

Eunji Choi, Ph.D.

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RESEARCH INTERESTS

My major research interests include cancer epidemiology with a concentration in the early detection and screening for cancer. My current research focuses on second primary lung cancer (SPLC) among lung cancer survivors with special interests in cancer risk prediction, simulation modeling of cancer control interventions, and causal inference drawing trial-like evidence from observational data. My research involves the application of predictive modeling for dynamic risk features, competing-risk and high-dimensional data analysis, and racial/ethnic disparity index using cancer registries, population-based data, randomized trials, electronic health records, and cancer genomics data.

EDUCATION

- 2017-2020 **Ph.D. Public Health**, National Cancer Center Korea, Graduate School of Cancer Science and Policy
Dissertation: Estimating Age-Specific Mean Sojourn Time of Breast Cancer Progression and Test Sensitivity of Mammography by Breast Density among Korean Women
Advisor: Dr. Kui Son Choi
- 2014-2016 **M.P.H.**, National Cancer Center Korea, Graduate School of Cancer Science and Policy
Dissertation: Effectiveness of the Korean National Cancer Screening Program in Reducing Breast Cancer Mortality
- 2009-2012 **B.A. Economics/B.A. Theater Studies**, Emory University

FELLOWSHIP

- 2020 – Present Postdoctoral Fellow
The Han Lab in the Quantitative Sciences Unit
Stanford Center for Biomedical Informatics Research
Stanford University School of Medicine, Stanford, CA

RESEARCH EXPERIENCE

- 2016 – 2020 Statistician & Research fellow, National Cancer Center Korea, South Korea
Department of Cancer Control and Population Health
Project for effectiveness study of organized cancer screening program, Disparity analysis,
Psycho-oncology research using quantitative and qualitative methods
- 2015 – 2020 Research Assistant, Korea Disease Control and Prevention Agency, South Korea
Project for the Korean Study of Women's Health-Related Issues
Development of health perception and behavioral surveillance questionnaires for women
- 2019 Participants, National Cancer Institutes, Bethesda, MD
Summer Curriculum in Cancer Prevention Program
Risk modeling techniques with traditional risk factors and single nucleotide polymorphisms
- 2014 Internship, World Health Organization (WHO/WPRO), Manila, Philippines
Development of an assessment tool for national cancer control policies

LEAD-AUTHORSHIP PUBLICATIONS (Total 13)

