

## Why is the “One-Health/Medicine” logo not the solution?

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*"Between animal and human medicine there is no dividing line – nor should there be. **The object is different** but the experience obtained constitutes the basis of all medicine."*

**RUDOLF VIRCHOW (1821-1902)**

## What is “One – Medicine/Health”?

- Rudolf Virchow (1821-1902)
- A physician with pathology interest
- A son of a butcher
- Interest helminthology - the life cycle of *Trichinella spiralis* in swine
- He also served in the German parliament



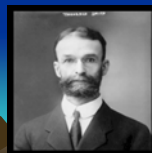
## What is “One – Medicine/Health”?

- A Canadian physician, William Osler
- Spent 3 months with Virchow in Germany
- Founded the McGill School of Veterinary Medicine
- Lectured to both medical and veterinary students at the Medical and Veterinary students



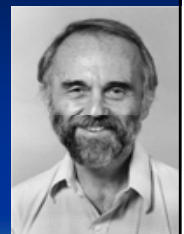
## What is “One – Medicine/Health”?

- Daniel Salmon
- Theobald Smith
- Leaders in field of public health.



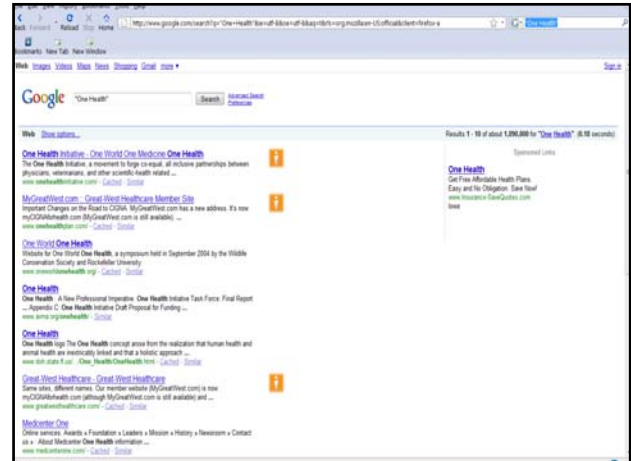
## What is “One – Medicine/Health”?

- The “One Medicine” concept did not get further attention in early 1900s.
- Calvin W. Schwabe
- Credited the decline to the replacement of horses and oxen with the combustion engine



## What is “One – Medicine/Health”?

- Many definitions and interpretations of this concept have been generated and/or used in the last few years.



## What is “One – Medicine/Health”?

- Several applications and modifications of “One Medicine” have emerged in the last two decades;
- The majority of these were initiated by the profession of veterinary medicine;
- Several of these initiatives arose from the discipline of veterinary epidemiology.

## Interaction between human and veterinary medicine

- Two disciplines has been especially fruitful in the broad areas of patho-physiology and epidemiology;
- Examples in comparative medicine, zoonoses, zoonophylaxis, and the human-animal bond;
- A better understanding of animal and human disease.
- Social and other disciplines have contributed.

## Changes in the Veterinary Medicine

- The focus of veterinary medicine changed in the early 1950s from public health and serving the agricultural community to companion animal medicine serving the urban community;
- During the early 1960s most of the USA veterinary schools were prone to ignore population-based training including epidemiology, laboratory animals, and the safety of post harvest animal products.

## Changes in the Veterinary Medicine

- Veterinary community almost eliminated solve post-harvest food safety issues, segment of veterinary medicine.
- By default this segment was transferred to other disciplines (e.g. animal scientists, biochemists, etc).
- The comparative aspect of veterinary medicine was almost lost during this period except in specific research components.

## Changes in Veterinary Medicine

- Emphasis on veterinary therapy and surgery was the accepted role of the discipline during this era.
- Most schools did not even offer courses involving food safety, preventive measures, and population-based disease approaches.
- Biomedical research generally took place in departments of comparative medicine in medical schools rather than in veterinary schools



## Modern Veterinary Epidemiology

- The growth of population-based health for animals in the US and other industrialized countries led to the primacy of agricultural and biological scientists
- No appreciation to the value of veterinary colleagues.

## Modern Veterinary Epidemiology

- This need inspired visionary veterinary educators such as Schwabe and others to use this opportunity to expand on the field of preventive veterinary medicine on population bases.
- This approach was enhanced with available methods and techniques used in other disciplines such as animal sciences, biostatistics, epidemiology, and quantitative sociology, among others.

## Epidemiology and the One-Health Concept

- Epidemiology in human medicine training faced its own challenges;
- The lack of training at the university level during this period has diminished exposure disease investigation, community medicine, and the emphasis on data analysis, quantitative models, and social behaviors.

