Curriculum vitae – Leontine Alkema

September 2019

CONTACT INFORMATION

Mailing address | Department of Biostatistics and Epidemiology
School of Public Health and Health Sciences
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RESEARCH INTERESTS

Bayesian inference; Statistical demography; Family planning (contraceptive use, unmet need, unintended pregnancies); Abortion; Global health (child and maternal mortality, HIV/AIDS); Fertility; Population projections; Poverty measurement.

EDUCATION

2008 | University of Washington, Seattle, USA
Ph.D. Studies in Statistics, with Ph.D. track in Statistical Demography (2006)
Dissertation: Uncertainty assessments of demographic estimates and projections.
Advisors: Prof. A. E. Raftery and Dr. S. J. Clark
2003 | Delft University of Technology, the Netherlands
M.S., Applied Mathematics
Thesis: Multivariate time series analysis of oil reservoir pressure.
2002 | Delft University of Technology, the Netherlands
B.S., Applied Mathematics

EMPLOYMENT AND OTHER RESEARCH POSITIONS

2018 – | Associate Professor, Department of Biostatistics and Epidemiology
University of Massachusetts, Amherst, USA.
2013 – | Lead technical advisor for maternal mortality estimation for the Maternal Mortality Estimation Inter-Agency Group (UN MMEIG, agencies involved: WHO, UNICEF, UNFPA, the World Bank and the UN Population Division).

2011 –	Member, technical advisory group of the United Nations Inter-agency Group on Child Mortality Estimation (UN IGME, agencies involved: UNICEF, WHO, UN Population Division and the World Bank).
2019 –	Technical advisor to the FP2020 Performance Monitoring & Evidence Working group
2015 – 2018	Assistant Professor, Department of Biostatistics and Epidemiology University of Massachusetts, Amherst, USA.
2009 – 2015	Assistant Professor, Department of Statistics and Applied Probability, National University of Singapore, Singapore.
2012 – 2015	Honorary Assistant Professor, Saw Swee Hock School of Public Health National University of Singapore, Singapore.
2014	Visiting Assistant Professor, Department of Demography, UC Berkeley, USA (Spring semester).
2010 – 11	Consultant, United Nations Population Division, New York, USA. Project: Method development to construct estimates and projections of family planning indicators.
2009	Lecturer, Department of Statistics, Columbia University, New York, USA (Spring semester).
2008 – 09	Postdoctoral Research Fellow, Earth Institute, Columbia University, New York, USA.
2006 – 08	Shanahan Fellow, Center for Studies in Ecology and Demography, University of Washington, USA.
2005 – 08	Research assistant, Department of Statistics, University of Washington, Seattle, USA.
2007	Visiting researcher, Centre for Actuarial Research, University of Cape Town, Cape Town, South Africa (2 months).
2007	Research intern, African Population and Health Research Center, Nairobi, Kenya. Topic: Poverty measurement in slum settlements (6 months).
2006	Consultant, Joint United Nations programme on HIV/AIDS (UNAIDS). Project: Development of a Bayesian melding approach for assessing uncertainty in the UNAIDS Estimation and Projection Package tool for estimating HIV prevalence in generalized epidemics.
2006	Research intern, United Nations Population Division, New York, USA. Topic: Assessing uncertainty in fertility projections (3 months).
2003	Research assistant, Shell, the Netherlands.
2002	Research intern, WWF Denpasar, Indonesia. Topic: Analysis of fisheries data (3 months).

PROFESSIONAL ACTIVITIES AND SERVICE

2014 –	Associate editor for *The Annals of Applied Statistics.*
2019 –	Biostatistics Program head, Department of Biostatistics and Epidemiology, UMass Amherst.
2019 – 2020	Member, Departmental Personnel Committee, UMass Amherst
2019	Organizer for session "Demographic Estimation for Monitoring and Decision making in Sparse-Data Settings" at the annual meeting of the Population Association of America in Denver, 2019.
2018 – 2019	Biostatistics Program co-head, Department of Biostatistics and Epidemiology, UMass Amherst.
2018 – 2019	Chair, Graduate Advisory Committee in Biostatistics, UMass Amherst.