1. **Choi E***, Aredo J.V.*, Ding V.Y., Tammemagi M.C., ten Haaf K., et al (2022) Racial/Ethnic Disparities in the Updated U.S. Preventive Services Task Force Draft Recommendation for Lung Cancer Screening: The Multiethnic Cohort Study. **JNCI Cancer Spectr.** (2022) **Equal contribution (In Press)*
2. **Choi E**, Suh M., Jung S.Y., Jung K.W., Park S, Jun J.K., Choi K.S. (2022) Estimating Age-Specific Mean Sojourn Time of Breast Cancer and Sensitivity of Mammographic Screening by Breast Density among Korean Women. **Cancer Res Treat.** 2022 Apr 4.
3. **Choi E***, Luo S.J.*, Aredo J.V., Backhus L.M., Wilkens L.R., Su C.C., Neal J.W., Marchand L.L, Cheng I, Wakelee H.A., Han S.S. (2021) The Survival Impact of Second Primary Lung Cancer in Patients with Lung Cancer. **J Natl Cancer Inst.** 2021 Dec 10;djab224. **Equal contribution*
4. **Choi E**, Sanyal N., Ding V.Y., Gardner R.M., Aredo J.V., Lee J., Wu J.T., et al. (2021) Development and Validation of a Risk Prediction Model for Second Primary Lung Cancer. **J Natl Cancer Inst.** 2021 Jul 13;djab138.
5. **Choi E**, Jun J.K., Suh M., Jung K.W., Park B., Lee K., Jung S.Y., Lee E.S., Choi K.S. (2021) Effectiveness of the Korean National Cancer Screening Program in reducing breast cancer mortality. **NPJ Breast Cancer.** 2021 Jun 28;7(1):83.
6. **Choi E***, Luo S.J.*, Aredo J.V., Wilkens L.R., Tammemagi M.C., Marchand L.L., et al. (2021) Smoking cessation after lung cancer diagnosis and the risk of second primary lung cancer: The Multiethnic Cohort Study. **JNCI Cancer Spectr.** 2021 Aug 23;pkab076. **Equal contribution*
7. **Choi E***, Ryu J.E.*, Lee K, Jun J.K., Suh M, Jung K.W., Choi K.S. (2021) Trends in the Performance of the Korean National Cancer Screening Program for Gastric Cancer from 2007 to 2016. (2021) **Cancer Res Treat.** 2021 Sep 30. **Equal contribution*
8. **Choi E***, Yin J*, Kim S.S.*, Oh Y.T., Lin W, Kim T.H., et al. (2020) ARS2/MAGL signaling in glioblastoma stem cells promotes self-renewal and M2-like polarization of tumor-associated macrophages. **Nature Communications.** 2020 Jun 12;11(1):2978. **Equal contribution*
9. **Choi E**, Cho H.N., Seo D.H., Park B, Park S, Cho J, et al. (2019) Socioeconomic inequalities in obesity among Korean women aged 19-79 years: the 2016 Korean Study of Women's Health-Related Issues. **Epidemiol Health.** 2019;41:e2019005.
10. **Choi E**, Lee Y.Y., Suh M, Lee E.Y., Mai T.T.X., Ki M, et al. (2018) Socioeconomic Inequalities in Cervical and Breast Cancer Screening among Women in Korea, 2005-2015. **Yonsei Med J.** Nov;59(9):1026-1033.
11. **Choi E**, Lee Y.Y., Suh M, Park B, Jun J.K., Kim Y, Choi K.S. (2018) Associations of perceived risk and cancer worry for colorectal cancer with screening behavior. **J Health Psychol.** 2018 May;23(6):840-852.
12. **Choi E**, Lee S, Nhung B.C., Suh M, Park B, Jun J.K., Choi K.S. (2017) Cancer mortality-to-incidence ratio as an indicator of cancer management outcomes in Organization for Economic Cooperation and Development countries. **Epidemiol Health.** 2017 Feb 5;39:e2017006.
13. **Choi E**, Lee Y.Y., Yoon H.J., Lee S, Suh M, Park B, et al. (2015) Relationship between Cancer Worry and Stages of Adoption for Breast Cancer Screening among Korean Women. **PLoS One.** 2015 Jul 17;10(7):e0132351.

COLLABORATIVE PUBLICATIONS (Total 16; Published 16)

