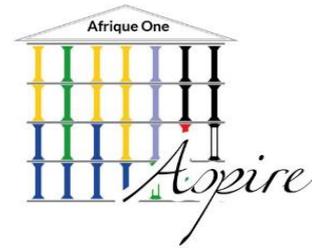


CSRS
Centre Suisse de Recherches
Scientifiques en Côte d'Ivoire



Call for Fellowships Afrique One-ASPIRE

TTP1: Canine Rabies Control and Elimination

For more information concerning TTP1, contact the co-leads:

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Ref: TTP1-Rabies-MSc1

Project Title: Preliminary research on family aspects of dog care in rural Tanzania to inform rabies prevention interventions

Enrolment: This programme will be integrated within the new MSc course in Public Health Research led by NM-AIST that will offer the degree and the IHI that will run the training programme.

Project Description: Canine rabies can be eliminated through mass vaccination of reservoir domestic dog populations and administration of post-exposure prophylaxis to individuals exposed to suspect dog bites (Lembo et al. 2010). However, the disease still kills thousands in rural African communities, primarily because of their limited awareness, and/or implementation of effective prevention measures. Children are especially vulnerable to bites by suspect rabid animals, which often result in injuries and/or death. Improving rabies awareness and preventative behaviours, particularly amongst children, is a policy priority. However, there has been little exploratory work to understand the social and cultural factors limiting awareness and response to rabies prevention. Clarifying these aspects is critical to the design of optimal interventions to reduce the burden of rabies in affected populations.

This project will address these gaps by investigating social and cultural factors specific to rural Africa that help or limit awareness, motivation and responses towards rabies prevention. Specifically, the project will: (1) explore the relationships between villagers and dogs, including children's and villagers' practices and responsibilities for dogs and rabies prevention, especially the exposure of children to household and other dogs within their daily lives, their role in caring for them, and how this role is affected by parent-child relationships; (2) investigate what affects parents' response to their children's exposure to rabies and villagers' engagement in rabies prevention; and (3) clarify which of these causal and/or contextual factors are malleable and have the greatest scope for change. This information will ultimately help us identifying the most promising and sustainable ways to change such factors: at which point, by what means, and using what mechanisms.

This project will expose the selected candidate to training in a range of quantitative and qualitative approaches, including collection and analysis of household-level questionnaire data as well as in-depth interviews and group discussions involving both children and their carers (biological parents and/or others). The field project will build on robust research platforms established in southern Tanzania by IHI in collaboration with UoG. Such platforms provide access to field infrastructure, for example a project vehicle, and experienced rabies researchers. Datasets also exist for providing information on the age group of children most vulnerable to rabies, and members of the household who look after and take responsibility for children, dogs and rabies prevention (e.g. dog vaccination and health care provision of children exposed to suspect dog bites).

References: Lembo T, Hampson K, Kaare M, Ernest E, Knobel D, Kazwala R, Haydon DT and Cleaveland S (2010). The feasibility of canine rabies elimination in Africa: Dispelling doubts with data. *PLoS Negl Trop Dis* 4:e626.

Mentorship Team: IHI specialists in maternal health (Godfrey Mbaruku) and social sciences (Angel Dillip); canine rabies scientists (Tiziana Lembo and Katie Hampson) and a social anthropologist with expertise in social influences on child and adolescent health and ethnography of rural Tanzania (Danny Wight) at UoG; and a biostatistician and epidemiologist (Emmanuel Mpolya) from the NM-AIST who has collaborated with the UoG and the World Health Organization in the quantitative evaluation of a canine rabies demonstration elimination project in southern Tanzania.

Qualifications: The candidate must be a citizen of a country in Africa. Candidates from any discipline contributing to One Health will be considered, but preference will be given to candidates with a background in social sciences, social anthropology or community development. The position will involve prolonged periods of time in rural Tanzania settings. Experience with field research in rural Africa and proficiency in Kiswahili will be necessary.

Training: IHI that will run the main training programme and further training will be available through the Afrique One-ASPIRE consortium and related capacity building programmes hosted by NM-AIST.

Ref: TTP1-Rabies-MSc2

Project Title: Evaluation of One Health surveillance approaches to increase the proportion of rabies ascertained human exposure and improve outbreak response

Enrolment: The MSc fellow will be enrolled at CSRS.

