

OIE Collaborating Centres Reports Activities

Activities in 2018

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Title of collaborating centre:	Training in Integrated Livestock/Wildlife Health
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Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Prof Anita Michel
Name of writer:	Prof Anita Michel

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Molecular biology course	5-day bench training for 7 attendees from various countries. 1 - 5 October 2018
Virology and PCR practical course	5-day bench training to 36 attendees from South Africa. March 2018.
Applied veterinary virology course	5-day bench training and lectures to 4 attendees from various countries. October 2018.
Applied veterinary bacteriology course	5-day bench training and lectures to 7 attendees from various countries. October 2018.
Tick identification course	5-day bench and field training for 9 attendees
Serology course	5-day bench training for 1 Mozambican attendee
Other (Name the category)	
Title of activity	Scope
One Health School	5-day field training and lectures on various aspects of One Health at the wildlife/livestock/human interface. 14 participants.

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
N/A	N/A	<input type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

No

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G.Caporale"	Terramo, Italy	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Developing the "Enhancing Research for Africa Network"
Reference laboratory for Contagious Bovine Pleuropneumonia	Gaborone, Botswana	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Developing the "Enhancing Research for Africa Network"

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

No

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes

- a) Technical visits: 0
 b) Seminars: 2
 c) Hands-on training courses: 1
 d) Internships (>1 month): 1

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c)	Practical application of phylogenetic analysis	South Africa	11
d)	Mycobacterium bovis culture	South Africa	1
b)	Wildlife Farmers day on bovine tuberculosis	South Africa	100

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	2nd ERFAN Regional Meeting	Department Veterinary Tropical Diseases	14 to 16 November 2018	Pretoria	40
International	SADC OIE Animal Welfare Focal Points	Veterinary Faculty, UP	13 to 14 November 2018	Pretoria	22

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

- a) Articles published in peer-reviewed journals: 62
 1. Monteiro GER, Jansen van Vuren P, Schreur P, Odendaal L, Clift SJ, Kortekaas J, Paweska JT (2018). Mutation of adjacent cysteine residues in the NSs protein of Rift Valley fever virus results in loss of virulence in mice
 Virus Research, 249 pp. 31 - 44..
 2. Robbertse L, Richards SA, Clift SJ, Barnard A, Leisewitz AL, Crafford JE, Maritz Olivier C (2018). Comparison of the differential regulation of T and B-lymphocyte

