A Knowledge Management System for Neglected Zoonotic Diseases in Peru: a Proposal for a One Health Approach

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INTRODUCTION

Neglected Tropical Diseases (NTD) include 17 diseases that affect more than 1 billion people, mainly the poor. 59% of NTDs are Zoonoses. However, different agencies and research groups focus specifically on either human, animal or environmental health. A Knowledge Management System (KMS) is a set of tools and practices that enables organizations to collectively create, share and apply knowledge to better achieve their goals. Integrating the work of different institutions creates new challenges for One Health.

Fig. 1. Study Area and local NTDs:

- Canine rabies
- Foodborne trematodiasis
- Vector-borne Chagas disease
- Other NTDs

Objective: To create an environment that allows partner institutions to generate and share knowledge to better control neglected zoonotic disease.

METHODS

Fig. 2. Proposed KMS for Zoonotic NTDs in Arequipa, Peru.

Define a community of practice consisting of institutions 1,2,3 that are bound together by shared interests (to control zoonotic disease).

Tools

MOH Disease Control Coordinator using our data visualization technology to make decisions on control activities; the process is documented.

Data is constantly being shared between MOH and Penn/UPCH for analysis, which is provided to MOH for decision making (5).

RESULTS and CONCLUSIONS

- Severe underreporting was found in human trematodiasis when comparing the cases reported to the government (Fig. 3) to the hundreds of cases found in university databases.
- Also, in the process of connecting MOH with SENASA, it was found that both institutions were looking for trematodiasis in different areas without sharing results.
- Underreporting of trematodiasis in Arequipa of NTDs could be reduced with the implementation of a KMS.

Some Challenges

- Institutional agendas might produce divergent goals.
- Timing of control and prevention activities might overlap or be difficult to coordinate.
- Definitions can be different across institutions.
- Bureaucracy at more than one institutions can make coordinated activities infeasible.

Fig. 3. Human trematodiasis cases registered at General Directorate of Epidemiology.

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Define a community of practice consisting of institutions 1,2,3 that are bound together by shared interests (to control zoonotic disease).

Co-write scientific papers and national reports (8) proposing new methods and approaches (6) for the control of NTDs.

Prof. Behrman presenting at a joint event with Penn faculty, UPCH researchers and MOH officers.

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References

- One Health Initiative USA. http://www.onehealthinitiative.com/