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How can we realise the full potential of animal health systems for delivering development and health outcomes?

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Summary

Animal health services play an essential role in supporting livestock production, with the potential to address the challenges of hunger, poverty, health, social justice and environmental health as part of the path towards the Sustainable Development Goal (SDG) defined in the United Nations, 2030 Agenda. However, the provision of animal health services remains chronically underfunded. Although the aspiration that ‘no one will be left behind’ is core to the SDG agenda, animal health service provision still fails to meet the basic needs of many of the poorest livestock owners. This review draws largely on experience from Tanzania and highlights the obstacles to equitable provision of animal health services, as well as identifying opportunities for improvement. Delivery models that rely on owners paying for services, whether through the private sector or public–private partnerships, can be effective for diseases that are of clear economic importance to animal keepers, particularly in more market-orientated production systems, but are currently constrained by issues of access, affordability, availability and quality. Substantial challenges remain when attempting to control diseases that exert a major burden on animal or human health but are less well recognised, as well as in the delivery of veterinary public health or other public good interventions. Here, the authors propose solutions that focus on: improving awareness of the potential for animal health services to address the SDGs, particularly those concerning public and environmental health; linking this more explicitly with advocacy for increased investment; ensuring that the voices of stakeholders are heard, particularly those of the rural poor; and embracing a cross-cutting and expanded vision for animal health services to support more adaptive development of livestock systems.

Keywords

Agro-pastoral – Animal health sciences – Animal health services – Pastoral – Sustainable development goals – Tanzania – Veterinary public health – Veterinary Services.

Introduction

Livestock are central to the lives and livelihoods of millions of the rural poor in low- and middle-income countries. In Tanzania, for example, 60% of rural households derive income from livestock, which comprises 22% of total household income (1). However, livestock fulfil multiple

additional roles, providing nutritious animal-source protein, social capital, household insurance, and manure for soil fertilisation, as well as the security to pursue potentially riskier activities, such as crop production, that rely on rainfall. Supporting livestock production among the poor can provide an important route towards sustainable development, equitable livelihoods, and household health and welfare, as shown in this issue of the *Review* and elsewhere (2).

The World Organisation for Animal Health (OIE) describes Veterinary Services as ‘a global public good playing a vital role in the security and the economic and social wellbeing of humanity’, as well as being of fundamental importance for countries engaging in international trade (3, 4). In many countries, the capacity for public good Veterinary Services has diminished over past decades with resources dwarfed by those available for human public health services. Within agriculture, which itself receives relatively little international development, animal health has also been neglected, with livestock production receiving only a very small proportion of the total global development assistance for agriculture (5).

Structural adjustment policies that emphasise private-sector delivery models have undoubtedly contributed to a reduction in the capacity of animal health services over past decades. These models have not been effective in meeting the needs of the poor (6), yet, despite long-standing warnings of the problem and growing advocacy for investment in Veterinary Services (4), the problems remain entrenched.

The broad and cross-cutting elements of the Sustainable Development Goals (SDGs) provide an important opportunity for an expanded and more integrated vision for animal health services. They also represent a chance to realise the huge untapped potential for animal health services to address the challenges of hunger, poverty, health, social justice, climate and environmental degradation (2, 4). However, these problems are multi-dimensional and the linkages with animal health are often complex. The extent to which animal health services can effectively contribute to meeting SDG targets depends on interacting social, economic, environmental and political factors that affect the demand for, access to and quality of services, and these still need to be better understood.

Core to the sustainable development agenda is the aspiration that ‘no one will be left behind’, which is reflected in the SDG target on universal health coverage (7). Although it is well understood that the health of millions of the world’s poorest people is dependent on animal health (8, 9), the provision of essential animal health services is rarely considered within this framework. Animal health services are affected by many of the same social, economic and geographic inequities that affect access to human health services, with many of those living in these under-served areas at high risk of being ‘left behind’. For many rural populations, the provision of services is beset by challenges arising from remote locations, limited transport infrastructure, lack of cold-chain facilities, reluctance of veterinarians to work in remote areas, and the limited resources available.

