

*October 28, 2020***CURRICULUM VITAE****Allison Portnoy****PERSONAL DATA**

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EDUCATION

2020 Doctor of Science, Global Health and Population
Harvard T.H. Chan School of Public Health
Boston, MA

2013 Master of Science of Public Health, Health Policy and Management
Johns Hopkins Bloomberg School of Public Health
Baltimore, MD

2009 Bachelor of Arts, International Relations
Minor, Anthropological Sciences
Stanford University
Palo Alto, CA

MAJOR RESEARCH INTERESTS

Focused on economic modeling of public health interventions, decision sciences, vaccine costs and financing, and the impact of vaccination on population health and economic outcomes, particularly the broader economic impact and value of vaccination.

PROFESSIONAL EXPERIENCE

January 2020 – present Postdoctoral Fellow
Center for Health Decision Science
Harvard T.H. Chan School of Public Health
Boston, MA

- Conduct probabilistic sensitivity analysis of health impact of human papillomavirus (HPV) vaccination and contribute to model validation and comparative modeling exercises of the Vaccine Impact Modelling Consortium
- Estimate timeline for cervical cancer elimination and cost-effectiveness of nonavalent HPV vaccine in Norway

- Simulate the future outcomes of introducing novel tuberculosis (TB) vaccines, including cost-effectiveness analysis from the health system and societal perspective, return on investment analysis, and budget impact analysis in low- and middle-income countries (LMICs), using mathematical and economic models

May 2016 –
January 2020

Research Assistant
Center for Health Decision Science
Harvard T.H. Chan School of Public Health
Boston, MA

- Estimated costs and benefits of various delivery scenarios of HPV vaccine
- Contributed to financial forecasting and cost-effectiveness analyses of cervical cancer prevention and elimination
- Produced standardized country-level immunization delivery unit cost estimates in LMICs

October 2015 –
December 2019

Research Assistant
Department of Global Health and Population
Harvard T.H. Chan School of Public Health
Boston, MA

- Analyzed the effective coverage of measles vaccination campaigns in the presence of routine measles vaccine coverage through quantitative and qualitative analysis
- Estimated measles case fatality ratios in LMICs
- Evaluated the health and financial protection benefits associated with the HPV vaccine in Ethiopia

August 2013 –
July 2015

Research Associate
Johns Hopkins Bloomberg School of Public Health
Baltimore, MD

- Assessed costs, financing, funding gaps, and return on investment associated with vaccine programs in low- and middle-income countries through the Bill & Melinda Gates Foundation (Bill & Melinda Gates Foundation)-funded Decade of Vaccine Economics project in collaboration with UNICEF, WHO, and GAVI Secretariat
- Utilized economic modeling methods to assess the economic burden of vaccine-preventable diseases among U.S. adults
- Contributed to new work proposals, project deliverables, and manuscript drafts

September 2012 –
December 2012

Vaccine Internship at the World Health Organization (VIEW Scholar)
World Health Organization (WHO)
Geneva, Switzerland

- Facilitated Immunization and Vaccines related Implementation Research Advisory Committee meeting with international health

economic experts and presented options for evidence-grading frameworks to the committee

- Contributed to validation of the Papillomavirus Rapid Interface for Modeling and Economics (PRIME) costing tool for determining cost-effectiveness of HPV vaccine introduction in LMICs
- Began systematic review and regression analysis to estimate the costs of treating meningitis infections in LMICs, which was completed with a subsequent research grant in May 2013

May 2012 –
August 2012

Program Analyst (Summer Intern)
Agency for Healthcare Research and Quality (AHRQ)
Rockville, MD

- Developed a conceptual framework for comparative effectiveness research uptake and utilization in clinical practice
- Conducted literature review and key stakeholder interviews to examine determinants of research uptake and how best to implement data capture for uptake and utilization monitoring of the Effective Health Care program
- Identified major communication and dissemination channels for Patient Centered Health Research portfolio products, contributing to the successful completion of a program integrity initiative milestone

September 2011 –
August 2012

Database Coordinator/Research Assistant
International Vaccine Access Center (IVAC)
Baltimore, MD

- Constructed protocols for data collection that targeted increased awareness of IVAC through report composition and distribution
- Worked with key partners to analyze, modify, and improve the database to be more useful and applicable to decision makers
- Compiled country-wide vaccine data from partners, researched missing data, and confirmed and analyzed validity of existing data