2017 – 2019	Chair, Biostatistics curriculum committee, UMass Amherst.
2017 – 2018	Member, Biostatistics faculty search committee, UMass Amherst.
2016	Member, organizing committee for Computational Social Science Institute mixer, UMass Amherst.
2016 – 2017	Member, Biostatistics admissions committee, UMass Amherst.
2015 – 2016	Member, Biostatistics faculty search committee, UMass Amherst.
2015 – 2016	Member, Biostatistics admissions committee, UMass Amherst.
2014 – 2016	Member, WHO-led working group on reporting of global health indicators.
2014 – 2015	Member, undergraduate curriculum committee, Department of Statistics and Applied Probability, National University of Singapore.
2013 – 2014	Organizer of two sessions on statistical demography for the annual meeting of the Population Association of America in Boston, 2014.
2012 – 2013	Member, organizing committee for the Third Singapore Conference on Statistical Science, National University of Singapore.
2009 – 2012	Member, consulting center committee, Department of Statistics and Applied Probability, National University of Singapore.

Reviewed for: *The Annals of Applied Statistics; Asia Population Studies; Contraception; Demography; Demographic Research; Health and Nutrition; The Lancet Global Health; New England Journal of Medicine; PLOS ONE; PLOS Medicine; Population Studies; Proceedings of the National Academy of Sciences; Sexually Transmitted Infections; Statistica Sinica; Statistics, Politics and Policy; WHO Bulletin.*

TEACHING EXPERIENCE AND ADVISING

University of Massachusetts Amherst, Department of Biostatistics and Epidemiology, USA
- Introduction to Statistical Computing with R (PUBLIC HEALTH 490R), Fall 2019.
- Introduction to Statistical Computing with R (BIOSTATS 597D), Fall 2018, Fall 2019.
- Advanced R for Data Science (BIOSTATS 690R), Fall 2018, Fall 2019.
- Applied Bayesian Statistical Modeling (BIOSTATS 730), Spring 2017, Spring 2018, Fall 2018.
- Bayesian computation in biostatistics (BIOSTATS 697G), Spring 2016.

National University of Singapore, Department of Statistics and Applied Probability, Singapore
- Survival analysis (ST5212), Spring 2015.
- Applied time series analysis (ST3233), Fall 2013 and Fall 2014.
- Demographic methods (ST3244), Fall 2010, Fall 2011 and Spring 2013.
- Regression analysis (ST3131), Spring 2010 and Spring 2012.
- Applied regression analysis (ST5202), Spring 2010 and Spring 2011.

UC Berkeley, Department of Demography, USA
- Advanced demographic analysis (Demography 211), Spring 2014.

Columbia University, Department of Statistics, New York, USA
- Linear regression models (W4315), Spring 2009.

Soochow University, School of Mathematical Science, Suzhou, China
- Applied linear regression analysis (Short course), May 2012.

Advising of MS and PhD students at UMass Amherst (chair of committee)
2018 –   Herb Susmann (PhD)
2018 –   Zhengfan Wang (PhD)
2016 –   Chuchu Wei (PhD)
2015 –   Emily Peterson (PhD)
2017 – 2019   Greg Guranich (MS)
2016 – 2018   Zhenning Kang (MS)

Advising of PhD and BSc students at the National University of Singapore (chair, BSc unless noted otherwise):
2013 – 17   Fengqing Chao (Estimating and projecting global health indicators, Saw Swee Hock School of Public Health PhD program).
2014 – 15   Prince Peprah (Dept. of Statistics and Applied Probability PhD program).
2014 – 15   Michael Linardi Tanny, Tan Yu Wen Joanne and Chen Yunjin (Estimating inequality in child mortality).
2012 – 13   Wu Jinxian (Estimating age patterns of child mortality), Neo Soo Khee and Goh Wei Xian (Estimating fertility rates).
2011 – 12   Jin Rou New (Estimating child mortality; NJR received the NUS Outstanding Undergraduate Researcher Prize), Fengqing Chao (Estimating and validating measures of maternal mortality), Stella Ting (Estimating gender biases in child mortality).
2010 – 11   Maria Wong, Pei Rong Seah, Zhuang Dingxuan (Validating child mortality estimates).
2009 – 10   Wei Ling Ann (Estimating child mortality), Choo Shao Ying (Poverty in Kenya).