Project Summary: Despite being 100% fatal rabies still belongs to the neglected tropical diseases. One root cause of the neglect is the absence of surveillance and consequently reliable incidence data on human and animal rabies. To reach the target of zero human deaths from dog-mediated rabies set for 2030 and to support future large-scale control programmes in Sub-Saharan Africa a functional surveillance system is a prerequisite. Rabies exposure and case detection rate can only be improved by close collaboration between veterinary and public health workers in a One Health approach. However, there is very limited practical experience on the organisational, logistical and political approaches that would lead to a long-term sustainable collaboration between the animal and human health sector.

Within the GAVI funded project on the estimation of the burden of rabies in East and Central Africa intersectorial collaboration is currently being strengthened in Mali, Chad and Ivory Coast. The presented MSc project will evaluate the success of the efforts undertaken in regard to the approaches taken, the budget involved and the outcome achieved in the different study zones. To gain more insight through feedback from field workers interviews will be undertaken in the respective research zones in Mali, Chad and Ivory Coast with veterinary workers and human medical staff that are involved in the currently on-going project. Through focal group discussions and in-depth interviews gaps, unmet demands, strength and weaknesses of the current approaches can be assessed and integrated in future strategies.

Collaboration with Project Ref: TTP2-Rabies-PhD2, suggested for East Africa is favoured.

Mentorship Team: The project will involve an international supervisory team including Issiaka Tiembre (INHP), Bassirou Bonfoh (CSRS), Jakob Zinsstag (Swiss TPH) and Monique Léchenne, Direction des Services Vétérinaires, (DSV)

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health but preferable with background in either public health, veterinary public health, sociology or health systems economy will be considered.

Duration and Training: The project duration will be 2 years. The MSc student will especially be trained in qualitative data analysis. Training will be provided primarily in Ivory Coast, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Europe.

Ref: TTP1-Rabies-MSc3

Project Title: Exploring successful determinants for dog vaccination campaigns and population control measures using a mixed methods approach

Enrolment: The MSc fellow will be enrolled at CSRS.

Project Description: Rabies is a fatal zoonotic disease that is transmitted from dogs to humans and is highly prevalent in African and Asian countries. Vaccination of domestic dogs has been identified as the most sustainable and effective approach to control rabies and prevent human deaths. Actions to control rabies occur on one level in households when individuals take the decision to vaccinate their dogs and take responsibility of their pet and towards society. Control also depends on provision of vaccination services, community participation and dog population management at the intermediate level of social resilience. However, there has been little exploratory work to understand the social and cultural factors limiting accessibility of dogs to vaccination, veterinary care and registration. This MSc thesis will be built up on a mixed method approach, combining quantitative and qualitative tools, developed to evaluate the effectiveness of dog mass vaccinations for rabies elimination. Mixed methods are necessary as the problem-driven transdisciplinary subject includes epidemiological components in addition to social dynamics and cultural, political and institutional aspects. An assessment of individual effectiveness parameters of vaccination campaigns like availability, affordability, accessibility, adequacy or acceptability will be undertaken. In addition the relationship of dog owners towards their pet and the barriers to successful dog population management will be studied. Triangulation of quantitative methods (i.e. household survey, empirical coverage estimation, dog demography and spatial analysis) with qualitative findings (i.e. participant observation, focus group discussions and semi-structured interviews) will facilitate a better understanding of the weight of each effectiveness determinant, and the underlying reasons embedded in the local understandings, cultural practices, and social and political realities of the setting.

Clarifying these aspects is critical to the design of optimal dog population control and vaccination interventions to reduce the burden of rabies.

The study areas will depend on locations with recently undertaken or planned vaccination campaigns in West and Central African countries (e.g. Dakar, Ivory Coast, Kongo and Mali)

Possible collaboration West-East collaboration is identified with Project Ref: TTP2-Rabies-PhD3.

Mentorship Team: Researchers at partner institutions with expertise in intervention research and sociology health economics, including: CSRS, Swiss TPH, IHI and UoG

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health will be considered, but preference will be given to candidates with previous experience in social sciences.

Duration and Training: The project duration will be 2 years. Training will be provided in Ivory Coast, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Switzerland.

Ref: TTP1-Rabies-PhD1

Project Title: Investigating the potential of thermostable rabies vaccine to improve strategies for rabies control and elimination in Africa.

