EDWARD OKOTH ABWORO
P.O. Box 30709, 00100 Nairobi Kenya;
Tel: +254 20 422 3845; via USA Tel +1 650 833 6660;
Fax: +254 20 422 3001
Email: e.okoth@cgiar.org

Short Curriculum Vitae

Summary

I study epidemiology of trans-boundary animal diseases as a pre-requisite for their control. My current research is on epidemiology and control of African swine fever and Pestes des Petit Ruminants in Africa.

The current areas of my research focus are:

1. Epidemiology incorporating classical epidemiology and molecular approaches, diagnostics, mathematical/spatial modeling, social networks analysis and value chain studies
2. Development and evaluation of vaccines and diagnostics and immunology
3. Animal health genetics

I am involved in interaction with research and development partners to integrate Africa-based initiatives for development and implementation of strategies for the control of Trans-boundary Animal Diseases. I have previously worked on joint missions on trans-boundary animal diseases in Africa. I have also conducted a number of consultancies with development and humanitarian agencies dealing with Trans-boundary Animal Diseases.

Name of Organization: International Livestock Research Institute

Profession: Veterinary Epidemiologist

Nationality: Kenyan

Membership in Professional Societies:

- Registered Veterinary Surgeon and Practitioner with the Kenya Veterinary Board (KVB) registration number 2452
- Member of the Kenya Veterinary Association (KVA)

Key Qualifications

Professional Preparation (Undergraduate and graduate education and postdoctoral training)

University of Nairobi	Veterinary Medicine	BVM, 1996
University of Nairobi	Veterinary Epidemiology and Economics	M.V.E.E, 2007
University of Nairobi	Veterinary Epidemiology	Ph.D., 2012
ILRI	Epidemiologist	2013

Appointments (Academic and professional)

2013-2018: Epidemiologist and Institutional Veterinarian, ILRI

2008-2012: Field Coordinator, African swine fever project, ILRI

2002-2005: Head of biological services unit, ILRI

1997-2001: Research Assistant

From April 2017 to Date: Co Principal Investigator on a project on 'Study of the genome evolutionary process of different pig breeds from China and Africa and detecting genes related to African swine fever' co-funded by ILRI and The National Natural Science Foundation of China (NSFC).

From June 2016 to date: Principal Investigator on a project 'African swine fever genome sequencing to underpin control' funded by Defense Threat reduction Agency (DTRA), USA.

2013 to Date: External Examiner at the University of Nairobi, Department of Public Health, Pharmacology and Toxicology. My role is to moderate examinations, review student examination papers/reports and supervise oral examinations, advice the University registrar on quality of examinations and examine students' thesis (MSc and PhD).

2013 to Date: Students' supervisor including PhD and Masters of Science students in collaboration with a number of universities (China Agriculture University, University of Nairobi, Kenya, Royal Veterinary College, UK, University of Pretoria, South Africa and Makerere University, Uganda). I also supervise Research Fellows at the ILRI-BecA Hub in Nairobi.

2013 to date: Institutional Veterinarian with responsibility for managing and performing veterinary research. I am also a member of the ILRI Institutional Animal Care and Use Committee (IACUC).

2012 to date: ILRI focal point in a consortium that is responsible for a Pan African Initiative for the control of African swine fever. Other partners in the consortium are OIE, FAO, AU-IBAR, regional economic blocks (EAC, IGAD, ECOWAS and SADEC) and National Departments of Veterinary Services.

2008 to date: Coordinator of field based research, with activities including design and implementation of household surveys, disease surveillance, disease outbreak investigations, animal sampling, evaluating vaccines and diagnostics and dissemination of information to stakeholders.

1997 to date: Researcher in vaccines and diagnostics, health genetics, epidemiology (conventional and molecular epidemiology), mathematical modeling and social studies (household modeling, value chain and social network analysis).