Other:
- Guest lecturer in Contemporary global health issues (CO5221), Spring 2013 (lecture on estimating global health indicators). National University of Singapore, Saw Swee Hock School of Public Health, Singapore.
- Teaching assistant for undergraduate level statistics courses for students in sociology (Stat 321, Stat 322) and graduate level statistics course for students in economics (Stat 481), 2004/2005. University of Washington, Department of Statistics, Seattle, USA.
- Teaching assistant for courses in probability theory for students in computer science, and students in civil engineering, 2001/2002. Delft University of Technology, Applied Mathematics, Delft, Netherlands.

PEER-REVIEWED PUBLICATIONS

38. F. Chao, A.R. Cook, P. Gerland, **L. Alkema** (2019). A systematic assessment of the sex ratio at birth for all countries and estimation of national imbalances and regional reference levels. *Proceedings of the National Academy of Sciences* 116 (19), 9303-9311

37. Hug, L., M. Alexander, D. You, **L. Alkema** (2019). National, regional, and global levels and trends in neonatal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic

analysis by the United Nations Inter-agency Group for Child Mortality Estimation. *The Lancet Global Health* 7 (9), e710-e720.

36. B. Masquelier, L. Hug, D. Sharrow, D. You, D. Hogan, K. Hill, J. Liu, J. Pedersen, **L. Alkema** (2018). Global, regional, and national levels and trends in mortality among older children (5-9) and young adolescents (10-14) from 1990 to 2016. *The Lancet Global Health.*

35. F. Chao, D. You, J. Pedersen, L. Hug, **L. Alkema** (2018). National and regional under-5 mortality rate by economic status for low-income and middle-income countries: a systematic assessment. *The Lancet Global Health* 6(5): e535-e547.

34. J. Bearak, A Popinchalk, **L Alkema**, G Sedgh (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *The Lancet Global Health* 6(4): e380 - e389.

33. M. Alexander, **L. Alkema** (2018). Global estimation of neonatal mortality using a Bayesian hierarchical splines regression model. *Demographic Research* 38: 335 – 372.

32. N. Cahill, E. Sonneveldt, J. Stover, M. Weinberger, J. Williamson, C. Wei, W. Brown, **L. Alkema** (2018). Modern contraceptive use, unmet need, and demand satisfied among women of reproductive age who are married or in a union in the focus countries of the Family Planning 2020 initiative: a systematic analysis using the Family Planning Estimation Tool. *The Lancet* 391 (10123): 870 – 882.

31. B. Ganatra, C. Gerdts, C. Rossier, R. Johnson, Ö. Tunçalp, A. Assifi, G. Sedgh, S. Singh, A. Bankole, A. Popinchalk, J. Bearak, Z. Kang, **L. Alkema** (2017). Global, regional and sub-regional classification of abortions by safety: Estimates for 2010-14. *The Lancet.*

30. **L. Alkema**, S. Zhang, D. Chou, A. Gemmill, A.B. Moller, D.M. Fat, L. Say, C.D. Mathers, D. Hogan (2017). A Bayesian approach to the global estimation of maternal mortality. *The Annals of Applied Statistics* 11(3): 1245 – 1274.

29. V. Kantorova, J.R. New, A. Biddlecom, **L. Alkema** (2017). Setting ambitious yet achievable targets using probabilistic projections: meeting demand for family planning. Studies in Family Planning 48(3): 223 – 233.

28. J.R. New, N. Cahill, J. Stover, Y.P. Gupta, **L. Alkema** (2017). Subnational Rates and Trends in Contraceptive Prevalence and Unmet Need for Family Planning from 1990 to 2020: An Analysis for All 29 States in India. *The Lancet Global Health* 5(3): e350-e358.