Enrolment: The PhD fellow will be enrolled at the NM-AIST or SUA, Tanzania.

Project Description: Rabies is a deadly zoonosis that kills 59,000 people every year, with most deaths occurring in Asia and Africa. A large body of epidemiological evidence suggests that the global elimination of canine rabies is feasible and it is now a declared objective of the international agencies with a target of zero human deaths from canine-mediated rabies set for 2030. However, gaps remain regarding implementation of cost-effective and sustainable intervention strategies and research translation into effective national, regional and global policies.

The project will build on recent results demonstrating a high thermotolerance of inactivated dog rabies vaccine (Lankester et al., 2016), which has created opportunities for developing novel strategies of delivering dog rabies vaccination, particularly in rural communities. The project will involve an intervention trial in rural Tanzania to investigate: (a) the cost-effectiveness of different delivery strategies, including community-directed dog vaccination strategies; (b) dynamics of dog population immunity in communities adopting different delivery models; (c) opportunities for integrating dog rabies vaccination with delivery of other health services.

The project will be based in the Serengeti ecosystem, northern Tanzania, working as part of a rabies research team within a long-term research programme and will involve substantial periods of fieldwork.

References: Lankester F., Wouters P.A.W.M., Czupryna A., Palmer G., Mzimiri I., Cleaveland S., Francis M.J., Sutton D.J. and Sonnemans D.G.P (2016) Thermotolerance of an inactivated rabies vaccine for dogs. *Vaccine (in press)*

Mentorship Team: An international supervisory team comprising researchers with expertise in rabies epidemiology, One Health and intervention research including: Joram Buza (NM-AIST), Zacharia Mtema (IHI), Rudowick Kazwala (SUA), Felix Lankester (Washington State University), Katie Hampson and Sarah Cleaveland (UoG)

Qualifications: The candidate must be a citizen of a country in Africa. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, social sciences, epidemiology or health economics) will be considered. Candidates with a Master's degree in a relevant field are preferred.

Training: Training will be provided primarily in Tanzania, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in the UK and US, depending on internal budget considerations.

Ref: TTP1-Rabies-PhD2

Project Title: One Health surveillance approaches to guide rabies elimination [suitable for both the rabies and surveillance TTPs]

Enrolment: The PhD fellow will be enrolled at the NM-AIST or SUA, Tanzania.

Project Description: A target of zero human deaths from dog-mediated rabies has been set for 2030 and large-scale control programmes are being rolled out in parts of Sub-Saharan Africa. However, there is very limited guidance on rabies surveillance to improve case detection as elimination is approached, or how to manage control programmes once progress towards elimination has been made.

Recent results demonstrate the effectiveness of active case finding to increase case detection. This potentially affordable and practical approach can be used to improve provision of post-exposure prophylaxis administration and strengthen intersectoral partnerships and capacity needed for control of emerging zoonoses. Moreover, the need for genomic approaches to guide the strategy and implementation of elimination programmes is increasingly recognised, to identify sources of incursions and minimise their frequency.

The project will involve the pilot implementation of active surveillance approaches including genomic surveillance to: (a) determine case detection in different settings; (b) assess costs of active case finding and feasibility within a One Health framework; (c) evaluate critical criteria to identify and confirm rabies cases; (d) pilot field sequencing approaches and (e) assess incursion frequency and sources. The project will build on existing rabies control programmes in both southern and northern Tanzania, working as part of a rabies research team within a long-term research programme and will involve substantial periods of fieldwork.

Mentorship Team: The project will involve an international supervisory team including: Godfrey Mbaruku and Zacharia Mtema (IHI); Rudowick Kazwala (SUA); Joram Buza, NM-AIST; Katie Hampson and Sarah Cleaveland (UoG); Gibson Kibiki (MUHAS)

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences, ecology, geography, epidemiology or health economics) will be considered. Candidates with a Master's degree in a relevant field and those with previous quantitative/statistical programming experience are preferred.

Training: Training will be provided primarily in Tanzania, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Europe, depending on internal budget considerations.

Ref: TTP1-Rabies-PhD3

Project Title: Evaluation of community-directed rabies intervention strategies

Enrolment: The PhD fellow will be enrolled at the NM-AIST or SUA, Tanzania.

