

Hye-Chung Kum

Professor

Population Informatics Lab, Texas A&M University, Founding Director
TAMU ViDaL (Virtual Data Library), Texas A&M University, Founding Director
Department of Health Policy and Management, School of Public Health, Health Science Center
Department of Computer Science and Engineering, College of Engineering
Department of Industrial and Systems Engineering, College of Engineering
Texas A&M Institute of Data Science, Research Committee

Email: kum@tamu.edu

Website: <http://pinformatics.org/>

RESEARCH FOCUS

Overarching question: Population Informatics – How can we use the abundance of existing digital data, aka big data, about people (e.g. government administrative data, electronic health records) to support accurate evidence based decisions for research, evaluation, clinical care, policy, management and legislation while protecting the confidentiality of individual subjects of the data?

Preferred approaches: Data Science – To build efficient and effective human computer hybrid processes and systems to clean, integrate, and extract actionable information from raw chaotic data and deliver the information in a timely secure manner to decision makers (e.g. researchers, policy makers, managers, clinicians).

Specifically, I have contributed to three methodical developments in (1) privacy and interactive record linkage to integrate population data safely (e.g., Kum, Ragan, et al. 2019; Ragan, Kum. Et al. 2018; Ramezani, Kum, et al. 2021; Kum, Krishnamurthy, et al. 2014; O'Brien, Rodriguez, Kum et al. 2019), (2) sequential pattern mining for detecting underlying patterns in sequences of sets such as diagnosis over time (e.g., Kum, Pei et al. 2003; Kum, Chang, 2006; Kum, Chang, 2007;), and (3) designing, building, and maintaining efficient information systems for administrative data in order to inform government decision making and research (e.g., Kum, Krishnamurthy, et al. 2013; Kum, Stewart et al. 2015; Kum, Duncan, et al. 2009; Duncan, Kum et. al. 2008). I have also lead many interdisciplinary teams to conduct secondary data analysis using big data about people in liver cancer, telemonitoring, frequent ED use, military medicine, and children in foster care. In most of these research in health services research, I train students in the research who are first authors and I am second or last author (e.g., Giannouchos, Kum et al. 2021; Park, Kum et al. 2021; Choi, Kum, et al. 2019; Stewart, Kum et al. 2015; Leroux, Kum, et. al. 2016).

EDUCATION

[Dr. Kum is a data scientist cross-trained both in computer science and policy & management.]

B.S.	Yonsei University, Seoul, Korea	Computer Science	1991-1995
M.S.	University of North Carolina at Chapel Hill, NC	Computer Science	1995-1997
M.S.W.	University of North Carolina at Chapel Hill, NC	Social Work	1997-1998
	Macro (Policy & Management) Concentration Certificate in Nonprofit Leadership and Management		
Ph.D.	University of North Carolina at Chapel Hill, NC	Computer Science	1995-2004
	Advisor: Wei Wang (Computer Science) & Dean F. Duncan (Social Work) Dissertation: Approximate Mining of Consensus Sequential Patterns Honors: The Paul Hardin Dissertation Fellowship – Royster Fellows (2004) The UNC-CH Graduate School's Dean's Award (2003)		

EMPLOYMENT

Texas A&M University (TAMU), College Station, TX

Sep 2020 – current: Professor

Aug 2013 – Aug 2020: Associate Professor

Dept. of Health Policy and Management, School of Public Health, Health Science Center

Sep 2020 – current: Joint Full Professor (Unfunded courtesy appointment),

Sep 2015 – Aug 2020: Joint Associate Professor (Unfunded courtesy appointment),

Department of Computer Science and Engineering, College of Engineering

Sep 2020 – current: Joint Full Professor (Unfunded courtesy appointment),

Sep 2015 – Aug 2020: Joint Associate Professor (Unfunded courtesy appointment),

Department of Industrial and Systems Engineering, College of Engineering

Jun 2015 – current: Fellow, Center for Remote Health Technologies & Systems (CRHTS)

Texas A&M Engineering Experiment Station (TEES)

Aug 2018 – current: TAMU ViDaL (Virtual Data Library), Founding Director

Aug 2019 – current: Research Committee, Texas A&M Institute of Data Science

The University of North Carolina at Chapel Hill (UNC-CH), NC

July 2012 – July 2013: Research Associate Professor, School of Social Work

July 2004 – June 2012: Research Assistant Professor, School of Social Work

July 2012 – Aug 2016: Adjunct Associate Professor, Department of Computer Science

July 2004 – June 2012: Adjunct Assistant Professor, Department of Computer Science

Across both TAMU & UNC-CH

Aug 2010 – current: Founder & Director, Population Informatics Lab

PUBLICATIONS

<https://scholar.google.com/citations?user=Q1QxnqoAAAAJ&hl=en>

Peer Reviewed Full Articles in Journals (* indicates Student; ** indicates post-doc)

Published / In print

1. Anyatonwu*, S. C., Giannouchos**, T. V., Washburn, D. J., Quinonez, R. A., Ohsfeldt, R. L., & **Kum, H. -C.** (2022). Predictors of Pediatric Frequent Emergency Department Use Among 7.6 million Pediatric Patients in New York. *Academic Pediatrics*.
2. Karim**, M. A., Singal, A. G., **Kum, H. -C.**, Lee, Y. T., Park*, S., Rich, N. E., ... & Yang, J. D. (2022). Clinical Characteristics and Outcomes of Nonalcoholic Fatty Liver Disease-Associated Hepatocellular Carcinoma In the United States. *Clinical Gastroenterology and Hepatology*.
3. Park, S.*, **Kum, H.-C.**, Morrissey, M., Zheng, Q., Lawley, M. Adherence to telemonitoring therapy for Medicaid patients with hypertension: A Case Study. (2021). *J Med Internet Res (JMIR)*. 23(9), e29018

4. Giannouchos T.* , Ferdinand, A., Ilangovan, G., Ragan, E., Nowell, B., **Kum, H.-C.**, and Schmit, C. (2021). Identifying and Prioritizing Benefits and Risks of using Privacy Enhancing Software: A Nominal Group Technique Study with Patients Living with Chronic Conditions. *J Am Med Inform Assoc (JAMIA)*. 28(8), August 2021, pp 1746–1755.
5. Giannouchos, T.* , **Kum, H.-C.**, Gary, J. C., Ohsfeldt, R. L., & Morrisey, M. A. (2021). The effect of the Medicaid expansion on frequent emergency department use in New York. *Journal of Emergency Medicine*. Sep 10 2021.
6. Karim*, M., Ohsfeldt, R. L., Singal, A. G., Morrisey, M. A., & **Kum, H. -C.** (2021) Underinsurance, Out-of-Pocket Expenditure and Health Services Utilization Among Insured Cancer Survivors in the United States, 2011-2015. *Cancer Medicine*. 10(16), pp 5513-5523.
7. Wagle*, N.S., Park*, S., Washburn, D., Ohsfeldt, R.L., Rich, N.E., Singal, A.G. and **Kum, H.-C.** (2021), Racial, Ethnic, and Socioeconomic Disparities in Curative Treatment Receipt and Survival in Hepatocellular Carcinoma. *Hepatol Commun*.
<https://doi.org/10.1002/hep4.1863>
8. Giannouchos, T.* , Gary, J., Anyatonwu, S.* , **Kum, H.-C.** (2021). Emergency Department utilization by adolescents experiencing homelessness in Massachusetts. *Medical Care*. 59, S187-S194.
9. Giannouchos, T.* , **Kum, H.-C.**, Gary, J. C., Morrisey, M. A., & Ohsfeldt, R. L. (2021). The effect of expanded insurance coverage under the Affordable Care Act on emergency department utilization in New York. *The American Journal of Emergency Medicine*, 48, 183-190.
10. Schmit, C., Giannouchos, T.* , Ramezani, M.* , Zheng, Q., Morrisey, M. A., & **Kum, H.-C.** (2021). US Privacy Laws Go Against Public Preferences and Impede Public Health and Research: Survey Study. *Journal of Medical Internet Research*, 23(7), e25266.
11. Kim, J., Trueblood, A. B., **Kum, H.-C.**, & Shipp, E. M. (2021). Crash narrative classification: Identifying agricultural crashes using machine learning with curated keywords. *Traffic injury prevention*, 22(1), 74-78.
12. Nabil*, A. K., Barry, A. E., **Kum, H. -C.**, & Ohsfeldt, R. L. (2021). Actual and perceived E-cigarettes behaviors among a national sample of US college students. *Journal of American College Health*, 1-9.
13. Schmit C., Ajayi* K., Ferdinand AO., Giannouchos* T., Ilangovan G., **Kum H.-C.** (2020). *Communicating to Patients about Privacy in Secondary Database Research Involving Record Linkage: A Delphi Study*. *J Med Internet Res (JMIR)*. 22(12), e20783.
14. Giannouchos, T.* , Washburn, D., **Kum, H.-C.**, Sage, W., Ohsfeldt, R. (2020). Predictors of Multiple Emergency Department Utilization Among Frequent Emergency Department Users In Three States. *Medical Care*. 58(2):137-145. doi: 10.1097/MLR.0000000000001228.