Publications (Peer Reviewed)

1. Abworo, E. O., Onzere, C., Oluoch Amimo, J., Riitho, V., Mwangi, W., Davies, J., Blome, S. & Peter Bishop, R. (2017). Detection of African swine fever virus in the tissues of asymptomatic pigs in smallholder farming systems along the Kenya-Uganda border: implications for transmission in endemic areas and ASF surveillance in East Africa. J Gen Virol.
2. Amimo, J. O., Junga, J. O., Ogara, W. O., Vlasova, A. N., Njahira, M. N., Maina, S., Okoth, E. A., Bishop, R. P., Saif, L. J. & Djikeng, A. (2015). Detection and genetic characterization of porcine group A rotaviruses in asymptomatic pigs in smallholder farms in East Africa: predominance of P[8] genotype resembling human strains. Vet Microbiol 175, 195-210.
3. Amimo, J. O., Machuka, E. M. & Okoth, E. (2017a). First Detection of Rotavirus Group C in Asymptomatic Pigs of Smallholder Farms in East Africa. Pathogens 6.
4. Amimo, J. O., Njuguna, J., Machuka, E., Okoth, E. & Djikeng, A. (2017b). First Complete Genome Sequences of Porcine Bocavirus Strains from East Africa. Genome Announc 5.
5. Amimo, J. O., Okoth, E., Junga, J. O., Ogara, W. O., Njahira, M. N., Wang, Q., Vlasova, A. N., Saif, L. J. & Djikeng, A. (2014). Molecular detection and genetic characterization of kobuviruses and astroviruses in asymptomatic local pigs in East Africa. Arch Virol 159, 1313-9.
6. Amimo, J. O., Otieno, T. F., Okoth, E., Onono, J. O. & Bett, B. (2017c). Risk factors for rotavirus infection in pigs in Busia and Teso subcounties, Western Kenya. Trop Anim Health Prod 49, 105-112.
7. Barongo, M. B., Stahl, K., Bett, B., Bishop, R. P., Fevre, E. M., Aliro, T., Okoth, E., Masembe, C., Knobel, D. & Ssematimba, A. (2015). Estimating the Basic Reproductive Number (R0) for African Swine Fever Virus (ASFV) Transmission between Pig Herds in Uganda. PLoS One 10, e0125842.

8. Bishop, R. P., Fleischauer, C., de Villiers, E. P., Okoth, E. A., Arias, M., Gallardo, C. & Upton, C. (2015). Comparative analysis of the complete genome sequences of Kenyan African swine fever virus isolates within p72 genotypes IX and X. Virus Genes 50, 303-9.
9. Blomstrom, A. L., Stahl, K., Masembe, C., Okoth, E., Okurut, A. R., Atmnedi, P., Kemp, S., Bishop, R., Belak, S. & Berg, M. (2012). Viral metagenomic analysis of bushpigs (Potamochoerus larvatus) in Uganda identifies novel variants of Porcine parvovirus 4 and Torque teno sus virus 1 and 2. Virol J 9, 192.
10. Chen, X., Yang, J., Ji, Y., Okoth, E., Liu, B., Li, X., Yin, H. & Zhu, Q. (2016b). Recombinant Newcastle disease virus expressing African swine fever virus protein 72 is safe and immunogenic in mice. Virol Sin 31, 150-9.
11. Gallardo, C., Mwaengo, D. M., Macharia, J. M., Arias, M., Taracha, E. A., Soler, A., Okoth, E., Martin, E., Kasiti, J. & Bishop, R. P. (2009). Enhanced discrimination of African swine fever virus isolates through nucleotide sequencing of the p54, p72, and pB602L (CVR) genes. Virus Genes 38, 85-95.
12. Gallardo, C., Okoth, E., Pelayo, V., Anchuelo, R., Martin, E., Simon, A., Llorente, A., Nieto, R., Soler, A., Martin, R., Arias, M. & Bishop, R. P. (2011). African swine fever viruses with two different genotypes, both of which occur in domestic pigs, are associated with ticks and adult warthogs, respectively, at a single geographical site. J Gen Virol 92, 432-44.
13. Gallardo, C., Soler, A., Nieto, R., Carrascosa, A. L., De Mia, G. M., Bishop, R. P., Martins, C., Fasina, F. O., Couacy-Hymman, E., Heath, L., Pelayo, V., Martin, E., Simon, A., Martin, R., Okurut, A. R., Lekolol, I., Okoth, E. & Arias, M. (2012). Comparative evaluation of novel African swine fever virus (ASF) antibody detection techniques derived from specific ASF viral genotypes with the OIE internationally prescribed serological tests. Vet Microbiol 162, 32-43.
14. Heckel, T., Schmucki, R., Berrera, M., Ringshandl, S., Badi, L., Steiner, G., Ravon, M., Kung, E., Kuhn, B., Kratochwil, N. A., Schmitt, G., Kiialainen, A., Nowaczyk, C., Daff, H., Khan, A. P., Lekolool, I., Pelle, R., Okoth, E., Bishop, R., Daubenberger, C., Ebeling, M. & Certa, U. (2015). Functional analysis and transcriptional output of the Gottingen minipig genome. BMC Genomics 16, 932.
15. Holzer, B., Taylor, G., Rajko-Nenow, P., Hodgson, S., Okoth, E., Herbert, R., Toye, P. & Baron, M. D. (2016). Determination of the minimum fully protective dose of adenovirus-based DIVA vaccine against peste des petits ruminants virus challenge in East African goats. Vet Res 47, 20.
16. Lichoti, J. K., Davies, J., Kitala, P. M., Githigia, S. M., Okoth, E., Maru, Y., Bukachi, S. A. & Bishop, R. P. (2016). Social network analysis provides insights into African swine fever epidemiology. Prev Vet Med 126, 1-10.
17. Lichoti, J. K., Davies, J., Maru, Y., Kitala, P. M., Githigia, S. M., Okoth, E., Bukachi, S. A., Okuthe, S. & Bishop, R. P. (2017). Pig traders' networks on the Kenya-Uganda border