27. G. Sedgh, J. Bearak, S. Singh, A. Bankole, A. Popinchalk, B. Ganatra, C. Rossier, C. Gerdts, Ö. Tunçalp, R. Johnson, H.B. Johnston, **L. Alkema** (2016). Abortion incidence between 1990 and 2014: global, regional, and subregional levels and trends. *The Lancet* 388(10041): 258 – 267.

26. **L. Alkema**, D. Chou, D. Hogan, S. Zhang, A.B. Moller, A. Gemmill, D.M. Fat, T. Boerma, M. Temmerman, C.D. Mathers, L. Say (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic

analysis by the UN Inter-agency Group for Maternal Mortality Estimation. *The Lancet* 387(10017): 462 – 474.

25. D. You, L. Hug, S. Ejdemyr, P. Idele, D. Hogan, C. Mathers, P. Gerland, J.R. New, **L. Alkema** (2015). Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. *The Lancet* 386(10010): 2275–2286.

24. **L. Alkema**, P. Gerland, A.E. Raftery, J. Wilmoth (2015). The United Nations Probabilistic Population Projections: An Introduction to Demographic Forecasting with Uncertainty.
Foresight: The International Journal of Applied Forecasting 37: 19–24.

23. **L. Alkema**, J.R. New (2014). Global estimation of child mortality using a Bayesian B-spline bias-reduction method. *The Annals of Applied Statistics* 8(4): 2122–2149.

22. P. Gerland, A.E. Raftery, H. Ševčíková, N. Li, D. Gu, T. Spoorenberg, **L. Alkema**, B.K. Fosdick, J. Chunn, N. Lalic, G. Bay, T. Buettner, G.K. Heilig, J. Wilmoth (2014). World population stabilization unlikely this century. *Science* 346(6206): 234–237.

21. **L. Alkema**, F. Chao, D. You, J. Pedersen, C.C. Sawyer (2014). National, regional, and global sex ratios of infant, child, and under-5 mortality and identification of countries with outlying ratios: a systematic assessment. *The Lancet Global Health* 2(9): e521–e530.

20. **L. Alkema**, J.R. New, J. Pedersen, D. You, on behalf of the members of the UN Inter-agency Group for Child Mortality Estimation and its Technical Advisory Group (2014). Child Mortality Estimation 2013: An overview of updates in estimation methods by the United Nations Inter-agency Group for Child Mortality Estimation. *PLOS ONE* 9(7): e101112.

19. L. Say, D. Chou, A. Gemmill, Ö. Tunçalp, A. B. Moller, J. Daniels, A. M. Gülmezoglu, M. Temmerman, **L. Alkema** (2014). Global causes of maternal deaths: A WHO systematic analysis. *The Lancet Global Health* 2(6): e323–e3332.

18. T.P. Phan, **L. Alkema**, E.S. Tai, K.H.X. Tan, Q. Yang, W.Y. Lim, Y.Y. Teo, C.Y. Cheng, X. Wang, T.Y. Wong, K.S. Chia, A.R. Cook (2014). Forecasting the burden of type 2 diabetes in Singapore using a demographic epidemiological model of Singapore. *BMJ Open Diabetes Research and Care* 2(1): e000012.

17. A. E. Raftery, **L. Alkema**, P. Gerland (2014). Bayesian population projections for the United Nations. *Statistical Science*, 29(1): 56–68.

16. F. Chao, **L. Alkema** (2014). How informative are vital registration data for estimating maternal mortality? A Bayesian analysis of WHO adjustment data and parameters. *Statistics and Public Policy*, 1(1): 6–14.

15. **L. Alkema**, G. Jones, C. Rue (2013). Levels of urbanization in the world's countries: testing consistency of estimates based on national definitions. *Journal of Population Research*, 30(4): 291–304.

14. M. Oestergaard, **L. Alkema**, J.E. Lawn (Editorial, 2013). Millennium Development Goals national targets are moving targets and the results will not be known until well after the 5 deadline of 2015. *International Journal of Epidemiology* 42(3): 645–647.

13. **L. Alkema**, V. Kantorova, C. Menozzi, A. Biddlecom (2013). National, regional and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *The Lancet* 381(9878): 1642–1652.