- subsets in the skin and lymph nodes amongst three cattle breeds as potential mediators of immune-resistance to *Rhipicephalus microplus*. *Ticks And Tick-Borne Diseases*, 9 pp. 976 - 987.
3. Mehrbod P, Abdalla Mohamed MA, Njoya M, Ahmed AS, Fotouhi F, Gado D, Fasanmi OG, Eloff JN, McGaw LJ, Fasina FO (2018). South African medicinal plant extracts active against influenza A virus. *BMC Complementary and Alternative Medicine*, 18 (112), null: pp. 1 - 10..
4. Mehrbod P, Abdalla Mohamed MA, Fotouhi F, Heidarzadeh M, Aro AO, Eloff JN, McGaw LJ, Fasina FO (2018). Immunomodulatory properties of quercetin-3-O- α -L-rhamnopyranoside from *Rapanea melanophloeos* against influenza A virus. *BMC Complementary and Alternative Medicine*, 18 (184), null: pp. 1 - 10..
5. Berrian A, Smith M, van Rooyen J, Martínez-López B, Plank M, Smith W, Conrad P (2018). A community-based One Health education program for disease risk mitigation at the human-animal interface. *One Health*, 5 (null), null: pp. 9 - 20..
6. Loots AK, Cardoso-Vermaak E, Venter EH, Mitchell E, Kotzé A, Daltona D (2018). The role of toll-like receptor polymorphisms in susceptibility to canine distemper virus. *Mammalian Biology*, 88 (null), null: pp. 94 - 99..
7. Tjale MA, Pretorius A, Josemans A, van Kleef M, Liebenberg J (2018). Transcriptomic analysis of *Ehrlichia ruminantium* during the developmental stages in bovine and tick cell culture. *Ticks And Tick-Borne Diseases*, 9 (null), null: pp. 126 - 134..
8. Julius RS, Schwan EV, Chimimba CT (2018). Helminth composition and prevalence of indigenous and invasive synanthropic murid rodents in urban areas of Gauteng Province, South Africa. *Journal of Helminthology*, 92 (null), null: pp. 445 - 454..
9. Bakhom M, Labuschagne K, Huber K, Fall M, Mathieu B, Venter GJ, Gardes L, Baldet T, Bouyer J, Fall A (2018). Phylogenetic relationships and molecular delimitation of *Culicoides latreille* (Diptera: Ceratopogonidae) species in the Afrotropical region: interest for the subgenus *Avaritia*. *Systematic Entomology*, 43 (null), null: pp. 355 - 371..
10. Hove P, Chaisi ME, Brayton KA, Ganesan H, Catanese H, Mtshali M, Mutshembele A, Oosthuizen MC, Collins NE (2018). Co-infections with multiple genotypes of *Anaplasma marginale* in cattle indicate pathogen diversity. *Parasites & Vectors*, 11 (5), null: pp. 1 - 13..
11. Ghebremariam M, Michel AL, Nielen M, Vernooij J, Rutten VP (2018). Farm-level risk factors associated with bovine tuberculosis in the dairy sector in Eritrea. *Transboundary and Emerging Diseases*, 65 (null), null: pp. 105 - 113.. pp. 228 - 236..
12. Mulandane F, Fafetine J, Abbeele J, Clausen P, Hoppenheit A, Cecchi G, Oosthuizen MC, Delespau V, Neves LCBGD (2018). Resistance to trypanocidal drugs in cattle populations of Zambesia Province, Mozambique. *Parasitology Research*, 117 (null), null: pp. 429 - 436..
13. Braack LEO, Gouveia de Almeida AP, Cornel AJ, Swanepoel R, de Jager C (2018). Mosquito-borne arboviruses of African origin: review of key viruses and vectors. *Parasites & Vectors*, 11 (29), null: pp. 1 - 26..
14. Penzhorn BL (2018). A century of teaching veterinary parasitology in South Africa - Lessons learnt. *Veterinary Parasitology*, 252 (null), null: pp. 62 - 66..
15. Borghesan T, Matsumoto T, Espinosa O, Razafindranaivo V, Paiva F, Carranza J, Añez N, Neves LCBGD, Teixeira M (2018). Genetic diversity and phylogenetic relationships of Coevolving Symbiont-Harboring Insect Trypanosomatids, and their neotropical dispersal by Invader African Blowflies (Calliphoridae). *Frontiers In Microbiology*, 9 (null), null: pp. 1 - 14..
16. Brown A, Penrith ML, Fasina FO, Beltran-Alcrudo D (2018). The African swine fever epidemic in West Africa, 1996-2002. *Transboundary and Emerging Diseases*, 65 (null), null: pp. 64 - 76..
17. Steenkamp PJ, van Heerden H, van Schalkwyk OL (2018). Ecological suitability modeling for anthrax in the Kruger National Park, South Africa. *Plos One*, 13 (1), null: pp. 1 - 13..
18. Jenkins AO, Gormley E, Gcebe N, Fosgate GT, Conan A, Aagaard C, Michel AL, Rutten VP (2018). Cross reactive immune responses in cattle arising from exposure to *Mycobacterium bovis* and non-tuberculous mycobacteria. *Preventive Veterinary Medicine*, 152 (null), null: pp. 16 - 22..
19. Simpson GJG, Marcotty TLBM, Rouille E, Matekwe N, Letesson J, Godfroid J (2018). Documenting the absence of brucellosis in cattle, goats and dogs in a "One Health" interface in the Mnisi community, Limpopo, South Africa. *Tropical Animal Health And Production*, 50 (null), null: pp. 903 - 906..
20. Penzhorn BL, Netherlands E, Cook C, Smit N, Vorster I, Harrison-White R, Oosthuizen MC (2018). Occurrence of *Hepatozoon canis* (Adeleorina: Hepatozoidae) and *Anaplasma* spp. (Rickettsiales: Anaplasmataceae) in black-backed jackals (*Canis mesomelas*) in South Africa. *Parasites & Vectors*, 11 (158), null: pp. 1 - 7..
21. Gcebe N, Rutten VP, Gey van Pittius N, Naicker B, Michel AL (2018). *Mycobacterium komaniense* sp. nov., a rapidly growing non-tuberculous *Mycobacterium* species detected

