

PANORAMA

Thematic portfolio



Global Burden of Animal Diseases (GBADs)



PERSPECTIVES

| # DOSSIER

| # AROUND THE WORLD

The approach taken over the last two decades of quantifying global human health outcomes through quality- and disability-adjusted life years (QALYs and DALYs) has provided more informed and better targeted, data-driven policy decisions to improve health [1]. A successful delivery of the Global Burden of Animal Diseases (GBADs) programme⁽¹⁾ is not only potentially equally transformative in the animal health sector, it can also enhance our understanding of human health outcomes.

Zoonoses

Many endemic and emerging diseases are zoonotic in origin, transmitted between humans and animals. Existing estimates of the burden of these shared pathogens would benefit from robust quantification of their status in livestock populations, especially when categorised by production system, as these factors are key determinants in human exposure and the possible human health impact. Combining veterinary and public health interventions in locations where both animal and human populations are affected is an essential part of managing these diseases. Since most emerging pathogens are zoonotic [2], routine tracking of animal health is needed to identify anomalous patterns.

Diet and food safety

Given the significant contribution of the livestock sector to global diets [3], any quantification of the quality and safety of products consumed by humans is important. Estimates of the impact of unsafe food suggest a significant but manageable burden [4]; detailing which livestock species are affected by key food-borne pathogens in which locations would enable necessary interventions in the appropriate sectors. Quantifying production losses, as well as potential losses of any dietary nutrients, will focus efforts on improving food security and enriching local diets through improved livestock health.

Future of human health

The fate of humans and livestock is inextricably linked. While forecasts of human health currently incorporate the trajectories of key risk factors, such as smoking [5], the future of livestock species is rarely addressed in a comprehensive manner through consensus processes. A robust contemporary estimate of animal health, and its effect on humans, is a necessary foundation to develop forecasts that show how animal health policies could alter human health trajectories for decades to come.

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DOSSIER

A quantitative understanding of animal health has the potential to improve human health

KEYWORDS

#animal health, #data management, #Global Burden of Animal Diseases (GBADs), #livestock sector, #public health, #statistics, #World Organisation for Animal Health (OIE).

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REFERENCES

1. Murray C.J.L., Abbafati C., Abbas K.M., Abbasi M., Abbasi-Kangevari M., Abd-Allah F., Abdollahi M., Abedi P., Abedi A., Abolhassani H., Aboyans V., Abreu L.G., Abrego M.R.M., Abu-Gharbieh E., Abu Haimed A.K., Abushouk A.I., Acebedo A., Ackerman I.N., Adabi M., Adamu A.A., Adebayo O.M., Adelson J.D., Adetokunboh O.O., Afarideh M., Afshin A., Agarwal G., Agrawal A., Ahmad T., Ahmadi K., Ahmadi M., Ahmed M.B., Aji B., Akinyemiju T., Akombi B., Alahdab F., Alam K., Alanezi F.M., Alanzi T.M., Albertson S.B., Alemu B.W., Alemu Y.M., Alhabib K.F., Ali M., Ali S., Alicandro G., Alipour V., Alizade H., Aljunid S.M., Alla F., Allebeck P., Almadhi M.A.H., Almasi-Hashiani A., Al-Mekhlafi H.M., Almulhim A.M., Alonso J., Al-Raddadi R.M., Altirkawi K.A., Alvis-Guzman N., Amare B., Amare A.T., Amini S., Amit A.M.L., Amugsi D.A., Anbesu E.W., Ancuceanu R., Anderlini D., Anderson J.A., Andrei T., Andrei C.L., Anjomshoa M., Ansari F., Ansari-Moghaddam A., Antonio C.A.T., Antony C.M., Anvari D., Appiah S.C.Y., Arabloo J., Arab-Zozani M., Aravkin A.Y., Arba A.A.K., Aripov T., Ärnlöv J., Arowosegbe O.O., Asaad M., Asadi-Aliabadi M., Asadi-Pooya A.A., Ashbaugh C., Assmus M., Atout M.M.W., Ausloos M., Ausloos F., Ayala Quintanilla B.P., Ayano G., Ayanore M.A., Azari S., Azene Z.N., Darshan D.B., Babaei E. *et al.* (2020). – Five insights from the Global Burden of Disease Study 2019. *Lancet*, **396** (10258), 1135–1159. [https://doi.org/10.1016/S0140-6736\(20\)31404-5](https://doi.org/10.1016/S0140-6736(20)31404-5).
2. Jones K.E., Patel N.G., Levy M.A., Storeygard A., Balk D., Gittleman J.L. & Daszak P. (2008). – Global trends in emerging infectious diseases. *Nature*, **451**, 990–993. <https://doi.org/10.1038/nature06536>.
3. Food and Agriculture Organization of the United Nations (FAO) (2020). – Nutrition and livestock. Technical guidance to harness the potential of livestock for improved nutrition of vulnerable populations in programme planning. <https://doi.org/10.4060/ca7348en>.
4. Havelaar A.H., Kirk M.D., Torgerson P.R., Gibb H.J., Hald T., Lake R.J., Praet N., Bellinger D.C., de Silva N.R., Gargouri N., Speybroeck N., Cawthorne A., Mathers C., Stein C., Angulo F.J. & Devleesschauwer B., on behalf of World Health Organization Foodborne Disease Burden Epidemiology Reference Group (2015). – World Health Organization global estimates and regional comparisons of the burden of foodborne disease in 2010. *PLoS Med.*, **12** (12), e1001923.

<https://doi.org/10.1371/journal.pmed.1001923>.

5. Foreman K.J., Marquez N., Dolgert A., Fukutaki K., Fullman N., McGaughey M., Pletcher M.A., Smith A.E., Tang K., Yuan C.W., Brown J.C., Friedman J., He J., Heuton K.R., Holmberg M., Patel D.J., Reidy P., Carter A., Cercy K., Chapin A., Douwes-Schultz D., Frank T., Goettsch F., Liu P.Y., Nandakumar V., Reitsma M.B., Reuter V., Sadat N., Sorensen R.J.D., Srinivasan V., Updike R.L., York H., Lopez A.D., Lozano R., Lim S.S., Mokdad A.H., Vollset S.E. & Murray C.J.L. (2018). – Forecasting life expectancy, years of life lost, and all-cause and cause-specific mortality for 250 causes of death: reference and alternative scenarios for 2016–40 for 195 countries and territories. *Lancet*, **392** (10159), 2052–2090. [https://doi.org/10.1016/S0140-6736\(18\)31694-5](https://doi.org/10.1016/S0140-6736(18)31694-5).

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