12. **L. Alkema**, J.R. New (2012). Progress toward global reduction in under-5 mortality: A bootstrap analysis of uncertainty in Millennium Development Goal 4 estimates. *PLOS Medicine* 9(12): e1001355.

11. **L. Alkema**, D. You (2012). Child Mortality Estimation: a comparison of UN-IGME and IHME estimates of levels and trends in under-5 mortality rates and deaths. *PLOS Medicine* 9(8): e1001288.

10. **L. Alkema**, M. Wong, P.R. Seah (2012). Monitoring progress towards Millennium Development Goal 4: A call for improved validation of under-5 mortality rate estimates. *Statistics, Politics, and Policy* 3(2): Art. 2.

9. **L. Alkema**, A. E. Raftery, P. Gerland, S. J. Clark, F. Pelletier (2012). Estimating trends in the total fertility rate with uncertainty using imperfect data: Examples from West Africa. *Demographic Research* 26(15): 331–362.

8. **L. Alkema**, W.L. Ann (2011). Estimating the under-5 mortality rate using a Bayesian hierarchical time series model. *PLOS ONE* 6(9): e23954.

7. **L. Alkema**, A. E. Raftery, P. Gerland, S.J. Clark, F. Pelletier, T. Buettner, G. K. Heilig (2011). Probabilistic projections of the total fertility rate for all countries. *Demography* 48(3): 815–839.

6. H. Ševčíková, **L. Alkema**, A. E. Raftery (2011). BayesTFR: An R package for probabilistic projections of the total fertility rate. *Journal of Statistical Software* 43: 1–29.

5. L. Winowiecki, S. Smukler, K. Shirley, R. Remans, G. Peltier, E. Lothes, E. King, L. Comita, S. Baptista, **L. Alkema** (2011). Tools for enhancing interdisciplinary communication. *Sustainability: Science, Practice & Polic*y 7(1): 74–80.

4. L. F. Johnson, **L. Alkema**, R. E. Dorrington (2010). A Bayesian approach to uncertainty analysis of sexually transmitted infection models. *Sexually Transmitted Infections* 86: 169–174.

3. **L. Alkema**, A. E. Raftery, T. Brown (2008). Bayesian melding for estimating uncertainty in national HIV prevalence estimates. *Sexually Transmitted Infections* 84 (Suppl I): i11–i16.

2. T. Brown, J. A. Salomon, **L. Alkema**, A. E. Raftery, E. Gouws (2008). Progress and challenges in modelling country-level HIV/AIDS epidemics: the UNAIDS Estimation and Projection Package 2007. *Sexually Transmitted Infections* 84 (Suppl I): i5–i11.

1. **L. Alkema**, A. E. Raftery, S. J. Clark (2007). Probabilistic projections of HIV prevalence using Bayesian melding. *The Annals of Applied Statistics* 1(1): 229–248.

L. Alkema, G. Yang and K. Gile (in preparation). Model-based estimates in demography and global health: quantifying the contribution of population-period-specific information.

H. Susmann, K. Sakrejda, C. Wei and **L. Alkema** (in preparation). Small area estimation of family planning indicators using the Family Planning Estimation Tool.

Z. Wang, M. Fix, L. Hug, J. Wakefield, H. Blencowe, D. You, **L. Alkema** (in preparation). Estimating stillbirth rates for all countries.

M. Alexander, **L. Alkema** (in preparation). A Bayesian demographic approach to estimate subnational populations of women of reproductive age.

E Peterson, D Chou, AB Moller, A Gemmill, L Say, L. **Alkema** (2019). Estimating maternal mortality using data from national civil registration vital statistics systems: A Bayesian hierarchical bivariate random walk model to estimate sensitivity and specificity of reporting. *arXiv*:1909.08578.

Bearak, J., A. Popinchalk, G. Sedgh, B. Ganatra, A Moller, Ö. Tunçalp, **L. Alkema** (2019). Pregnancies, abortions, and pregnancy intentions: a protocol for modeling and reporting global, regional and country estimates. *Reproductive Health* 16(1) 36.

