

Curriculum Vitae

Manish Kumar, Ph.D., MPH, MSc

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Manish Kumar, Ph.D., MPH, MSc. has about 20 years of global and country-level experience in global health, health information systems (HIS), digital health, and health systems especially in PEPFAR priority countries. Kumar has provided research and evaluation, strategic, technical, and managerial services for projects/programs funded by the United States Agency for International Development (USAID), the United States President's Emergency Plan for AIDS Relief (PEPFAR), the United States Centers for Disease Control and Prevention (CDC), Foreign, Commonwealth & Development Office/United Kingdom, the Swiss Agency for Cooperation and Development (SDC), and the Bill and Melinda Gates Foundation. He has planned, implemented, managed and evaluated HIS, health information exchange, digital health, health informatics, and capacity building projects at global, regional, national, and sub-national levels. He has co-lead development of maturity model based tools such as the HIS Stages of Continuous Improvement (in collaboration with CDC) and the HIS interoperability maturity toolkit in addition to serving as an expert for maturity model activities of the WHO, USAID, PEPFAR and other donors. Kumar has provided technical advice to advance the digital health/HIS efforts of the World Health Organization (WHO), in Geneva and its regional offices in Americas, Africa, Eastern Mediterranean Region and Europe, as well as to the Inter-American Development Bank (IADB). He has implemented and assessed global digital goods such as the DHIS 2 and iHRIS.

Currently, Kumar is the Principal Investigator (PI) for the TB Data, Impact Assessment and Communications Hub project, funded by USAID, that strengthens collection, analysis, and use of tuberculosis data and features an interactive data hub by country and a repository of best practices for methods and approaches. In addition, he is also the PI for the PMI Measure Malaria project, funded by the U.S. President's Malaria Initiative and USAID, that strengthens country capacity to analyze and use malaria health data and manage health information systems to serve malaria needs and develop tools, methods, and share knowledge.

Kumar is also the PI for a PATH led and PEPFAR/CDC funded Technical Assistance Platform project (2020-2025) and provides research, monitoring and evaluation, implementation, capacity building, and technical assistance support for HIS governance, workforce development, and health information exchange activities. He is also the PI and Senior Technical Specialist- Health Systems Strengthening for the PATH funded DATIM Support and Maturity Model project supporting governments and implementing partners in 50+ countries. Kumar is a core member of the PEPFAR-Ministry of Health data alignment team that supports indicator mapping, facility harmonization and data import activities in 23 PEPFAR priority countries since 2017. This project included conducting landscape analysis of health information exchange in low-resource settings with funding support from Microsoft Corporation. He is involved in global maturity model efforts involving WHO/PAHO, PEPFAR, and USAID across various disease domains such as HIV, Malaria and TB. He is also the co-chair of the policy sub-group of the Health Information Exchange Task Force, established by the Africa CDC. He led the development of A Navigator for Digital Health Capability Models that allows stakeholders to select and use an assessment tool that aligns with their organizational digital health goals and context.

As the Senior Technical Specialist-Health System Strengthening in the USAID-MEASURE Evaluation project (June 2015-May 2020), Kumar provided research, and technical assistance to strengthen HIS, and both developed and implemented maturity model assessments in collaboration with the Digital Health Interoperability Working Group of the Health Data Collaborative (HDC) and the CDC. He planned and conducted trainings, established, and led data exchange communities of practice, and supported PEPFAR-Ministry of Health data alignment initiative in 23 countries while working closely with country teams. As an adjunct faculty in the Gillings School of Global Public Health, Kumar offers mentorship and coaching services to students and faculty for their global health research and practice efforts.

He was awarded a certificate of appreciation from PEPFAR Ambassador for his work on DATIM and from the US Department of State for successful delivery of systems and data use training to 500 program staff in the field. He has published several research papers in reputed journals such as the Journal of American Medical

Informatics Association and serves as expert reviewer for global health journals.

EDUCATION AND TRAINING

- PhD, Health Informatics, Carolina Health Informatics Program, University of North Carolina, Chapel Hill (UNC), NC (2021)
- MPH, Master of Public Health with specialization in public health informatics and International Peace and Conflict Resolution, University of North Carolina, Chapel Hill (UNC), NC (2015)
- MS, Management of Agriculture Knowledge Systems, Wageningen University and Research Center, The Netherlands (2003)
- MS, Development Communication, Govind Ballabh Pant University of Agriculture and Technology, Uttarakhand, India (2000)

EMPLOYMENT HISTORY

1a. Organization Name and Location	Carolina Population Center, University of North Carolina at Chapel Hill
Beginning and End Date of Employment	May 01, 2021- Continuing
Employment Status	Full-time
Job Title	Principal Investigator- The TB Data, Impact Assessment and Communications Hub (TB DIAH) project (\$36,000,000; 2018-2023)
Brief Description of Duties	<p>The TB Data, Impact Assessment and Communications Hub (TB DIAH) project, funded by USAID, strengthens collection, analysis, and use of tuberculosis data and features an interactive data hub by country and a repository of best practices for methods and approaches.</p> <ul style="list-style-type: none">• Overall management, supervision, and liaison with UNC research administration for project success• Offer technical leadership on health information systems improvement, data use, and development of monitoring and measurement tools• Lead conceptualization, development, and validation of a data to action continuum maturity model to assess and improve data use capabilities of the National TB programs.• Strategic guidance to establish regional center of excellence for TB M&E.
1b. Organization Name and Location	Carolina Population Center, University of North Carolina at Chapel Hill
Beginning and End Date of Employment	May 01, 2021- Continuing
Employment Status	Full-time
Job Title	Principal Investigator- The PMI Measure Malaria project (\$36,000,000; 2018-2023)

Brief Description of Duties

PMI Measure Malaria project, funded by the U.S. President’s Malaria Initiative (PMI) and USAID, strengthens country capacity to analyze and use malaria health data and manage health information systems to serve malaria needs and develop tools, methods, and share knowledge.

- Overall management, supervision, and liaison with UNC research administration for project success
- Offer technical leadership on health information systems improvement, data use, and development of monitoring and measurement tools
- Advise on how to strengthen the PMI Malaria Index tool based on the HIS SOCI tool developed under the MEASURE Evaluation project.

1c. Organization Name and Location

Carolina Population Center, University of North Carolina at Chapel Hill

Beginning and End Date of Employment

October 16, 2020- Continuing

Employment Status Job Title

Full-time
Lead Principal Investigator and HIS Evaluation Advisor- Health Informatics Technical Assistance Platform Initiative (\$1,250,000 approx.; 2020-2025)

Brief Description of Duties

PEPFAR funded TAP initiative aims to advance the maturity of HIS, EMR, and data integration and implementation capabilities in six PEPFAR priority countries.

- Lead development of generic data privacy, security, and confidentiality policy, implementation framework, and assessment plan for six PEPFAR focus countries
- Lead development of generic data use, access, and sharing policy, implementation framework, and assessment plan for six PEPFAR focus countries
- Leading development of above-site and site level assessment tool based on the Informatics Savvy Organization framework developed by CDC.
- Overall management, supervision, and liaison with UNC schools/departments for health informatics activities
- Provide research and capacity building support for the development and use of health informatics assessment tools, and training curriculum
- Development and implementation of project monitoring and evaluation plan
- Collaboration and coordination with Ministries of Health and implementation partners.

1d. Organization Name and Location Carolina Population Center, University of North Carolina at Chapel Hill

Beginning and End Date of Employment June 1, 2020- Continuing

Employment Status Full-time

Job Title Principal Investigator and Senior Technical Specialist – Health Systems Strengthening, DATIM Support and Maturity Model (\$350,000; 2020-2022)

Brief Description of Duties

- Overall management, supervision, and liaison with UNC and the MEASURE Program (<https://www.measureprogram.org/>) of UNC-CPC for the DATIM Support and Maturity Model project
- Provide capacity building support for implementation and use of PEPFAR's Data Accountability, Transparency, and Impact (DATIM) system.
- Provide technical and capacity-building support for the PEPFAR-Ministry of Health Data Alignment Activity.
- Provide technical leadership for the development and implementation of a maturity model framework by the Data Use Community (<https://ohie.org/duc/>), a community of practice working to support better quality care through data use by collaborating across facilities, countries, care levels, and organizations.
- Lead review and development of a cohesive package that includes key HIS maturity model-based tools.

