserves and liquidity constraints on hospital capital investment. *Sungkyunkwan University, Seoul, South Korea.*
3. Choi, S. J. (2014). Podium: Impact of financial reserves and liquidity constraints on hospital capital investment. *American Society of Health Economists, Los Angeles, CA.*
2. Choi, S. J. (2012). Poster: Out-of-pocket financial burden experienced by children with private health insurance, 2001-2009. *AcademyHealth, Orlando, FL.*
1. Choi, S. J. (2011). Poster: Family out-of-pocket health care burden and children's access to health care. *AcademyHealth, Seattle, WA.*

## Regional

- Choi, S. J. (2017). Podium: Hospital data breaches and care delays. *Trustworthy Health and Wellness Workshop, Urbana IL.*
- Choi, S. J. (2016). Podium: Do hospital data breaches reduce patient care quality? *Indiana University Vanderbilt University Health Economics & Policy Conference, Bloomington, IN.*

## State

Choi, S. J. (2014). Podium: Cost effectiveness of telecare management for pain and depression in patients with cancer. *Minnesota Health Services Research Conference, St. Paul, MN.*

Choi, S. J. (2011). Podium: Family out-of-**pocket health care burden and children's access** to health care. *Minnesota Health Services Research Conference, St. Paul, MN.*

## Invited Talks

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Choi, S. J. (2021). When Health Systems Get Hacked: Cybersecurity Ratings & The Need for a National Strategy for Health Cybersecurity. *MITRE HealthLab, Baltimore, MD, Virtual.*

CyberPeace Institute. (2020). *Securing Healthcare to Achieve Cyberpeace.*

<https://www.youtube.com/watch?v=B6uUmFbQv2I>

Choi, S. J. (2019). Hospital Data Breaches Reduce Patient Care Quality. *MITRE HealthLab, Baltimore, MD.*

Choi, S. J. (2015). The great recession and hospital capital investment. *University of Minnesota School of Public Health, Minneapolis, MN.*

Choi, S. J. (2012). Analyzing US demographic data for health research. *Catholic University of Korea School of Medicine, Seoul, South Korea.*

## Teaching and Supervision Experience

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### Courses Taught

21. PHC6160 0M77. (2023). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*

20. PHC6160 0M78. (2023). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*

19. PHC6164 0M77. (2023). Health Care Finance II, Masters, Mixed mode. *University of Central Florida.*

18. HSA5198 0M77. (2023). Health Care Decision Sciences, Masters, Mixed mode. *University of Central Florida.*

17. PHC6160 0M77. (2022). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*



16. PHC6160 OM78. (2022). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*
15. PHC6164 OM77. (2022). Health Care Finance II, Masters, Mixed mode. *University of Central Florida.*
14. PHC6164 OM78. (2022). Health Care Finance II, Masters, Mixed mode. *University of Central Florida.*
13. PHC6160 OM77. (2021). Health Care Finance I, Masters, Mixed Video mode. *University of Central Florida.*
12. PHC6160 OM78. (2021). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*
11. PHC6164 OM78. (2021). Health Care Finance II, Masters, Mixed Video mode. *University of Central Florida.*
10. PHC6164 OM79. (2021). Health Care Finance II, Masters, Mixed Video mode. *University of Central Florida.*
9. HSA3170 OM77. (2020). Health Care Finance, Undergraduate, Mixed Video mode. *University of Central Florida.*
8. PHC6160 OM77. (2020). Health Care Finance I, Masters, Mixed Video mode. *University of Central Florida.*
7. PHC6164 OM77. (2020). Health Care Finance II, Masters, Mixed Video mode. *University of Central Florida.*
6. PHC6160 OM78. (2019). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*
5. PHC6160 OM79. (2019). Health Care Finance I, Masters, Mixed mode. *University of Central Florida.*
4. HSA5198 OM01. (2019). Health Care Decision Sciences and Knowledge Management, Masters, Mixed mode. *University of Central Florida.*
3. HSA5198 OM03. (2019). Health Care Decision Sciences and Knowledge Management, Masters, Mixed mode. *University of Central Florida.*
2. HSA3170 OM01. (2018). HSA3170 OM01: Health Care Finance, Undergraduate, Mixed mode. *University of Central Florida.*
1. HSA3170 OW61. (2018). Health Care Finance, Undergraduate, Web mode. *University of Central Florida.*

## Teaching Enhancement Activities

Division of Student Success and Well-Being (2024). High Impact Practices Downtown Summit. University of Central Florida.