May 2010 –
May 2011

Associate
Freedman Consulting, LLC
Washington, DC

- Conducted research, wrote and copyedited studies, reports, proposals, and published opinion articles on topics including education policy, technology policy, workplace standards, and food and agriculture policy
- Primary author of commentaries subsequently credited to various *Spotlight on Poverty* contributors, including U.S. Congressmen, state representatives, and anti-poverty advocates
- Monitored progress of projects for national non-profit and political clients

June 2009 –
May 2010

Scheduler and Staff Assistant
Office of Congressman Lloyd Doggett

Washington, DC

- Coordinated the Congressman's schedule including meeting requests, events, invitations, and flight arrangements
- Primary liaison with Congressional, executive, and diplomatic offices
- Corresponded with constituents including questions on health care reform

June 2008 –
August 2008

Health Economics Research Analyst
University of Washington
Seattle, WA

- Researched and drafted a proposal on the measles vaccine and its alternatives for the Bill & Melinda Gates Foundation
- Authored appendices on the relationship between measles and HIV/AIDS, the relationship between measles and Vitamin A deficiency, and catalogued adverse events following measles immunization
- Contributed to report chapters on the health outcomes of the measles virus and the cost-effectiveness of the measles vaccine

PROFESSIONAL ACTIVITIES

Sessions Organized

Bill & Melinda Gates Foundation Consultation Meeting on Measles Case Fatality Ratios, Teleconference, October 2017

Bill & Melinda Gates Foundation Consultation Meeting on Measles Case Fatality Ratios, Washington, DC, October 2016

Immunization and Vaccines-related Implementation Research Advisory Committee (IVIR-AC) Meeting, Geneva, Switzerland, September 2012

Consultations

Harvard Kickoff Meeting, "Health System Modeling Initiative," Boston, MA, September 2017

Harvard-Bill & Melinda Gates Foundation Workshop, "Advancing the Value of Vaccines Research Agenda," Boston, MA, April 2016

Harvard and Disease Control Priorities Project Meeting, "Economic Evaluation in Health: Cost-Effectiveness and Beyond," Boston, MA September 2015

Gavi-Bill & Melinda Gates Foundation Vaccination Modeling Meeting, Montreux, Switzerland, May 2015

WHO Consultation, "The Broader Economic Impact of Vaccines and Immunization Programs in Low- and Middle-Income Countries," Bangkok, Thailand, November 2014

Gavi-Bill & Melinda Gates Foundation Vaccination Modeling Meeting, Washington, DC, February 2014

Bill & Melinda Gates Foundation Workshop for the Costing and Financing of Routine Immunization and New Vaccines, Geneva, Switzerland, November 2013

Ad-hoc WHO Consultation, “The Broader Economic Impact of Vaccines and Immunization Programs in Low- and Middle-Income Countries,” Sydney, Australia, July 2013

Bill & Melinda Gates Foundation Workshop for the Costing and Financing of Routine Immunization and New Vaccines, Geneva, Switzerland, November 2012

Professional Affiliations

Member, Society for Medical Decision Making, 2018 – present

Member, International Papillomavirus Society, 2017 – present

Member, International Society for Pharmacoeconomics and Outcomes Research, 2017 – present

Member, International Health Economics Association, 2013 – present

EDITORIAL ACTIVITIES

Journal Peer Review Activities

BMC Health Services Research, Cost-Effectiveness and Resource Allocation, Health Affairs, Health Economics, PharmacoEconomics, The Lancet Global Health, PLOS ONE, Vaccine, Value in Health,

HONORS AND AWARDS

- Clarence James and Sarah Bradley Gamble Scholarship, Harvard T.H. Chan School of Public Health, 2019
- Michael von Clemm Traveling Fellowship, Harvard T.H. Chan School of Public Health, 2019
- Uwe Brinkmann Memorial Travel Fellowship, Harvard T.H. Chan School of Public Health, 2018
- Certified in Public Health (CPH), The National Board of Public Health Examiners (NBPHE), 2013
- Certificate in Vaccine Science and Policy, Johns Hopkins Bloomberg School of Public Health, 2013
- VIEW (Vaccine Internship Experience at WHO) Scholarship, Johns Hopkins Vaccine Initiative, Johns Hopkins Bloomberg School of Public Health, 2012
- Certificate in Health Disparities and Health Inequality, Johns Hopkins Bloomberg School of Public Health, 2012