2. Organization Name and Location MEASURE Evaluation Project, Carolina Population Center, University of North Carolina at Chapel Hill (www.measureevaluation.org)

Beginning and End Date of Employment June 15, 2015-May 31, 2020

Employment Status Full-time

Job Title Senior Technical Specialist – Health Systems Strengthening

Brief Description of Duties

- Manage research and programmatic activities associated with the effectiveness of innovations and improvements in Health Systems Strengthening (HSS) in the promotion of better public health
- Conduct research on health information systems (HIS) and health informatics innovations and their impact upon improved public health
- Collaborate with Ministries of Health, and public/private health organizations and strengthening of national and sub-national HIS
- Strengthen existing collaborations with HIS centers of excellence as well as actively searching for new partnerships throughout the world for further HIS research and implementation
- Participate in preparing the work plans for research activities to be undertaken for HSS and in implementation of MEASURE Evaluation

project's HSS activities.

3. Organization Name and Location

Abt Associates Inc., New Delhi, India (www.hfgproject.org)

Beginning and End Date of Employment

April 2013- July 2013

Employment Status Job Title

Full-time
Health Information Systems (HIS) Senior Advisor

Brief Description of Duties

- Served as a senior technical resource/thought leader on HIS in the context of health systems strengthening
- Led assessments to evaluate key HIS domains (including resources, indicators, data sources, data management processes, and use of information) at national and subnational levels
- Managed and supported all technical aspects of HIS strengthening activities under the Health Finance and Governance-India project
- with relevant government agencies, in country stakeholders and technical support partners to strengthen HIS and use of information for planning and program purposes
- Produced analytic papers, summary reports, work plans and products for specific assignments.

4. Organization Name and Location

IntraHealth International, Inc, New Delhi, India

Beginning and End Date of Employment

January 2007- February 2013

Employment Status Job Title

Full-time
Technical Advisor, (www.intrahealth.org)

Brief Description of Duties

- Primary role was to lead project interventions in public health information systems research and implementation activities
- Provided technical leadership for two projects:
 - ✓ *Vistaar* project, a \$25 million health systems strengthening project (2006-2012) funded by the United States Agency for International Development (USAID) in India
 - ✓ Department for International Development (DFID), United Kingdom funded (approx. \$750,000) effort to develop and deploy a human resources information system in Bihar state
- Conducted research in public health, particularly public health information systems to promote information sharing and data use to inform human resource planning and policy in two Indian states
- Conducted data collection and analysis, evidence review and published manuscripts in collaboration with his team members

5. Organization Name and Location	South Asia Regional Office (New Delhi) of OneWorld International (www.oneworld.net), a United Kingdom-based non-government organization
Beginning and End Date of Employment	June 2004- January 2007
Employment Status	Full-time
Job Title	Manager-Information and Communication Technology Research
Brief Description of Duties	<ul style="list-style-type: none"> • Led research and also managed, as the managing editor, publication of bi-monthly print publication <i>Mainstreaming Information and Communication Technology (s) (ICTs)</i> which was focused on use of ICT for achieving the United Nations millennium development goals in South Asia. • Served as a subject matter expert for the interactive voice response system-based agriculture question and answer decision system for farmers.
6. Organization Name and Location	Centre for Spatial Database Management and Solutions (now called Centre for Science, Development and Media Studies, Noida, India
Beginning and End Date of Employment	July 2003- May 2004
Employment Status	Full-time
Job Title	Senior Research Associate
Brief Description of Duties	<ul style="list-style-type: none"> • Conducted and published research on use of information for development through the publication 'information4development'
7. Organization Name and Location	Directorate of Agriculture Communication, G. B. Pant University of Agriculture and Technology, Uttarakhand, India
Beginning and End Date of Employment	November 2000- November 2001
Employment Status	Full-time
Job Title	Senior Research Fellow, World Bank funded-National Agriculture Technology Project
Brief Description of Duties	<ul style="list-style-type: none"> • Developed tools and conducted surveys • Conducted data analysis and published project reports

HONORS & AWARDS:

Year	Honor/Award
2017	Office of the United States Global HIV/AIDS Coordinator, Department of State - Certificate of Appreciation. Kumar was the only researcher at the University of North Carolina at Chapel Hill who was awarded the recognition. The recognition was meant to acknowledge the outstanding contributions in using data and systems for reducing HIV burden in more than 60 countries under the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).
2017	Department of State, United States Government-Certificate of Appreciation for capacity building of public health research and implementers, Department of State, United States Government, June 2017 for excellent contribution in development and maintenance of PEPAR's health information system used in more than 50 countries
2015	Delta Omega Service Award, Gillings School of Global Public Health
2015	Inductee, Frank Porter Graham Graduate and Professional Student Honor Society, University of North Carolina, Chapel Hill
2014	Miriam L. Cole Scholarship, Gillings School of Global Public Health, University of North Carolina, Chapel Hill
2013	Rotary Peace Fellowship of the Rotary International Foundation, United States
2006	Nominated to the United Nations Strategy Council of the Global Alliance for Information and Communication Technology (ICT) for Development.
2004	Asian Development Bank Fellowship for Water Journalists, India, February 2004.
2001-2003	Anne van den Ban Fund, Wageningen University, The Netherlands
1998-2000	Junior Research Fellowship, Indian Council of Agricultural Research, India
1994-1998	University Merit Scholarship, Rajendra Agriculture University, Bihar, India

MEMBERSHIPS:

Professional Society

2021-present	International Network for the Science of Team Science
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HONORS & AWARDS:

1999 – present Indian Association of Information Technology in Agriculture (Life membership), India

1998 – present Society of Extension Education (Life membership), India

Global Expert Working Group

2021 Planning team member and co-facilitator, Health Data Governance Summit, World Health Organization, Geneva, Switzerland, September 30, 2021

2019-present Health information system expert for the Pan American Health Organization, Regional office of the United Nations World Health Organization

2019-2020 Co-chair, Policy and Governance group of the Health Information Exchange Policy and Standards Task Force of the Africa Center for Disease Control and Prevention, African Union

2016-present Digital Health and Interoperability Working Group of the Health Data Collaborative led by the World Health Organization of the United Nations

Co-chair, Maturity Model- Small Working Group

TRAINING, CURRICULUM DEVELOPMENT & GUEST LECTURE:

Curricula Under Development

Year	Curriculum
2021	Development and pilot of Informatics for Leaders curriculum in collaboration with the University of Washington, Seattle, USA. The curriculum is targeted at public health leaders in PEPFAR funded countries.
2021	Customization and piloting of Enterprise Performance Life Cycle (<u>EPLC</u>) Lite curriculum for use in Ethiopia, Uganda, Kenya, Mozambique, Rwanda, Nigeria, and Haiti and other PEPFAR supported countries implementing health information technology projects. The curriculum work is led by the University of Washington, Seattle, USA.

Published

2018 **Kumar contributed to and reviewed the health data system course developed by the Evidence for Policy Design-India program of the John F. Kennedy School of Government at the Harvard University. The e-learning course is used to train senior government officials in the South Asian countries.**

TRAINING, CURRICULUM DEVELOPMENT & GUEST LECTURE:

- 2018 **Kumar** led the development for the Monitoring, Learning and Evaluation module of the Regional Workshop on “Capacity building for Digital Health Leadership” in Maseru, Lesotho, 21-30 November 2018. The International Telecommunications Union (ITU) and the World Health Organization’s (WHO) Regional Office for Africa lead the interdisciplinary team. The course curriculum was adapted as an e-learning course titled ‘Digital Health Leadership’ is being delivered through the ITU Virtual Academy.
- 2018 **Health Information Assessment Framework e-learning course.** Kumar led the research and developed the content for the course titled “health information assessment framework”. This course was offered as a specialty course in the Virtual Workshop organized by the PEPFAR in September 2018. The virtual workshop was targeted at researchers and managers engaged in the PEPFAR and the Ministries of Health (MoH) data alignment work in 23 PEPFAR funded countries. The purpose of the workshop was to strengthen capacity of MoH and U.S. government researchers and program managers to use data for controlling the HIV epidemic.
- 2017 **PEPFAR Health Information System- User and Site Management courses.** Developed presentation and courses on HIV data systems for the 2017 United States President’s Emergency Plan for AIDS Relief (PEPFAR) Data and Systems Applied Learning Summit (PALS), Johannesburg, South Africa, September 12-22, 2017. The summit educated more than 500 participants from Africa, Asia, Europe, and Latin America.
- 2017 **Routine Health Information Systems: A Curriculum on Basic Concepts and Practice.** As a member of the core research team, Kumar collaborated with a group of global health information systems experts-the University of North Carolina at Chapel Hill, in the United States; World Health Organization of the United Nations, in Switzerland; the Free University of Brussels/European Agency for Development and Health (AEDES), in Belgium; the University of Oslo, in Norway; the National Institute of Public Health (INSP), in Mexico; the University of Queensland, in Australia; and the Public Health Foundation of India (PHFI)- to publish this curriculum.
- Public health professionals in Mali, Africa trained using the curriculum.
- Curriculum was downloaded from MEASURE Evaluation website by more than 1,200 users from about 100 countries.
- 2016 **PEPFAR Health Information System- Introduction to Data Systems course and training.** Developed course content and trained more than 100 participants from 25 countries during the Regional Data for Accountability, Transparency, and Impact Monitoring (DATIM) training in Johannesburg, South Africa, January 2016. Training was conducted in collaboration with the University of Oslo, Norway and the Health Information Systems Program, Uganda.
- 2016 Role Mapping Resources – Global Academic Curricula Competencies for Health Information Professionals. Published by the Global Health Workforce Council (GHWC) of the American Health Information Management Association (AHIMA) Foundation, United States.
- Role mapping document was published by the GHWC of AHIMA to strengthen global health workforce development.