highlight potential for mitigation of African swine fever virus transmission and improved ASF disease risk management. Preventive Veterinary Medicine 140, 87-96.

18. Lozano-Fuentes, S., Kading, R. C., Hartman, D. A., Okoth, E., Githaka, N., Nene, V. & Poche, R. M. (2016). Evaluation of a topical formulation of eprinomectin against Anopheles arabiensis when administered to Zebu cattle (Bos indicus) under field conditions. Malar J 15, 324.
19. Mujibi, F.D., Okoth, E., Cheruiyot, E.K., Onzere, C., Bishop, R.P., Fèvre, E.M., Thomas, L., Masembe, C., Plastow, G., Rothschild, M. (2018). Genetic diversity, breed composition and admixture of Kenyan domestic pigs. PLoS ONE 13(1).
20. Nantima, N., Davies, J., Dione, M., Ocaido, M., Okoth, E., Mugisha, A. & Bishop, R. (2016). Enhancing knowledge and awareness of biosecurity practices for control of African swine fever among smallholder pig farmers in four districts along the Kenya-Uganda border. Trop Anim Health Prod 48, 727-34.
21. Nantima, N., Ocaido, M., Davies, J., Dione, M., Okoth, E., Mugisha, A. & R, R. B. (2015a). Characterization of smallholder pig production systems in four districts along the Uganda-Kenya border. Livestock Research for Rural Development 27, 166.
22. Nantima, N., Ocaido, M., Ouma, E., Davies, J., Dione, M., Okoth, E., Mugisha, A. & Bishop, R. (2015b). Risk factors associated with occurrence of African swine fever outbreaks in smallholder pig farms in four districts along the Uganda-Kenya border. Trop Anim Health Prod 47, 589-95.
23. Okoth, E., Gallardo, C., Macharia, J. M., Omore, A., Pelayo, V., Bulimo, D. W., Arias, M., Kitala, P., Baboon, K., Lekolol, I., Mijele, D. & Bishop, R. P. (2013). Comparison of African swine fever virus prevalence and risk in two contrasting pig-farming systems in South-west and Central Kenya. Prev Vet Med 110, 198-205.
24. Olwande, P. O., Ogara, W. O., Okuthe, S. O., Muchemi, G., Okoth, E., Odindo, M. O. & Adhiambo, R. F. (2009). Assessing the productivity of indigenous chickens in an extensive management system in southern Nyanza, Kenya. Trop Anim Health Prod 42, 283-8.
25. Ståhl, K., Ogweng, P., Okoth, E., Aliro, T., Muhangi, D., LeBlanc, N., Atimnedi, P., Berg, M., Bishop, R. P., Rasmussen, H. B. & Masembe, C. (2014). Understanding the dynamics and spread of African swine fever virus at the wildlife-livestock interface: insights into the potential role of the bushpig, Potamochoerus larvatus. Newsletter of the IUCN / SSC Wild Pig, Peccary and Hippo Specialist Groups 13.
26. Warimwe, G. M., Gesharisha, J., Carr, B. V., Otieno, S., Otingah, K., Wright, D., Charleston, B., Okoth, E., Elena, L. G., Lorenzo, G., Ayman el, B., Alharbi, N. K., Al-dubaib, M. A., Brun, A., Gilbert, S. C., Nene, V. & Hill, A. V. (2016). Chimpanzee Adenovirus Vaccine Provides Multispecies Protection against Rift Valley Fever. Sci Rep 6, 20617.