15. Wells, R., Breckenridge, E. D., Siañez, M., Tamayo, L., **Kum, H.-C.**, & Ohsfeldt, R. L. (2020). Self-reported quality, health, and cost-related outcomes of care coordination among patients with complex health needs. *Population Health Management*, 23(1), 59-67.
16. Choi, D. T.*, **Kum, H.-C.**, Park, S.*, Ohsfeldt, R. L., Shen, Y., Parikh, N. D., & Singal, A. G. (2019). Hepatocellular Carcinoma Screening is Associated with Increased Survival of Patients with Cirrhosis. *Clinical Gastroenterology and Hepatology*. 17. 976-987.
17. Giannouchos, T.*, **Kum, H.-C.**, Foster, M., Ohsfeldt, R. (2019). *Characteristics and predictors of adult frequent emergency departments' users in the United States: a systematic literature review*. *Journal of Evaluation in Clinical Practice*. 25(3). 420-433.
18. Correa, M. F.*, Li, Y., **Kum, H.-C.**, & Lawley, M. A. (2019). Assessing the Effect of Clinical Inertia on Diabetes Outcomes: a Modeling Approach. *Journal of general internal medicine*, 34(3). 372-378.
19. O'Brien, E., Rodriguez, A., **Kum, H.-C.**, Schanberg, L., Fitz-Randolph, M., O'Brien, S., Setoguchi, S. (2019). Patient perspectives on the linkage of health data for research: insights from an online patient community questionnaire. *International Journal of Medical Informatics*. 127. 9-17.
20. Sultana, I.*, Erraguntla, M., **Kum, H.-C.**, Delen, D., Lawley, M. (2019) Post-acute care referral in United States of America: a multiregional study of factors associated with referral destination in a cohort of patients with coronary artery bypass graft or valve replacement. *BMC Med Inform Decis Mak* 19 (1), 1-5. doi:10.1186/s12911-019-0955-0
21. Phillips, C., Truong*, C., **Kum, H.-C.**, Nwaiwu, O., and Ohsfeldt, R. (2019) The Effects of Chronic Disease on Ambulatory Care Sensitive Hospitalizations for Children or Youth. Under Review. *Health Services Insights* 12
22. Trueblood, A. Pant, A., Kim, J., **Kum, H.-C.**, Perez, M. Das, S., Shipp, E. (2019). A semi-automated tool for identifying agricultural roadway crashes in crash narratives. *Traffic Injury Prevention*. 20(4). 413-418. DOI: 10.1080/15389588.2019.1599873.
23. Wells, R., Breckenridge, E., Sianez**, M., Tamayo*, L., **Kum, H.-C.**, Ohsfeldt, R. (2019). Self-Reported Quality, Health, and Cost-Related Outcomes of Care Coordination Among Patients with Complex Health Needs. *Population Health Management*. May 20. doi: 10.1089/pop.2019.0007. [Epub ahead of print]
24. Phillips, C., Truong*, C., **Kum, H.-C.**, Nwaiwu, O., and Ohsfeldt, R. (2018). Post-acute care for children with special health care needs. *Disability and Health Journal*. 11(1). 49-57
25. Hillemeier, M. M., Domino, M. E., Wells, R., Goyal*, R. K., **Kum, H.-C.**, Cilenti, D., & Basu, A. (2018). Does Maternity Care Coordination Influence Perinatal Health Care Utilization? Evidence from North Carolina. *Health Services Research*. 53(4), 2368-2383. <https://doi.org/10.1111/1475-6773.12742>
26. McGrail KM, Jones KH, Akbari A, Bennett T, Boyd A, Carinci F, Cui X, Denaxas S, Dougall N, Ford DV, Kirby R, **Kum, H.-C.**, Moorin R, Moran R, O'Keefe C, Preen D, Quan H, Sanmartin C, Schull M, Smith M, Williams C, Williamson T, Wyper G, Kotelchuck M. A

(2018) Position Paper on Population Data Science: The science of data about people. *International Journal of Population Data Science*. 22:3(1) Feb 2018.

27. Alvarado, M.** , **Kum, H.-C.**, Foster M, Gonzalez* K., Ortega* P., Lawley, M. (2017). Barriers to Remote Health Interventions for Type 2 Diabetes: A Systematic Review and Proposed Classification Scheme. *Journal of Medical Internet Research*,19(2), e28
28. Phillips, C., Truong* , C., **Kum, H.-C.**, Nwaiwu, O., and Ohsfeldt, R. (2017) A Population Study of Post-Acute Care for Children with Special Health Care Needs in Texas, 2011-2014. *Clinical Medicine Insights: Pediatrics*. 11
29. Leroux, T.* , Cote, M., **Kum, H.-C.**, Dabney, A., Wells R. (2017) Transitioning to Patient-Centered Medical Homes: Associations with Appointment Availability. *Military Medicine* March 2017 Vol. 182, pp 1741-1746.
30. Rodriguez-Paras* , C., Brown, E., Tippey* , K., Creech, S.K., Lawley, M., **Kum, H.-C.**, Sasangohar, F. & Benzer, J.K. (2017) Investigating Post-Traumatic Stress Disorder (PTSD) Mobile Health (mHealth) Applications Usage and Validation: An App Investigation and Scoping Literature Review. *Journal of Medical Internet Research Mhealth and Uhealth*. 2017;5(10):e156
31. Leroux, T.* , **Kum, H.-C.**, Dabney, A., Wells R. (2016) Military Deployments and Mental Health Utilization Among Spouses of Active Duty Service Members. *Military Medicine* Oct 2016 Vol. 181, pp 1269-1274.
32. **Kum, H.-C.**, Stewart, C.J.* , Rose, R.A. & Duncan, D.F., Using big data for evidence based governance in child welfare, *Children and Youth Services Review* (2015), Volume 58, November 2015, Pages 127-136, ISSN 0190-7409, doi: 10.1016/j.chilgyouth.2015.09.014.
33. Cilenti, D., **Kum, H.-C.**, Wells, R., Whitmire, T., Goyal, R.* , and Hillemeier, M. (2015). Changes in North Carolina Maternal Health Service Use and Outcomes among Medicaid-enrolled Pregnant Women during State Budget Cuts. *Journal of Public Health Management & Practice*. Mar-Apr 2015 21(1):pp 208-213.
34. Ojinnaka, C. O.* , Choi, Y.* , **Kum, H.-C.**, Bolin, J. (2015). Predictors of Colorectal Cancer Screening: Does Rurality Play a Role? *The Journal of Rural Health*. Jan 2015 19.
35. Hillemeier, M., Domino, M., Wells, R., Goyal, R.* , **Kum, H.-C.**, Cilenti, D., Whitmire, T., Basu, A. (2015). Effects of Maternity Care Coordination on Pregnancy Outcomes: Propensity-Weighted Analyses. *Maternal & Child Health Jour*. Jan 2015 19(1) pp121-127.
36. **Kum, H.-C.**, Krishnamurthy, A., Machanavajjhala, A., and Ahalt, S. (2014). Tapping the Social Genome to Advance Society: A Vision for Putting Big Data to Work for Population Informatics, Editors. *IEEE Computer Special Outlook Issue*. Jan 2014. p. 56-63.
37. **Kum, H.-C.**, Krishnamurthy, A., Machanavajjhala, A., Reiter, M., and Ahalt, S. (2014). Privacy preserving interactive record linkage (PPIRL). *J Am Med Inform Assoc (JAMIA)*, 2014;21:212–220.

38. Stewart, C.J.*, **Kum, H.-C.**, Barth, R.P., Duncan, D.F. (2014). Former foster youth: Employment outcomes up to age 30. *Children and Youth Services Review*, 2014. 36(0): p. 220-229.
39. Rajasekar A., **Kum, H.-C.**, Crosas M., et al. (2013). The DataBridge, *Science Journal*. ASE. 2(1) 2013. Nominated for best paper award at ASE/IEEE International conf. on BigData 2013
40. Barth, R.P., Duncan, D.F., Hodorowicz, M.*, and **Kum, H.-C.** (2010). Felonious arrests of former foster care and TANF-involved youth. *Journal of the Society for Social Work & Research*, 2010. 1(2).
41. **Kum, H.-C.**, Duncan, D.F., and Stewart, C.J.* (2009). Supporting self-evaluation in local government via Knowledge Discovery & Data mining. *Government Information Quarterly*, 2009. 26(2):295-304
42. Chang, J.H. and **Kum, H.-C.** (2009). Frequency-based load shedding over a data stream of tuples. *Information Sciences*, 2009. 179(21): p. 3733-3744.
43. Duncan, D.F., **Kum, H.-C.**, Weigensberg, E. C.*, Flair, K. A., and Stewart, C. J.* (2008). Informing Child Welfare Policy and Practice Using Knowledge Discovery and Data Mining Technology via a Dynamic Web Site. *Child Maltreatment*, 2008. 13(4): p. 383-391.
44. **Kum, H.-C.**, Chang, J.H., and Wang, W. (2007). Benchmarking the effectiveness of sequential pattern mining methods. *Data & Knowledge Engineering*. 60(1): p. 30-50.
45. **Kum, H.-C.**, Chang, J.H., & Wang, W.(2006). Sequential pattern mining in multi-databases via multiple alignment. *Data Mining and Knowledge Discovery*. 12(2-3): p. 151-180.
46. Nyland, L., Prins, J., Yun, R. H., Hermans, J., **Kum, H.-C.***, & Wang L.* (1997). Achieving Scalable Parallel Molecular Dynamics Using Dynamic Spatial Domain Decomposition Techniques. *Journal of Parallel and Distributed Computing*, V47, pp127-138. (SCI)

Peer Reviewed Full Articles in Proceedings

[In Computer Science, these may be the premier venues much more competitive, circulated, and cited than journals. I annotate the top venues with low acceptance rates explicitly. See article Patterson, D., Snyder, L., & Ullman, J. (1999). Best practices memo: Evaluating computer scientists and engineers for promotion and tenure. Computing Research News, 11(4), A-B.]