TRAINING, CURRICULUM DEVELOPMENT & GUEST LECTURE:

Guest Lecture

Year	Lecture
2020	Guest lecture in the course Global Health Program Planning and Proposal Development (HBEH 780) taught by Dr. Nora Rosenberg, Department of Health Behavior, Gillings School of Global Public Health
2019	Invited as a guest speaker by the Pierre Fabre Foundation to the 4 th conference of the Global South eHealth Observatory held on Monday, July 1 st 2019 in Lavaur, France.
2018	Guest lecture in mHealth course taught by Dr. Lavanya Vasudevan, Duke Global Health Institute
2018	Informatics Research Seminar: Health Information System Improvement in Low-and-Middle Income Countries. January 24, 2018, Duke Center for Health Informatics, Duke University, North Carolina.
2017	Conducted system analysis interactive lecture for the students in the Master of Hospital Administration degree program of the Tata Institute of Social Sciences, India.
2017	Delivered courses on HIV data systems for the 2017 United States President's Emergency Plan for AIDS Relief (PEPFAR) Data and Systems Applied Learning Summit (PALS), Johannesburg, South Africa, September 12-22, 2017. The summit educated more than 500 participants from Africa, Asia, Europe, and Latin America. Kumar's name is mentioned as the content developer in the summit documents.

PROFILE PUBLISHED BY ORGANIZATION

1. Fall 2020 Alumni Spotlight, Public Health Leadership Program, Gillings School of Global Public Health, University of North Carolina at Chapel Hill
2. Profile Article Discussing Health Information System Work Published Online (2020) by the Infectious Diseases Society of America, Virginia
3. Profile Article Discussing Research and Recognition Published Online (2017) by the Association of Schools and Programs for Public Health, United States.
4. Featured in the [Spring 2016 edition of Carolina Public Health Magazine](#), Gillings School of Global Public Health, University of North Carolina at Chapel Hill
5. Profile Article Discussing Research and Expert Opinion Published Online (2015) by the Desmond Tutu Peace Foundation
6. Profile Article Discussing Research Featured in Wageningen World, Quarterly Magazine of the Wageningen University and Research Center in the Netherlands, 2012
7. Profile Article Discussing Research Published in the Indian daily newspaper "Hindustan" on January 21, 2014

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Research Papers/Articles

Manuscripts Under Review/Consideration

1. Bohalman A, Mostafa J, Kumar M. Machine Learning and Medication Adherence: A Scoping Review. *JMIRx Med*, 2021 (*Accepted for publication*).
2. Dereje Habte, Katilyn Wilkins, John P Abellera, Smita Ghosh, Christopher Miller and **Manish Kumar**. 2021. A Maturity Model-based Practical Tool to guide the development of HIV data use roadmap in Ethiopia. *Journal of Health Informatics in Africa* (*Accepted for publication*).

Published

1. Kumar M, Silver M, Chauffour J, Boyle C, Boone D. Research gaps in transforming tuberculosis data to action for better health outcomes: A systematic literature review. *J Glob Health* 2021 Sep 18;11:04058. doi: 10.7189/jogh.11.04058. eCollection 2021.
2. James C. Thomas, Kathy Doherty, Stephanie Watson-Grant, Manish Kumar, Advances in monitoring and evaluation in low- and middle-income countries, *Evaluation and Program Planning*, 2021, 101994, ISSN 0149-7189, <https://doi.org/10.1016/j.evalprogplan.2021.101994>.
3. **Kumar M**, Mostafa J. Standard health data exchange model enables the use and reuse of data to improve maternal health programs and services: a case study from India. *Journal of Global Health Reports*. 2021;5:e2021066. doi:10.29392/001c.24949.
4. Elizabeth Simmons; Kavita Singh; Jamiru Mpiima; **Manish Kumar**; William Weiss. 2020. Assessing coverage of essential maternal and child health interventions using health-facility data in Uganda. *Journal of Population Health Metrics*, October 2020.
5. **Kumar, M.** and Mostafa, J. (2020), "Electronic health records for better health in the lower- and middle-income countries: A landscape study", *Library Hi Tech*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/LHT-09-2019-0179>
6. Scope of Public Health Decision Making in Uganda to Reduce Maternal Mortality: Concept Note and Use Case. Chapel Hill, NC, USA; MEASURE Evaluation, University of North Carolina. Available at <https://www.measureevaluation.org/resources/publications/wp-19-233/>
7. James C. Thomas and **Manish Kumar**. 2019. Questions as an organizing framework for health information systems. United States Agency for International Development – MEASURE Evaluation, North Carolina, USA. Available at <https://www.measureevaluation.org/resources/publications/tr-19-355>
8. Danny T Y Wu, Annie T Chen, John D Manning, Gal Levy-Fix, Uba Backonja, David Borland, Jesus J Caban, Dawn W Dowding, Harry Hochheiser, Vadim Kagan, Swaminathan Kandaswamy, **Manish Kumar**, Alexis Nunez, Eric Pan, David Gotz. (2019). Evaluating visual analytics for health informatics applications: a systematic review from the American Medical Informatics Association Visual Analytics Working Group Task Force on Evaluation, *Journal of the American Medical Informatics Association*, <https://doi.org/10.1093/jamia/ocy190>.

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9. **Kumar M** and Mostafa, J (2019). Research evidence on strategies enabling integration of electronic health records in the health care systems of low- and middle-income countries: A literature review. *International Journal of Health Planning and Management*. 2019 Feb 14. Doi: 10.1002/hpm.2754.
10. Garret Mehl, *et. Al.* (2018). Classification of digital health interventions. Geneva: World Health Organization; 2018(WHO/RHR/18.06). Licence: CC BY-NC-SA 3.0 IGO. **Manish Kumar** is one of the contributors to this publication.
11. **Kumar, Manish**, David Gotz, Tara Nutley, and Jason. B. Smith (2017). Research gaps in routine health information system design barriers to data quality and use in low- and middle-income countries: A literature review. *International Journal of Health Planning and Management*. 2017;1–9. DOI: 10.1002/hpm.2447
12. **Kumar, M**, Javed M and Ramaswamy R (2017). Federated health information architecture: Enabling healthcare providers and policymakers to use data for decision-making. *Health Information Management Journal*. 2017:183335831770970. Doi:10.1177/1833358317709704.
13. **Kumar, Manish**, and Liz Millar (2017). Stages of Health Information System Improvement- Strengthening the Health Information System for Improved Performance. United States Agency for International Development – MEASURE Evaluation, North Carolina, USA. Available at <https://www.measureevaluation.org/resources/publications/fs-17-246> .
14. **Kumar, Manish**, and Samuel Wambugu (2016). A Primer on the Privacy, Security, and Confidentiality of Electronic Health Records. United States Agency for International Development – MEASURE Evaluation, North Carolina, USA. Available at <http://www.cpc.unc.edu/measure/resources/publications/sr-15-128-en>
15. **Kumar, Manish**, Ramaswamy R, Mostafa J (2016). Why India Needs to Change the Architecture of its Public Health Information Systems. *Journal of Health Systems*. 2016, Vol. II, Issue 2, July-Dec. India.
16. Modugu Reddy Hanimi, **Manish Kumar** and Ashok Kumar, Christopher Millett (2012). State and socio- demographic group variation in out-of-pocket expenditure, borrowings, and Janani Suraksha Yojana (JSY) program use for birth deliveries in India. *BMC Public Health*. 2012, 12:1048. <http://www.biomedcentral.com/1471-2458/12/1048>
17. **Kumar, Manish** (2006). Participatory Message Development on Anemia-A Case Study from Uttaranchal. Papers Selected by the Scientific Committee for the World Congress on Communication for Development organized by FAO, World Bank, Rome, October 25-27, 2006.
18. Pathak, Chitra, **Manish Kumar** and Neelam Bhardwaj (2005). Information needs of Hill Women on Health and Nutrition: A Study in the Kumaon Division of Uttaranchal. *Journal of Communication Studies*. Vol. XXIII (2).
19. Pathak, Chitra, **Manish Kumar** and J.K. Kwatra (2005). Extension Training for Agricultural Development. *Agricultural Extension Review*, India. Vol. 17, July-August 2005, No. 04.
20. Kumar, B.; Neelam Bhardwaj and **Manish Kumar** (2001). Training of Farm Women- Issues & Strategy. *Indian Journal of Training & Development*. 30(2): 11-18, 2001.