G.A. Stevens, **L. Alkema**, R.E. Black, J.T. Boerma, G.S. Collins, M. Ezzati, J.T. Grove, D.R. Hogan, M.C. Hogan, R. Horton, J.E. Lawn, A. Marušić, C.D. Mathers, C.J.L. Murray, I. Rudan, J.A. Salomon, P.J. Simpson, T. Vos, V. Welch, GATHER Working Group (2016). Guidelines for accurate and transparent health estimates reporting: The GATHER statement. *The Lancet/PLOS Medicine*.

L. Alkema, A. Asafi, A. Bankole, B. Ganatra, C. Gerdts, H. Johnston, A. Popinchalk, C. Rossier, S.D. Singh, O. Tuncalp, P. Van Look, G. Sedgh (2015). Estimating Global Abortion Incidence from 1990 until 2015 Using Bayesian Methods and a Framework of Abortion Determinants. Conference paper for Annual meeting of the Population Association of America, San Diego.

A. E. Raftery, **L. Alkema**, P. Gerland, S. J. Clark, F. Pelletier, T. Buettner, G. Heilig, N. Li, H. Sevcikova (2009). White Paper: Probabilistic Projections of the Total Fertility Rate for the 2010 World Population Prospects. http://www.un.org/esa/population/meetings/ EGM- Fertility2009/egm-fertility2009.html

A.E. Raftery, **L. Alkema** (2008). Discussion on the paper "Estimates of human immunodeficiency virus prevalence and proportion diagnosed based on Bayesian multiparameter synthesis of surveillance data" by Goubar et al. *Journal of the Royal Statistical Society: Series A* 171(3): 541–580.

L. Alkema, O. Faye, M. Mutua, E. Zulu (2008). Identifying Poverty Groups in Nairobi's Slum Settlements: A Latent Class Analysis Approach. Conference paper for Annual meeting of the Population Association of America, New Orleans. http://paa2008.princeton.edu/abstractViewer.aspx?submissionId=80116

METHODOLOGICAL CONTRIBUTIONS TO UN REPORTS AND FP2020

Listed below are results from collaborative research projects with references to associated reports that utilized the methods developed.

Child mortality:
- Methods: Bayesian penalized B-spline regression model for estimating under-5 mortality (2013, 2014); Bayesian hierarchical time series model for estimates sex ratios for infant and child mortality (2013, 2014); Bootstrap method for uncertainty assessment of under-5 mortality estimates (2012).
- References: *The United Nations Inter-agency Group for Child Mortality Estimation (since 2012). Levels & Trends in Child Mortality: Reports 2012 through 2018*

Family planning:
- Methods: Bayesian hierarchical time series model for estimation and projection for family planning indicators for married women.
- References:
  o *United Nations, Department of Economic and Social Affairs, Population Division (annual since 2013). Estimates and Projections of Family Planning Indicators: 201X Revision.*
  o *Family Planning Estimation Tool (FPET), used for FP2020 monitoring*

Fertility:
- Methods: Probabilistic projection method for the total fertility rate (2010) and an extension for low fertility countries (2012).
- References: *United Nations, Department of Economic and Social Affairs, Population Division (2011, 2013, 2015, 2017). World Population Prospects: The 2011/2013/2015/2017 Revision.*

HIV prevalence:
- Method: Bayesian melding approach for estimating HIV prevalence in generalized epidemics.
- Reference: *UNAIDS (2007). 2007 AIDS epidemic*.

Maternal mortality
- Methods:
  o Bayesian bivariate random walk model for sensitivity and specificity in reporting of maternal mortality in vital registration data (2019)
  o Bayesian maternal mortality estimation model (BMat, 2015, 2019)
- References: *United Nations Maternal Mortality Estimation Inter-Agency Group (2014, 2015, 2019). Trends in maternal mortality: 1990 to 2013/2015. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division.*