Inequities in access to services are also associated with closely linked factors underpinning a higher disease risk among more impoverished and disadvantaged sectors of society, a concept framed as ‘structural violence’ (10,

11). This is clearly recognised for human diseases, but can also be seen in the human and animal health burden of zoonoses, which falls disproportionately on the billion poorest livestock keepers (12). These intersecting human and animal health inequalities appear closely associated with different agricultural production systems. For example, in Tanzania, communities defined as ‘pastoral’ and ‘agro-pastoral’ appear particularly vulnerable to human and animal health problems, with households reporting much higher levels of hunger than those classified as ‘smallholder’, as well as higher levels of disease and mortality in livestock (13). Fewer than 30% of livestock-keeping households in Tanzania report using animal vaccination (1), with significant heterogeneities in vaccine use across livestock production systems (13).

Recent investments in the livestock sector in eastern Africa have tended to focus on pre-commercial smallholder systems and improved market access to drive agricultural transformation and poverty reduction (14). These models aim to address the problems of economic sustainability that often beset state- or donor-funded programmes, but are less able to support subsistence-orientated and traditional production systems, which almost by definition include the poorest livestock keepers. Furthermore, over-reliance on approaches based on market access could divert attention from the need for investments in public Veterinary Services that could deliver on a broader range of animal health and SDG outcomes.

This paper examines challenges and constraints in the provision of animal health services, focusing on eastern Africa and drawing particularly on experiences from Tanzania. The authors also attempt to identify solutions with relevance not only for this region but for other low- and middle-income countries that are facing similar challenges. The terms ‘Veterinary Services’ and ‘animal health services’ are often used interchangeably. In this paper, the term ‘Veterinary Services’ is used to mean the predominantly state-funded responsibility for veterinary public health, food safety, disease control and trade (15). The authors use ‘animal health services’ to encompass the entire provision of services, products and advice by veterinarians or other personnel to do with animal or veterinary public health, including husbandry, nutrition and fertility. However, as the examples below illustrate, this distinction is not always clear.

Who provides animal health services?

Privatisation and cost-recovery systems for animal health services began abruptly in many countries in the mid-

1980s, triggered by the adoption of structural adjustment programmes. These were based on the premise that animal health costs that predominantly provide a private good, such as endemic disease control, should be borne by livestock keepers and that privatisation would bring benefits in the quality and coverage of services (16). The reduction in government-funded support created a gap that the private sector was expected to fill. However, with little transition period or incentivisation to enable this process, the degree to which the private sector has developed has varied. Privatisation has proved a successful model of delivery in several systems and settings, including more intensive livestock production systems (17) and smallholder dairy (18); however, the benefits for the poor have been variable (19).

In most current models, animal health services are provided by both the private and state sector. State veterinarians primarily have responsibility for the centrally funded prevention and control of diseases that have the potential to result in high production losses, affect the export trade, or pose a threat to public health and food safety, as well as for animal disease surveillance. State veterinarians are assisted by livestock extension workers: government-registered para-professionals who also provide advice to livestock keepers on wider animal health. Private veterinarians may provide advice directly for a fee, but more commonly generate income from drug sales. In reality, the boundaries between private and state-funded services are often blurred, with state veterinarians and livestock extension workers also offering private services (18).

Despite these provisions, livestock keepers in rural areas still struggle to access services from qualified animal health professionals (20, 21); the Tanzanian government estimates that only 20% of livestock keepers are able to obtain extension services (22). The number of veterinary professionals in Africa is extremely low and the deficit in rural areas is particularly acute, with most private veterinarians preferring to work in urban areas and challenges facing state Veterinary Services in retaining veterinary expertise in rural areas (17, 21). Livestock extension workers commonly represent the only source of professional advice available (23), but even then, access is difficult. For example, in Simanjiro District, Tanzania, the ratio of veterinary personnel (veterinary officer and livestock extension workers) to livestock is 1:22,000, with each person serving an area of over 600 km². This far exceeds the recommended targets of 1:10,000, or 200 km², set by the Veterinary Council of Tanzania (24). Lack of personnel means that extension workers trained in agriculture (crop production) rather than livestock health often provide livestock extension services (23, 25). A review of health-seeking behaviours in response to livestock illness in northern Tanzania revealed that livestock keepers are largely treating animals themselves,

primarily due to the inaccessibility of formal services (A. Davis, unpublished data).