Project Description: Rabies is a deadly zoonosis that kills 59,000 people every year, with most deaths occurring in Asia and Africa. A large body of epidemiological evidence suggests that the global elimination of canine rabies is feasible and it is now a declared objective of the international agencies with a target of zero human deaths from canine-mediated rabies set for 2030. However, gaps remain regarding implementation of cost-effective and sustainable intervention strategies and research translation into effective national, regional and global policies.

The project will build on recent results demonstrating a high thermotolerance of inactivated dog rabies vaccine (Lankester et al., 2016), which has created opportunities for developing new community-directed strategies of dog vaccination, particularly in rural communities. The project will be linked with an intervention trial where outcomes will be compared in communities where dog vaccination is carried out by different delivery models, either through: (a) an established annual dog vaccination campaign coordinated centrally through the district veterinary office using cold-chain stored vaccines or (b) a community-directed approach using thermotolerant vaccines stored in villages.

The PhD research project aims to document the variability in strategies implemented by communities, identify critical components of both strategies that are likely to influence the general applicability and scalability, document inter-sectoral barriers and facilitators in line with “One Health” principles, and explore issues of private and public goods by assessing perceptions and benefits of dog vaccination.

References: Lankester F., Wouters P.A.W.M., Czupryna A., Palmer G., Mzimiri I., Cleaveland S., Francis M.J., Sutton D.J. and Sonnemans D.G.P (2016) Thermotolerance of an inactivated rabies vaccine for dogs. *Vaccine (in press)*

Mentorship Team: The supervisory team will be drawn from researchers at partner institutions with expertise in rabies epidemiology, intervention research and health economics, including: IHI, UoG, Washington State University, NM-AIST and Swiss TPH.

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health will be considered, but preference will be given to candidates with previous experience in social sciences and/or health economics. Candidates with a Master’s degree in a relevant field are preferred.

Training: Training will be provided primarily in Tanzania, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in the UK and US, depending on internal budget considerations.

[Ref: TTP1-Rabies-PhD4/PDF](#)

Project Title: The relationship of dog density, social network of dogs, human demography and socio-cultural background in regard to rabies transmission

Enrolment: A PhD Fellow will be most likely enrolled at CSRS, Côte d'Ivoire. A Postdoctoral Fellow may negotiate to be enrolled/based at one of the Afrique One-ASPIRE institutions.

Project summary: Rabies is a deadly zoonosis that kills 59,000 people every year, mostly in resource limited settings in Africa and Asia. Over 95% of human rabies cases are due to exposure through an infected domestic dog. The feasibility of elimination of canine rabies has been proven by a large body of epidemiological evidence and international agencies have set the target of zero human deaths from canine-mediated rabies by 2030. However, gaps remain regarding the understanding of the intermediate and long-distance transmission of rabies. Detailed knowledge of the epidemiological dynamics and spatial progression of rabies are a prerequisite to guide future elimination strategies and prevention of reintroduction of rabies into previously vaccinated areas. Rabies transmission is influenced by multiple factors such as dog density and social interaction, geographical barriers, human mediated movement of dogs and socio-economic and socio-cultural aspects of human populations that shape dog demography.

A project founded by the Swiss National Foundation on social networks of dogs in N'Djaména, Chad using georeference contact sensors is currently on-going and will be extended in the scope of the proposed PhD program to Ivory Coast and Mali. Incidence data and rabies strains are currently being collected in selected regions of Chad, Ivory Coast and Mali, within the project on the estimation of the burden of rabies in West and Central Africa and will continue to be collected during the proposed PhD duration.

All positive samples collected over 4 years of surveillance will be sequenced and provide insight into the phylogeographical distribution and the epidemiological progression of rabies virus over time by phylodynamic methods. Together with data on the social and economic background of the study areas and the dog population determinants the transmission of rabies can be described in detail and the analysis will provide a decision framework for the planning of national dog mass vaccination interventions. Comparison with similar data of studies in East Africa can complement the analysis.

The program will build on data collected during the GAVI funded project on Estimation of the burden of rabies in West and Central Africa and the SNF funded project on social networks of dogs.

Mentorship team: Experts in rabies epidemiology, One Health and intervention research including: Jakob Zinsstag (Swiss TPH), Monique Léchenne and Vesally Kallo, Direction des Services Vétérinaires (DSV), Hervé Bourhy (Institut Pasteur); Tanja Stadler (ETHZ)

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health (e.g. public health, veterinary and animal sciences and epidemiology) will be considered. Candidates with a Master's degree in a relevant field and proficiency in English are preferred. The project could also be adapted for a Postdoc position.