Faculty Center. (2021). Technology Tuesdays. University of Central Florida.

Faculty Center. (2020). Winter Conference. University of Central Florida.

Pegasus Innovation Lab. (2020). Virtual Florida Adaptive Learning Summit. University of Central Florida.

ADL 5000. (2018). How to teach an existing online course. University of Central Florida.

IDL 6543. (2018). How to teach online using a combination of seminars, labs, consultations, and web-based instruction. University of Central Florida.

## Doctoral Dissertation & Thesis Work

### *Dissertation Committees Served as Committee Member*

11. Alkinoon, M. (2023). *Dissertation Proposal. A Comprehensive and Comparative Examination of Healthcare Data Breaches*. Computer Science, University of Central Florida.
10. Almohaimed, S. (2023). *Admission to Candidacy. SIGMA: A Dataset for Text-to-Code Semantic Parsing with Statistical Analysis*. Computer Science, University of Central Florida.
9. Alqadhi, M. (2023). *Admission to Candidacy. Do Content Management Systems Impact the Security of Free Content Websites?*. Computer Science, University of Central Florida.
8. Choi, S. (2023). *Dissertation Proposal. Authorship Attribution of AI-generated Codes*. Computer Science, University of Central Florida.
7. Alabduljabbar, A. (2022). *Dissertation Defended: Towards a Holistic and Comparative Analysis of the Free Content Web: Security, Privacy, and Performance*. Computer Science, University of Central Florida.
6. Abusnaina, A. (2022). *Dissertation Defended: Studying the Robustness of Machine Learning-based Malware Detection Models*. Computer Science, University of Central Florida.
5. Muhammad, S. (2021). *Dissertation Defended: Analyzing The Blockchain Attack Surface: A Top-Down Approach* [PhD Thesis]. Computer Science, University of Central Florida.
4. Abuhamad, M. (2020). *Dissertation Defended: Large-Scale and Language-Oblivious Code Authorship Identification, Computer Science* [PhD Thesis]. Computer Science, University of Central Florida.

3. Choi, J. (2020). *Dissertation Defended: Evaluating the DNS Centralized Zone Data Service*. Computer Science, University of Central Florida.
2. Jang, R. (2020). *Dissertation Defended: Rogue Access Point Detection Using Intentional Channel Interference* [PhD Thesis]. Computer Science, University of Central Florida.
1. Park, J. (2020). *Dissertation Defended: Realistic Evaluation of the Very Short Intermittent DDoS Attacks* [PhD Thesis]. Computer Science, University of Central Florida.

### Graduate Assistants

- Reres, A. (2023-Present). Doctoral student in Public Affairs. University of Central Florida.
- Lyons, A. (2022-**2023**). **Masters' student in Health Administration. University of Central Florida.**
- Dewan, N. (2020-Present). Doctoral student in Public Affairs. University of Central Florida.
- Anjarwalla, A. (2019). Doctoral student in Public Affairs. University of Central Florida.

### Graduate Mentoring

- Kelly Tran (2023-Present). Focused Inquiry & Research Experience (FIRE). College of Medicine, University of Central Florida.

## Professional Service and Governance

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### University Service

#### *Department/School Level*

- Chair. (2023). SGHMI Teaching Advisory Committee. University of Central Florida.
- Member. (2023). SGHMI PhD Program Proposal Committee. University of Central Florida.
- Member. (2022, 2023). Instructor/Lecturer Search Committee. University of Central Florida.
- Member. (2021, 2022, 2023, 2024). Health Services Administration Faculty Search Committee. University of Central Florida.

Member. (2021). SGHMI-AESP self-assessment update task force. University of Central Florida.

Lead Instructor. (2020-present). Lead Instructor: PHC 6160, PHC 6164, HSA 5117. University of Central Florida.

Member. (2020). HMI Instructor/Lecturer Promotion & Tenure Committee. *University of Central Florida*.

Member. (2018). Library Committee Liaison. *University of Central Florida*.

Member. (2018). Public Affairs Admissions Committee. *University of Central Florida*.

#### *University Level*

Member. (2022). Faculty Senate Parking, Transportation and Safety Committee. University of Central Florida.

Member. (2021, 2022). Florida-Canada Linkage Institute Out-of-State Tuition Fee Exemption Awards Committee. *University of Central Florida*.