- in South Africa. *International Journal of Systematic And Evolutionary Microbiology*, 68 (null), null: pp. 1526 - 1532..
22. Gcebe N, Michel AL, Hlokw T (2018). Non-tuberculous Mycobacterium species causing mycobacteriosis in farmed aquatic animals of South Africa . *BMC Microbiology*, 18 (32), null: pp. 1 - 11..
23. Gomes A, Neves LCBGD (2018). Rhipicephalus microplus (Acarina, Ixodidae) in Angola: Evidence of its establishment and expansion. *Experimental And Applied Acarology*, 74 (null), null: pp. 117 - 122..
24. Ortiz P, Garcia H, Lima L, da Silva F, Campaner M, Pereira C, Jittapalpong S, Neves LCBGD, Desquesnes M, Camargo E (2018). Diagnosis and genetic analysis of the worldwide distributed Rattus-borne Trypanosoma (Herpetosoma) lewisi and its allied species in blood and fleas of rodents. *Infection, Genetics And Evolution*, 63 (null), null: pp. 380 - 390..
25. Walker J, Evans K, Vineer H, van Wyk JA, Morgan E (2018). Prediction and attenuation of seasonal spillover of parasites between wild and domestic ungulates in an arid mixed-use system. *Journal of Applied Ecology*, 55 (null), null: pp. 1976 - 1986..
26. Ghebremariam M, Michel AL, Vernooij J, Nielen M, Rutten VP (2018). Prevalence of bovine tuberculosis in cattle, goats, and camels of traditional livestock raising communities in Eritrea. *BMC Veterinary Research*, 14 (73), null: pp. 1 - 13..
27. Espinaze M, Hellard E, Horak IG, Cumming G (2018). Domestic mammals facilitate tick-borne pathogen transmission networks in South African wildlife . *Biological Conservation*, 221 (null), null:
28. Van Hooft P, Keet DF, Brebner D, Bastos A (2018). Genetic insights into dispersal distance and disperser fitness of African lions (Panthera leo) from the latitudinal extremes of the Kruger National Park, South Africa. *BMC Genetics*, 19 (21), null: pp. 1 - 16..
29. Tsoetsi TN, Collins NE, Oosthuizen MC, SibekoMatjila KP (2018). Selection and evaluation of housekeeping genes as endogenous controls for quantification of mRNA transcripts in Theileria parva using quantitative real-time polymerase chain reaction (qPCR). *Plos One*, 13 (5), null: pp. 1 - 15..
30. Lekota KE, Hassim A, Rogers P, Dekker E, Last R, de Klerk-Lorist L, van Heerden H. (2018). The reporting of a Bacillus anthracis B-clade strain in South Africa after more than 20 years. *BMC Research Notes*, 11 (264), null: pp. 1 - 7..
31. Julius RS, Schwan EV, Chimimba CT (2018). Molecular characterization of cosmopolitan and potentially co-invasive helminths of commensal, murid rodents in Gauteng Province, South Africa. *Parasitology Research*, 117 (null), null: pp. 1729 - 1736..
