

# Max Masnick, PhD

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Epidemiologist, Data Scientist, Health Software Architect

[www.masnick.org](http://www.masnick.org)

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## Professional experience

- 2020 – Present    **The MITRE Corporation**  
Principal Epidemiologist & Software Architect  
Group Leader, Digital Public Health
- 2018 – 2020    **Genomic Medicine Institute, Geisinger**  
Assistant Professor of Precision Health
- 2016 – 2018    **Hospital IQ, Inc.**  
Lead Data Scientist
- 2012 – 2015    **University of Maryland Baltimore**  
Graduate Research Assistant
- 2009 – 2012    **Center for Health Policy and Inequalities Research, Duke University**  
Research Analyst

## Education

- 2015            *Ph.D.*, Epidemiology, **University of Maryland Baltimore**
- 2009            *B.A.*, Public Policy, **Duke University**

## Technical skills

**Informatics & data science:** Health interoperability and open standards (including FHIR and SMART on FHIR), Python (including `scikit-learn` and `SciPy`), R, SQL, Stata, SAS

**Software engineering:** Python, Ruby on Rails, JavaScript/TypeScript, `git` and `git`-based workflows for collaboration, cloud computing

## Open source software & standards

1. *FHIR for Research* (lead author). Documentation for using FHIR for research purposes. <https://mitre.github.io/fhir-for-research/>
2. *ig-summary software* (primary author). Tool to support the FHIR Implementation Guide authoring workflow, written in TypeScript. <https://github.com/mitre/ig-summary>
3. *SMART Health Cards: Vaccination & Testing FHIR Implementation Guide* (primary author). Widely implemented as part of all iPhone and Android operating systems, in Cerner and Epic EHRs, and by major pharmacies as part of the COVID-19 pandemic response. <https://vci.org/ig/vaccination-and-testing>
4. *minimal Common Oncology Data Elements (mCODE) FHIR Implementation Guide* (contributing author). Multiple real-world implementations are based on this Implementation Guide through the [CodeX FHIR Accelerator](https://hl7.org/fhir/us/mcode/). <https://hl7.org/fhir/us/mcode/>

## Publications

1. Banet, N., **Masnick, M.**, Quddus, M.R., 2023. Evaluation of *Saccharomyces cerevisiae*-like 1 (SEC14L1) in Gynecologic Malignancies Shows Overexpression in Endometrial Serous Carcinoma. *Int J Gynecol Pathol* 42, 136–142. <https://doi.org/10.1097/PGP.0000000000000866>
2. Schiabor Barrett, K.M., **Masnick, M.**, Hatchell, K.E., Savatt, J.M., Banet, N., Buchanan, A., Willard, H.F., 2022. Clinical validation of genomic functional screen data: Analysis of observed BRCA1 variants in an unselected population cohort. *HGG Adv* 3, 100086. <https://doi.org/10.1016/j.xhgg.2022.100086>
3. Ostermann, J., Njau, B., Hobbie, A.M., Mtuy, T.B., **Masnick, M.**, Brown, D.S., Mühlbacher, A.C., Thielman, N.M., 2022. Divergent preferences for enhanced HIV testing options among high-risk populations in northern Tanzania: a short report. *AIDS Care* 1–9. <https://doi.org/10.1080/09540121.2022.2119471>
4. Ostermann, J., Flaherty, B.P., Brown, D.S., Njau, B., Hobbie, A.M., Mtuy, T.B., **Masnick, M.**, Mühlbacher, A.C., Thielman, N.M., 2021. What factors influence HIV testing? Modeling preference heterogeneity using latent classes and class-independent random effects. *J Choice Model* 40, 100305. <https://doi.org/10.1016/j.jocm.2021.100305>
5. Campbell-Salome, G., Jones, L.K., **Masnick, M.F.**, Walton, N.A., Ahmed, C.D., Buchanan, A.H., Brangan, A., Esplin, E.D., Kann, D.G., Ladd, I.G., Kelly, M.A., Kindt, I., Kirchner, H.L., McGowan, M.P., McMinn, M.N., Morales, A., Myers, K.D., Oetjens, M.T., Rahm, A.K., Schmidlen, T.J., Sheldon, A., Simmons, E., Snir, M., Strande, N.T., Walters, N.L., Wilemon, K., Williams, M.S., Gidding, S.S., Sturm, A.C., 2021. Developing and Optimizing Innovative Tools to Address Familial Hypercholesterolemia Underdiagnosis: Identification Methods, Patient Activation, and Cascade Testing for Familial Hypercholesterolemia. *Circ Genom Precis Med* 14, e003120. <https://doi.org/10.1161/CIRCGEN.120.003120>
6. Morgan, D.J., Pineles, L., Owczarzak, J., Magder, L., Scherer, L., Brown, J.P., Pfeiffer, C., Terndrup, C., Leykum, L., Feldstein, D., Foy, A., Stevens, D., Koch, C., **Masnick, M.**, Weisenberg, S., Korenstein, D., 2021a. Clinician Conceptualization of the Benefits of Treatments for Individual Patients. *JAMA Netw Open* 4, e2119747. <https://doi.org/10.1001/jamanetworkopen.2021.19747>
7. Morgan, D.J., Pineles, L., Owczarzak, J., Magder, L., Scherer, L., Brown, J.P., Pfeiffer, C., Terndrup, C., Leykum, L., Feldstein, D., Foy, A., Stevens, D., Koch, C., **Masnick, M.**, Weisenberg, S., Korenstein, D., 2021b. Accuracy of Practitioner Estimates of Probability of Diagnosis Before and After Testing. *JAMA Intern Med* 181, 747–755. <https://doi.org/10.1001/jamainternmed.2021.0269>
8. Ostermann, J., Njau, B., Hobbie, A., Mtuy, T., Masaki, M.L., Shayo, A., van Zwetselaar, M., **Masnick, M.**, Flaherty, B., Brown, D.S., Mühlbacher, A.C., Thielman, N.M., 2020. Using discrete choice experiments to design interventions for heterogeneous preferences: protocol for a pragmatic randomised controlled trial of a preference-informed, heterogeneity-focused, HIV testing offer for high-risk populations. *BMJ Open* 10, e039313. <https://doi.org/10.1136/bmjopen-2020-039313>
9. **Masnick, M.**, Morgan, D.J., Sorokin, J.D., Macek, M.D., Brown, J.P., Rheingans, P., Harris, A.D., 2017. Can National Healthcare-Associated Infections (HAIs) Data Differentiate Hospitals in the United States? *Infect Control Hosp Epidemiol* 38, 1167–1171. <https://doi.org/10.1017/S0950268817000000>