Conference proceedings

1. Fidalis Denis N. Mujibi, Edward Okoth, Richard P. Bishop, Graham S Plastow, Lian Thomas, Eric Fevre, Max F. Rothschild, 2014. Signatures of adaptive selection in indigenous pigs: implications for African swine fever (ASF). Plant and Animal Genome XXII Conference, 2014 - pag.confex.com
2. M.B. Barongo, K. Stahl, A. Ssematimba, R.P. Bishop, E.M. Fèvre, T. Aliro, C. Masembe, E. Okoth, D. Knobel and B. Bett, 2014. Estimating the basic reproductive number (R0) for African swine fever virus (ASFV) transmission between pig herds in Uganda. Proceedings of 2 nd GARA Scientific Workshop, 10-14 November 2014, Pretoria, South Africa.
3. Lichoti Jacqueline K., Davies Jocelyn, Okoth Edward, Maru Yiheyis, Bishop Richard, 2013. Insights from social network analysis are helping to build understanding of African Swine Fever epidemiology. African Association of Agricultural Economists (AAAE), Fourth International Conference, September 22-25, 2013, Hammamet, Tunisia. Pp14 (http://ageconsearch.umn.edu/handle/159704)
4. Okoth E, Gallardo C, Macharia JM, Baboon K, Lekolol I, Mijele D, Bishop RP, 2009. "ORAL" Participatory assessment of risk factors for African swine fever in western Kenya. Proceedings of the 12th Symposium of the International Society for Veterinary Epidemiology and Economics, Durban, South Africa: ISVEE 12, 483
5. Carmina Gallardo, Dufton M. Mwaengo, Virginia Pelayo, Edward Okoth, Joseph M. Macharia and Richard Bishop. "Molecular epidemiology of African swine fever virus (ASFV) isolates recovered from samples collected in Kenya during 2006-2007 suspected outbreaks". First annual meeting of EPIZONE. Lublin, Poland, May 30th- June 1st, 2007

Article

Boussini, H., Beltran-Alcrudo, D., Ly, C., Okoth, E., Okuthe, S., Tadesse, Z., Bedane, B., Diop, B., Soumaré, B. 2014. Regional strategy for the control of African swine fever in Africa. In EMPRES-Animal Health 360, Domenech, J., ed. (Rome, FAO), p. 40.

Book contribution

FAO, AU-IBAR, ILRI. 2017. Regional strategy for the control of African swine fever in Africa. Rome, Italy: FAO.

Synergistic Activities (Broader impact professional and scholarly activities)

1. Institutional Veterinarian, 2008-2016
2. Reviewer Preventive Veterinary Medicine Journal 2012-2016
3. Reviewer Veterinary Immunology Journal 2012-2016
4. Reviewer Plos One 2016
5. Task force member, Regional control of African swine fever in Africa

Referees

Wallace D. Bulimo, PhD
Chief Research Officer and Virologist
GEIS Human Influenza Program at KEMRI
National Influenza Centre
P.O. Box 29893 – 00202, Nairobi, Kenya
Tel: +254 733 616 602
E-mail: Wallace.Bulimo@usamru-k.org

Sam Okuthe, PhD
Consultant Epidemiologist
Emergency Centre for Transboundary Animal Diseases (ECTAD)
Eastern Africa Region
FAO-UN, Kampala Uganda
Tel: +254 (0) 735 999 022
E-mail: Sam.Okuthe@fao.org

Rachel Masake, PhD
Consultant, VEDAMAN Consultants Limited
P.O. Box 51179 Nairobi, Kenya
Telephone: 254-2-710203
Fax: 254-2-710203
E-mail: masakera@nbnet.co.ke