32. Mendelson M, Brink A, Gouws J, Mbelle NM, Naidoo V, Pople T, Schellack N, Jansen van Vuuren M, Rees H (2018). The One Health stewardship of colistin as an antibiotic of last resort for human health in South Africa . *The Lancet Infectious Diseases*, 18 (null), null: pp. 288 - 294..
33. Sungirai M, Baron S, Moyo D, De Clercq P, Maritz Olivier C, Madder M (2018). Genotyping acaricide resistance profiles of Rhipicephalus microplus tick populations from communal land areas of Zimbabwe. *Ticks And Tick-Borne Diseases*, 9 (null), null: pp. 2 - 9.
34. Sutton D, Michel AL. (2018). Mycobacterial infections in equids: Clinical characteristics and diagnostic techniques. *Equine Veterinary Education*, 30 (4), null: pp. 197 - 199..
35. Byaruhanga C, Collins NE, Knobel DL, Khumalo ZT, Chaisi ME, Oosthuizen MC (2018). Molecular detection and phylogenetic analysis of Anaplasma marginale and Anaplasma centrale amongst transhumant cattle in north-eastern Uganda . *Ticks And Tick-Borne Diseases*, 9 (null), null: pp. 580 - 588..
36. Ruiz J, Jonker A, Bosman A, Steenkamp G (2018). Bacteria profile and antibiogram of the bacteria isolated from the exposed pulp of dog canine teeth . *Veterinary Record*, 183 (97), pp. 1 - 7..
37. Wang T, Vineer H, Morrison A, van Wyk JA, Bolajoko M, Bartley D, Morgan E. (2018). Microclimate has a greater influence than macroclimate on the availability of infective Haemonchus contortus larvae on herbage in a warmed temperate environment . *Agriculture Ecosystems & Environment*, 265 (null), null: pp. 31 - 36..
38. Potgieter (Forssman) KR, Marneweck C, O'Riain M, Davies-Mostert H, Mills O. (2018). Pup Provisioning in the cooperatively breeding African wild dog, Lycaon pictus, is driven by pack size, social status and age. *African Journal of Wildlife Research*, 48 (1), null: pp. 1 - 10..
39. Bakkes D, de Klerk D, Latif A, Mans BJ (2018). Integrative taxonomy of Afrotropical Ornithodoros (Ornithodoros) (Acari: Ixodida: Argasidae). *Ticks And Tick-Borne Diseases*, 9 (null), null: pp. 1006 - 1037..
40. Ghebremariam M, Hlokw T, Rutten VP, Allepuz A, Cadmus S, Muwonge A, Robbe-Austerman S, Michel AL. (2018). Genetic profiling of Mycobacterium bovis strains from slaughter cattle in Eritrea.. *Plos Neglected Tropical Diseases*, 12 (4), null: pp. 1 - 17..
41. Tembo S, Collins NE, SibekoMatjila KP, Troskie M, Vorster I, Byaruhanga C, Oosthuizen MC. (2018). Occurrence of tick-borne haemoparasites in cattle in the Mungwi District, Northern Province, Zambia. *Ticks And Tick-Borne Diseases*, 9 (null), null: pp. 707 - 717..
42. Mukarati N, Ndumngu OC, van Heerden H, Ndhlovu D, Matope G, Caron A, De Garine-Wichatitsky M, Pfukenyi