1. Cho H., Lee K., **Choi E.**, Cho H.N., Park B., et al. (2022) Association between social support and postpartum depression. **Sci Rep.** 2022 Feb;12(3128).
2. Aredo J.V., Luo S.J., Gardner R, Sanyal N, **Choi E**, Hickey T.P. et al. (2021) Tobacco Smoking and Risk of Second Primary Lung Cancer. **J Thorac Oncol.** 2021 Jun;16(6):968-979.
3. Hwang J.H., Lee K., **Choi E**, Cho H.N., Park B., Rhee Y., Choi K.S. (2021) Sleep Quality and Associated Factors in Premenopausal, Perimenopausal, and Postmenopausal Women in Korea: Findings from the K-Stori 2016. **Nat Sci Sleep.** 2021;13 1137-1145.
4. Bui C.N., **Choi E**, Suh M, Jun J.K., Jung K.W., Lim M.C., Choi K.S. (2021) Trend analysis of process quality indicators for the Korean National Cervical Cancer Screening Program from 2005 to 2013. **J Gynecol Oncol.** 2021 Jan;32(1):e14.
5. Tran A.T.N., Hwang J.H., **Choi E**, Lee Y.Y., Suh M, Lee C.W., et al. (2021) Impact of Awareness of Breast Density on Perceived Risk, Worry, and Intentions for Future Breast Cancer Screening among Korean Women. **Cancer Res Treat.** 2021 Jan;53(1):55-64.
6. Park B, Cho H.N., **Choi E**, Seo D.H., Kim N.S., Park E, et al. (2019) Weight control behaviors according to body weight status and accuracy of weight perceptions among Korean women: a nationwide population-based survey. **Sci Rep.** 2019 Jun 24;9(1):9127.
7. Park B, Cho H.N., **Choi E**, Seo D.H., Kim S, Park Y.R., et al. (2019) Self-perceptions of body weight status according to age-groups among Korean women: A nationwide population-based survey. **PLoS One.** 2019 Jan 17;14(1):e0210486.
8. Cho H.N., **Choi E**, Seo D.H., Park B, Park S, Cho J, et al. (2019) Determinants of undergoing thyroid cancer screening in Korean women: a cross-sectional analysis from the K-Stori 2016. **BMJ Open.** 2019 Apr 3;9(4):e026366.
9. Yin J, Jung J.E., Choi S.I., Kim S.S., Oh Y.T., Kim T.H., **Choi E**, et al. (2018) Inhibition of BMP signaling overcomes acquired resistance to cetuximab in oral squamous cell carcinomas. **Cancer Lett.** Feb 1;414:181-189.
10. Mai T.T.X., Lee Y.Y., Suh M, **Choi E**, Lee E.Y., Ki M, et al. (2018) Socioeconomic Inequalities in Colorectal Cancer Screening in Korea, 2005-2015: After the Introduction of the National Cancer Screening Program. **Yonsei Med J.** 2018 Nov;59(9):1034-1040.
11. Lee E.Y., Lee Y.Y., Suh M, **Choi E**, Mai T.T.X, Cho H, et al (2018) Socioeconomic Inequalities in Stomach Cancer Screening in Korea, 2005-2015: After the Introduction of the National Cancer Screening Program. **Yonsei Med J.** 2018 Oct;59(8):923-929.
12. Suh M, Song S, Cho H.N., Park B, Jun J.K, **Choi E**, et al. (2017) Trends in Participation Rates for the National Cancer Screening Program in Korea, 2002-2012. **Cancer Res Treat.** 2017 Jul;49(3):798-806.
13. Cho H.N., **Choi E**, Seo D.H., Suh M, Lee H.Y., Park B, et al. (2017) The Korean Study of Women's Health-Related Issues (K-Stori): Rationale and Study Design. **BMC Public Health.** 2017 Jun 29;17(1):609.
14. Yin J, Oh Y.T., Kim J.Y., Kim S.S., **Choi E**, Kim T.H., et al. (2017) Transglutaminase 2 Inhibition Reverses Mesenchymal Transdifferentiation of Glioma Stem Cells by Regulating C/EBP β Signaling. **Cancer Res.** 2017 Sep 15;77(18):4973-4984.

15. Lee S, Lee Y.Y., Yoon H.J., **Choi E**, Suh M, Park B, et al. (2016) Responses to Overdiagnosis in Thyroid Cancer Screening among Korean Women. **Cancer Res Treat**. 2016 Jul;48(3):883-91.
16. Park S.H., Lee B, Lee S, **Choi E**, Choi E.B, Yoo J, et al. (2015) A qualitative study of women's views on overdiagnosis and screening for thyroid cancer in Korea. **BMC Cancer**. 2015 Nov 6;15:858.

MANUSCRIPTS SUBMITTED OR IN PREPARATION (Total 8; Submitted 3; Under preparation 5)

1. **Choi E***, Luo S.J.*, Ding V.Y., Wu J.T., Kumar A.V., Wampfler J, et al. (2022) Risk-Based Screening Criteria for Second Primary Lung Cancer among Lung Cancer Survivors: Validation Using Real-World Patient Outcomes. **Equal contribution (Under Review in Chest)*
2. Su C.C., **Choi E**, Wu J.T., Neal J.W., Kurian A.W., Diehn M, et al. (2022) Survival after Distant Recurrent versus De Novo Stage IV Metastatic Lung Cancer under Low-Dose Computed Tomography Screening: a Secondary Analysis of NLST Data. *(Under Review in Radiology)*
3. Wu J.T., Ding V.Y., Luo S.J., **Choi E.**, et al. (2022) A predictive model to guide brain MRI surveillance in patients with metastatic lung cancer: impact on real world outcomes *(Under Review in JAMA Network Open)*
4. **Choi E***, Ding V.Y.*, Luo S.J., ten Haaf K., Tamemmägi M.T., et al. (2022) Reducing racial disparities in lung cancer screening through validated prediction models across five ethnic groups in the U.S. **Equal contribution (Manuscript in Preparation)*
5. **Choi E***, Fries A.H.*, Wu J.T., Lee J.Y., Ding V.Y., et al. (2022) Software application profile: dynamicLM—a tool for performing dynamic risk prediction using a landmark supermodel for survival data under competing risks. **Equal contribution (Manuscript in Preparation)*
6. **Choi E***, Lam V.T.*, Aredo J.V., Kumar A.V., Wampfler J, Wu J.T., et al. Long-Term Effect of Radiotherapy on Risk of Second Primary Lung Cancer and Overall Mortality among Lung Cancer Patients. **Equal contribution (Manuscript in Preparation)*
7. **Choi E**, Luo S.J., Aredo J.V., Neal J.W., Backhus L.M., Wakelee H.A., Han S.S. Disparities in Risk of Second Primary Lung Cancer among Lung Cancer Patients in the United States. *(Manuscript in Preparation)*
8. **Choi E***, Lee J.*, Graber-Naidich A., Backhus L.M., Kurian A.W., et al. Factors associated with the risk of second primary lung cancer among breast cancer survivors. *(Manuscript in Preparation) *Equal contribution*