[//doi.org/10.1017/ice.2017.179](https://doi.org/10.1017/ice.2017.179)

10. O'Hara, L.M., **Masnick, M.**, Leekha, S., Jackson, S.S., Blanco, N., Harris, A.D., 2017. Indirect Versus Direct Standardization Methods for Reporting Healthcare-Associated Infections: An Analysis of Central Line-Associated Bloodstream Infections in Maryland. *Infect Control Hosp Epidemiol* 38, 989–992. <https://doi.org/10.1017/ice.2017.120>
11. **Masnick, M.**, Morgan, D.J., Macek, M.D., Sorkin, J.D., Brown, J.P., Rheingans, P., Harris, A.D., 2016a. Improving the Understanding of Publicly Reported Healthcare-Associated Infection (HAI) Data. *Infect Control Hosp Epidemiol* 37, 1349–1354. <https://doi.org/10.1017/ice.2016.180>
12. **Masnick, M.**, Morgan, D.J., Sorkin, J.D., Kim, E., Brown, J.P., Rheingans, P., Harris, A.D., 2016b. Lack of Patient Understanding of Hospital-Acquired Infection Data Published on the Centers for Medicare and Medicaid Services Hospital Compare Website. *Infect Control Hosp Epidemiol* 37, 182–187. <https://doi.org/10.1017/ice.2015.260>
13. **Masnick, M.**, Leekha, S., 2015. Frequency and predictors of seasonal influenza vaccination and reasons for refusal among patients at a large tertiary referral hospital. *Infect Control Hosp Epidemiol* 36, 841–843. <https://doi.org/10.1017/ice.2015.56>
14. Pepin, C.S., Thom, K.A., Sorkin, J.D., Leekha, S., **Masnick, M.**, Preas, M.A., Pineles, L., Harris, A.D., 2015. Risk factors for central-line-associated bloodstream infections: a focus on comorbid conditions. *Infect Control Hosp Epidemiol* 36, 479–481. <https://doi.org/10.1017/ice.2014.81>
15. **Masnick, M.**, Morgan, D.J., Wright, M.-O., Lin, M.Y., Pineles, L., Harris, A.D., SHEA Research Network, 2014. Survey of infection prevention informatics use and practitioner satisfaction in US hospitals. *Infect Control Hosp Epidemiol* 35, 891–893. <https://doi.org/10.1086/676870>
16. Rock, C., Thom, K.A., **Masnick, M.**, Johnson, J.K., Harris, A.D., Morgan, D.J., 2014. Frequency of *Klebsiella pneumoniae* carbapenemase (KPC)-producing and non-KPC-producing *Klebsiella* species contamination of healthcare workers and the environment. *Infect Control Hosp Epidemiol* 35, 426–429. <https://doi.org/10.1086/675598>
17. O'Donnell, K., Murphy, R., Ostermann, J., **Masnick, M.**, Whetten, R.A., Madden, E., Thielman, N.M., Whetten, K., Positive Outcomes for Orphans (POFO) Research Team, 2012. A brief assessment of learning for orphaned and abandoned children in low and middle income countries. *AIDS Behav* 16, 480–490. <https://doi.org/10.1007/s10461-011-9940-z>
18. Waters, R.C., Ostermann, J., Reeves, T.D., **Masnick, M.F.**, Thielman, N.M., Bartlett, J.A., Crump, J.A., 2011. A cost-effectiveness analysis of alternative HIV retesting strategies in sub-saharan Africa. *J Acquir Immune Defic Syndr* 56, 443–452. <https://doi.org/10.1097/QAI.0b013e3182118f8c>
19. Mitzel, D.N., Best, S.M., **Masnick, M.F.**, Porcella, S.F., Wolfenbarger, J.B., Bloom, M.E., 2008. Identification of genetic determinants of a tick-borne flavivirus associated with host-specific adaptation and pathogenicity. *Virology* 381, 268–276. <https://doi.org/10.1016/j.virol.2008.08.030>
20. Mitzel, D.N., Wolfenbarger, J.B., Long, R.D., **Masnick, M.**, Best, S.M., Bloom, M.E., 2007. Tick-borne flavivirus infection in *Ixodes scapularis* larvae: development of a novel method