Given the scarcity of animal health service provision from veterinarians and extension workers, it is not surprising that many livestock farmers cite agro-veterinary shops as their main source of information on animal health (26, 27). Animal keepers frequently purchase drugs from these shops, other shops or livestock markets. However, this does not adequately fill the gaps in provision of either veterinary products or advice. In remote areas, animal keepers may incur significant transport costs to access these sources, which often have low choice and poor availability (23). Staff selling drugs are not always qualified, with animal health professionals making up only 40% of staff in agro-veterinary shops and 0% at other outlets in a study in Kenya (27). In pastoral and agro-pastoral areas of Kenya and Tanzania, animal owners cite the unavailability of commercial medicines and the lack of veterinary services as the major constraint on animal health (23, 27, 28).

It is important to note that lack of resources to pay for drugs, diagnostics or other services is rarely cited by animal keepers as the most important limitation on accessing animal health services; animal owners, even those in subsistence-orientated production systems, are willing to invest in animal health. For example, livestock keepers in tsetse-infested areas spend a substantial amount of money on trypanocides and insecticides, but the efficacy of trypanosomiasis control is limited by poor availability and choice of drugs and lack of access to trained personnel for advice (Box 1). East Coast fever vaccination has been reported by 39% of pastoral farmers in Kenya (29). Willingness-to-pay studies in Tanzania demonstrate the demand for vaccines against diseases perceived to be important, including foot and mouth disease (30) and malignant catarrhal fever (31), with decision-making strongly influenced by vaccine efficacy and safety, and trust in the vaccine providers. A recent study of agro-pastoralists also highlighted the importance of trust, revealing that past negative experiences, such as animals becoming sick after vaccination, represented a particular cause for mistrust (32). Mistrust is likely to represent a major barrier to uptake of animal health services but is poorly understood.

International and government animal health policies have long advocated strengthening the private sector to support the livestock sector, including the establishment of public-private partnerships, as existing government resources are too limited for effective delivery of animal health services. These models span several different typologies which address a wide range of challenges and draw on a range of private-sector capacities, for example, technical expertise, equipment and resources (34). Several successful public-private partnerships are helping to address market failures by subsidising research and development and improving

Box 1**Will the same old problems limit the potential of new drugs? Controlling animal African trypanosomosis**

Animal African trypanosomosis (AAT) remains a major constraint on livestock health in the large parts of sub-Saharan Africa where the tsetse fly vector (*Glossina*) persists. Livestock keepers commonly use trypanocides and insecticides to prevent and treat trypanosome infections in their livestock. This has added benefits in reducing the transmission of human African trypanosomosis (33).

Livestock keepers can purchase trypanocides without restriction, and most commonly buy them from agro-veterinary shops or from stalls at livestock markets. While there are government guidelines on trypanocide use, many people do not receive any advice from livestock extension officers. In tsetse fly areas, the use of trypanocides and treatment of AAT is frequently cited as the area of animal health where livestock keepers would most like to be better informed. Lack of veterinary services and unavailability of drugs were the two most commonly cited concerns by farmers about AAT control (28), rather than lack of resources to pay for it. Indeed, whilst there is a lack of data on relative expenditure, it is clear that many farmers are spending a substantial amount of money on trypanocides.

Since diagnostics are very rarely available, the use of trypanocides depends on a livestock keeper's ability to correctly recognise clinical signs of AAT. Although new 'pen-side' diagnostics are being developed, until they are cheaper than the cost of drugs (a sachet of diminazene diaceturate to treat one adult cow costs less than US\$ 0.50), they will not be widely adopted. Livestock keepers frequently report treatment failure. Inappropriate treatment (i.e. where the animal did not have AAT), incorrect administration and resistance are all known to occur but their relative contributions to treatment failure have not been quantified.