GRANTS

2017 – 21	PI: *Improved monitoring of family planning indicators: statistical approaches and tools to improve strategic information at national and subnational levels* ($1,406,258). The Bill & Melinda Gates Foundation; USA.
2017 – 21	co-I: *Improving the measurement of adolescent and adult mortality in low income countries* ($347,021). National Institutes of Health; USA.
2015 – 18	PI on subcontract: *Further development of the estimation and forecasting model for contraceptive prevalence and related family planning indicators for FP2020* ($400,000). Funding from the Bill & Melinda Gates Foundation through Avenir Health; USA.
2014 – 15	PI: *Development of new estimation and projection methods for key global demographic and health indicators* (S$84,000). Ministry of Education Singapore.
2013 – 15	PI: *Missing Girls: An Analysis of Trends in Pre- and Postnatal Gender Discrimination* (S$249,100). Humanities and Social Sciences Research Fund; National University of Singapore.
2013 – 15	PI: *Human capital in Asia: modeling and analysing sub-regional levels and trends* (S$138,800). Global Asia Institute Research Grant; National University of Singapore.
2013	PI: *Development of an improved estimation method for under-5 mortality.* UNICEF/Stanton-Hill Research LLC; USA.
2013	PI: *Estimating the sex differential in child mortality* (preliminary study). UNICEF/Stanton-Hill Research LLC; USA.
2010 – 13	Co-PI: *Estimating and Projecting Urbanisation and City Growth* (S$231,500; PI Gavin Jones). Global Asia Institute, National University of Singapore.
2009 – 13	PI: NUS start-up grant (S$100,000). Ministry of Education Singapore.

FELLOWSHIPS AND AWARDS

2013	Young Scientist Award; Faculty of Science, National University of Singapore.
2011 – 12	Excellent Young Teacher Award; Faculty of Science, National University of Singapore.
2009 – 10	Excellent Young Teacher Award; Faculty of Science, National University of Singapore.
2008 – 09	Earth Institute Postdoctoral Fellowship; Columbia University.
2006 – 08	Shanahan Fellowship, Center for Studies in Ecology and Demography; University of Washington, USA.
2004	Hubert M. Blalock Fellowship, Center for Statistics and the Social Sciences; University of Washington, USA.
2004	Post-graduate Study Award; VSB Bank, the Netherlands.
1997	Delft University of Technology Star Award; Delft University of Technology, the Netherlands.

SELECTED PRESENTATIONS

All presentations are talks unless noted otherwise.

- *Forecasting in family planning and demography* (10/2020). Meeting on "Forecasting social, biological, and physical systems" at the Royal Statistical Society, London, UK (invited).

- TBD (Winter 2020). Center for Demography and Ecology, University of Washington, Seattle (invited).
- *Monitoring maternal mortality by the United Nations: improved estimates of levels, trends and reporting errors through Bayesian multilevel temporal regression modeling* (08/2019). Joint Statistical Meetings, Denver (invited).
- *Sensible Statistics for the Social Sciences: How to estimate a population proportion if data are subject to unknown misclassification error?* CSSS 20th Anniversary Conference (5/2019). Center for Statistics in the Social Sciences, University of Washington, Seattle (invited).
- Small area estimation of family planning indicators using the Family Planning Estimation Tool (4/2019). Population Association of America Annual meeting, Austin.
- *Model-Based Estimates in Demography and Global Health: Quantifying the Contribution of Population-Period-Specific Information* (04/2019). Population Association of America Annual meeting, Austin.
- *Model-based estimates in demography and global health: quantifying the contribution of population-period-specific information* (08/2018). Joint Statistical Meetings, Vancouver, Canada.
- *To space or to limit? An Assessment of Levels and Trends in Unmet Need for Limiting and Spacing From 1990 to 2030 in the World's Poorest Countries Using a Bayesian Hierarchical Time Series Model* (04/2018) Population Association of America Annual meeting, Denver.
- Statistics Department colloquium (10/2017). Harvard University.
- *A Bayesian approach to the global estimation of maternal mortality* (6/2016). International Society for Bayesian Analysis 2016 world meeting, Sardinia, Italy.
- *Subnational Rates and Trends in Contraceptive Prevalence and Unmet Need for Family Planning from 1990 to 2020: An Analysis for All 29 States in India* (4/2016). Annual Meeting of the Population Association of America, Washington D.C.
- *Trends in maternal mortality 1990-2015: Estimates developed by WHO, UNICEF, UNFPA, the World Bank and UNPD* (3/2016). WHO Reference Group on Global Health Statistics (RGHS), Geneva, Switzerland.
- *Bongaarts goes Bayesian* (11/2015). Sussmilch lecture at the Max Planck Institute for Demographic Research, Rostock, Germany.
- *Statistical Modeling in Global Health: A Selection of Recent Developments and Future Opportunities in Child, Maternal and Reproductive Health* (10/2015). Computational Social Science Institute seminar, University of Massachusetts Amherst.