47. Ramezani*, M., **Kum, H.-C** and Ilangovan, G. (2021). Evaluation of Machine Learning Algorithms in a Human-Computer Hybrid Record Linkage System. Combining Machine Learning and Knowledge Engineering (AAAI-MAKE) 2021.
48. Karim, M.*, Ohsfeldt, R., Khodakarami, N., Simon, K., **Kum, H.-C.** (2020). Association of Sociodemographics with out-of-Pocket Expenditure (OOP) and Underinsurance in Skin Cancer Survivors. In 9th Annual Conference of the American Society of Health Economists. ASHECON. June 2020.
49. **Kum, H.-C.**, Ragan, E., Ilangovan, G., Ramezani, M.*, Li, Q.*, and Schmit, C. (2019) Enhancing Privacy through an Interactive On-demand Incremental Information Disclosure

Interface: Applying Privacy-by-Design to Record Linkage. 2019 the Symposium on Usable Privacy and Security (SOUPS). 23% (=27/119 acceptance rate)

50. Ragan, E., **Kum, H.-C.**, Ilangoan, G.* , and Wang, H.* (2018). Balancing Privacy and Information Disclosure in Interactive Record Linkage with Visual Masking. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). Association for Computing Machinery, New York, NY, USA, Paper 326, 1–12. DOI:<https://doi.org/10.1145/3173574.3173900> **ACM. CHI2018 Honourable Mention Best Paper Award (top 5% of all submissions)**. Also presented at the 14th Symposium on Usable Privacy and Security (SOUPS) Aug 2018 as invited poster
51. Elkins, A.D.* , Gorman, D.M., Maddock, J.E., **Kum, H.-C.**, & Lawley, M.A. (2015). The value of the frame: Painting complexity using two chronic disease models. *Journal of the International Society for the Systems Sciences: Proceedings of the 59th Annual Meeting of the International Society for Systems Sciences – 2015 Berlin, Germany*.
52. **Kum, H.-C.**, and Ahalt, S. (2013). Privacy-by-Design: Understanding Data Access Models for Secondary Data. AMIA Summits Transl Sci Proc. 2013: p. 126-30. **Nominated for best paper award.**
53. Rajasekar, A., Sankaran, S., Lander, H., Carsey, T., Crabtree, J., **Kum, H. C.** & Zhan, J. (2013, September). Sociometric methods for relevancy analysis of long tail science data. In *2013 Proceedings of the International Conference on Social Computing* (pp. 1-6). IEEE
54. **Kum, H.-C.**, Krishnamurthy, A., Pathak*, D., Reiter, M., and Ahalt, S. (2013) Secure Decoupled Linkage (SDLink) system for building a social genome. Poster and extended paper In IEEE International Conf on BigData. 2013.
55. **Kum, H.-C.**, and Ahalt, S. (2011). Decoupled Data for Privacy Preserving Record Linkage with Error Management. in Privacy, security, risk and trust (passat), IEEE third international conference on (SocialComp) 2011, MIT Boston.
56. Cheng, W.* , Ni, X., Sun, J., Jin, X., **Kum, H.-C.**, Zhang, X. and Wang, W. (2011). Measuring Opinion Relevance in Latent Topic Space, IEEE third International conference on social computing. (SocialComp) 2011, MIT Boston.
57. **Kum, H.-C.**, Chang, J.H., and Wang, W. (2007). Intelligent sequential mining via alignment: Optimization techniques for very large DB, in Advances in Knowledge Discovery and Data Mining, Proceedings, Z.H. Zhou, H. Li, and Q. Yang, Eds. p. 587-597. Proceeding reprinted as Book Chapter
58. **Kum, H.-C.**, Paulsen, S., and Wang, W. (2005). Comparative study of sequential pattern mining models, in Foundations of Data Mining & Knowledge Discovery, T.Y. Lin, et al. pp43-70. Proceeding reprinted as Book Chapter.
59. **Kum, H.-C.**, Duncan, D., Flair, K., and Wang, W. (2004). Successfully adopting IT for social welfare program management, in Proceedings of the annual national conference on Digital government research. Digital Government Society of North America: Seattle, WA.
60. **Kum, H.-C.**, Pei, J., Wang, W., and Duncan, D. (2003). ApproxMAP: Approximate mining of consensus sequential patterns. Proceedings of the Third Siam International Conference

on Data Mining, ed. D. Barbara and C. Kamath. pp311-315. Full paper published as book chapter in *Mining Sequential Patterns from Large Data Sets: The Kluwer International Series on Advances in Database Systems, Vol. 28*. pp138-158. Springer. Technical Report TR02-031, UNC-CH.

61. **Kum, H.-C.**, Duncan, D., Flair, K., and Wang, W. (2003). Social welfare program administration and evaluation and policy analysis using knowledge discovery and data mining (KDD) on administrative data, in Proceedings of the annual national conference on Digital government research. Digital Government Society of North America: Boston, MA.
62. Nyland, L., Prins, J., Yun, R. H., Hermans, J., **Kum, H.-C.***, & Wang L*. (1998). Modeling Dynamic Load Balancing in Molecular Dynamics to Achieve Scalable Parallel Execution. *IRREGULAR*, pp356-365

Peer Reviewed Conference and Workshop Presentations, Tutorials, Abstracts & Posters (Selected)

1. Anyatonwu, S., Giannouchos, T., Washburn, D., Quinonez, R., & **Kum, H.-C.** (2021, June). Characteristics and Factors Associated with Pediatric Frequent ED Use: An Analysis of 7.6 Million Pediatric ED Patients in New York. In *2021 Annual Research Meeting*. AcademyHealth.
2. Sulki Park, Mark A. Lawley, and Hye-Chung Kum. 2020. Effective Remote Patient Monitoring (RPM) System in Managing Population Health for Patients with Hypertension. AMIA 2020 Informatics Summit. Oral Presentation.
3. Ilangovan, G., Ramezani, M., **Kum, H.-C.** A Benchmarking System to Evaluate the Effectiveness and Efficiency of Machine Learning Algorithms for Record Linkage. AMIA 2020 Informatics Summit. Also invited to AMIA 2020 Annual Symposium. Poster.
4. Wagle, Nikita Sandeep; Schueler, Jordan; Engler, Solangia; Fields, Sherecce; Kum, Hye-Chung. Patient-Perceived Barriers and Facilitators of Using Remote Health Technology to Manage Diabetes and Cardiovascular Disease in Underserved Adult Populations: a Systematic Review. AMIA 2020 Informatics Summit. Also invited to AMIA 2020 Annual Symposium. Poster
5. Giannouchos, T., Kum, H. C., Ohsfeldt, R., Gary, J., & Morrissey, M. (2020). Medicaid Expansion Resulted in Decreased Odds of Frequent Emergency Department Use Among Medicaid Beneficiaries and the Uninsured in New York. *Health Services Research*, 55, 77-77. Academy Health Annual Research Meeting 2020.
6. Sulki Park, Nikita Sandeep Wagle, Insik Min, and Hye-Chung Kum. 2020. Comparison of the Receipt of Treatment and Overall Survival for Hepatocellular Carcinoma between the United States and South Korea. Academy Health Annual Research Meeting 2020. Poster.
7. Wagle, Nikita Sandeep, Park, Suki; Washburn, David; Yopp, Adam; Ohsfeldt, Robert; Singal, Amit; Kum, Hye-Chung. Racial/Ethnic and Neighborhood Socioeconomic Disparities in Curative Treatment Receipt and Overall Survival in Patients with Hepatocellular Carcinoma. Academy Health Annual Research Meeting 2020. Poster

8. Sulki Park, Mark A. Lawley, and Hye-Chung Kum. 2020. Managing population health with home telemonitoring for elderly diabetes patients on Medicaid in Texas. American Public Health Association Annual Meeting 2020. Poster. **Nominated for Laurence Branch Award for Doctoral Research.**
9. Karim, M., Ohsfeldt, R. L., Singal, A. G., & Kum, H. C. (2020, April). Out-of-pocket expenditure, probability of underinsurance and health services utilization among non-elderly cancer survivors. In American Association for Cancer Research (AACR) Annual Meeting 2020. Poster
10. Karim, M., Nabil, A. K., Khodakarami, N., Ohsfeldt, R. L., & Kum, H. C. (2020, May) Economic evaluation of epidermal growth factor receptor tyrosine kinase inhibitor (EGFR TKI) drugs in non-small cell lung cancer (NSCLC) treatment: a systematic review of recent studies. In International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Conference 2020. Poster.
11. Shipp, E. M., Trueblood, A. B., Kum, H. C., Garcia, T., Vasudeo, S., & Perez, M. (2020). JA: 2021-33. Logging Truck Crashes in the SW Agricultural Region: Examining Severity and Associated Factors. *Journal of Agromedicine*, 25(3), 257-258. Poster abstract.
12. **Kum, H.-C.** and Ragan, E. (2019). Exploring the Use of Interactive Interfaces and Feedback Mechanisms to Enhance Privacy in Data Workers through Information Accountability. Workshop on Security Information Workers (WSIW 2019) at the Symposium on Usable Privacy and Security (SOUPS).
13. Giannouchos, T.* , **Kum, H.-C.**, Ohsfeldt, R., Morrissey, M. *Longitudinal Analysis of the Impact of Medicaid Expansion on Non-Emergent Emergency Department (ED) Use Among Uninsured Frequent ED Users in New York.* Poster at the Academy Health Annual Research Meeting, 2019, Washington, DC.
14. **Kum, H.-C.**, Ragan, E., Giannouchos, T.* , Schmit, C., Ilangovan, G.* , Li, Q*. *Enhancing Privacy in Record Linkage Studies By Meeting the Minimum Necessary Standard.* Poster at the Academy Health Annual Research Meeting, 2019, Washington, DC.
15. Olowolaju, S.* , Giannouchos, T.* , **Kum, H.-C.** *Demographic and Clinical Characteristics of Frequent Pediatric Emergency Department Users: A Systematic Review and Policy Direction.* Poster at the Academy Health Annual Research Meeting, 2019, Washington, DC.
16. Shipp, E., Trueblood, A., **Kum, H.-C.**, Kim, J., Pant, A., and Perez, M. (2019). SW AgCrash: Mining Motor Vehicle Crash Report Narratives to Improve Worker Safety. Poster at the 2019 International Society for Agricultural Safety and Health (ISASH) Annual Conference. Des Moines, June 2019.
17. Giannouchos, T.* , **Kum, H.-C.**, Ferdinand, A., Schmit, C., Ilangovan, G.* , Ragan, E.* Patients' and Stakeholders' Perceptions of Risk and Benefits of the Privacy Preserving Interactive Record Linkage (PPIRL) Framework. Poster accepted at the *Advanced Ethical Research (AER) Conference*, Jun 2018, San Diego, CA.
18. Schmit,C., **Kum, H.-C.**, Ragan, E., Ferdinand, A., Giannouchos, T.* (2018). Trusted Third Party Software Approach to Facilitate Data Disclosures Governed by “Minimum

Necessary” Legal Standards in Record Linkage Studies. *APHA*. Nov 2018. San Diego, CA.