- D(2018). A serological survey of anthrax in domestic dogs in Zimbabwe: A potential tool for anthrax surveillance . *Epidemiology and Infection*, 146 (null), null: pp. 1526 - 1532..
43. Kara PD, Mather A, Pretorius A, Chetty T, Babiuk S, Wallace DB (2018). Characterisation of putative immunomodulatory gene knockouts of lumpy skin disease virus in cattle towards an improved vaccine. *Vaccine*, 36 (null), null: pp. 4708 - 4715..
44. Fasanmi OG, Kehinde O, Laleye AT, Ekong B, Ahmed S, Fasina FO (2018). National surveillance and control costs for highly pathogenic avian influenza H5N1 in poultry: A benefit-cost assessment for a developing economy, Nigeria . *Research In Veterinary Science*, 119 (null), null: pp. 127 - 133..
45. Basson L, Hassim A, Dekker A, Gilbert A, Beyer W, Rossouw J, van Heerden H (2018). Blowflies as vectors of *Bacillus anthracis* in the Kruger National Park . *Koedoe*, 60 (1), null: pp. 1 - 6..
46. Quembo CJ, Jori Massanas FJ, Vosloo W, Heath L (2018). Genetic characterization of African swine fever virus isolates from soft ticks at the wildlife/domestic interface in Mozambique and identification of a novel genotype. *Transboundary and Emerging Diseases*, 65 (null), null: pp. 420 - 431..
47. Annandale A, Stroehle RM, Schulman ML, SibekoMatjila KP, Fosgate GT, Handler J, Vemming DC, Clift SJ(2018). Influence of cycle stage, age and endometrial biopsy score on oxytocin receptor distribution and gene expression in the cervix and uterus of non-pregnant mares. *Theriogenology*, 120 (null), null: pp. 1 - 9..
48. Snyman LP, Sole CL, Ohl M(2018). A revision of and keys to the genera of the Mantispinae of the Oriental and Palearctic regions (Neuroptera: Mantispidae) . *Zootaxa*, 4450 (5), null: pp. 501 - 549..
49. Lekota KE, Bezuidt O, Mafofo J, Rees J, Muchadeyi F, Madoroba E, van Heerden H (2018). Whole genome sequencing and identification of *Bacillus endophyticus* and *B. anthracis* isolated from anthrax outbreaks in South Africa . *BMC Microbiology*, 18 (67), null: pp. 1 - 15..
50. Grover M, Bessell P, Conan A, Polak P, Sabeta C, Reininghaus B, Knobel DL (2018). Spatiotemporal epidemiology of rabies virus at an interface between domestic dogs and wildlife in South Africa. *Scientific Reports*, 8 (10864), null: pp. 1 - 9..
51. Loots AK, Mokgokong P, Mitchell E, Venter EH, Kotze A, Daltona D (2018). Phylogenetic analysis of canine distemper virus in South African wildlife. *Plos One*, 13 (7), null: pp. 1 - 13..
52. Annandale CH, Smuts MP, Ebersohn K, du Plessis L, Venter EH, Stout TAE (2018). Effect of semen processing methods on lumpy skin disease virus status in cryopreserved bull semen. *Animal Reproduction Science*, 195 pp. 24 - 29..
53. Adenubi OT, Ahmed AS, Fasina FO, McGaw LJ, Eloff JN, Naidoo V (2018). Pesticidal plants as a possible alternative to synthetic acaricides in tick control: A systematic review and meta-analysis. *Industrial Crops And Products*, 123 pp. 779 - 806..
54. Venter GJ, Boikanyo S, DeBeer C(2018). The efficiency of light-emitting diode suction traps for the collection of South African livestock-associated *Culicoides* species. *Medical and Veterinary Entomology*, 32 pp. 509 - 514..
55. Ndumnego OC, Koehler S, Crafford JE, Beyer W, van Heerden H (2018). Immunogenicity of anthrax recombinant peptides and killed spores in goats and protective efficacy of immune sera in A/J mouse model. *Scientific Reports*, 8 pp. 1 - 10..
56. Lopez V, van der Heijden EMD, Villar M, Michel AL, Alberdi P, Gortázar C, Rutten VP, de la Fuente J(2018). Comparative proteomics identified immune response proteins involved in response to vaccination with heat-inactivated *Mycobacterium bovis* and mycobacterial challenge in cattle. *Veterinary Immunology and Immunopathology*, 206 pp. 54 - 64..
57. van den Bergh C, Coetzee P, Venter EH(2018). Reassortment of bluetongue virus vaccine serotypes in cattle. *Journal of the South African Veterinary Association*, 89 pp. 1019 - 9128..
58. Eze U, Ngoepe E, Anene B, Ezeokonkwo R, Nwosuh C, Sabeta CT(2018). Detection of lyssavirus antigen and antibody levels among apparently healthy and suspected rabid dogs in South-Eastern Nigeria. *BMC Research Notes*, 11 (920), pp. 1 - 6..
59. Ogundare ST, Fasanmi OG, Fasina FO (2018). Risk factors for prevalence of enterotoxigenic *Escherichia coli* (ETEC) in diarrhoeic and non-diarrhoeic neonatal and weaner pigs, South Africa. *BioMedical and Environmental Sciences*, 31 (2), null: pp. 149 - 154..
60. Drif K, Venter GJ, El Harrak M, Fassi Fihri O, Loutfi C, Touil N, Harif B (2018). The value of camels as sentinels for Bluetongue virus in Morocco. *Veterinaria Italiana*, 54 pp. 343 - 348..
61. Tomlinson J, Horak IG, Apanaskevich D (2018). Identity of *Haemaphysalis* (*Rhipistoma*) *muhsamae* Santos Dias, 1954 (Acari: Ixodidae) and *H. (R.) subterra* Hoogstraal, El Kammah & Camicas, 1992, parasites of carnivores and rodents in eastern and southern Africa. *Systematic Parasitology*, 95 (7), September: pp. 673 - 691..
62. Horak IG, Heyne H, Williams R, G. James G, Arthur S, Bezuidenhout J, Estrada-Pena A (2018). *The Ixodid Ticks (Acari: Ixodidae) of Southern Africa: 1st Edition* , The Netherlands, null,