#### Professional Service

Member. (2023). *HIMSS Cybersecurity, Privacy, and Security Committee*.

Reviewer. (2023). *BMJ Health & Care Informatics*

Reviewer. (2023). *International Journal of Health Policy and Management*.

Reviewer. (2023). *AcademyHealth Annual Research Meeting*.

Reviewer. (2022). *AcademyHealth Annual Research Meeting*.

Reviewer. (2022). *Korea and the World Economy*.

Reviewer. (2022). *American Society of Health Economists*.

Reviewer. (2021). *AcademyHealth Annual Research Meeting*.

Reviewer. (2021). *The European Journal of Health Economics*.

Reviewer. (2021). *Association of Computing Machinery Computer Human Interaction*.

Reviewer. (2021). *Digital Health*.

Reviewer. (2021). *Health Informatics Journal*.

Reviewer. (2021). *Information Systems Research*.

Reviewer. (2021). *Quality Management in Healthcare*.

Reviewer. (2021). *Journal of Healthcare Management*.  
Reviewer. (2021). *Medical Care Research and Review*.  
Reviewer. (2020). *American Society of Health Economists*.  
Reviewer. (2019). *BMC Public Health*.  
Reviewer. (2019). *American Society of Health Economists*.  
Reviewer. (2018). *Forum for Health Economics and Policy*.  
Reviewer. (2018). *International Journal of Environmental Research and Public Health*.

#### Professional Memberships and Affiliation

Member. (2021-Present). *Healthcare Information and Management Systems Society*.  
Member. (2014-Present). *American Society of Health Economists*.  
Member. (2010-Present). *AcademyHealth*.

#### Media

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CyberPeace. (2021, March). *Playing with Lives: Cyberattacks on Healthcare are Attacks on People—CyberPeace Institute*. <https://cyberpeaceinstitute.org/event/playing-with-lives-cyberattacks-on-healthcare-are-attacks-on-people>

Jercich, K. (2021). *Hospitals lag other companies in cybersecurity risk ratings | Healthcare IT News*. Healthcare IT News.  
<https://www.healthcareitnews.com/news/hospitals-lag-other-companies-cybersecurity-risk-ratings>

McKeon, J. (2021). *Hospital Cybersecurity Ratings Catch Up to Other Industries*. Health IT Security. <https://healthitsecurity.com/news/hospital-cybersecurity-ratings-catch-up-to-other-industries>

Tradeoffs. (2021). **Health Care's Ransomware Wake-Up Call—Tradeoffs**. <https://tradeoffs.org/2021/07/29/health-cares-ransomware-wake-up-call/>

Renault, M., & Ring, W. (2020, December). *As hospitals cope with a COVID-19 surge, cyber threats loom*. AP NEWS. <https://apnews.com/article/us-news-vermont-coronavirus-pandemic-burlington-hacking-28af71f3861d245df052f06e12475c2d>

Crothers. (2020, September). *Ransomware attack results in death at German hospital* Fox News. <https://www.foxnews.com/tech/ransomware-attack-results-in-death-at-german-hospital>

- Ponta, A. (2020, May). *Cyber Operations Against Medical Facilities During Peacetime*. Lawfare. <https://www.lawfareblog.com/cyber-operations-against-medical-facilities-during-peacetime>
- Tong, S. (2020, May). *Hacking hospitals: Ransom notes and dark web chatter from health-care extortionists*. Marketplace. <https://www.marketplace.org/2020/05/14/hacking-hospitals-ransom-notes-and-dark-web-chatter-from-health-care-extortionists/>
- Akpan, N. (2019, October). *Ransomware and data breaches linked to uptick in fatal heart attacks*. PBS NewsHour. <https://www.pbs.org/newshour/science/ransomware-and-other-data-breaches-linked-to-uptick-in-fatal-heart-attacks>
- Wetsman, N. (2019, April). ***Health care's huge cybersecurity problem***. The Verge. <https://www.theverge.com/2019/4/4/18293817/cybersecurity-hospitals-health-care-scan-simulation>
- Franklin, C. (2018, March). *Dark Reading—Fixing Hacks Has Deadly Impact on Hospitals*. <https://www.darkreading.com/endpoint/privacy/fixing-hacks-has-deadly-impact-on-hospitals/d/d-id/1331386?print=yes>