Before 2015, summarized by topic

Estimating Gender Differences in Child Mortality
1. Annual Meeting of the Population Association of America, Boston (4/2014)
2. IUSSP International Population Conference, Busan, South Korea (9/2013)
3. Annual Meeting of the Population Association of America, New Orleans (4/2013, poster)

Estimating Child Mortality
1. Annual Meeting of the Population Association of America, Boston (4/2014, poster award)
2. UC Berkeley, Department of Statistics seminar (4/2014)
3. UC Berkeley, Department of Demography seminar (3/2014)
4. IUSSP International Population Conference, Busan, South Korea (9/2013)
5. Joint Statistical Meetings, Montreal (8/2013)
6. Annual Meeting of the Population Association of America, Washington D.C. (4/2011)

Estimates and Short-term Projections of Unmet Need for Contraceptives
1. Annual Meeting of the Population Association of America, Washington D.C. (4/2011, poster)
2. Second Singapore Conference on Statistical Science, Singapore (4/2011)

Urbanization (Probabilistic Projections/Alternative Estimates/City Projections)
1. Annual Meeting of the Population Association of America, Washington D.C. (4/2011, poster)
2. Asian Population Association Conference, Bangkok, Thailand (8/2012, poster)
3. Annual Meeting of the Population Association of America, San Francisco (4/2012, poster)

Probabilistic Projections of Fertility
1. IUSSP International Population Conference, Busan, South Korea (9/2013)
2. Annual Meeting of the Population Association of America, New Orleans (4/2013, poster)
3. Expert Group Meeting on Recent and Future Trends in Fertility, United Nations Population Division, New York (12/2009)
4. IUSSP International Population Conference, Marrakech, Morocco (9/2009)
5. Joint Statistical Meetings, Denver (8/2008)
6. Earth Institute Fellows Symposium, Columbia University, New York (11/2008)
7. Annual meeting of the Pacific Institute for the Mathematical Sciences collaborative research group on Bayesian modeling and computation for networks, Washington State (5/2008)
8. Annual Meeting of the Population Association of America, New Orleans (4/2008)
9. Center for Demography and Ecology Seminar Series, University of Washington, Seattle (11/2007)
10. Centre for Actuarial Research (CARe), University of Cape Town, South Africa (8/2007)
11. United Nations Population Division, New York (4/2007)

Assessing Uncertainty in Fertility Estimates in Western Africa
1. IUSSP International Population Conference, Marrakech, Morocco (9/2009)
2. Annual meeting of the Population Association of America, Detroit (4/2009)
3. Human Mortality Database Symposium, Max Planck, Rostock, Germany (6/2008)

Identifying Poverty Groups in Nairobi's Slum Settlements: A Latent Class Analysis Approach
1. Annual Meeting of the Population Association of America, New Orleans (4/2008)
2. INDEPTH annual conference and scientific meeting, Nairobi, Kenya (9/2007)
3. African Population and Health Research Center, Nairobi, Kenya (6/2007)

Probabilistic Projections of HIV Prevalence using Bayesian Melding
1. Workshop on Epidemiology of Infectious Diseases, IMS, Singapore (1/2010)
2. Annual Meeting of the Actuarial Society South Africa, Cape Town (8/2007)
3. Medical Council South Africa, Cape Town (7/2007)
4. Annual Meeting of the Population Association of America, New York (4/2007)
5. African Population and Health Research Center, Nairobi, Kenya (1/2007)
6. International Workshop on Data, Algorithms and Decision Making, Trest, Czech Rep. (12/2006)
7. UNAIDS reference group technical meeting, London, UK (10/2006)
8. Statistical Center for HIV/AIDS Research and Prevention, Fred Hutchinson, Seattle (2/2006)