Springer. 676 pp.. 9783319706429..

b) International conferences: 12

1. Kolo AO, Chaisi ME, Wills SK, De Boni L, Blumberg LH, Collins NE, Brayton KA, Oosthuizen MC. 2018. Molecular detection and characterization of *Anaplasma phagocytophilum* strains associated with different hosts in Bushbuckridge, Mpumalanga, South Africa. 5th International One Health Congress, Saskatoon, Canada, 22 - 25 June 2018. (ORAL)
 2. Troskie M, Matthee S, Vorster I, Jansen R, Penzhorn BL, Oosthuizen MC. 2018. *Babesia microti*-like sequences present in wild rodent species in South Africa. Human Babesiosis Congress, Yale University, New Haven, USA, 12 - 13 April 2018. (ORAL).
 3. Oosthuizen MC, Dorny P, Matjila T, Stevens M. 2018. A collaborative Masters degree training program dealing with health challenges at the human/animal interface. 5th International One Health Congress, Saskatoon, Canada, 22 - 25 June 2018. (POSTER)
 4. Michel, A.L., Hanyire, T.G., Leather-Morar, D., Roux, L., van Kooten, P., Rutten, V.P.M.G. Towards diagnosing tuberculosis in pachyderms: the contribution of species-specific interferon gamma assays. ISVEE 15, Thailand, 10 - 16 November 2018.
 5. Sichewo, P., Etter, E., Michel, A.L. Mycobacterium bovis infection in cattle and communal resource-constrained farmers living at the wildlife-livestock-human interface in South Africa. One Health conference, Saskatoon, Canada, 22 to 25 June 2018.
 6. Snyman, L.P., Neves, L. & Almeida, A.P.G. 2018. The Lutzia-conundrum is only skin deep: a framework for resolving the Culicini classification (Diptera: Culicidae). Presented at the 9th International Congress of Dipterology, Windhoek, Namibia (oral).
 7. Snyman, L.P., Neves, L., Lempereur, L. & Bosman, A.C. (2018) An overview of the horse-flies of southern Africa: centralising and assessment of major collections, including hot-spot and gap analysis (Diptera: Tabanidae). Presented at the 9th International Congress of Dipterology, Windhoek, Namibia (oral).
 8. Kolo AO, Gall CA, Wentzel J, Kolo FB, van Heerden H, Collins NE, Brayton KA, Oosthuizen MC. 2018. Bacterial blood microbiome of rodents captured from a human/livestock/wildlife interface in Bushbuckridge, South Africa. 2nd Joint conference of the Association of Institutions for Tropical Veterinary Medicine (AITVM) and the Society of Tropical Veterinary Medicine (STVM), Buenos Aires, Argentina, 23-28 September 2018. (Poster)
 9. ICOPA conference, 18 to 25 August 2018, South Korea.
 10. 59th ITM Colloquium Antibiotic Resistance. Phnom Penh, Cambodia, 5 - 7 Dec 2018.
 11. Kolo FB, van Heerden H. Prevalence and characterization of *Brucella* spp in slaughter animals in Gauteng Province abattoirs and assessment of zoonotic risk factors posed to abattoir workers. 5th International One Health Congress, Saskatoon, Canada, 22 - 25 June 2018. (ORAL)
- Glover B, van Heerden H. The other side of One Health: A brucellosis story. 5th International One Health Congress, Saskatoon, Canada, 22 - 25 June 2018.