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21. **Kumar Manish** (2001). Communication of Development Messages among rural poor – An ethnographic study. *Media Asia*, Vol. 28, Issue 2. Available at <http://www.tandfonline.com/doi/abs/10.1080/01296612.2001.11726639>
22. **Kumar, Manish**; Chitra Pathak and A. K. Singh (2001). Information source of rural poor-a study in U.S. Nagar District of Uttaranchal. *IASSI Quarterly*. June 2001
23. **Kumar, Manish**; Chitra Pathak and B. Kumar (2001). Communication of Development Messages. *Indian Research Journal of Extension Education*. 1(2).
24. Kumar, B., and **Manish Kumar** (2000). Designing Media Based Extension Training – Issues and Strategy. *Indian Journal of Training & Development*. 30(2): 11-18, 2000.
25. **Kumar, Manish**, Chitra Pathak and Laxmi Joshi (2000). Participatory Rural Development : Myth or Reality? *Kurukshetra*, Ministry of Rural Development, Vol. 48 No.9.

Book Chapters

1. **Kumar, Manish** and Chitra Pathak (2010). Indigenous Knowledge for Sustainable Mountain Development- Some examples from Himalayan Region. In Neelendra K Joshi and Vir Singh ed., *Traditional Ecological Knowledge of Mountain People*, Daya Publishing House, Delhi, India, pp: 35-45. http://www.vedamsbooks.com/product_detail_print.htm?pid=40734
2. **Kumar, Manish** and Chitra Pathak (2003). Desirability of E-Governance: A Review of ATMA Pilot Project in Muzaffarpur. In M.P. Gupta and Prabhat Kumar ed., *Promise of e-Governance-Operational Challenges*, Tata Mc GrawHill Publications, New Delhi, India, pp:338-343. http://www.iceg.net/2007/download/Promise_of_E_Governance.pdf#page348

Online Articles/Blogs/Feature

1. **Kumar, Manish**; Jefferson, Bobby, and Jim Thomas. 2020. COVID-19: This pandemic offers a lesson we must learn before the next. Published by Science Speaks, a digital publication of Infectious Diseases Society of America, Virginia, USA. Available at <https://sciencespeaksblog.org/2020/04/14/covid-19-this-pandemic-offers-a-lesson-we-must-learn-before-the-next/>
2. **Kumar, Manish, and Heidi W. Reynolds**. 2018. Health information systems for program evaluation: How to connect the dots? MEASURE Evaluation, University of North Carolina at Chapel Hill. Available at <https://www.measureevaluation.org/resources/newsroom/blogs/health-information-systems-for-program-evaluation-how-to-connect-the-dots>
3. **Kumar, Manish**. 2017. Health Information System Architecture: Harmonized and Interoperable. MEASURE Evaluation, University of North Carolina at Chapel Hill. Available at <https://www.measureevaluation.org/news/health-information-system-architecture-harmonized-and-interoperable>
4. **Kumar, Manish** and Jackson, Kate. 2015. Preparing Health Information Professionals for Health Information Systems Challenges. Available at <http://www.rhinonet.org/439-2/>

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6. **Kumar, Manish.** 2006. Sacred Ganges River Goes Wireless. Government Technology, United States. Available at <http://www.govtech.com/dc/articles/Sacred-Ganges-River-Goes-Wireless.html>

Original Scientific Research

1. Development of National and Sub-National Electronic Health Records to Enable Health Data Exchange for Improved Maternal Health Service Delivery and Program: The Case of Tertiary Care State Government Hospital in India. 2020. Ph.D. dissertation, Carolina Health Informatics Program University of North Carolina at Chapel Hill.
2. Health Information System Stages of Continuous Improvement Toolkit. 2019/2020. Published by United States Agency for International Development-MEASURE Evaluation, North Carolina.
3. Health Information Assessment Framework Course. Published by the U.S. President's Emergency Plan for HIV/AIDS Relief. 2018.
4. Health Information System Interoperability Maturity Toolkit. 2017. Published by United States Agency for International Development-MEASURE Evaluation, Chapel Hill, North Carolina
5. Routine Health Information Systems: A Curriculum on Basic Concepts and Practice. 2017. Published Jointly with Eminent Researchers from Seven Countries.
6. Role Mapping Resources – Global Academic Curricula Competencies for Health Information Professionals. 2016. Published by the Global Health Workforce Council (GHWC) of the American Health Information Management Association Foundation, United States.
7. Integrated Health Information Architecture to Facilitate State-wide and National Evidence-Based Public Health Monitoring: A Case Study based in India. 2015. Master Paper, Gillings School of Global Public Health, University of North Carolina at Chapel Hill.
8. Nutrition Workforce Mapping Toolkit. 2014. Published by United States Agency for International Development-Strengthening Partnerships, Results, and Innovations in Nutrition Globally Project. Toolkit was published to support the nutrition workforce strengthening efforts of the USAID funded project 'Strengthening Partnerships, Results and Innovations in Nutrition Globally' in more than 15 countries.
9. Opportunities, Ecosystem requirements & Roadmap to Innovation in the Health Sector. Sector Innovation Council-Health, Ministry of Health and Family Welfare, Government of India, New Delhi, 2012-2013.
10. Agriculture Technology Management Agency- Old wine in a new bottle? Master thesis. 2003. Wageningen University and Research Center, the Netherlands.
11. Development of Communication Messages Among Rural Poor- An Ethnographic Study. Master thesis. 2000. Gobind Ballabh Pant University of Agriculture and Technology, Pantnagar, India.

REQUESTS FOR EXPERT ADVISE

Year	Request Detail
2021	The United Nations World Health Organization in Geneva, Switzerland invited Kumar to join a select group of experts to discuss and guide how to assess and improve use of routine health

REQUESTS FOR EXPERT ADVISE

data in the maternal and child health programs.

- 2021 The Department of Planning and Finance at the United States Department of State sought **Kumar's** expertise to review and develop a maturity model-based tool to measure and monitor sustainability of governments investments in health information system development.
- 2021 The Inter-American Development Bank (IADB), Washington D.C. sought **Kumar's** technical contributions for the development of a tool aimed at measuring total cost of ownership for digital health solutions.
- 2021 The Pan American Health Organization (PAHO), Regional Office of the United Nations World Health Organization invited **Kumar** to join the regional policy dialogue with Ministry of Health, donors and international organizations. The dialogue was meant to facilitate the development of the digital transformation agenda for the Latin American and Caribbean region countries.
- 2020 The United Nations World Health Organization in Geneva, Switzerland invited **Kumar** to join the expert group responsible for the development and validation of the Dynamic Digital Health Maturity Model. The maturity model is expected to be used by the member states for improving national digital health capabilities.
- 2019 The Pan American Health Organization (PAHO), Regional Office of the United Nations World Health Organization asked **Kumar** for his expert inputs on the 'Plan of Action on Information Systems for Health (IS4H) in the Americas'.
- 2019 The Inter-American Development Bank (IADB), Washington D.C. sought **Kumar's** expertise for its research work on Electronic Health Record Maturity Model.
- 2019 The World Health Organization (WHO) Regional Office for the Eastern Mediterranean Region (EMRO) invited **Kumar** as a facilitator for the Regional Consultation on strengthening country health information systems and capacities to monitor universal health coverage and health sustainable development goals, held in Amman, Jordan, from 21 to 23 January 2019.
- 2019 The Inter-American Development, Washington D.C. asked **Kumar** (2019) to recommend relevant evidence based on his recent research to advocate for investment in using digital health technologies in the Latin America and the Caribbean region countries.
- 2018 The United States Agency for International Development and the Bill and Melinda Gates Foundation funded Digital Square project invited **Kumar** to the Global Goods Implementers Meeting in Washington D.C. on December 13, 2018.
- 2018 The International Telecommunications Union and the World Health Organization's (WHO) Regional Office for Africa had asked **Kumar** to lead content development for the Monitoring, Learning and Evaluation module of the Regional Workshop on "Capacity building for Digital Health Leadership" in Maseru, Lesotho, 21-30 November 2018.
- 2018 The Permanent Secretary-Health, Ministry of Health, Republic of Uganda invited **Kumar** to assist with the Health Information System Maturity Health Sector Assessment in November 2018. The Permanent Secretary is the highest ranked civil servant in the Ministry of Health.
- 2018 The U.S. Department of State, Office of the US Global AIDS Coordinator and Health Diplomacy (S/GAC) asked **Kumar** to review practitioner-focused interoperability guide that was released during the United Nations World Data Forum in late October 2018.
- 2018 The Open Health Information Exchange (HIE) Community invited **Kumar** to participate in the