19. Giannouchos T.* , **Kum, H.-C.**, Ferdinand, A., Schmit, C., Ilangovan, G.* , Ragan, E.* (2018) Patients’ and Stakeholders’ Perceptions of Risk and Benefits of the Privacy Preserving Interactive Record Linkage (PPIRL) Framework. *AcademyHealth Annual Research Meeting*, Jun 2018, Seattle, WA.
20. **Kum, H.-C.**, Giannouchos, T.* , Washburn, D., Sage, W., Ohsfeldt, R. *Emergency Department Patients who Frequently Visit Three or More Different Hospitals in One Year*. AcademyHealth Annual Research Meeting, 2018, Seattle, WA
21. **Kum, H.-C.**, Ilangovan, G.* , Li, Q.* , Li, Y.* , & Ragan, E. (2018). An Effective Privacy Enhanced Interface to Support Record Linkage Decisions. *International Journal of Population Data Science*, 3(4). Oral Presentation at 2018 *International Population Data Linkage Conference*. Banff, Canada. Sep 2018.
22. **Kum, H.-C.**, Leonard, S., Akgün, O., Alexander T., Antonie L., Levenstein, M., O’Hara, A. (2018). Establishing an International Data Linkage Repository Workgroup Toward a Benchmarking Repository. *International Journal of Population Data Science*, 3(4). Oral Presentation at 2018 *International Population Data Linkage Conference*. Banff, Canada. Sep 2018.
23. Choi, D.* , **Kum, H.-C.**, Park, S.* , Ohsfeldt, R., & Singal, A. G. (2018). Tu1445- Hepatocellular Carcinoma Screening is Underused in at-Risk Patients. *Gastroenterology*, 154(6), S-1218. June 2018.
24. Chung, A., Chen, H.* , Shin, G.* , Mane, K., & **Kum, H.-C.** (2017). 2465: The design of a patient-centered personal health record with patients as co-designers. *Journal of Clinical and Translational Science*, 1(S1), 18-18.
25. **Kum, H.-C.**, Schmit, C., Ferdinand, A., Giannouchos, T.* (2017). Controlling privacy risk in database studies for human subject protection (HSP) via a privacy budgeting system. 2017 *Advancing Ethical Research Conference*. Nov 2017.
26. **Kum, H.-C.**, Schmit, C. (2017). Understanding the full continuum of identifiable to de-identifiable data in the world of big data to minimize privacy risk in database studies. 2017 *Advancing Ethical Research Conference*. Nov 2017.
27. Schmit, C., **Kum, H.-C.**, Giannouchos, T.* (2017). The Consent Paradox: the 2018 Common Rule Revisions Leave HIPAA-Covered Researchers in the Dark. 2017 *Advancing Ethical Research Conference*. Nov 2017.
28. Moon, Jukrin* , Smith, Alec, Sasangohar, F., Benzer, J., **Kum, H.-C.** A Descriptive Model of the Current PTSD Care System: Identifying Opportunities for Improvement. Proceedings of the 2017 *International Symposium on Human Factors and Ergonomics in Health Care*. Poster Presentation. Mar 2017.
29. **Kum, H.-C.**, & Jain, P*. K-Anonymity Based Privacy Risk Budgeting System for Interactive Record Linkage. *International Journal for Population Data Science* [Online], 1.1 (2017): n.

page. Web. 21 Apr. 2017. Oral Presentation. International Population Data Linkage Conference. Swansea, UK. Aug 2016

30. **Kum, H.-C.** Incremental Interactive Record Linkage using Human Intelligence Tasks (HITs). *International Journal for Population Data Science* [Online], 1.1 (2017): n. page. Web. 21 Apr. 2017. Oral Presentation. 2016 International Population Data Linkage Conference. Swansea, UK. Aug 2016
31. **Kum, H.-C.**, & Ohsfeldt R. (2016). Comparison of Data to Decision Models for a Data Consortia. *Value in Health* 19 (3), A82. Presented at the 2016 Annual ISPOR International Meeting.
32. Christen, P., **Kum, H.-C.**, Wang, Q., Vatsalan, D. Population Informatics using Big Data. Tutorial at Pacific Asia Knowledge Discovery and Data Mining Conference (PAKDD) 2016.
33. Sasangohar, F., Benzer, J., **Kum, H.-C.**, Creech, S.K. Collaborative Management of PTSD Treatment through Smartphone Apps Validated through Patient-Centered Design. Poster Presentation at the 23rd NIMH Conference on Mental Health Services Research, MHSR 2016: Harnessing Science to Strengthen the Public Health Impact. Bethesda, MD.
34. Brown, E.K., Benzer, J.K., Creech, S.K., **Kum, H.-C.**, Lawley, M., & Sasangohar, F. (June, 2016). Collaborative Management of PTSD Treatment through Smartphone Apps: What is Available and Accessible? Poster presented at the AcademyHealth Annual Research meeting, Boston, MA and to the International Society for Traumatic Studies annual meeting. Dallas, TX.
35. Rodriguez, C.P., Sasangohar, F., Benzer, J., **Kum, H.-C.**, Creech, S.K. (2016). Mobile Health Applications for Addressing Post-Traumatic Stress Disorder (PTSD): A Literature Review. Poster Presentation at the International Society for Traumatic Studies annual meeting. Dallas, TX.
36. Chung A., Shin G., Chen H., Mane K., **Kum, H.-C.** (2016). Reimagining the Personal Health Record: Patients as Co-Designers. *Am Med Inform Assoc (AMIA) 2016 Annual Symposium*.
37. Ghaffari, A. Wells, R., Armstrong, T., Creel, L., **Kum, H.-C.**, Brossart, D., Roper-Coleman, S., Sunbury, T. (2015) Applying relational coordination to inter-agency teamwork and patient experiences with providers. Oral presentation at Organizational Theory in Health Care Conference, Richmond, VA, May 27-29, 2015 (Ghaffari presenting).
38. Tamayo, L., **Kum, H.-C.**, Wells, R., Du, Y. Roper-Coleman, S., Sunbury, T. (2015) Health Status and Health Experience among Adult, Hispanic, Frequent ED Users. *Academy Health's 2015 Annual Research Meeting (ARM)*. Poster.
39. Goyal, R. K., Domino, M. E., Wells, R. S., **Kum, H.-C.**, & Hillemeier, M. M. (2014). Do Children With Special Needs Receiving Care Coordination Have Greater Access To Primary Care? *Value in Health*, 17(3), A146. Presented at the 2014 Annual ISPOR International Meeting doi: 10.1016/j.jval.2014.03.848
40. **Kum, H.-C.** Krishnamurthy A., Dusetzina S. (2014) Privacy Preserving Interactive Record Linkage: Privacy beyond Anonymity. *Academy Health's 2014 Annual Research Meeting*

(ARM). Accepted as a poster in the HIT theme. Also presented at the HIT interest group meeting.

41. Sunbury, T., **Kum, H.-C.**, Ghaffari, A., Gregory, S. (2014) Building an Efficient Hybrid Human Machine System for Ongoing Record Linkage. Academy Health's 2014 Annual Research Meeting (ARM).
42. **Kum, H.-C.** (2014). Safe Data Access Models for Population Informatics Research. Oral Presentation. 2014 International Health Data Linkage Conference. Vancouver, CA
43. **Kum, H.-C.** (2014). A Secure Computerized Third Party Linkage Software Design. Rapid Fire Poster Presentation. 2014 International Health Data Linkage Conference. Vancouver, CA.
44. Bauer R., **Kum H.-C.**, and Reiter M. Protecting Personal Information with Secure Execution Technology, *Am Med Inform Assoc (AMIA) 2013 Annual Symposium*
45. **Kum, H.-C.**, Pathak D., Sanka, G., and Ahalt, S. (2013). Privacy Beyond Anonymity: Decoupling Data using Encryption, *American Medical Informatics Association (AMIA) joint summits on translation science: clinical research informatics*.
46. **Kum, H.-C.**, Moore, T. D., Stewart, C. J., & Dineen, M. (2012). Decision Support Systems and Informatics for Child Welfare Administrative Data to Inform Practice and Policy. *The 18th Nat'l Conf on Child Abuse and Neglect (NRC-CWDT), Celebrating the Past ~ Imagining the Future*. Apr 2012.
47. Moore, T. D., **Kum, H.-C.**, Stewart, C. J., Smith, S., Staysa, M. J., Dineen, M. (2012). Building Capacity for Child Welfare Research through Improving Data Infrastructure and Culture Around Data Usage. *16th Annual Conf. on Society for Social Work and Research (SSWR)*. Jan 2012.
48. **Kum, H.-C.**, Barth, R., Stewart, C. J., Lee, C. K. (2012). Coming of Age: Employment Outcomes for Youth Who Age Out of Foster Care Through Their Middle to Late Twenties. *16th Annual Conference on Society for Social Work and Research (SSWR)*. Jan 2012.
49. **Kum, H.-C.**, (2011). An Effective Model for Using Administrative Data to Inform Social Services Policy, Practice, and Management. *15th Annual Conference on Society for Social Work and Research (SSWR): Emerging Horizon for Social Work Research*. Jan 2011.
50. **Kum, H.-C.**, Meyer, D. Ahn, H., Rolock, N., Gabel, G. (2011). Roundtable on Building and Maintaining An Effective Information System of Administrative Data at Universities in Partnership with State Agencies. *15th Annual Conference on Society for Social Work and Research (SSWR)*. Jan 2011.
51. **Kum, H.-C.**, Duncan, D. F., Bowers, H., & Cambridge, D. (2009). Linking across multiple databases with less than perfect data. *The 12th National Child Welfare Data and Technology Conference (NRC-CWDT)*. June 2009.
52. **Kum, H.-C.**, D.F. Duncan, and K.A. Flair, A dynamic website for county level child welfare outcome measures, in Proceedings of the 2008 international conference on Digital

government research. 2008, Digital Government Society of North America: Montreal, Canada. p. 383-384.