PRESENTATIONS

Invited Chair Session Title: Recent statistical methods developments for analyzing multivariate/high-dimensional data
 May 2021 ***The KSS Statistical Society Spring Conference 2021***

Invited Presentation
 Oct 2020 Title: Development and validation of a risk prediction model for second primary lung cancer.
International Lung Cancer Consortium meeting (ILCCO), October 2020

Poster Presentations
 Apr 2022 Title: Long-Term Effect of Radiotherapy on Risk of Second Primary Lung Cancer and Overall Mortality among Lung Cancer Patients
AACR Annual Meeting 2022.
 Oct 2021 Title: Disparities in risk of second primary lung cancer among lung cancer patients in the United States.
14th AACR Conference on the Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved.

Jun 2021	Title: The survival impact of second primary lung cancer in patients with lung cancer. <i>2021 Society for Epidemiologic Research (SER).</i>
May 2021	Title: The survival impact of second primary lung cancer in patients with lung cancer <i>American Thoracic Society (ATS) 2021 International Conference.</i>
Jan 2021	Title: Development and validation of a risk prediction model for second primary lung cancer <i>The 2020 World Conference on Lung Cancer (WCLC).</i>
Oct 2020	Title: Smoking cessation after lung cancer diagnosis and risk of second primary lung cancer: The Multiethnic Cohort Study. <i>2020 IASLC North America Conference on Lung Cancer.</i>
Jul 2018	Title: Socioeconomic inequalities in breast and thyroid cancer screening in Korea: A nationwide cross-sectional study. <i>International Epidemiological Association (IEA), European Congress of Epidemiology.</i> (Lyon, France)
Apr 2018	Title: Relationship between cancer worry and stages of adoption of stomach cancer screening in Korea. <i>The 9th General Assembly and Conference, Asian Pacific Organization for Cancer Prevention (APOCP).</i> (Seoul, South Korea)
Sep 2017	Title: Changing socioeconomic inequalities in women cancer screening in Republic of Korea: With ten years follow-up of nationwide cross-sectional study, 2005-2015. <i>10th AACR Conference on the Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved.</i>

MEMBERSHIP & PROFESSIONAL ORGANIZATIONS

2021-Present	Associate Member, American Association for Cancer Research (AACR)
2022-Present	Member, International Association for the Study of Lung Cancer (IASLC)
2022-Present	Member, Society for Epidemiologic Research (SER)

SERVICE

Stanford University

2020 – 2021	Advised two medical students: Disparity analysis in cancer screening
2020 – Present	Advised one undergraduate student including thesis: Causal inference
2021 – Present	Advised two graduates: Predictive modeling, competing risk analysis, high-dimensional data analysis
Tutorial/Talk	The NCI SEER Registry Data Access, Data Abstraction and Analysis (May & June 2021)

National Cancer Center Korea, Graduate School of Cancer Science and Policy

2014 – 2019	Advised four graduate students through their thesis projects: Epidemiological study designs
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SKILLS

Statistical software:	Stata, SAS and R
Other software:	SEER*Stat, ArcGIS (Geographic information system), NVIVO (Qualitative research)
Research interests:	Dynamic risk prediction, Competing risk analysis, high-dimensional data analysis, Electronic health record (text-mining), Health policy microsimulation modeling, Causal inference