REQUESTS FOR EXPERT ADVISE

community discussion and contribute to the data exchange deliberations in the 2018 OpenHIE Community Conference in Arusha, Tanzania from 31 July to 4 August 2018.

The OpenHIE community of practice formed in early 2013, evolving from the work that initially began in 2009 to establish the Rwandan Health Information Exchange (RHIE). As the benefits of the approach adopted in Rwanda became apparent, interest gathered from other countries looking to apply similar architectural tactics within their environments. Today, OpenHIE's approaches, reference technologies, and community processes are being leveraged or explored in multiple countries.

- 2018 The Inter-American Development Bank, the credit agency for the Americas, invited **Kumar** to share his expertise and support the digital health transformation efforts of the Bank in Latin America and the Caribbean.
- 2018 The Department of Information, Evidence and Research at the headquarters of the World Health Organization (WHO) of the United Nations in Geneva sought **Kumar's** technical inputs through email for its work on health data technical package intended for use by more than 190 WHO member countries.
- 2018 The Triangle Global Health Consortium of North Carolina asked **Kumar** to join the Annual Conference Planning Committee (2018) and share his expertise. This consortium includes research universities in North Carolina and international global health organizations such as the Family Health International 360, Research Triangle Institute, Development Alternative International, Inc., etc.
- 2017 The World Health Organization Regional Office for Europe found Kumar's paper titled 'Research gaps in routine health information system design barriers to data quality and use in the low- and middle-income countries: A literature review' very relevant to its work and asked Kumar to serve as an expert for their related research study.
- 2017 The U.S. Department of State Office of the U.S. Global AIDS Coordinator and Health Diplomacy (S/GAC) invited **Kumar** to share his expertise with the participants of the 2017 United States President's Emergency Plan for AIDS Relief (PEPFAR) Data and Systems Applied Learning Summit (PAS) from September 11-22 in Johannesburg, South Africa. The summit was focused on delivering continuing education for researchers and implementers from the U.S. government agencies, non-profit organizations, and ministries of health.
- 2017 Research Director, Evidence for Policy Design (EpoD)-India, John F. Kennedy School of Government at Harvard University sought **Kumar's** expertise for the data systems training course module.
- 2017 The Pan American Health Organization (PAHO), Regional Office of the United Nations World Health Organization invited **Kumar** to join a network of experts for supporting Information Systems for Health activities in the Latin America and the Caribbean region countries.
- 2017 A researcher from the Institute of Development Studies (IDS) in the United Kingdom asked **Kumar** to use his research paper in a research study focusing on the public health system of developing countries.
- 2017 Senior Associate/Economist in the International Health Division of the Abt Associates, Inc. invited **Kumar** to join the Consultation on Technical Efficiency Guide for Lower and Middle-Income Country Health Systems on March 30, 2017, in Bethesda, Maryland.

REQUESTS FOR EXPERT ADVISE

- 2017 A researcher from the Kenyan Medical Research Institute (KEMRI)-Wellcome Trust research program asked in email to access and use Kumar's research on visualization. The Wellcome Trust is United Kingdom's largest non-governmental source of funds for biomedical research.
- 2017 The Ministry of Health, Government of Kenya invited **Kumar**, as an international expert, to share his technical inputs for the public health information systems work in Kenya.
- 2016 The Project Director- Africa at the Wageningen Environmental Research, Wageningen University and Research Center, the Netherlands asked Kumar for his expert opinion and advice in DHIS 2 implementation and use.
- 2016 The Head of Global Infrastructures Group at the University of Oslo, Norway invited **Kumar** to the DHIS 2 Experts annual capacity building meeting. The annual gathering brings together experts from around the world with the objective to strengthen the available technical support to the many to improve health data use in Africa, Asia, the Pacific and Latin America.
- 2016 The organizing committee for the United States President's Emergency Plan for AIDS Relief (PEPFAR) invited **Kumar** as a training to its Data for Accountability, Transparency and Impact Monitoring (DATIM) training in Johannesburg, South Africa from January 17-27, 2016. The purpose of this training was to enhance use of HIV data for achieving PEPFAR goal of HIV epidemic control in 60 plus countries.
- 2012 The United Kingdom's Department for International Development (DFID) supported project sought Kumar's expertise to support their team's public health workforce system research in the Indian state of Madhya Pradesh (2012). The United Kingdom's (DFID) is one of the largest government funding agencies in the world.
- 2012 The United Kingdom's Department for International Development (DFID) contracted Bihar Technical Assistance and Support Team (BTAST) asked **Kumar** to train a team of 38 consultants supporting the health workforce work in the Indian state of Bihar. The BTAST team lead the \$177 million the Sector Wide Approach to Strengthening Health (SWASTH) program to help improve health, nutrition and water and sanitation outcomes.
- 2012 Save the Children-India sought **Kumar's** expertise to develop their program (Scope, indicators, etc.) (2012).
- 2012 Save the Children-India invited **Kumar** to a Round Table meeting (2012) of key stakeholder organizations on Newborn and Child Survival issues in India. The project and meeting were funded by the Bill and Melinda Gates Foundation.
- 2012 Save the Children-India invited **Kumar** to join the Save the Children's Technical Advisory Group for its newborn and child survival project funded by the Bill and Melinda Gates Foundation (2012). Save the Children is a global non-profit organization which was founded in the year 1919 and works in more than 100 countries.
- 2012 The United Nations Office for Project Services (UNOPS) in India asked **Kumar** (2012) to share about his work in the Indian state of Bihar. The UNOPS is an operational arm of the United Nations, dedicated to implementing projects for the United Nations System, international financial institutions, governments and other partners around the world.
- 2012 The Academy for Educational Development led, and United States Agency for International Development (USAID) funded project asked **Kumar** for a meeting to learn from his rich experience in the field of knowledge management for health (2011). In 2011, the AED was

REQUESTS FOR EXPERT ADVISE

merged with one of the largest public health organizations in the world, the Family Health International 360 (FHI360).

REVIEW OF OTHERS WORK

Journal/Conference Paper Review

1. Reviewed paper for the Health Information Management Journal (2021)
2. Reviewed paper for the Journal of American Medical Informatics Association (2021)
3. Reviewed paper for the European Conference on Information Systems (2021).
4. Reviewer for the American Medical Information Association Annual Symposium and Informatics Conference (2021)
5. International Journal of Medical Informatics (2021)
6. Reviewed paper for the Global Health: Science and Practice Journal (2020)
7. Reviewed papers for the BMC Medical Informatics and Decision-Making (2020).
8. Reviewed paper for the International Journal of Medical Informatics (2020).
9. Reviewed paper for the BMJ Global Health journal (2019), a reputed global journal with editorial board comprised of eminent researchers from more than 15 countries.
10. Editors of the *International Journal of Medical Informatics* certified Kumar's reviewer status for the journal. The journal provides an international medium for dissemination of original results and interpretative reviews concerning the field of medical informatics
11. Reviewed a paper for 27th European Conference on Information Systems (ECIS 2019). ECIS is a meeting platform for European and international researchers in the field of Information Systems to discuss and debate studies that reflect upon and provide innovative solutions that contribute to the sustainable development of the sharing society.
12. Reviewed paper for the Global Health: Science and Practice Journal (2018). Published by the Johns Hopkins University, United States and funded by the United States Agency for International Development.
13. Reviewed more than 40 papers submitted for the Triangle Global Health Consortium Annual Conference, September 2018, Raleigh, North Carolina. This is the premier global health conference in North Carolina and in the East Coast of United States.
14. Reviewed paper for the *BMJ Open* journal (2018) published by the BMJ Publishing Group Ltd. *BMJ Open* is a medical journal considering papers addressing research questions in clinical medicine, public health, and epidemiology.
15. Reviewed conference abstracts for the American Medical Information Association (AMIA) Annual Symposium (2017-2020) and Informatics Summit (2019-2020). The AMIA Annual Symposium is world's premier health informatics and public health informatics conference.
16. Reviewed Paper for the *Bulletin of the World Health Organization* (WHO) at the United Nations (2017). The *Bulletin of the World Health Organization* is an international journal of public health with a special focus on developing countries.
17. Reviewed paper for the *South Asian Journal of Human Resources Management (Journal of South Asian Development)* in 2017. The journal has a regional focus in Asia.

