



ANIMAL HEALTH IMPACT STATEMENT EXAMPLE

TECHNICAL SUMMARY: Benjamin Franklin’s axiom, “an ounce of prevention is worth a pound of cure”, remains true. Despite decades of research, equine colic remains a disease of high mortality and morbidity amongst elite and pleasure horses where efforts have predominantly been focused. The impact of colic amongst working equids, not only on animal welfare but on the livelihoods of the people who rely upon them, is even less understood; however, in this population the pound of cure rarely exists.

Colombia has one of the highest rates of economic inequality and working equids play a vital role in the livelihoods of many families, with approximately two-thirds of those relying on these animals earning <\$1.90 per day. Recent research has shown 13% of Colombian working equid owners had directly experienced colic and 21% (68/326) stated colic as their biggest health concern. The most common treatment methods employed were beer and salt (28%) although 70% had access to veterinary pharmacies where common analgesics can be purchased.

The project will use mixed-methods research to work with four communities identified as having problems associated with equine colic. It will adapt and co-develop pre-existing educational materials directed at pleasure horse owners. Qualitative evaluation of focus groups using thematic analysis will be combined with observational studies and semi-structured interviews.

Validation of behavior change will be tested using Trans-Theoretical Models and Theory of Planned Behavior. Materials will focus on reducing risk factors, training to improve early recognition of colic, and appropriate pharmaceutical treatment in communities where there is no access to veterinary services.

This work will be consolidated into a validated educational training program which can be disseminated widely across Colombia and Latin America through a pre-existing and well-established stakeholder network. It will have a legacy of improved animal welfare and reducing economic poverty.

POTENTIAL IMPACT FOR ANIMAL HEALTH:

Project deliverables

D1: Development of educational materials produced in collaboration with working equid owners and supported by a credible evidence-base for the recognition, prevention, and treatment of colic within Colombian communities. These will be assessed qualitatively following implementation and reflection by summative focus groups.

D2: Provide evidence that communities are engaged and respond to educational materials through comparative observational studies and measurement of behavior change.

D3: A consolidated assessment of the impact of colic on the health and welfare of working equids and how this affects productivity and financial income of the communities who rely upon them.

D4: A robust mandate predicated on factual, contemporaneous data of recommendations for educational programs to deliver to the existing influential contact network to induce (inter)national policy change, inform aid priorities and influence funding with regards to equine colic in the working equid population.

This application focuses on working equid owners in Colombia, an LMIC country bearing many similarities to other nations in South and Central America. The deliverables are transferable to other territories where the lack of affordability of mechanized machinery or transportation means the poorest in society rely on animals for sustenance, income and movement of goods or people and where colic remains an important and prevalent disease.

Scientific impact, including impact beyond this research field and future pathways:

Academic dissemination will include publication of both the novel community engagement methodology and research findings in scientific journals, such as Plos One, the Journal of Veterinary Preventative Medicine or Animals. Furthermore, rapid dissemination of the initial findings will occur through presentation at national and international conferences. The research team have an excellent track record for both (see Section E).

Non-academic impact:

Activities and outputs will be targeted to maximize reach within four main target audiences

- government agencies: face-to-face meetings and education of staff who hold community clinics offering advice to equid owners
- NGOs and foundations: direct meetings, evidence packs and case examples to disseminate more widely
- public (working equid owners): promotion of the educational materials and project objectives by social, online and conventional media (educational radio and television broadcasts are widely utilized in rural Colombian communities).
- research community: publications in peer reviewed literature; the language

barrier to many academics in Latin America will be overcome through non-peer reviewed media and scientific meetings.

Vital socially important impact will occur through demonstrating the benefit of the educational materials through existing contact networks each with the own sphere of influence. We have the existing connections to ensure that educational materials validated in this project can be disseminated nationally subject to acquisition of follow-on funding. These include:

- Fevelin Dayana Naranjo, National Technical Secretary for Cattle, Boris Roberto Martínez Castillo, National Technical Secretary for working equids of the National Ministry for Agriculture
- Municipality Secretaries of Agriculture in two of the most important agricultural regions: Juan Alberto Vásquez (Yolombó) and Libardo Castrillón (Antioquia)
- Edilberto Brito Sierra, Safety Group Coordinator in Primary Livestock Production; Fabiola Rodríguez Arévalo, Specialist Technical Director of Animal Health and Carlos Eduardo Figueroa, Specialist Veterinarian for primary livestock production and animal welfare, Instituto Colombiano Agropecuario (ICA)
- Municipality UMATA including some of the poorest regions where equids are used: Stivens Londoño (San Pedro de Los Milagros), Daniela Gómez (Cocorná) and Walter Salazar (Yolombó)
- Coffee Grower's Federation: Luz Elena Montoya Amell, Project Management Leader, Departmental Committee of Coffee Growers of Antioquia and Daniel Fernando Chica Días, Programme Coordinator
- Sugar Cane Federation: Vicente Pineda, Association of Panela Producers of Cocorná and Norberto Úsuga, Departmental Representative of Panela Producers

The capacity to influence policy through a wide stakeholder network means that we have the strategic connections to highlight the importance of colic amongst working equids and the impact educational resources will have.

Validated research on the value of community-based projects will create opportunities for further investment and allow the roll out of these resources on a national level.

Through incorporation of behavior change, owners will have greater financial resilience due to increased income from their animals and improved access to education, healthcare, food and water as a result of moving out of poverty. Moving out of poverty increases their access to appropriate medications and veterinary care which will allow treatment of other diseases and conditions beyond colic.

Finally, we will show that the educational materials, co-developed by local communities have the capacity to change management methods which carry a high risk of causing colic, bring about more timely intervention through earlier recognition of clinical signs and teach appropriate treatment methods. This will achieve the overarching aim of improving animal welfare through the improved prevention of management of equine colic.

Engagement activities plan (eg. knowledge exchange activities)

Impact:	Colic is reduced through improved management and earlier recognition of disease. The sustained animal welfare impact improves productivity leading to reduced poverty. Higher income affords appropriate medical treatment for colic and other conditions.						
Long term outcomes	Role of working equids is recognized and acknowledged in government and organizational policy. Improved funding for preventative healthcare and education.			Communities have improved access to education, healthcare, food, water and markets as working equids have longer more productive lives			
Medium term outcomes	Impact of preventative healthcare for colic, and how this affects the community is evidenced and recognized.			Local communities are empowered with the skills and experience to recognize, prevent and treat colic successfully. Reduced incidence of colic leads to better welfare and productivity.			
Outputs/ deliverables	Demonstrate colic-associated behavior change (D2)	Evidence of colic socioeconomic impact (D3)	Recommendation for policy changes (D4)	Appropriate and validated educational resources and training for communities, health professionals and medicines suppliers (D1)			
Activities	Evaluate management and recognition before and after interventions	Assessment of economic and social impact before and after interventions	Identify main policy influencers to lobby. Develop hard copy and visual resources	Develop strategies for working with different communities	Develop range of resources and methods of dissemination	Ensure delivered materials result in change in behavior	Hold regional workshops for owners, health professionals and leaders
Assumptions	Sufficient data will be gathered to be representative		Changing policy changes attitudes	Selected communities will provide best examples of impact		Information given will change attitudes and approaches.	
Responses	Compile data on incidence, treatment and outcomes of colic	Compile data on economic and social impact of colic in working impacts, and the cost of loss	Lobby government and policy advisors to recognize role of working equids in agriculture	Selective sampling for 'typical' working equid roles and most vulnerable communities	Use robust methodology, maintain close liaison with in-country teams	Validate owner training curriculum to be delivered within each rural community	Develop educational programs for paraprofessionals, and training curricula
Barriers	Insufficient evidence: <i>no large-scale studies on colic in working equids across South America</i>	Lack of funding: <i>no economic models to quantify the impact of colic.</i>	Invisible working equids: <i>working equids not recognized in agricultural policy and funding allocations</i>	Difficult to access communities: <i>working equids have a diversity of roles across different communities</i>	Limited capacity for behavior change: <i>vulnerable communities in poverty, resource constraints and illiteracy</i>	Lack of training and education: <i>some treatments administered by people with no formal training</i>	Lack of access to veterinary care: <i>remote rural communities without easily accessible animal care professionals</i>
Problem:	Working equid's ability to work is reduced by high incidence of colic. This causes a direct socioeconomic impact on owners and has a significant welfare impact to animals. Poor recognition of signs of colic together with deficiencies in management increase the likelihood and impact of colic. Limited treatment options are available, and often owners resort to inappropriate and potentially dangerous solutions. Working equids are currently not recognized in agricultural policies, which means that there is no national guidance on working equid health care and welfare, or funding allocated for education and preventative welfare initiatives.						