Duration and Training: The project duration will be 3.5 years. Training will be provided primarily at CSRS, with opportunities for further training within the Afrique One-ASPIRE consortium and with supervisory partners in Switzerland. Laboratory training will be provided by Institut Pasteur in Paris.

[Ref: TTP1-Rabies-PDF](#)

Project Title: Estimation of the cost of rabies to society in Côte d'Ivoire, Mali and Chad and elaboration of the cost of rabies elimination in West and Central Africa

Enrolment: The postdoctoral fellow may negotiate to be enrolled/based at one of the following organizations: University Félix Houphouët-Boigny, Côte d'Ivoire, EISMV, Senegal or Swiss TPH, Switzerland.

Project Description: The postdoctoral candidate is expected to develop a research project along the following lines:

More than 59,000 humans die of rabies each year, most of them in Africa and Asia. Clinical rabies can be prevented by post-exposure prophylaxis (PEP). However, PEP is often not available or not affordable in developing countries. Another strategy besides treating exposed humans is the vaccination of vector species. In developing countries, the most important vector is the domestic canine, which, once infected, is a serious threat to humans. After a successful mass vaccination of 70% of the dogs in N'Djamena, the comparison between PEP cost and cost of intervention in dogs showed that investment in control of rabies in the vector population is at long-term the more cost-effective and sustainable approach. The cost-description from the vaccination campaign and a national household survey on dog demography in Chad allowed the establishment of a cost estimate for a national rabies elimination campaign in Chad and the description of development impact bond (DIB) for such a large scale intervention. Within a DIB private investment provides upfront capital for development programmes, only calling on donor funding to repay capital and a potential return based on the results achieved.

A current research project on the estimation of the burden of rabies in Chad, Mali and Ivory Coast will provide data on dog demography, rabies incidence in humans and animals and PEP accessibility by the end of 2017. These data will be used to describe the cost of rabies to society in those three countries and for projections to West and Central Africa. From small scale vaccination campaigns in the respective countries cost of national large scale interventions can be estimated and a DIB be developed for the West and Central African region. Scenarios for the geographical and organisational vaccination approach will be guided by epidemiological data and socio-cultural and geographical background.

This project will expose the selected candidate to training in health economics, statistical modelling and disease elimination. This programme will, furthermore, be based on data collected during the GAVI funded project of the estimation of the burden of rabies in West and Central Africa and build on knowledge of the progress made in East Africa

Mentorship Team: Fabrizio Tediosi (health economics), Nakul Chitnis (disease modelling) and Jakob Zinsstag (canine rabies scientists), (Swiss TPH) Dan Haydon, (UoG); Richard Ngandolo Bongo (IRED), Rudowick Kazwala (SUA).

Qualifications: The candidate must be a citizen of an African country. Candidates from any discipline contributing to One Health will be considered, but preference will be given to candidates with a background in economics. The position involves prolonged periods of time at Swiss TPH in Basel. Experience with field research in Africa and proficiency in English will be necessary.

Individuals who have submitted their PhD dissertations are also eligible to apply but must submit proof of this submission (e.g. a letter attesting to the submission from the Registrar of the University).

Applicants must be highly motivated, exhibit strong research and conceptual skills and be interested in developing novel research directions.

Individuals should have proven abilities to organize and execute research projects with minimal supervision to perform work independently and to document their results to a high standard.

Applicants must have strong written and oral communication skills in English and French. Experience in management and training of junior staff is desirable. Applicants must also have the ability to work in an inter-disciplinary research environment involving collaborations with Afrique One-ASPIRE partners.

Individuals will be responsible for developing their own research protocols, obtaining the necessary regulatory approvals and carrying out all the required experiments at the responsible institutions.

Duration and Training: Successful candidates will be engaged at the Research Fellow grade in the chosen institute on a one-year contract, renewable up to a maximum of 3 years based on satisfactory performance. Training will be provided primarily at the Swiss TPH, with opportunities for further training within the AO-ASPIRE consortium and with supervisory partners in the UK, US and Switzerland, depending on needs and internal budget considerations.