REVIEW OF OTHERS WORK

18. Reviewed papers for the *International Journal of Education and Development Through Information and Communication Technology* (2018). It is an online peer-reviewed global journal
19. Reviewed papers for the *Journal of Community Informatics*, Canada. The Journal of Community Informatics speaks to a network of academics, community informatics practitioners and national and multi-lateral policy makers.

Book and Report/Working Paper/Guidance Review

1. Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes. The United Nations World Health Organization, Geneva Switzerland, 2020.
2. Digital Health Platform: Building a Digital Information Infrastructure (Infostructure) for Health. This handbook was developed jointly by the World Health Organization and International Telecommunication Union, 2020 in the context of the “Be Healthy, Be Mobile”, a joint ITU-WHO digital health initiative.
3. Expert reviewer for the technical brief on ‘Digital Health to Support Family Planning Providers HIP Enhancement’ (2020) published by the International Best Practices Network.
4. Peer reviewer for Norwegian Satellite of Cochrane Effective Practice and Organisation of Care, Norway (2020)
5. International Peer Review Committee Member for Grant Proposals of the Digital Square project. The United States Agency for International Development and the Bill and Melinda Gates Foundation provide the grant money (2018-continuing).
6. Grant Proposal Development for the Institute for Global Health and Infectious Diseases and Carolina Population Center of the University of North Carolina at Chapel Hill, USA (2018).
7. Reviewed “Health information system strengthening: Standards and best practices for data sources (2018)”. Chapel Hill, NC, USA: United States Agency for International Development-MEASURE Evaluation project.
8. Reviewed modules of the Technical Efficiency Guide for Lower and Middle-Income Countries. The guide was created by the Abt Associates, Inc., one of the top 50 research consulting organizations in global health (2018).
9. Reviewed “Barriers to and Facilitators of Sex- and Age-Disaggregated Data” report for Kenya. Chapel Hill, NC, USA: United States Agency for International Development-MEASURE Evaluation project.
10. Reviewed the scope and search strategy of the research focused on ‘Information systems for health policy systems and ecosystems: A scoping review’ Europe Regional Office of the World Health Organization, Denmark (2017-18).
11. Reviewed the maturity model section of the Digital Health Platform Handbook: Building a Digital Information Infrastructure (Infostructure) for Health (October 2017), a joint International Telecommunication Union-World Health Organization mHealth for non-communicable diseases initiative
12. Reviewed data systems module developed by the Evidence for Policy Design, (EpoD), a research organization led at the Harvard Kennedy School in Cambridge, United States (2017).
13. Reviewed “mHealth for Health Information Systems in Low- and Middle-Income Countries: Challenges and Opportunities in Data Quality, Privacy, and Security (2016) guideline document. Chapel Hill, NC, USA: United States Agency for International Development-MEASURE Evaluation project.
14. Evaluated “Repository on Maternal Child Health project portal” developed under the Norway-

REVIEW OF OTHERS WORK

- India Partnership Initiative of the Government of India. The project findings were published in the journal BMC Public Health 2013 (13:2).
15. Reviewed “Research study on ICTs and Empowerment of Indian Rural Women. What can we learn from ongoing initiatives? (2011” published by the Centre for Research on Innovation and Science Policy (CRISP), India.
 16. Shared review inputs for the “Health Information Systems in Developing Countries- A Landscape Analysis” research paper and strategic briefing, commissioned by the Bill and Melinda Gates Foundation and executed by the Vital Wave Consulting, United States, May 2009.
 17. Edited and published report titled ‘Exploring Partnerships for Improving Health Outcomes’, 7th United States Agency for International Development /India SO14 Partners’ Meeting Report, December 07, 2007, New Delhi, India.
 18. Managing Editor for Mainstreaming ICTs Research Publication, South Asia- OneWorld International, New Delhi, India (2004-2006).
 19. Senior Research Associate Information for Development (i4D), first publication on information and communication technology for development in Asia published by the Center for Spatial Data Management and Systems, Noida, India (2003-2004).

SELECT PRESENTATIONS AT TOP CONFERENCES/WORKSHOPS

1. Muzna Mirza, **Manish Kumar**, et al. 2021. Landscape assessment and PEPFAR technical enhancement design for supporting COVID-19 case-based surveillance and response. The PAN African Health Informatics Conference, October 20, 2021 (virtual), Kampala, Uganda. The other panelists included Veronica Muthee, Peninah Peninah (University of California San Francisco), Peter Mwitiri Arimi (University of Nairobi, Kenya), Steven Wanyee (Intellisoft), Daniel Futerman (Jembi Health Systems, Inc., South Africa), Chinedu Aniekwe (CDC-Nigeria), Christopher Seebregts (Jembi Health Systems, Inc., South Africa), Amitabh Adhikari and Tadesse Wuhib (CDC-Atlanta).
2. **Manish Kumar**, Paul Mbaka, Carol Kamasaka, Prosper Behumbiize and Alex Tumwesigye. 2021. Implementing Adaptive Low-cost Knowledge Integration Platform- Uganda Experience. The PAN African Health Informatics Conference, October 19, 2021 (virtual), Kampala, Uganda.
3. **Manish Kumar**, Kristen Brugh, Neranga Liyanaarachchige, Katie Norwood, Nancy Puttkammer and Tadesse Wuhib. 2021. Advancing Site-Level Health Informatics Capabilities Using a Maturity Model-Based Assessment Framework to Improve PEPAR Program Performance. The PAN African Health Informatics Conference, October 19, 2021 (virtual), Kampala, Uganda.
4. Dereje Habte, Katilyn Wilkins, John P Abellera, Smita Ghosh, Christopher Miller and **Manish Kumar**. 2021. A Maturity Model-based Practical Tool to guide the development of HIV data use roadmap in Ethiopia. The PAN African Health Informatics Conference, October 19, 2021 (virtual), Kampala, Uganda.
5. Muzna Mirza, **Manish Kumar**, et al. 2021. Multi-country effort for Leveraging PEPFAR Health Information Systems to Support COVID-19 Response; The PAN African Health Informatics Conference, October 19, 2021 (virtual), Kampala, Uganda. The other panelists included Sisay Alemayehu (CDC-Ethiopia), Kenneth Musenge (CDC-Uganda), Chinedu Aniekwe (CDC-Nigeria), Ibrahim Dalhatu (CDC-Nigeria), Mustapha Bello (CDC-Nigeria), Jean Solon Valles, Amitabh Adhikari and Tadesse Wuhib (all from (CDC-Atlanta).
6. **Kumar, Manish**. 2021. Advancing Digital Health Capability of Healthcare Organizations—How to Navigate the Maze of Capability Model-Based Tools? The PAN African Health Informatics