PUBLICATIONS

Peer-reviewed Original Research Articles

1. **Portnoy A**, Pedersen K, Trogstad L, Hansen BT, Feiring B, Laake I, Smith MA, Sy S, Nygård M, Kim JJ, Burger EA. Impact and cost-effectiveness of strategies to accelerate cervical cancer elimination: A model-based analysis. *Preventive Medicine*. Accepted 27 September 2020.
2. **Portnoy A**, Resch SC, Suharlim C, Brenzel L, Menzies NA. What we don't know about the costs of immunization programs in low- and middle-income countries. *Value in Health*. Accepted 13 August 2020.
3. Burger EA, **Portnoy A**, Campos NG, Sy S, Regan C, Kim JJ. Choosing the optimal HPV vaccine: The health impact and economic value of the nonavalent and bivalent HPV vaccines in 48 Gavi-eligible countries. *International Journal of Cancer*. Published 24 July 2020.
4. **Portnoy A**, Vaughan K, Clarke-Deelder E, Suharlim C, Resch SC, Brenzel L, Menzies NA. Producing standardized country-level immunization delivery unit cost estimates. *PharmacoEconomics*. Sept 2020;38(9):995-1005.
5. **Portnoy A**, Jit M, HELLERINGER S, Verguet S. The comparative distributional impact of routine immunization and supplementary immunization activities in delivery of measles vaccine in low- and middle-income countries. *Value in Health*. July 2020;23(7):891-897.
6. **Portnoy A**, Clark S, Ozawa S, Jit M. The impact of vaccination on gender equity: conceptual framework and human papillomavirus (HPV) vaccine case study. *International Journal for Equity in Health*. January 2020;19(1):10.
7. **Portnoy A**, Campos NG, Sy S, Burger EA, Cohen J, Regan C, Kim JJ. Impact and cost-effectiveness of human papillomavirus (HPV) vaccination campaigns. *Cancer Epidemiology, Biomarkers & Prevention*. January 2020;29(1):22-30.
8. Munk C*, **Portnoy A***, Suharlim C, Clarke-Deelder E, Brenzel L, Resch SC, Menzies NA. Systematic review of the costs and effectiveness of interventions to increase infant vaccination coverage in low- and middle-income countries. *BMC Health Services Research*. October 2019;19(1):741. *co-first authors
9. **Portnoy A**, Jit M, Ferrari M, Hanson M, Brenzel L, Verguet S. Estimates of case-fatality ratios of measles in low-income and middle-income countries: a systematic review and modelling analysis. *The Lancet Global Health*. April 2019;7(4):472-481.
10. **Portnoy A**, Jit M, HELLERINGER S, Verguet S. Impact of measles supplementary immunization activities on reaching children missed by routine programs. *Vaccine*. January 2018;36(1):170-178.
11. Ozawa S, Clark S, **Portnoy A**, Grewal S, Stack ML, Sinha A, Mirelman A, Franklin H, Friberg IK, Tam Y, Walker N, Clark A, Ferrari M, Suraratdecha C, Sweet S, Goldie SJ, Garske T, Li M, Hansen PM, Johnson HL, Walker D. Estimated economic impact of vaccinations in 73 low- and middle-income countries, 2001-2020. *Bulletin of the World Health Organization*. September 2017;95(9):629-638.
12. Haidari LA, Brown ST, Constenla D, Zenkov E, Ferguson M, de Broucker G, Ozawa S, Clark S, **Portnoy A**, Lee BY. Geospatial planning and the resulting economic impact of human papillomavirus vaccine introduction in Mozambique. *Sexually Transmitted Diseases*. April 2017;44(4):222-226.