53. Duncan, D. F., **Kum, H.-C.**, & Barth, R. (2008). Employment and Felonious Arrests of Former Foster Care Youth. *The 11th National Child Welfare Data and Technology Conference (NRC-CWDT)*. July 2008.
54. Macomber J., McDaniel, M., Cuccaro-Alamin S., & **Kum, H.C.** (2007). Linking Child Welfare & Employment Data: Assessing Extended Outcomes for Youth Aging Out of Foster Care. *The 10th National Child Welfare Data and Technology Conference (NRC-CWDT)*. July 2007.
55. Duncan, D. F., **Kum, H.-C.**, & Johnson, K. (2006). Effectively Sharing Information with 100 counties. *The 9th Nat'l Child Welfare Data and Tech. Conf. (NRC-CWDT)*. July 2006.
56. **Kum, H.-C.**, Duncan, D., and Wang, W. (2004). Understanding social welfare service patterns using sequential analysis, in Proceedings of the annual national conference on Digital government research. Digital Government Society of North America: Seattle, WA.
57. **Kum, H.-C.**, Duncan, D., al., Adopting IT for effective management of social welfare programs, in Proceedings of the 2004 annual national conference on Digital government research. 2004, Digital Government Society of North America: Seattle, WA.
58. **Kum, H.-C.**, et al., Management assistance for Work First via a dynamic website, in Proceedings of the 2003 annual national conference on Digital government research. 2003, Digital Government Society of North America: Boston, MA.
59. **Kum, H.-C.** and P. Dewan, Supporting real-time collaboration over wide area networks, in Proceedings of the 2000 ACM conference on Computer supported cooperative work. 2000, ACM: Philadelphia, Pennsylvania, USA. p. 355.

Invited Papers, Presentations, and Panel

1. **Kum, H.-C.** TAMU Virtual Data Library (TAMU-ViDaL): A Secure and Compliant Data Infrastructure, Fourth Annual Texas A&M Research Computing Symposium. May 2021
2. **Kum, H.-C.** Iterating Between the Data World and the Real World to Find Answers in Big Data, Texas A&M Data Science Institute. 10/16/2020
3. **Kum, H.-C.** Population Informatics: Applying Data Science to Big Data about People to Advance Population Health, Texas A&M 2020 Summer Online-REU Program. June 2020
4. **Kum, H.-C.** Safe Data Infrastructure for Handling Population Big Data. Big Data in Health Center seminar series. Seoul BunDang Medical School. Jul 2019. Invited Seminar.
5. **Kum, H.-C.** Population Informatics: Applying Data Science to Big Data about People to Advance Prevention Research. Novel Approaches for Public Health Informatics: Integrating and Analyzing Administrative Big Data. May 2019. Invited **Keynote** at Workshop & Panel at the Society of Prevention Research Annual Conference.

6. **Kum, H-C.** Getting Started with Big Data Panel. May 2019. Invited panel member at early career preventionist network (ECPN) panel at the Society of Prevention Research Annual Conference.
7. **Kum, H-C.** Population Informatics: Applying Data Science to Big Data about People to Advance Population Health. Department of Community Health Sciences & O'Brien Institute for Public Health seminar series. University of Calgary. Sep 2018. Invited Seminar.
8. **Kum, H-C.** Social Genome: Putting Big Data to Work for Population Informatics. University of Guelph. School of Computer Science. May 2017. Invited Seminar.
9. **Kum, H.-C.** K-Anonymity Based Privacy Risk Budgeting System for Interactive Record Linkage. Isaac Newton Institute for Mathematical Sciences program on Data Linkage and Anonymisation (Fall 2016) Workshop on Data Linkage: Techniques, Challenges and Applications. Cambridge UK. Invited Seminar.
10. **Kum, H-C.** Social Genome: Putting Big Data to Work for Population Informatics. First International Workshop on Population Informatics for Big Data. ACM-SIGKDD 2015. Aug 2015. Sydney, Australia. Invited **Keynote**.
11. **Kum, H-C.** Research Data Infrastructure. Korea Institute of Science and Technology Information (KISTI). Aug 2015. Dae Jeon, Korea. Invited Seminar.
12. **Kum, H.-C.** Social Genome: Putting Big Data to Work for Population Informatics. *Industrial & systems Engineering Graduate Seminar (ISEN681)*. Texas A&M University. Department of Industrial & Systems Engineering. April 2016. College Station, TX. Invited oral presentation.
13. **Kum, H.-C.** Social Genome: Putting Big Data to Work for Population Informatics. *Computer Science and Engineering Graduate Seminar (CSCE681)*. Texas A&M University. Department of Computer Science and Engineering. February 2015. College Station, TX. Invited oral presentation.
14. **Kum, H.-C.** Population Informatics and the Social Genome. *Texas A&M Big Data Workshop*. Texas A&M University. February 2015. College Station, TX. Invited oral presentation.
15. **Kum, H-C.** Applying Data Science to Advance the Health and Welfare of Populations. *Annual Conference on Society for Social Work and Research (SSWR)*. New Orleans, LA. Jan 2015. Invited Workshop.
16. Wells, R., Cilenti, D., **Kum, H-C.**, Hillemeier, M., Domino, M. Effects of reduced Medicaid funding for maternity outreach and postpartum services. Public Health Systems Research Close-up Briefing. Invited oral presentation, October 2014. Washington, DC. (Wells & Cilenti presented)
17. **Kum, H.-C.** Understanding Big Data Analytics for Research. *Tate Lecture*. University of North Carolina at Chapel Hill. School of Social Work. August 2014. Invited oral presentation.
18. **Kum, H-C.** Social Genome: A Vision for Putting Big Data to Work to Advance Society, RTP 180. Invited oral presentation. August 2014.

19. **Kum, H.-C.** Population Informatics and the Social Genome. Invited panel for a Special Session on Big Data in Social Science at the 2014 ASE/IEEE International conference on Big Data Science and Computing. May 27-31, 2014. Stanford University.
20. **Kum, H.-C.** Privacy preserving data integration via encryption for Population Health Informatics. *Computer Science and Engineering Seminar*. Texas A&M University. Department of Computer Science. October 2012. Invited oral presentation.
21. **Kum, H.-C.** What is datamining and why does it matter to social work? *Tate Lecture*. University of North Carolina at Chapel Hill. School of Social Work. September 2012. Invited oral presentation.
22. **Kum, H.-C.** Decoupled Data for Privacy Preserving Record Linkage with Error Management. *KAIST University, Korea. Division of Web Science & Technology*. January 2012. Dae Jeon, Korea. Invited Seminar.
23. **Kum, H.-C.** (2012). Using administrative data for evaluation, policy, and research. *The Korean Ministry of Health and Welfare. Office of Social Welfare Policy. Bureau of Welfare Information Integrated Management*. January 2012. Seoul, Korea. Invited oral presentation.
24. **Kum, H.-C.** Building a secure federated government KDD information system from the bottom up for child welfare practice, policy, and research. *Child Welfare 360° : Child Welfare and Technology*. Center for Advanced Studies in Child Welfare. 2011. Invited Article.
25. **Kum, H.-C.** ApproxMAP: Intelligent Sequential Pattern Mining via Alignment. *SAS 12th Annual Data Mining Conference: M2009*. October 2009. Invited oral presentation.

Other Work (Book Chapter, Letters, Policy Briefs, White Papers, Reports, Preprints, Workshops)

1. **Kum, H.-C.**, Ragan, E., Ferdinand, A., and Schmit., C. 2022. Developing Methods for Record Linkage that Protect Patient Privacy. Population Informatics Lab. Submitted to PCORI for final peer review report.
2. Washburn, D., Leroux, T., Morrissey, M., Ohsfeldt, R., Shipp, E., Smith, C., Spiegelman, A., Trueblood, A., Ukert, B., Zheng, Q., Wagle, N., Anyatonwu, S., & **Kum, H.-C.** 2021. Interim Report: Evaluation of the 1115 Medicaid Waiver Demonstration Renewal in Texas DY6-DY11. Population Informatics Lab. Texas A&M University. Submitted to HHSC for CMS
3. Black, M., Lawley, M., Sivakumar, H., Ramezani, M., Ohsfeldt, R., & **Kum, H.-C.** 2021. Cost Effectiveness Analysis Tool. Technical Report 2021-001-1. Submitted to HHSC <https://vidal.tamu.edu/cea/>
4. **Kum, H.-C.**, Lawley, M., Park, S., Ukert, B. 2020. Telemedicine, Telehealth, and Home Telemonitoring Services in Texas Medicaid: Report on Methods, Usage, and Cost Impacts for State Fiscal Years 2012 to 2018. Technical Report 2020-001-1. In support of Texas HHSC report (<https://www.hhs.texas.gov/sites/default/files/documents/laws-regulations/reports-presentations/2020/sb-789-telemedicine-telehealth-hts-medicaid-dec->

[2020.pdf](#)) shared with the Texas Office of the Governor and the Office of Lieutenant Governor, the Speaker of the House, Chair of the Senate Health and Human Services Committee, Chair of the House Public Health Committee, Chair of the House Human Services Committee, and the Legislative Budget Board