c) National conferences: 10

1. Cloete A. & Crafford J. The evaluation horseradish peroxidase conjugated anti-bovine IgG and recombinant protein in A/G for cross-reactivity / binding to wildlife serum antibodies using ELISA. Congress of the Wildlife Group of the South African Veterinary Association, 1 - 3 March 2018, Misty Hills, Krugersdorp, South Africa.
2. Michel A. Bovine Tuberculosis control in wildlife. Congress of the Wildlife Group of the South African Veterinary Association, 1 - 3 March 2018, Misty Hills, Krugersdorp, South Africa.
3. Sichewo, P., Etter, E., Michel, A.L. Risk factors for *Mycobacterium bovis* infection in cattle and communal farmers living at the wildlife-livestock-human interface in KwaZulu-Natal, province, South Africa. SASVEPM conference, 18 to 20 June 2018. Johannesburg, South Africa.
4. Komani Nosiphiwo, Junita Liebenberg, Kgomotso Sibeko-Matjila. In silico screening of the *Theileria parva* proteome for identification of proteins responsible for transformation of infected host lymphocytes.
5. Mukolwe DL, Odongo D, Sibeko K. Diversity of the sporozoite antigen gene p67 in *Theileria parva* field isolates from cattle and buffalo in southern and eastern Africa.
6. Nkosi NF, Oosthuizen M, Quan M. 2018. Development of a real-time PCR assay to differentiate *Ehrlichia*/*Anaplasma* spp. in dogs. The 47th Annual Conference of the Parasitological Society of Southern Africa. Tshipise Forever Resorts, South Africa. 16-18 September 2018. (ORAL)
7. Penzhorn B, Netherlands E, Cook C, Smit N, Harrison-White R, Vorster I, Oosthuizen M. 2018. *Anaplasma* spp and Hepatozoon spp from free-ranging black-backed jackals (*Canis mesomelas*) in South Africa. The 47th Annual Conference of the Parasitological Society of Southern Africa. Tshipise Forever Resorts, South Africa. 16-18 September 2018. (ORAL)
8. Hove P, Brayton KA, Oosthuizen MC, Mtshali MS, Collins NE. 2018. Molecular characterisation of potential vaccine candidates from *Anaplasma marginale* strains in South Africa. The 47th Annual Conference of the Parasitological Society of Southern Africa. Tshipise Forever Resorts, South Africa. 16-18 September 2018. (POSTER)
9. Makgabo S.M., Biggs L., Brayton K.A., Oosthuizen M.C., Collins N.E. 2018. Tick-borne disease dynamics in

calves at the wildlife-livestock interface in the Mnisi community area, Mpumalanga province, South Africa. The 47th Annual Conference of the Parasitological Society of Southern Africa. Tshipise Forever Resorts, South Africa. 16-18 September 2018. (ORAL)

10. Kolo FB, van Heerden H. Isolation of *Brucella melitensis* biovars 2 and 3 from slaughter cattle in South Africa. SASVEPM conference, 18 to 20 June 2018. Johannesburg, South Africa.

d) Other

(Provide website address or link to appropriate information): 0