SELECT PRESENTATIONS AT TOP CONFERENCES/WORKSHOPS

- Conference, October 18, 2021 (virtual), Kampala, Uganda. The other panelists included Adele Waugaman from USAID- Washington, Carol Kamasaka from the Ministry of Health Uganda, , Gabriel Catan from the World Bank, Washington D.C., and Jyothiswaroop Jayaprakash from the IBM.
7. **Kumar, Manish.** 2021. PEPFAR- Ministry of Health Data Alignment (DAA) 2021, September 2, 2021. The purpose of this webinar was to introduce 23 PEPFAR country teams to tools and resources associated with the DAA.
 8. **Kumar, Manish.** 2020. Progress and next steps- Maturity Model, small working group, December 10, 2020 (virtual), **Annual Meeting of the Digital Health and Interoperability Working Group.** The group is coordinating with WHO, UNICEF, USAID, and other partners to harmonize efforts focused on maturity-model based assessment tools. The Digital Health and Interoperability Working Group is a volunteer community of practice dedicated to strengthening country health systems and outcomes through the appropriate and responsible use of digital information technologies. Its membership comprises over 250 individuals from governments, donors, multilateral organizations, academia, the private sector, and non-governmental organizations (NGOs). The working group has several topical small working groups.
 9. **Kumar, Manish. 2020.** Panel presentation on Enhancing Intersectoral Digital Health Maturity to Harness Digital Health Benefits for Everyone. Annual global digital health forum 2020, December 7, 2020. The other panelists included Daniel Rosen, CDC, Atlanta, Chief, Health Informatics, Data Management, and Statistics Branch of Global HIV/TB , Bobby Jefferson DAI Global Health, Vice President and Chief Technology Officer, and Ayoade Alakija, Nigeria's former Chief Humanitarian Coordinator (CHC) at the helm of the Emergency Coordination Centre.
 10. **Kumar, Manish. 2019.** Panel presentation on 'What makes a global good successful? Enabling effective scale & sustainability' presented at the 2019 Global Digital Health Forum, Washington, D.C., December 9-11, 2019. Other panelists included Tamara Goldschmidt, BAO Systems and Scott Russpatrick, University of Oslo, Norway.
 11. **Kumar, Manish. 2019.** Panel presentation on 'Maturity Models for Improving Health Information System and Digital Health Capacity in Low Resource Settings: Sharing and Discussing Implementation Experiences' presented at the American Medical Informatics Association (AMIA) Annual Symposium 2019, Washington D.C., November 16-20, 2019. Other panelists included Xenophon Santas and James Kariuki at the United States Centers for Disease Control and Prevention, Adele Waugaman at the United States Agency for International Development, and Patricia Mechael at the HealthEnabled, South Africa
 12. **Kumar, Manish. 2019.** Invited as a guest and speaker by the Pierre Fabre Foundation to the 4th conference of the Global South eHealth Observatory held on Monday, July 1st, 2019, in Lavaur, France. During this 4th annual conference of the Observatory, whose theme this year is "Capacity Building and Data Sharing for Efficient and Sustainable e-Health", plenary sessions are organized at the Foundation's headquarters in Lavaur, France, to bring together experts, field stakeholders, international organizations, ministries, and NGOs. During this meeting, the Foundation presented and rewarded the most promising e- health initiatives of 2019.
 13. **Kumar, Manish.** 2019. Integrating Electronic Health Records in the Healthcare System of Low- and Middle-Income Countries: Challenges and Strategies. American Medical Informatics Association (AMIA) Informatics Summit 2019, San Francisco March 25-28, 2019. Kumar led the panel presentation which included AMIA Electronic Health Records Task Force 2020 Chair, Prof. Thomas Payne at the University of Washington, Seattle, and other global experts
 14. **Kumar, Manish,** and Xenophon Santas. 2019. Improving Health Information Systems in Uganda: The HIS Stages of Continuous Improvement Toolkit. Joint seminar with the Ministry of

SELECT PRESENTATIONS AT TOP CONFERENCES/WORKSHOPS

- Health, Republic of Uganda, Health Data Collaborative and the USAID-MEASURE Evaluation, March 5, 2019.
15. **Kumar, Manish**, and Liz Millar. 2019. Capacity Building for Digital Health Leadership. Seminar jointly organized on February 5, 2019, by the World Health Organization-Africa Region, the International Telecommunications Union, Geneva and the USAID-MEASURE Evaluation, North Carolina.
 16. **Kumar, Manish**. 2018. Health Information Systems Stages of Continuous Improvement. Health Information System Maturity Assessment for Ugandan Health Sector, Ministry of Health, Republic of Uganda, Kampala, November 8-9.
 17. **Kumar, Manish**. 2018. How to assess and continuously improve health information systems for better health outcomes? Seminar on Digital Health – Building a Future-proof Workforce, Session Two: Strategy, HIS & Interoperability Maturity, and Emerging Trends, 30 October 2018. Organized by HealthEnabled- South Africa in collaboration with the Digital Frontiers Institute, New York.
 18. **Kumar, Manish**. 2018. How to assess and continuously improve maturity of health information systems for achieving better health outcomes? Session 7 -Diagnostics: How Ready is My Country for Digital Transformation? Digital Transformation of the Health Sector in Latin America and the Caribbean, Inter- American Development Bank, October 10, 2018, Washington D.C.
 19. **Kumar, Manish**. 2018. How to assess and continuously improve maturity of HIS for achieving better health outcomes? 1st Open Health Information Exchange Community Meeting, Arusha, Tanzania July 31- August 3, 2018. Hosted by the Government of Tanzania.
 20. **Kumar, Manish**. 2018. Digital Health in Low-Resource Settings. Xavier Institute of Social Service, Jharkhand, India, July 13, 2018. Invited by the Institute to present as part of its global seminar series.
 21. **Kumar, Manish**. 2018. Health Information System Stages of Improvement. Community Data Technical Working Group meeting, Health Data Collaborative, January 23, 2018. Invited by the Senior M&E Advisor, Strategic Information, Evaluation, and Informatics Division, Office of HIV/AIDS, Bureau for Global Health, United States Agency for International Development (USAID).
 22. **Kumar, Manish**. 2018. Developed courses and completed several presentations during 2017-2018 to guide researchers and implementers from the United States government agencies, ministries of health and non-profit research organizations for program improvements and effective use of health data to achieve HIV goals in more than 50 countries receiving financial support from the President's Emergency Plan for AIDS Relief (PEPFAR) in more than 50 countries around the world. The course development responsibility and presentation schedule documents are enclosed.
 23. **Kumar, Manish**. 2018. Informatics Research Seminar: Health Information System Improvement in Low- and-Middle Income Countries. January 24, 2018, Duke Center for Health Informatics, Duke University, North Carolina.
 24. Data and Systems Applied Learning Summit (PALS), Johannesburg, South Africa, September 12-22, 2017. The summit was organized by the United States President's Emergency Plan for AIDS Relief (PEPFAR) with more than 500 participants from Africa, Asia, Europe, and Latin America. Kumar's name is mentioned as the content developer in the summit documents.
 25. **Kumar, Manish**. 2017. Integrating Data from Multiple Data Systems- Streamlining data use for health system decision-making. Global Digital Health Forum, December 4-8, 2017, Washington D.C.
 26. **Kumar, Manish**. 2017. Cooperability for Interoperability. Global Digital Health Forum, December 4-8, 2017, Washington D.C. The Global Digital Health Forum is the largest congregation of global health information systems professionals in around the world.

SELECT PRESENTATIONS AT TOP CONFERENCES/WORKSHOPS

27. **Kumar, Manish.** 2017. Whither the Impact Evaluation? Experiences and Gaps Using Data Sources and Systems for Program Evaluation in Low- and Middle-Income Countries. Panelist, American Evaluation Association Conference, November 6-11, Washington D.C. 2017.
28. **Kumar Manish** and Liz Millar. 2017. Enabling health impact measurement through health information system improvement model. Triangle Global Health Conference, September 25, 2017, Raleigh, NC.
29. **Kumar, Manish,** Fei Yu and Javed Mostafa. 2017. Making a difference: Research evidence on impact of global digital health on health outcomes. Poster presentation, Triangle Global Health Conference, September 25, 2017, Raleigh, NC.
30. **Kumar, Manish,** and Steffen Tengesdal. 2016. Managing Global DHIS2 Helpdesk-Lessons Learned, DHIS 2 Experts Academy, August 8-12, 2016, Oslo, University of Oslo, Norway. DHIS 2 Experts Academy is the only annual conference of global health experts engaged in research and implementation with emphasis on data quality and data use in public health through the application of open-source software (District Health Information Software 2).
31. **Kumar, Manish.** 2013. Experience Sharing-cum-Sensitization Workshop on Innovations in the Use of Information Technology for the Management of Human Resources for Health, Guwahati, India. The National Health Systems Resource Center, Government of India and the Regional Health Systems Resource Center, Guwahati jointly organized the workshop on March 16, 2013.
32. **Kumar, Manish.** 2012. Exploring Civil Society Initiatives in Strengthening Human Resources for Health- A Multi-Stakeholder Consultation, 17-18, May 2012, Bhopal, India. Organized by People for Health Project, supported by the European Union
33. **Kumar, Manish.** 2011. Human Resource Management Systems- Health Systems and Integrated Architecture Approach. Workshop on Health Information Architecture: Design, Implementation and Evaluation, 22-26 March 2011, New Delhi, National Health Systems Resource Center, Government of India, Health Information Systems Program, University of Oslo, Jamia Hamdard University and the Birla Institute of Technology and Science, Pilani, India.
34. **Kumar, Manish.** 2011. Workshop on Planning, Capacity Building and Performance Management of Human Resources in the Public Health System, December 8-9, 2011, New Delhi, India. Organized by the Swasthi Health Resource Center and the Public Health Foundation of India with financial support from the European Union.
35. **Kumar, Manish.** 2007. 7th meeting of the Science Council of the Consultative Group for International Agricultural Research (CGIAR) in Hyderabad, India 28-30 March 2007. CGIAR is a global research partnership for a food-secure future. Science Council checks and directs research strategy of the CGAIR globally. CGIAR science is dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources and ecosystem services. Its research is carried out by 15 CGIAR centers in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations and the private sector
36. **Kumar, Manish.** 2007. Expert Consultation to Review the Progress of Networks and Consortia in the Asia-Pacific. Jointly organized by the Asia-Pacific Association of Agricultural Research Institutions (APAARI), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Indian Council of Agriculture Research (ICAR) in Hyderabad, India from October 8-9, 2007. All the national research institutions in the Asia-Pacific region are members of APAARI.
37. **Kumar, Manish.** 2006. Presented the summary of the thematic research paper and introduced the purpose of the workshop in the Annual Regional Meeting of South Asian organizations. The meeting was focused on the Millennium Development Goals (MDGs) of the United Nations and involved researchers, non-government organizations, and senior government officials from