5. Karim, M., Ramezani, M., Sunbury, T., Ohsfeldt, R., & **Kum, H.-C.** (2021). VIEW: a framework for organization level interactive record linkage to support reproducible data science. *arXiv preprint arXiv:2102.08273*.
6. **Kum, H.-C.**, Washburn, D., Trueblood, A., Ohsfeldt, R., Shipp, E., Ukert, B., Zheng, Q., Leroux, T., Smith, C., Wagle, N., Anyatonwu, S. 2020. Preliminary Draft Report: Evaluation of the 1115 Medicaid Waiver Demonstration Renewal in Texas DY6-DY11. Population Informatics Lab. Texas A&M University. Submitted to HHSC for CMS
7. Li, Q., D'Souza, A., Ramezani, M., Schmit, C. and **Kum, H.-C.** Increasing Transparent and Accountable Use of Data by Quantifying the Actual Privacy Risk in Interactive Record Linkage. AMIA annual symposium proceedings 2019, 1657. Poster presentation. Full paper published in arXiv preprint arXiv:1906.03345.
8. Park, S.*, Wagle, N.*, Hammett, J.*, Olivencia, S.*, Lawley, M., Sasangohar, F., **Kum, H.-C.** Telemonitoring in Texas. Population Informatics Lab. Technical Report. Jan 2019.
9. Texas Health Improvement Network (THIN) Data Committee, 2019. *Facilitating Use of Data to Drive Population Health in Texas*, Austin, TX: Texas Health Improvement Network. Committee member.
10. Ahalt, S., et al. Establishing a national consortium of data science. Renaissance Computing Institute (RENCI), University of North Carolina at Chapel Hill. White Paper. One of eleven contributing authors. July 2012. http://data2discovery.org/dev/wp-content/uploads/2012/09/NCDS-Consortium-2-pager_0709121.pdf
11. **Kum, H.-C.**, Ahalt, S., and Carsey, T.M. Dealing with Data: Governments Records. *Science*, 2011. 332(6035): p. 1263-1263. Letter.
12. **Kum, H.-C.**, Ahalt, S., and Pathak, D.* (2013). Privacy-Preserving Data Integration Using Decoupled Data, in *Security and Privacy in Social Networks*, Y. Altshuler, et al., Editors. 2013, Springer New York. p. 225-253. Invited Book Chapter.
13. Urban Institute. Coming of Age: Employment Outcomes for Youth who Age Out of Foster Care through Their Middle Twenties. Report published for Assistant Secretary for Planning and Evaluation (ASPE), US Department of Health and Human Services (HHS). Policy Brief. 2008. North Carolina study co-lead and one of twelve contributing authors.

Submitted and Working Papers

1. Wagle*, N., Schueler*, J., Engler*, S., Fields, S., Lawley, M., **Kum, H.-C.** Patient-Perceived Barriers and Facilitators of Using Remote Health Technology to Manage Diabetes and Cardiovascular Disease in Underserved Adult Populations: a Systematic Review. Under Review.

2. Ferdinand, A., Giannouchos*, T., Schmit, C., **Kum, H.-C.** Engaging with the IRB experts about benefits and risks of using software: A case study with MiNDFIRL, a privacy enhancing interactive record linkage software.

HONORS

FAMIA (Fellows of American Medical Informatics Association), 2021
Presidential Impact Fellow, Texas A&M University, 2018
Honourable Mention Best Paper Award (top 5% of all submissions), SIGCHI 2018
Nominated for Best Paper Award, 2013 AMIA Joint Summits on Translation Science, Clinical Research Informatics
Nominated for Best Paper Award at ASE/IEEE International conference on BigData 2013
The Paul Hardin Dissertation Fellowship – Royster Fellows (2004)
The UNC-CH Graduate School's Dean's Award (2003)

GRANTS

Currently Funded

Texas Health and Human Services Commission (TX-HHSC), 9/1/2019-8/30/2024; **H.-C. Kum (PI)**; R. Ohsfeldt (co-PI); D. Washburn (co-PI). Evaluation of the 1115 Medicaid Waiver Demonstration Renewal in Texas DY6-DY11

Texas A&M University X-Grant Program in President's Excellence Fund in Interdisciplinary Research, 9/1/2021-8/31/2024; M. Lawley (PI), **H.-C. Kum (coPI)**, F. Sasangohar, M. Erraguntla, M. Bobak, S. Fields; Effective Real-World Telemonitoring of Chronic Disease for the Underserved.

Texas A&M University T3 Program in President's Excellence Fund in Interdisciplinary Research, 1/1/2021-12/31/2022; **H.-C. Kum (PI)**, C. Schmit (PI), B. Larson (PI). Measuring Public Perceptions On The Competing Values And Ethical Principles Concerning Data Use.

NIH- National Institute of General Medical Science, 7/1/2021-6/30/2022; K. Butler-Purpy (PI), N. Duffield (co-PI), **H.-C. Kum (col)**; IMSD at Texas A&M University: Initiative for Maximizing Student Diversity in Biomedical Sciences.

Texas Health and Human Services Commission (TX-HHSC), 8/1/2020-8/31/2022; **H.-C. Kum (PI)**; M. Lawley (co-PI); B. Ukert (co-PI); R. Ohsfeldt (co-PI). Teleservices Evaluation in Texas Medicaid

Patient-Centered Outcomes Research Institute (PCORI), 2/01/2017-3/15/2022; **H.-C. Kum (PI)**; A. Ferdinand (co-PI). Privacy Preserving Interactive Record Linkage (PPIRL) via Information Suppression.

Veterans Affairs (VA); 10/1/2020-9/30/2022; J. Benzer (PI); **H.-C. Kum (co-I)**; Validating a data science methodology for patterns of mental health services use: The patient record of clinical experience sequence study (PROCESS).

Research Development Fund, Texas A&M University, 7/1/2018-6/30/2023; **H.-C. Kum (PI)**; Texas Virtual Data Library (Tx-ViDaL): A Secure and Compliant Data Infrastructure.

The National Institute for Occupational Safety and Health (NIOSH) through the Southwest Center for Agricultural Health, Injury Prevention, and Education at UT Health Northwest, 09/30/2016 - 09/29/2020; 9/1/2021-9/30/2022. E. Shipp (PI), **H.-C. Kum (site-PI)**; *Centers for Agricultural Safety and Health (Cooperative Agreement U50 OH07541)*.

Ernst Strüngmann Forum (ESF), 2019-2022. Co-Chairs: Tomáš Paus and **H.-C. Kum (invited)**. Towards a Digital Ethology of Adolescence and Youth. Funded to host an invitation only international intellectual retreat (week-long think tank) with international leaders in diverse fields to hold open dialogue and co-edit a book from MIT press based on the workshop.

Foundation Grant from Canadian Institutes of Health Research; July 2019-March 2027. Hude Quan, University of Calgary (PI); **H.-C. Kum (co-I)**; Invited as co-investigator. *Paving the Way for ICD-11 Adoption to Advance Health Information*.

Completed

National Science Foundation (NSF) Engineering Research Center for Precise Advanced Technologies and Health Systems for Underserved Populations (PATHS-UP) Seed Grant; 10/1/2019 – 9/30/2021; **H.-C. Kum (PI)**. Effective Remote Monitoring Systems to Manage Hypertension for the Underserved Population in Texas

Texas A&M Institute of Data Science (TAMIDS) Data Science Postdoctoral Project Program. 9/1/2019 – 8/31/2020; **H.-C. Kum (PI)**; M. Fossett (co-PI). A. Ferdinand (co-PI). J. Benzer (co-PI). Population Informatics: Data Science using Big Data about People in Social, Behavior, Economic, and Health Sciences.

Texas A&M University, Presidential Impact Fellow Award. 9/1/2018-8/31/2021; **H.-C. Kum (PI)**; Population Informatics.

C. Kum (site PI); Collaborative Research: A Benchmark Data Linkage Repository (DLRep). Collaboration with ICPSR, University of Michigan.

USDA [2015-68001], 2/01/2015-1/31/2020; Joseph Sharkey (PI); **H.-C. Kum (Co-Investigator)**; *Salud Para Usted y Su Familia* [Health for You and Your Family]: Family-Focused Childhood Obesity Prevention. The long-term goal of *Salud Para Usted y Su Familia* [Health for You and Your Family (SPUSF)]

Veterans Affairs (VA) through Boston University, 10/01/2017-9/30/2018; **H.-C. Kum (PI)**; Predicting Suicide-Related Outcomes Using Sequential Pattern Mining.

TAMU SPH & Bush (Texas A&M School of Public Health and The Bush School of Government and Public Service), 8/01/2016-7/31/2017; **H.-C. Kum (PI)** Laura Dague (PI) Michael Morrissey (co-I); Justin Bullock (co-I); *Hospital Mergers and Hospital Performance*.

TEES (Texas A&M Engineering Experiment Station Strategic Areas Interdisciplinary Research Seed Grant), 8/01/2016-7/31/2017; F. Sasangohar (PI), **H.-C. Kum (co-PI)**, J. Benzer (co-PI);

Effective Management of PTSD: A Systematic Design and Investigation of a Novel PTSD Information System for Veterans.

TX-HHSC, Texas Health and Human Services Commission; 2/01/2013 – 4/30/2017; Robert Ohsfeldt (PI); **H.-C. Kum (Co-PI)**; Texas Healthcare Transformation & Quality Improvement Program Demonstration Waiver.

Jointly funded by CMS and Meadows Foundation; 09/01/2014 – 4/30/2017; Rebecca Wells (PI); **H.C. Kum (Co-PI)**; Integration of primary care into services for people with serious mental illness (SMI).

TEES & TAMHSC (Texas A&M Engineering Experiment Station & Health Science Center Seed Grants for Interdisciplinary Research in Big Data), 2/01/2016-1/31/2017; **H.-C. Kum (PI)**; Michael Morrissey (co-PI); Dilma Da Silva (co-PI); Mark Fossett (co-PI) *Virtual Social Genome Data Library: A Secure Data Infrastructure for Population Informatics.*

Center for Remote Health Technologies & Systems (CRHTS), 2/01/2016-1/31/2017; **H.-C. Kum (PI)**; *Virtual Social Genome Data Library: A Secure Data Infrastructure for Population Informatics.* Supplement grant for the TEES-TAMHSC Seed Grants for Interdisciplinary Research in Big Data.

PCORI; 05/01/15-01/31/16; Mark Lawley (PI); **H.C. Kum (Co-PI)**; Diabetes Education and Wellness through Faith-Based Organizations in Texas.

NSF Office of Cyberinfrastructure OCI-1247652 NSF-NIH Joint Big Data Initiative; 11/01/2012 – 10/31/2015; A. Rajasekar (PI); **H.-C. Kum (Co-PI)** DataBridge: A Sociometric System for Science and Engineering Datasets and Collections; Collaborative proposal with Harvard University, North Carolina A&T State University, and Odum Institute and RENCi at UNC.

