Organisation Mondiale de la Santé Animale | World Organisation for Animal Health | Organización Mundial de Sanidad Animal

Cost of National Prevention Systems for Animal Diseases and Zoonoses

in Developing and Transition Countries

Study conducted by Civic Consulting for the OIE, Co-financed by the World Bank and the European Commission

STDF Workshop Economic Analysis and SPS decision-making,
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Overview

- Background
- Objectives and methodology
- **Part A**: Costs of Veterinary Services - case study results
- **Part B**: Economic indicators for use within the OIE-PVS tool

Background /1

- In October 2007, the results of three economic studies on the prevention and control of animal diseases worldwide were presented at an International Conference on Global Animal Health, co-organised by the World Bank and the OIE

Background /2

- The studies – conducted by a consortium led by Civic Consulting – concerned the following issues:

  Prevention and control of animal diseases worldwide

  I. Economic analysis – Prevention versus outbreak costs

  II: Feasibility study – A global fund for emergency response in developing countries

  III: Pre-feasibility study – Supporting insurance of disease losses

(all studies, including the new study on Cost of National Prevention Systems for Animal Diseases and Zoonoses, are available on the OIE website www.oie.int/eng/OIE-WB_Conference_1007/en_Global_Animal_Health_Initiative.htm)

Background /3

- The first study, comparing prevention versus outbreak costs, focused mainly on Highly Pathogenic Avian Influenza and confirmed that the cost of preventing animal diseases are significantly less than those associated with managing outbreaks

Background /4

- Other conclusions of this study included:

→ A global approach in the fight against animal diseases is needed, and the VS have a crucial role to play as the providers of Global Public Goods

→ The capacity of VS to collect and analyse data to conduct cost-benefit analyses should be added to the competencies evaluated in the OIE-PVS Tool

- The conference acknowledged the necessity to conduct a complementary study, to further elaborate on the cost of prevention and surveillance

Objectives of the study

- (A) Estimating the “peace time” **costs of Veterinary Services** allowing early detection and rapid response to emerging and re-emerging diseases in different regions, economies, animal health systems and eco-systems
- (B) Developing **economic indicators** within the OIE-PVS Tool

Methodology /1

Study based on:

→New methodology for cost assessment of VS

→In-depth research in nine OIE member countries: Costa Rica, Kyrgyzstan, Mongolia, Morocco, Turkey, Uganda, and Vietnam (incomplete data: Uruguay and Romania)

→Extensive analysis of possible economic indicators

Methodology /2

- Focus is on public sector expenditures, including for services of accredited private veterinarians
- Cost data collected for the following functional units of the NPS:
  - *At central level:* Central VS, incl. vet. inspection (live animal markets & slaughterhouses), national vet. laboratory, border inspection
  - *At sub-national level:* Regional and local level public VS, including veterinary inspection, vet. laboratories, vet. units of municipalities
- Excluded: veterinary research and education, animal welfare, animal production, food safety inspections other than in slaughterhouses

Methodology /3

- Cost data for basis year 2007 were collected in national currency and were not directly comparable across case study countries
- Cost data therefore converted into international dollars using the implied Purchasing Power Parities conversion rate (national currency per current international dollar) for 2007
- This conversion rate is defined as the number of units of a country's currency that is required to buy the same amount of goods and services in the country as one US$ would buy in the US

A. Costs of veterinary services

Overview of results

- Average expenditure on the National Prevention System for seven countries is

  48.6 million international dollars

- Substantial **differences** in expenditure for the NPS exist between case-study countries, reaching from 10 million international dollars to 167 million international dollars

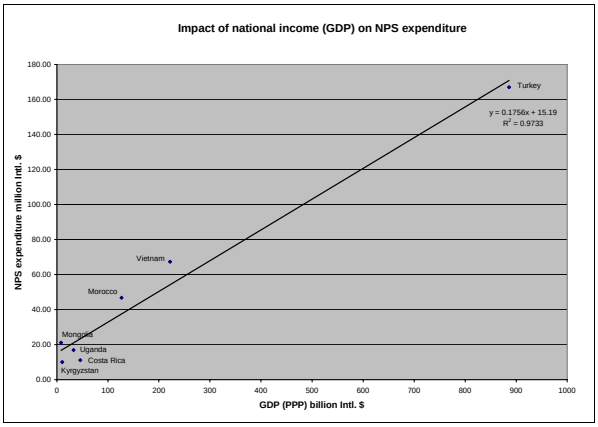
Cost influencing factors
Livestock

- Variations in expenditures clearly associated with differences in **livestock population**
- Veterinary Livestock Unit (VLU): equivalence unit for the estimate of annual veterinary cost and care

→**VLU** therefore **most appropriate measure** of the scale of veterinary service requirements

Cost influencing factors
National income

In the case-study countries, there is a **close relationship** between Gross Domestic Product (GDP) and total NPS expenditures



Cost influencing factors
National income

→Relationship between GDP and NPS expenditure means that NPS expenditure is mainly **dependent on the country's ability to pay**, rather than on the veterinary requirements.

→This may lead to a significant **under funding** of the NPS, most notably in low-income countries.

→In these cases VS require a **higher priority** in the national budget allocation, and/or **sustained external support** to be able to effectively address global animal health challenges.