## Epidemiology and the One-Health Concept

- Specialized epidemiologists in human medicine, therefore, covered the broad field of public media to molecular techniques for measuring diseases.
- The field of epidemiology, whether in human or veterinary areas, then became more of fitting the niches of interested individuals rather than an actual specialty with standardized training.

## Changes in 1970s

- The concept of “One Medicine” was not forgotten with several initiatives that endorsed preventive measures of diseases particularly those with zoonotic potential.
- It started to fade away mainly due to gaps in the interest and aims of these two disciplines.

## Changes in 1970s

- Human epidemiologists had paid less attention to infectious diseases and put more emphasis on other diseases such as cancer and environmental related diseases.
- Veterinary epidemiologists focused on diseases that are economically important and affecting agricultural animal production including selected infectious diseases.

## Changes in 1980s

- Limited interactions were observed between human and animal medicine during mid 1980s.
- The resurgence of infectious diseases gave a wake-up call for the need to collaborate between these two disciplines.



## The role of government agencies

- Interagency is frequently described as a pivotal element of environmental and public health problem solving;
- Collaboration can promote comprehensive problem solving;



## The role of government agencies

- There is little systematic evidence to document the conditions under which interagency collaboration is effective;
- **Understanding the determinants of interagency collaboration is fundamental to improve environmental quality and promoting public health;**

## The role of government agencies

- Agencies frequently compete for the same funds or subjects; this competition has not been helpful in building a consensus to address public and animal health issues of interest to the community.



## Current status of One Health/Medicine

- The major human and veterinary medical associations have recently enthusiastically embraced and endorsed the concept of One Medicine;
- Numerous supportive essays have appeared **but with limited action plans to demonstrate the integration or other valuable products**

## Current status of One Health/Medicine

- Government agencies have started to indicate their willingness to work together toward one goal for better general public health for the society that includes animals as sources for many of the potential zoonotic diseases;
- This motivation which was supported by several meetings, conferences, publications, and speeches

## Current status of One Health/Medicine

- It has not changed the mode of operations of the various involved parties.
- Neither agencies nor institutions have changed their plans of actions for coordination and engagement of the other side of the equation.
- The 2004-2009 avian influenza outbreaks have led to limited collaboration between the public health officers and animal health authorities.

## Current status of One Health/Medicine

- it has been recognized that the lack of communication, **insufficient appreciation of the duties of each actor, and the limited integration of plans of action between public health and animal health officers** are the factors that contribute to the ineffective collaboration toward one goal.

## Can Epidemiology as a discipline rise to the challenges

- Epidemiologists as population-based scientists on both side of the aisle (human and animal) can collaborate to prevent zoonotic diseases;



## Can Epidemiology as a discipline rise to the challenges

- It is a necessary therefore to have a strong link in activities, especially in field operations, to demonstrate this type of collaboration.
- It requires the understanding of the entire ecological disease system including the social and culture environment, animal husbandry, animal production and the role of animals in the wellbeing of the society.

## Can Epidemiology as a discipline rise to the challenges

- It is a necessary therefore to have a strong link in activities, especially in field operations, to demonstrate this type of collaboration;
- The traditional academic or public institutions or divisional structures where the epidemiologists operate **has proved to be ineffective**.

## Can Epidemiology as a discipline rise to the challenges

- An alternative solution involves the development of a 'virtual academy' of interested epidemiologists who will use their collective knowledge to support and spread the prevention of zoonotic diseases using a common approach – this is the main concept of One Health.

## Conclusions

- Veterinary professions should attempt as much as possible to integrate other related disciplines in their approaches for **the wellbeing of animals including preventive measures of animal diseases**.
- The discipline of veterinary epidemiology has demonstrated a good example in multidisciplinary approaches for preventive medicine.



## Conclusions

- This effort should be expanded by inclusion of other disciplines and other topics that are **beyond the animal diseases but within the animal wellbeing**.
- Medical professions can attempt to reach to veterinary professions by expanding their horizon to understand that diseases are shared among all animal families.

## Conclusions

- **Animals other than human species can be used to understand and prevent these diseases in humans**.
- It would require comprehensive and comparative approaches to medicine.
- This recognition would **require observations and integration of veterinary medicine in the preventive measures for diseases of public health interest**.

## Conclusions

- Both medical and veterinary professions should emphasize preventive measures and place less emphasis on treatment.
- This type of emphasis would require integration and synthesis of measures and other actions to reduce the disease impact in both animal and human populations.
- There is a need to join forces to combat these diseases.

## Conclusions

- These forces should not be recognized at the top level.
- There is an urgent need to build these forces on the lower rank to be effective at the local, national, and regional levels.

“Public Wellbeing” should  
be our LOGO