NC-DHHS, NC Division of Social Services; 07/01/2007-06/30/2014; Dean Duncan (PI); **H.-C. Kum (Co-PI)**; Creating Indicators and Improving Outcomes: Analytic Assistance for Child Welfare, Work First, Food and Nutrition Services, and Employment and Training and Career Start in NC; Annually renewed since 2000. Dr. Kum has been the technical lead and information system architect since 2000.

Robert Wood Johnson Foundation Public Health Practice Based Research Network (RWJF Public Health PBRN); 02/01/2011-08/31/2012; Rebecca Wells (PI); **H.-C. Kum (Co-Investigator)**; Reimbursement policy changes and its effect on local public health service outcomes;

UNC Food Research Program. Carolina Population Center; 05/01/2012-04/30/2013; **H.-C. Kum (PI)**; Pilot Project on Computational Nutrition with Barry Popkin. nuTRUtion: Getting towards the truth about our food environments.

US-DHHS ASPE subcontract with Urban Institute; 01/01/2005-12/31/2008; Rick Barth (PI); **H.-C. Kum (Co-Investigator)**; Extended Employment Outcomes for Youth Aging Out of Foster Care;

NC-DHHS, NC Division of Social Services; 07/01/2004-06/30/2007; Dean Duncan (PI); **H.-C. Kum (Co-PI)**; Assessing Performance in Work First;

NC-DHHS, NC Division of Social Services; 04/15/2005-06/30/2007; Dean Duncan (PI); **H.-C. Kum (Co-Investigator)**; Assistance in Assessing Child Welfare Outcomes;

NC-DHHS, NC Division of Social Services; 04/01/2004-06/30/2007; Dean Duncan (PI); **H.-C. Kum (Co-Investigator)**; Evaluation of the NC Food Stamp Employment and Training Initiative;

OTHER RESEARCH ACTIVITY

Open Source Code Release: MiNDFIRL (Minimum Necessary Disclosure For Interactive Record Linkage)

- This open source code is an outcome from my PCORI funded project that investigates software design principles for privacy enhanced record linkage using (1) on-demand incremental data disclosure (only show a small part of the personally identifiable information (PII), needed for RL when needed with explicit request), (2) quantify the privacy risk to support transparent accountable use of PII, and (3) a trusted third party software that can optimally manage the sensitive data in a coded auditable manner
- <https://github.com/pinformatics/mindfir>
- <https://pinformatics.org/ppirl/>

Open Source Code Release: ApproxMAP (Sequential Pattern Mining)

- At the continued request of researchers who wanted to use the software after reading the published paper, I released the software in 2010, 6 years after the work was completed
- **C++ code:** <https://github.com/hckum/approxmap>
- Over 200 downloads internationally between Aug 2010 to Jun 2015
- In total, there are over 140 citations of this work worldwide. To date, it is the one of few method for finding trends in sequences of sets such as detecting common patterns in sets of symptoms over time.
- In 2017, we ported the code to R in our collaboration with the VA to apply this method to mental health services patterns in the VA
- **R code:** <https://github.com/pinformatics/approxmapR>
- **Error Generator:** <https://github.com/pinformatics/rlErrorGenerator>

Data Linkage Repository (DLRep) and Workgroup

- I organized the Data Linkage Repository (DLRep) Workgroup at the Workshop on Data Linkage: Techniques, Challenges and Applications (Cambridge UK., Isaac Newton Institute for Mathematical Sciences program on Data Linkage and Anonymisation, Fall 2016).
- Co-chair it with Luiza Antonie (U. of Guelph, CA)
- This resulted in a funded NSF EAGER project in collaboration with ICPSR at University of Michigan to build a public data repository to facilitate record linkage research by bringing

together computer scientists, statisticians, and SBEH scientists around data. As the TAMU site-PI, I proposed the concept, and I am the main person who designed the repository that ICPSR built and will maintain. We also hosted a workshop on April 10, 2019 in conjunction with the PAA (Population Association of America) 2019 Annual meeting to launch the repository.

- Workgroup: <https://dlrep.org/>
- Repository: <https://linkagelibrary.icpsr.umich.edu/linkagelibrary/>

Timely Open Data Web Portal since 2000

Duncan, D.F., **Kum, H.-C.**, Flair, K.A., et al. (2015). Management Assistance for Child Welfare, Work First, and Food & Nutrition Services in North Carolina. From University of North Carolina at Chapel Hill Jordan Institute for Families website.

- URL: <http://ssw.unc.edu/ma/>
- The web portal was one of the first of its kind when it was released in 2000.
- Currently it has an average of 500 visits weekly
- The web portal has become the authoritative source of information of welfare related data for North Carolina in numerous federal, state, and independent reports such as (1) KIDS COUNT (The Annie E. Casey Foundation and Action for Children North Carolina), (2) Numerous NC Budget & Tax Center (BTC) Briefs on Work First, Food and Nutrition Services (formerly known as food stamps), (3) North Carolina Child Health Report Card (Action for Children NC)
- As the main developer of the web portal, designed and implemented SIML, a template language for an extensible data driven decision support system to support policy making. Using SIML, we publish a comprehensive set of up to date summary statistics that Child Welfare, Work First, and Food & Nutrition Services in North Carolina at the county level over time on a dynamic website.

Texas A&M Virtual Data Library (Texas A&M ViDaL)

- Build and maintain compliant computing infrastructure to support data science and collaborations across campus
- Release and maintain updated open data sources for Health Services Research along with code and documentation that make it easy to use the data properly
- Currently experimental for use only within the department
- Data Sets: American Hospital Association Annual survey of hospitals, Texas Inpatient Public Use Data Files, Area Resource Files, (Planned: Medicare hospital cost report data)

Invited Workshops

- NIH InnovationLab: A Data Ecosystems Approach to Ethical AI for Biomedical and Behavioral Research (2022): Invited to participate in an intense one week workshop on ethics and AI.

- Workshop on Data Linkage: Techniques, Challenges and Applications. The Isaac Newton Institute for Mathematical Sciences, Cambridge UK (2016). Experts from around the world were invited for an intense workshop to make progress on record linkage.
 - <https://www.newton.ac.uk/event/dla/>
- NSF Big Data Regional Innovation Hubs National Meeting (Nov 2015). Invited to participate in the workshop on developing the big data research infrastructure in the USA.
- The Entrepreneurial Mindset Faculty Bootcamp (UNC-CH, class of 2013): 20-30 faculty across the UNC system are nominated to participate in this one week intense workshop where we build teams around promising grand ideas, then develop a proposal that are judged on the last day. My idea “North Carolina Social Genome Data Library” was one of the 5 final projects presented on the last day.

TEACHING AND MENTORSHIP

Classes

Texas A&M University, College Station, TX

- Data Science for Health Services Research/Public Health (2014, 2016, 2018, 2020)
 - Publicly available course website: <https://pinformatics.org/phpm672/>
 - PHPM 672 Data Science for Health Services Research. Health Policy & Management, Doctoral. New course development
 - PHPM 677 Data Science in Public Health. Health Policy & Management, MPH. New course development
- Secondary Data Analysis of Health Data (2021)
 - Publicly available course website: <https://sites.google.com/tamu.edu/phpm674spr2021/home>
 - PHPM 674 Health Policy & Management, Doctoral. New course development
- Health Information Management Systems (2015-current)
 - Publicly available course website: <https://pinformatics.org/phpm631/>
 - PHPM631 Health Policy & Management, MHA. New course development
- Research Topics in Population Informatics
 - Seminar on data science and population informatics. Weekly research seminar with Graduate students
 - Graduate level independent research courses in health services research, computer science, and industrial systems engineering
 - Independent Research Course. Computer Science & Engineering, BS.

The University of North Carolina at Chapel Hill, NC

- Power Tools for the Mind. Computer Science, Undergraduate. A computing class for non-CS majors.
 - Introduction to scientific programming (Matlab). Computer Science, Undergraduate. An introduction to programming to non-CS majors. Co-teach with Stanley Ahalt

- Seminar on data science and population informatics. Computer Science, Graduate and Undergraduate. Weekly research seminar for 1 credit hour
- Honor's Thesis in Computer Science. Computer Science, Undergraduate.
- Software Engineering Practicum. Computer Science, Undergraduate.
- Master's Research. Computer Science, MS.
- Reading and Research. Computer Science, PhD.
- Research Practicum I & II. Social Work. Doctoral.

Advising and Mentoring

POSTDOCTORAL FELLOW

Primary Mentor

Mohammad Karim (Sep 2021-Aug 2022), Population Informatics Postdoctoral Fellow

Michelle Mellers (Oct 2019-Sep 2020), Population Informatics TAMIDS Postdoctoral Fellow

Co-Mentor

Mohammad Karim (Sep 2020-Aug 2021), MD Anderson Cancer Center, University of Texas Health Science Center, CPRIT Postdoctoral Fellow

PHD COMMITTEE

Chair & co-Chair

Sulki Park (PhD TBD; Texas A&M University; Industrial & Systems Engineering)
Tentative Title: Telemonitoring (*Co-Chair*)

Nikita Wagle (PhD May 2022; Texas A&M University, Health Policy & Management)
Tentative Title: Hepatocellular Carcinoma (HCC) Specialist Referral Patterns (*Chair*)

Mohammad Karim (PhD Aug 2020; Texas A&M University, Health Policy & Management)
Tentative Title: Economic burden of cancer: analysis of out-of-pocket expenditure for all-cancer, skin cancer and hepatocellular carcinoma patients (*Chair*)
First job: MD Anderson Cancer Center, University of Texas Health Science Center, CPRIT Postdoctoral Fellow

Theodoros Giannouchos (PhD May 2020; Texas A&M University, Health Policy & Management)
Tentative Title: Emergency Department Use and the Affordable Care Act: The Effect of the Affordable Care Act on Frequent Users (*Chair*)
First job: University of Utah, School of Pharmacy, Postdoctoral Fellow