13. Ozawa S, Grewal S, **Portnoy A**, Sinha A, Arilotta R, Stack ML, Brenzel L. Funding gap for immunization across 94 low- and middle-income countries. *Vaccine*. December 2016;34(50):6408-6416.
14. Ozawa S, **Portnoy A**, Getaneh H, Clark S, Knoll M, Bishai D, Yang HK, Patwardhan PD. Modeling the economic burden of adult vaccine-preventable diseases in the United States. *Health Affairs*. November 2016;35(11):2124-2132.
15. Ozawa S, Clark S, **Portnoy A**, Grewal S, Brenzel L, Walker DG. Return on investment from childhood immunization in low- and middle-income countries, 2011–20. *Health Affairs*. February 2016;35(2):199-207.
16. **Portnoy A**, Ozawa S, Grewal S, Norman BA, Rajgopal J, Gorham KM, Haidari LA, Brown ST, Lee BY. Costs of vaccine programs across 94 low- and middle-income countries. *Vaccine*. May 2015;33(Supplement 1):A240–A247.
17. **Portnoy A**, Jit M, Lauer J, Blommaert A, Ozawa S, Stack M, Murray J, Hutubessy R. Estimating costs of care for meningitis infections in low- and middle-income countries. *Vaccine*. May 2015;33(Supplement 1):A99–A108.
18. Jit M, Brisson M, **Portnoy A**, and Hutubessy R. “Cost-effectiveness of female human papillomavirus vaccination in 179 countries: a PRIME modelling study.” *The Lancet Global Health*. July 2014;2(7):e406-e414.

Working Papers

1. Liu L, **Portnoy A**, True Z, Fink G, Verguet S. “The health and financial benefits for households from averting malaria with RTS,S/AS01 vaccine in Zambia: an extended cost-effectiveness analysis.” Disease Control Priorities (DCP3), University of Washington. Available at: <http://dcp-3.org/resources/health-and-financial-benefits-households-averting-malaria-rtssas01-vaccine-zambia-extended>

Manuscripts Under Review and in Preparation

1. **Portnoy A**, Desalegn D, Kim JJ, Verguet S. Health gains and financial protection from human papillomavirus (HPV) vaccination in Ethiopia: results from an extended cost-effectiveness analysis. *Health Policy and Planning*. Under Review.
2. Mezei AK, Cohen J, Renwick M, Atwell J, **Portnoy A**. Mathematical modelling of respiratory syncytial virus (RSV) in low- and middle-income countries: a systematic review. *Epidemics*. Under Review.
3. Clarke-Deelder E, Suharlim C, Chatterjee S, **Portnoy A**, Brenzel L, Ray A, Cohen J, McConnell M, Menzies NA, Resch SC. Effects and cost-effectiveness of expanding routine immunization coverage in India using campaign-style delivery: a quasi-experimental study and economic evaluation.
4. **Portnoy A**, Pedersen K, Burger EA. Impact and cost-effectiveness of de-intensifying cervical cancer screening among vaccinated cohorts in Norway.
5. **Portnoy A**, Klepac P, Ferrari M, Jit M. The impact of estimating measles case fatality ratios with and without vaccination on measles deaths averted.

TEACHING

Harvard T.H. Chan School of Public Health

RDS290: Experiential Learning and Applied Research in Decision Analysis, Spring 2019
Teaching Assistant, Graduate level course for 12 students

RDS285: Decision Analysis Methods in Public Health and Medicine, Spring 2018
Teaching Assistant, Graduate level course for 49 students

RDS280: Decision Analysis for Health and Medical Practices, Fall 2017
Teaching Assistant, Graduate level course for 158 students

RDS280: Decision Analysis for Health and Medical Practices, Fall 2016
Teaching Assistant, Graduate level course for 153 students

MENTORING

Johns Hopkins Bloomberg School of Public Health

Hiwote Getaneh, Master of Public Policy, 2014–2015
Supervisor, MPP Internship

Reetu Verma, Master of Public Health, 2013–2014
Co-preceptor, MPH Practicum

RESEARCH GRANT PARTICIPATION

Ongoing

“EPIC Phase 3 – Cost of Scaling Up and Community Practice,” 10/27/2016 – 12/31/2021
Bill & Melinda Gates Foundation

In the continued work of the EPI Costing and Financing Study, to determine and provide accurate information on the cost and financing of national immunization programs in light of rapidly increasing resource requirements.

Role: Postdoctoral Fellow

“Estimating the potential health and economic impact of new TB vaccines,” 1/1/2020 – 9/30/2021

World Health Organization/London School of Hygiene and Tropical Medicine

To simulate the future outcomes of introducing novel tuberculosis (TB) vaccines using mathematical and economic models.

Role: Postdoctoral Fellow

“Vaccine Impact Modeling Consortium,” 4/1/2018 – 3/31/2021

Imperial College

To contribute to cervical cancer disease burden and HPV vaccine impact estimates and to advance the research agenda in the field of vaccine impact modeling.