SELECT PRESENTATIONS AT TOP CONFERENCES/WORKSHOPS

- India, Nepal, Sri Lanka, and Bangladesh. Kumar prepared the background paper for the workshop 'Mainstreaming ICTs for Poverty Eradication and Creating Livelihood Opportunities'.
38. **Kumar, Manish.** 2002. ICT and social development: the need for a new approach. Shared about the paper in the conference "Global E-Quality – Rethinking ICTs in Africa, Asia and Latin America." The conference was organized by the International Institute of Infonomics and was held from March 25 – 27, 2002 in Maastricht, the Netherlands and brought together scholars, policy makers, NGOs and innovative thinkers from around the world.
 39. the conference "Global E-Quality – Rethinking ICTs in Africa, Asia and Latin America." The conference was organized by the International Institute of Infonomics and was held from March 25 – 27, 2002 in Maastricht, the Netherlands and brought together scholars, policy makers, NGOs and innovative thinkers from around the world.

PROFESSIONAL CERTIFICATION/TRAINING

Conflict Resolution and Peace Building

- | | |
|------|---|
| 2015 | Introduction to Monitoring and Evaluation of Peacebuilding Interventions, Collaborative Development Learning, USA |
| 2014 | Corporate Engagement Program, Collaborative Development Learning, USA. |
| 2013 | Achieving strategic change in fragile environments –An introduction to conflict sensitivity /do no harm and effective peacebuilding programming, Collaborative Development Learning, USA. |

Knowledge Management & Communication

- | | |
|------|---|
| 2008 | Writing Award Winning Proposals for Improved Maternal, Newborn, Child Health & Nutrition, workshop organized by Emerging Market Groups, New Delhi, India. |
| 2006 | Training on Local Language Web Hosting and Communication with <i>Ek-Duniya</i> , OneWorldSouth Asia, New Delhi, India. |
| 2004 | Training on eZ Content Management System, OneWorld South Asia, New Delhi, India. |
| 2004 | Workshop for Indian Journalists on Water Issues by Asian Development Bank, New Delhi, India. |
| 2004 | Digital Literacy for Agriculture Professionals (e-learning; www.aprtc.org) |

Cybersecurity

- | | |
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| 2021 | Introduction to Cybersecurity, CISCO Networking Academy, USA |
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PROFESSIONAL CERTIFICATION/TRAINING

2009 Cyber Law, Online Certificate Course, Indian Law Institute, New Delhi, India.

Organizational Development

- 2011 Train the Trainer-Genuine Contact Program, New Delhi, India. Dalar International Consultants, Raleigh, North Carolina.
- 2010 Genuine Contact Organization, New Delhi, India. Dalar International Consultants, Raleigh, North Carolina.
- 2009 Cross Cultural Conflict Resolution, New Delhi, India. Dalar International Consultants, Raleigh, North Carolina.
- 2007 Advanced Training in Whole Person Process Facilitation and Open Space Technology Methods, New Delhi, India. Dalar International Consultants, Raleigh, North Carolina.
- 2007 Training on Organizational Health and Balance by SplitScreen Consulting, USA, New Delhi, India.
- 2007 Basic Training in Strategy Mapping Tool, Whole Person Process Facilitation and Open Space Technology Methods, New Delhi, India. Dalar International Consultants, Raleigh, North Carolina.

SERVICE

Department – Service to Public Health Leadership Program, UNC-CH

- 2020 MPH Comprehensive Exam, Faculty Examiner for 15 students, Gillings School of Global Public Health, University of North Carolina at Chapel Hill
- 2017 Member of search committee for hiring PHLP Quality Coordinator
- 2014-2015 Member, Public Health Leadership Student Association, Gillings School of Global Public Health, University of North Carolina at Chapel Hill
- 2014-2015 Senate member, Graduate and Professional Student Association, University of North Carolina at Chapel Hill

Department - Service to the Gillings School of Global Public Health, UNC-CH

- 2020-21 Facilitating Memorandum of Understanding with the Pan American Health Organization (under review)
- 2018 Participated in group consultation contributing to the design of the culminating experience for the Global Health Concentration of the MPH program

SERVICE

- 2017 IntraHealth Summer Fellows Review Committee
- 2016-present Share internship and job opportunities, facilitate collaboration with Gillings Research, Innovation and Global Solutions
- 2016 Featured in the international student recruitment video
- 2014-2015 Co-founder, Health Informatics Hub (A student body), Gillings School of Global Public Health, University of North Carolina at Chapel Hill
- 2014 Lead a breakout session on “Balancing Act: Work, Life and School” in the Gillings School of Global Public Health Diversity Orientation
- 2014-2015 Public Health Leadership Program Buddies
- 2013-2015 Member, Student Global Health Committee, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

Chapel Hill-Carrboro City Public Schools, Chapel Hill, North Carolina

- 2019-2020 Member, District Technology Services Team
- 2018-2020 Co-chair, School Improvement Team, Scroggs Elementary School
- 2017-2018 Member, School Improvement Team, Scroggs Elementary School

India

- 2006-2008 *Deepshikha Samiti* (a community-based organization working with HIV key population), New Delhi, India
- 1999-2000 General Secretary and Editor of Agriculture Communication Society, G.B. Pant University of Agriculture and Technology, Uttarakhand, India
- 1994-1996 National Social Service Volunteer, Rajendra Agriculture University, Bihar, India
- 1994-1996 Cadet and Senior Under Officer, National Cadet Corps Unit, Rajendra Agriculture University, Bihar, India

Global

- 2005-2012 Founding member and Regional Representative-Asia, Young Professionals for Agricultural Development, C/O Food and Agriculture Organization of the United Nations, Rome, Italy

GRANTS

The TB Data, Impact Assessment and Communications Hub (TB DIAH) project

United States Agency for International Development, Washington D.C.

Kumar, Manish, Principal Investigator and Technical Expert (Level of effort- 25%)

May 1, 2021 – September 30, 2023

Award total: \$36,000,000

Malaria Surveillance, Monitoring and Evaluation (Malaria SME) project

United States Agency for International Development, Washington D.C.

Kumar, Manish, Principal Investigator and Technical Expert (Level of effort- 10%)

May 1, 2021 – July 31, 2024

Award total: \$36,000,000

Global Informatics Collaborative-Technical Assistance Platform project

United States Centers for Disease Control and Prevention, Atlanta

Kumar, Manish, Principal Investigator and Health Information System Evaluation Advisor (Level of effort- 40%)

October 18, 2020 – September 30, 2025

Award total (approx.): \$250,000/year

Data for Accountability, Transparency and Impact Monitoring System and Maturity Model

USAID- Digital Square project

Kumar, Manish, Principal Investigator and Senior Technical Specialist- Health Systems Strengthening (Level of effort- 25%)

June 01, 2020 – May 31, 2022

Award total (approx.) : \$350,000/year