Debra Tan Choi (PhD May 2018; Texas A&M Health Policy and Management)
Title: Measurement of Hepatocellular Carcinoma (HCC) Screening and the Impact of Patient and Provider Factors on Screening Receipt, Early Tumor Detection, and Overall Survival. (*Chair*)
First job: VA Health Services Research Fellow

Affan Ghaffari (PhD May 2017; Texas A&M University, Health Policy and Management)
Title: Relational Coordination: Application to Patient-Provider, Inter-organizational, and inter-professional relationships. (Co-Chair)
First job: Post doctoral position at Columbia University

Member

Ineen Sultana (PhD Dec 2021; Texas A&M University; Industrial & Systems Engineering)
Title: Preferred Post-Acute Provider Network: An approach to build care coordination between acute care and post-acute care facilities

Joy Stewart (PhD May 2020; UNC-CH School of Social Work)
Title: The Effects of Complex Trauma on Human Capital among Vulnerable Youth
First job: University of North Carolina at Chapel Hill, School of Social Work. Research Assistant Professor

Hao Zhang (PhD Aug 2019; Texas A&M University, Health Policy and Management)
Title: Disentangling the Complex Relationship Between Health, Health Insurance and Retirement

First job: Post doctoral position at Cornell University

Ammar Aftab (PhD Aug 2019; Texas A&M University, Health Policy and Management)
Title: Policy analysis using quasi-experimental design: marijuana legalization, same-sex marriages, and gun policy

First job: Post doctoral position at Columbia University

Todd Leroux (PhD Dec 2015; Texas A&M University, Health Policy and Management)
Title: Evaluating Aspects of Health Care Delivery in the U.S. Military: Medical Separations, Mental Health Utilization, and Primary Care Appointment Availability

First job: Joined the faculty at Uniformed Services University

Amber Elkins (PhD Dec 2015; Texas A&M Univ., Promotion & Community Health Sciences)
Title: Systems Approaches to Understanding Type II Diabetes

First job: Post Doctoral position at Texas A&M University

Mónica Pérez Jolles (PhD May 2014; UNC-CH, Health Policy and Management)
Title: Citizen Participation in Child Protective Service Agency and Impact on Agency Performance and Services Outcome

First job: Post Doctoral position at Sheps Center of Health Services Research, UNC-CH

External Ph.D. dissertation examiner

Brian P. Ballsun-Stanton (PhD May 2012; University of New South Wales, Australia)
Title: Asking About Data

MS COMMITTEE

Co-Chair

Mahin Ramezani (MS May 2021; TAMU, Computer Science & Engineering)
Title: Evaluation of Machine Learning Algorithms in a Human-Computer Hybrid RL System
First job: Texas A&M Transportation Institute, Research data analyst

Gurudev Ilangovan (MS Aug 2019; TAMU, Computer Science & Engineering)
Title: Comparison of Record Linkage Methods Applied to Historical Census Data in the USA
First job: Capital One, senior data analyst

Member

Anas Nabil (MS May 2020; Texas A&M University, Health Policy and Management)
Title: Vaping: Predictors of Actual and Perceived E-cigarettes Use Behavior Among US College Students

Maria Correa (MS May 2017; TAMU, Industrial & Systems Engineering)
Title: Assessing the Effect of Clinical Inertia on Diabetes Outcomes: An Agent-based Modeling Approach
First job: UT Austin, Dell Medical School

Jaideep Ray (MS May 2016; TAMU, Computer Science & Engineering)
Title: Sketch-Seeker
First job: Facebook

Deepika Mahalingam (MS May 2011; UNC-CH, Computer Science)
Title: From Temporal Expressions To Symptom Onset Date Identification In Emergency Department Notes – A Temporal Information Extraction Process.

UNDERGRADUATE HONORS THESIS ADVISOR

Hariharan Sivakumar (BS May 2022; TAMU, Computer Science & Engineering)
Title: Benchmarking the Performance of Machine Learning Algorithms for Record Linkage at Different Heterogeneity Rates in a New Setting

Gautam Sanka (BS May 2013; UNC-CH, Computer Science)
Title: Implementing Mobile health records in low-resource settings

Dennis Given (BS May 2012; UNC-CH, Computer Science)
Title: NuTRUtion Nation – A comparison study of the impact of different OCR software, preprocessing, and postprocessing on nutrition fact panel images.

Ren Bauer (BS Dec 2011; UNC-CH, Computer Science)
Title: SIML - A template language for an extensible data driven decision support system to support policy making.

UNDERGRADUATE SUMMER REU

Hariharan Sivakumar (Summer 2020; TAMU, Computer Science & Engineering)

HIGHLIGHTS OF RECENT SERVICE

TAMU Committee

- Research Advisory Task Force (President's Excellence Fund in Interdisciplinary Research), 2017-current
 - Steering Committee: 2017-current
 - Review Panel: 2017-current
- Texas A&M Institute of Data Science (TAMIDS)
 - Research Committee, 2019-current
 - Planning & Implementation Committee, 2017-2018

- Subcommittee on MS in Data Science Curriculum 2018
- TAMU IT Governance Working Group, Research and Innovation Technologies Committee, 2017-2020
 - Task Force on long-term data sharing and storage issues: 2019-2020
- TAMU Privacy Officer Search Committee, 2017-2018
- Texas A&M University IRB Board Member. 2018-current
- School of Public Health, HPM Department MHA committee 2018-current
- School of Public Health, HPM Department PhD committee 2017-2020
- School of Public Health, HPM Department MPH committee 2016-2017
- School of Public Health, HPM Department faculty search committee 2015
- School of Public Health Research Committee (alternate member) 2015
- School of Public Health Data Science Workgroup 2014

External Workgroup

- Texas State IRB Board at Texas Department of State Health Services 2016-present
- Data Linkage Repository (dlrep) workgroup. 2016-2021; Co-Chair.
- The MD Anderson Cancer Prevention Research Training Program Advisory Committee (2020-current)
- Texas Health Improvement Network (THIN) Data Workgroup 2018-2019
- Texas HHSC Health IT Strategic Plan External Stakeholders Meeting (Dec 2018)
- Improving Methods for Linking Secondary Data Sources for CER/PCOR. (PI: O'Brien) PCORI funded project Advisory Committee, 2014-2017;
- Public Health Activities and Services (PHAST) Advisory Committee, 2014-2016: PHAST is a multidisciplinary, practice-based, national research collaborative working to develop and support systems that collect a uniform set of public health services data and to provide a comprehensive, accessible database for answering practice-based research questions to support evidence based policies in public health.
- Establishing a national consortium for data science, 2012. RENCI UNC-CH: This workgroup worked together to launch the National Consortium For Data Science (NCDS). NCDS is a collaboration of leaders in academia, industry and government formed to address the data challenges of the 21st century. <http://data2discovery.org/>

Conference Officer/Program Committee Member

- International Population Data Linkage Network Conference (IPDLNC), Scientific Committee. 2018
- Program Committee, IEEE International Conference on Data Mining (ICDM) 2017, 2020, 2021
- Reviewer for AMIA Annual Symposium & Joint Summits on Translational Science
- NSF Annual International Digital Government Research Conference (DGO) proceedings published on ACM Digital library: Program committee in 2009-2014, Demo and Poster co-chair in 2010 & 2011.

Grant Reviewer

- PCORI Grant Review Panel for PCORnet Phase 3 Coordinating Center (2021)
- Einstein Foundation (Berlin, Germany): Einstein Center for Population Diversity virtual site visit review (2020)
- NIH ad hoc Review Panel for Predoctoral Training in Advanced Data Analytics for Behavioral and Social Sciences Research (BSSR) - Institutional Research Training Program (T32): 2019

- RWJF Systems for Action Scientific Review Committee: 2018
- NIH ad hoc Review Panel for Big Data to Knowledge (BD2K) Development of Software Tools and Methods for Biomedical Big Data in Targeted Areas of High Need (U01): 2016
- UK MRC (Medical Research Council) on behalf of the 10 largest UK funders of health research - a multimillion pound UK initiative to advance health through informatics research and data linkage by creating E-health centers: 2014, 2017
- Invited Grant reviewer for East Carolina University (ECU), Division of Research for finalist proposal titled "ECHO" – East Carolina Health Outcomes Analytics Center. ECU provided an RFP to all faculty to develop interdisciplinary teams that fit into the broad focus areas of their recently launched pan-university research clusters, including big data and analytics and health. 2018

Ad hoc paper reviewer

- Editorial Board for Data and Knowledge Engineering (DKE, 2006-2008).
- Ad hoc reviewer for the following journals:
 - Journal of American Medical Informatics Association (JAMIA)
 - Journal of Medical Internet Research (JMIR)
 - BMC Medical Informatics and Decision Making
 - Computer
 - PLoS One
 - Government Information Quarterly
 - Computer Methods and Programs in Biomedicine
 - Hospital Topics
 - Journal of Public Health Management & Practice
 - Knowledge and Information Systems (KAIS)
 - IEEE Transaction on Knowledge and Data Engineering (TKDE)
 - ACM Transactions on Knowledge Discovery from Data (TKDD)
 - Information Sciences
 - ACM Computing Surveys
 - The Computer Journal of Oxford Press
 - Applied Stochastic Models in Business and Industry

Tenure packet review

- Hadi Kharrazi in health informatics at Johns Hopkins Bloomberg School of Public Health, 2019

Record Linkage Consultant, Urban Institute (2006): As an expert on record linkage, I consulted on integrating child welfare administrative data from the Texas DFPS (Dept. of Family and Protective Services) and vital statistics data from the Texas DSHS (Department of State Health Services). The project investigated Latino children of immigrants in the Texas child welfare system.

- Acknowledgement in Vericker, T., Kuehn, M. D., & Capps, R. (2007). Latino children of immigrants in the Texas child welfare system. *The Intersection of Migration and Child Welfare: Emerging Issues and Implications*.
- Acknowledgement in Kuehn, D., Vericker, T., & Capps, R. (2009). Child sexual abuse. *Attachment & Trauma Network, 1 (1)*, 1-13.