Role: Co-Principal Investigator

“Optimal Cervical Cancer Prevention Policies in the Era of HPV Vaccination (CC-PREVENT),”
1/20/2020 – 12/31/2020

University of Oslo

To conduct a cost-effectiveness analysis of nonavalent HPV vaccine in Norway and estimate Norway’s timeline for cervical cancer elimination.

Role: Postdoctoral Fellow

Completed

“Health and Cost Impact of Human Papillomavirus (HPV) Vaccination in Gavi Countries,”
11/1/2016 – 6/30/2019

Bill & Melinda Gates Foundation

To compare different delivery strategies for HPV vaccination; specifically, to examine a strategy of a campaign targeting multiple-year age cohorts to a strategy of a routine program targeting single-year age cohorts.

Role: Research Assistant

“Impact of Supplemental Immunization Activity Campaigns on Health Systems,” 8/1/2016 –
1/22/2018

National Institutes of Health R03 grant

To estimate impact of supplemental immunization activity campaigns on distributional equity and routine health systems.

Role: Research Assistant

“Economic Value of Vaccines,” 3/14/2016 – 4/16/2018

Bill & Melinda Gates Foundation

To estimate case fatality ratios due to measles in low- and middle-income countries by country, year, and age grouping.

Role: Research Assistant

“DynaMICE (Dynamic Measles Immunization Calculation Engine),” 9/1/2015 – 7/31/2016
Gavi Secretariat

To contribute to development of health impact estimates due to measles vaccination and estimate the effective coverage of measles vaccination campaigns in the presence of routine measles vaccine coverage through quantitative and qualitative analysis.

Role: Research Assistant

“Initiative for Global Outcomes Research on Adult Vaccines,” 12/01/2014 – 02/29/2016

Merck & Co., Inc

To describe the current outcomes research evidence and policy evidence for adult vaccines, develop a globally informed consensus view on unmet outcomes research needs for adult vaccines adoption, and contribute to a consensus paper on the framework for a Global Outcomes Research Initiative for adult vaccines platform.

Role: Research Associate

“Decade of Vaccine Economics (DoVE): Phase III,” 08/15/2013 – 06/30/2015

Bill & Melinda Gates Foundation

To provide a user-friendly model to core partners (Bill & Melinda Gates Foundation, GAVI, UNICEF, WHO) to: (1) further develop methods for estimating and projecting resource requirements for vaccines and delivery of vaccinations; and (2) incorporate economic benefits to conduct a return on investment (ROI) analysis.

Role: Research Associate

“Modeling the Economic Burden of Vaccine-Preventable Diseases (VPDs) among US Adults,” 08/15/2013 – 12/31/2014

Merck & Co., Inc

To estimate the economic burden of VPDs in US adults, including the direct and indirect costs associated with illness.

Role: Research Associate

“Estimating Costs of Care for Meningitis Infections in Low- and Middle-Income Countries,” 04/01/2013 – 05/31/2013

World Health Organization

To review data on the costs of care for meningitis, a rare condition with long-term sequelae, in low- and middle-income countries, as well as to show how results can be extrapolated to countries without good data.

Role: Primary Investigator

CONFERENCE PRESENTATIONS

“Impact and cost-effectiveness of strategies to accelerate cervical cancer elimination in Norway: A model-based analysis,” Society for Medical Decision-Making North American Meeting, Virtual Conference, October 2020.

“Impact and cost-effectiveness of human papillomavirus (HPV) vaccination and screening on cervical cancer elimination in Norway,” International Papillomavirus Conference, Virtual Conference, July 21, 2020.

“Health and economic benefits of human papillomavirus (HPV) vaccination campaigns in 58 Gavi-eligible countries,” Accepted for oral presentation to postponed Society for Medical Decision-Making European Meeting, Berlin, Germany, June 2020.

“Impact and cost-effectiveness of human papillomavirus (HPV) vaccination and screening on cervical cancer elimination in Norway,” Accepted for oral presentation to postponed Society for Medical Decision-Making European Meeting, Berlin, Germany, June 2020.

“Producing standardized country-level immunization delivery unit cost estimates,” Poster Presentation, Society for Medical Decision-Making North American Meeting, Portland, OR, October 23, 2019.