for synchronous viral infection of ticks. *Virology* 365, 410–418. <https://doi.org/10.1016/j.virol.2007.03.057>

## Presentations

### Oral Presentations

1. **Masnick M.**, Roy S. *Patient Empowerment and Health Data Interoperability Through SMART Health Cards*. At HIMSS in Chicago, 2023.
2. **Masnick M.**, Paquin, C., Pollack JP. *SMART Health Cards – standard, testing & validation tools*. At FHIR DevDays in Cleveland, 2022.
3. **Masnick M.**, Morgan D.M., Sorkin J.D., Kim E., Brown J.P., Rheingans P., Harris A.D. *Lack of Patient Understanding of Hospital Acquired Infection Data on CMS Hospital Compare*. At SHEA Spring 2015 Conference in Orlando, 2015.

### Poster Presentations

1. **Masnick M.**, Morgan D.M., Sorkin J.D., Macek M.D., Brown J.P., Rheingans P., Harris A.D. *Ability of Healthcare-Associated Infection (HAI) Data to Differentiate Hospitals Nationwide*. At SHEA Spring in Atlanta, 2016.
2. **Masnick M.**, Morgan D.M., Macek M.D., Sorkin J.D., Brown J.P., Rheingans P., Harris A.D. *Improving Understanding of Publicly Reported Healthcare-Associated Infection (HAI) Data*. At SHEA Spring in Atlanta, 2016.
3. **Masnick M.**, Morgan D.J., Harris A.D. *Apps for ID: A Regularly Updated Database of iPhone and iPad Apps for Infectious Disease Physicians*. At IDWeek in Philadelphia, 2014.
4. **Masnick M.**, Leekha S. *Frequency and Predictors of Refusal of Seasonal Influenza Vaccination among Patients at a Large Tertiary Referral Hospital*. At IDWeek in Philadelphia, 2014.
5. Pepin C.S., Thom K., **Masnick M.**, Preas M.A., Pineles L., Harris A.D. *Potential for Risk Adjustment for Central Line-Associated Bloodstream Infections Using Comorbidity Measures Derived from Medical Records from a Tertiary Care Hospital*. At IDWeek in Philadelphia, 2014.
6. Rock C., Thom K.A., **Masnick M.**, Johnson J.K., Harris A.D., Morgan D.J. *Frequency of *Klebsiella pneumoniae* carbapenemase (KPC-) and non-KPC-producing *Klebsiella* species contamination of healthcare workers and the environment*. At the Society for Healthcare Epidemiology of America Spring Conference in Denver, 2014.
7. Lowery A.V., Chui S.H.J., Pajoumand M., **Masnick M.**, Pepin C., Williams C.M. *Evaluation of therapeutic hypothermia following return of spontaneous circulation after cardiac arrest*. At the 43rd Critical Care Congress in San Francisco, 2014.
8. **Masnick M.**, Morgan D.J., Wright M., Lin M., Pineles L., Harris A. *Infection Control Informatics Use and Satisfaction among SHEA and APIC Members*. At IDWeek in San Francisco, 2013.

## Honors and Distinctions

1. IDWeek Trainee Travel Grant, Infectious Diseases Society of America (IDSA), 2014
2. Outstanding PhD Scholar, University of Maryland School of Medicine, Program in Epidemiology and Human Genetics, 2014