Cost influencing factors
Per capita income

- Differences in NPS expenditures between countries on a per VLU basis can be explained by differences in per capita incomes.
- Average NPS cost per VLU according to income levels
  - **Low-income** countries (Uganda, Kyrgyzstan, Vietnam):
    3.82 int. dollars
  - **Middle-income** countries (Mongolia, Morocco):
    5.28 int. dollars
  - **Upper-middle-income** countries (Costa Rica, Turkey):
    8.79 int. dollars

Cost influencing factors-
Trade

- Costa Rica is only case-study country that earns a substantial income from beef/pig meat exports.
- Expenditure on border inspections per VLU is the highest of the countries recording this item.
- Turkey is a net exporter of poultry meat and eggs, although this is only a small proportion of the large national output.
- The value of these exports probably **increases the emphasis** placed on NPS expenditures.

Cost influencing factors-
Land ecology and animal health situation

- Climate, topography and cultural variables affect the types of livestock kept and associated production systems
- NPS costs likely to depend upon the relative occurrence of diseases and the choice of preventive control measures
- However, this is not reflected in the data from the case study countries, where the association of NPS expenditures with GDP appears to be more relevant than other factors.

Cost influencing factors-
Private veterinary sector

- Expenditures of the private sector for private veterinarians are not part of the NPS as defined for this study (however: public expenditures for accredited private veterinarians are included)
- Ratio of private veterinarians to public sector veterinarians in the NPS tends to increase with increasing national *per capita* income
- There is **no evidence that a stronger private veterinary sector reduces** public NPS expenditures in the case study countries

Allocation of NPS expenditures-
Central and sub-national level

- Sub-national expenditures tend to increase relative to the centralised expenditures with increasing size of the national territory
- Provided that both central and regional elements are included, the average total cost per VLU may be unaffected by the extent of decentralised expenditure.

Allocation of NPS expenditures-
Staff costs

- Staff expenditures per VLU appear to vary with level of *per capita* income
- Staff expenditures vary from 19 % to 74% of the total NPS expenditure

Allocation of NPS expenditures-
Material supplies

- In all countries, except Turkey, the **largest** component of **non-staff operating expenditure** for the NPS is the provision of supply of materials
- The costs of **vaccines are significant** in most case-study countries, accounting for 20% to 54% of the total NPS expenditure

Allocation of NPS expenditures-
Services

- Expenditure on services includes **fees for accredited private veterinarians** and, if subcontracted, laboratory diagnostics, communications and training of employees
- Amounts spent on services **range** from 0.08 int. dollars/VLU in Uganda to 0.96 int. dollars/VLU in Morocco

Allocation of NPS expenditures

→Spending patterns for different categories of expenditures **vary across case-study countries**, however, this provides **little explanation** for differences in overall NPS expenditures

→Considerable differences in spending that depend on other factors than *per capita* income are related to three categories:

- Fees for private veterinarians (0 to 0.96 int.$/VLU)
- Expenditures for vaccines (0.02 to 1.57 int.$/VLU)
- Compensation of livestock holders (0 to 0.74 int.$/VLU)

B. Economic indicators for the use within the PVS Tool

- The total public expenditure for the NPS (not including donor contributions), when related to VLU, is a **key indicator**
- However, **difficult to measure** as done for this study
- Strong linear correlation between GDP and NPS expenditures → Possible to **estimate current National Prevention System expenditure** on basis of GDP (*does not in any case determine the optimal level of NPS expenditures*)

Limitations of total NPS costs as benchmark

- Large social, economic, geographical and livestock population differences between countries

→**Doubtful whether uniform benchmark** values for total NPS expenditures per VLU are likely to be **globally** applicable

→A **'gold standard'** or quality benchmark figures are **needed** for comparison of NPS expenditures between countries, but assessments more effective if focused on **key elements** rather than on the total NPS expenditure at national level

Development of benchmark cost data

- Data to calculate indicator values could be obtained during the OIE-PVS Evaluation or OIE-PVS Gap Analysis visit
- OIE-database with (regional) **benchmark cost data** concerning key elements of the NPS (such as border inspection, diagnostic laboratory facilities) would create a better basis for the design and budgeting of desired improvements in the NPS

→Creates both a **better basis for** the **budgeting** process of specific countries and more **transparency** for donors

Improvement of base data collection

- A key requirement for use of economic indicators is reliable base data
- Livestock / VLU data (→ Need to improve data collection and refine VLU)
- Veterinary personnel data (→ Need to update OIE reporting format to allow identifying NPS personnel)

→The use of economic indicators within the PVS Tool, and economic analysis of NPS for Animal Diseases and Zoonoses in general, could be significantly **furthered with improving the reliability of global base data**

Indicators for compliance with OIE standards

- OIE-PVS Tool is the product of a **comprehensive and detailed analysis** and review of the requirements of effective Veterinary Services
- Allows comparing **input** (NPS expenditures) with **effects** (degree of compliance with OIE International Standards on Veterinary Services)

→For this aim **aggregated score for PVS** would be needed. However, this raises methodological concerns, as currently PVS Tool is based on qualitative approach

Indicators for compliance with OIE standards

→In future refinements of the OIE-PVS Tool, it could be considered to introduce a **more quantitative approach**

→It could also be considered to refine and **group critical competencies** to allow a more direct correlation of PVS results and costs for key elements of the NPS (e.g. for veterinary diagnostic laboratories)

Thank you for your attention

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