“Health gains and financial risk protection from human papillomavirus (HPV) vaccination in Ethiopia,” Poster Presentation, Society for Medical Decision-Making North American Meeting, Portland, OR, October 20, 2019.

“Health gains and financial risk protection from human papillomavirus (HPV) vaccination in Ethiopia,” International Health Economics Association World Congress, Basel, Switzerland, July 17, 2019.

“Producing standardized country-level immunization delivery unit cost estimates,” International Health Economics Association World Congress, Basel, Switzerland, July 16, 2019.

“Improving the availability of immunization economics data for further use,” Panel Presentation, Immunization Economics Workshop, International Health Economics Association World Congress, Basel, Switzerland, July 14, 2019.

“Impact and cost-effectiveness of human papillomavirus (HPV) vaccination campaigns,” Society for Medical Decision-Making North American Meeting, Montréal, Canada, October 16, 2018.

“Impact and cost-effectiveness of human papillomavirus (HPV) vaccination campaigns,” International Papillomavirus Conference, Sydney, Australia, October 6, 2018.

“Estimating case fatality ratios (CFRs) of measles in low- and middle-income countries (LMICs),” International Health Economics Association World Congress, Boston, MA, July 10, 2017.

“Estimating costs of care for meningitis infections in low- and middle-income countries,” International Health Economics Association World Congress, Milan, Italy, July 15, 2015.

“Funding gap for immunization across 94 low- and middle-income countries,” International Health Economics Association World Congress, Milan, Italy, July 13, 2015.

“Costs of vaccine programs across 94 low- and middle-income countries,” Poster Presentation, Third Global Symposium on Health Systems Research, Cape Town, South Africa, October 1, 2014.

“Inpatient treatment costs of adult vaccine preventable diseases (VPDs) in the United States,” Interscience Conference on Antimicrobial Agents and Chemotherapy, Washington, DC, September 6, 2014.

“Estimating costs of care for meningitis infections in low- and middle-income countries,” International Health Economics Association World Congress, Sydney, Australia, July 9, 2013.

INVITED SEMINARS

“COVID-19: implications on immunization delivery costs,” Center for Strategic and International Studies (CSIS) Roundtable, September 17, 2020.

“Cost of immunization during the COVID-19 pandemic,” Learning Network for Countries in Transition (LNCT) Webinar, July 16, 2020 (<https://lnct.global/resources/lnct-webinar-resources-incremental-costs-of-immunization-during-the-covid-19-pandemic/>).

“Producing standardized country-level immunization delivery unit cost estimates,” Invited to participate in cancelled Institute for Disease Modeling Symposium, Bellevue, WA, April 2020.

“Health gains and financial risk protection from human papillomavirus (HPV) vaccination in Ethiopia,” Program in Health Economics and Outcomes Research Methodologies (PHEnOM) Seminar, University of Washington, Seattle, WA, April 17, 2019.

“Impact and cost-effectiveness of human papillomavirus (HPV) vaccination campaigns,” Institute for Disease Modeling Symposium, Bellevue, WA, April 16, 2019.

“Leveraging multiple models to estimate human papillomavirus (HPV) vaccination impact,” Vaccine Impact Modeling Consortium Annual Meeting, Windsor, United Kingdom, March 4, 2019.

“Considerations for measles control impact,” Institute for Disease Modeling Symposium, Bellevue, WA, April 18, 2018.

“Estimating case fatality ratios (CFRs) of measles in low- and middle-income countries (LMICs),” Vaccine Impact Modeling Consortium Annual Meeting, Boston, MA, March 20, 2018.

“Decision-makers’ perspective and return on investment,” World Health Organization (WHO) Consultation on the Broader Economic Impact of Vaccines and Immunization Programs, Bangkok, Thailand, November 25, 2014.

“Costs of vaccine programs across 94 low- and middle-income countries,” Center for Health Decision Science, Harvard School of Public Health, Boston, MA, November 5, 2014.

“Decade of Vaccine Economics: Costing, financing & return on investment analysis,” Bill & Melinda Gates Foundation Writing and Dissemination Workshop for the Costing and Financing of Routine Immunization and New Vaccines, Geneva, Switzerland, November 4, 2013.

“Grading evidence,” Immunization and Vaccines-related Implementation Research Advisory Committee (IVIR-AC) Meeting, World Health Organization, Geneva, Switzerland, September 25, 2012.

REFERENCES

Stéphane Verguet
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