Livestock keepers are heavily dependent on trypanocides and the current investment in candidates for new drug development is essential and welcome. However, the current challenges of ineffective usage, lack of information and poor availability will need to be addressed to maximise the potential benefits of any new drugs.

access of small-scale livestock farmers to quality animal health products. Projects supported by organisations such as GALVmed (www.galvmed.org), with funding from government and non-governmental organisation (NGO) donors, address market failures by reducing the financial risk from the research and development of animal health products for use in low-income countries and developing commercial markets. This approach aims at sustainable delivery of animal health services, with products purchased by small-scale livestock producers at market prices. Several such projects have resulted in notable improvements in livestock productivity and economic outcomes for small-scale farmers, particularly in the poultry sector (35). Another example is that of Sidai Africa Ltd, a social enterprise in Kenya, where a franchise model provides animal health products and technical advice to farmers and pastoralists. These outlets were found to be run by better-trained staff and to provide a wider range of services and more advice than agro-veterinary shops, and were viewed by smallholder dairy farmers and pastoralists as having improved animal health service provision (27, 36).

Despite encouraging improvements in access to and the quality of animal health services provided through public-private partnership, major gaps remain. In the absence of donor support, the ability of the private sector to deliver veterinary drugs is limited by the complex logistics required to get products into remote areas. High costs and low profit margins, as well as competition from cheap international imports, make investment unappealing. Basic constraints, such as a lack of instructions in local languages, suggest

a disinclination of veterinary pharmaceutical companies to engage with rural livestock-keeping communities.

The creation of community animal health workers (CAHWs) was also a donor-led effort to address the institutional vacuum of private-sector delivery in rural areas. Community animal health workers were created with the aim of providing services for the poor, specifically, and to improve community health over all (37). They received training in basic animal health care and carried out a limited range of veterinary tasks for members of the community (38). Community animal health workers were usually local to the area, thus reducing transaction costs, and were livestock keepers themselves. The role of CAHWs remains widely debated. Community animal health workers have been shown to provide accessible, cost-effective animal health services to the rural poor (39) and, in agro-pastoral communities in Tanzania, livestock owners expressed a preference for using CAHWs because of the perception that they possessed adequate knowledge and treatment capabilities, where owners themselves were lacking (32). However, because the training of CAHWs has been primarily a donor-led effort, it has been difficult to sustain. Remaining CAHWs are largely unsupported by state veterinary institutions who do not regard them as viable providers of animal health care, and they are usually overlooked in policy legislation (40, 41). As a result, the potential of CAHWs to provide more equitable access to animal health services in rural areas is hindered by barriers to institutional participation.

Who chooses the priorities?

The efforts of international agencies and donors focus predominantly on transboundary livestock diseases, and those of global public health concern. In regard to zoonoses, highly pathogenic avian influenza and viral haemorrhagic fevers are often prioritised for international investment, whilst national priority-setting exercises for zoonotic diseases consistently identify endemic zoonoses, such as rabies, brucellosis, trypanosomosis and anthrax, as the highest priorities (42, 43, 44). This more broadly reflects the uneven and inequitable aspects of global health, in that the biopolitical concerns of wealthy nations often supersede those of poorer nations, and endemic zoonoses of local concern to communities may be neglected by national authorities who respond more readily to global priorities (41). These global influences, combined with a view that endemic animal diseases can be controlled through private-sector delivery, has meant that national government funding is rarely prioritised to control endemic zoonoses that impose high burdens of disease in the poorest communities (12).

Disease exceptionalism, where specific diseases are singled out for attention and international investment, is a recognised feature of global health. This exceptionalism can have adverse effects on already fragile health systems, and risk diverting attention from strengthening health systems more broadly (45). However, benefits for local health need not be mutually exclusive from those for global health. A focus on tackling locally relevant diseases that are of immediate concern to affected communities has enormous potential for strengthening disease surveillance and response, with benefits for both endemic and emerging disease control (46). Coronavirus disease 2019 (COVID-19) leaves us in no doubt about the need for responsive and flexible health systems to effectively combat complex and emerging disease threats. But these systems cannot be developed through theoretical principles alone. Core competencies and response capabilities have to be established, and the best way to do this may be to tackle disease problems that are an ongoing concern to people in affected communities. For animal-keeping communities, addressing the problems of endemic zoonoses and other animal diseases could be a highly effective starting point for strengthening cross-sectoral capacity for surveillance and response, as well as building trust between health professionals and communities, all of which will be essential in preparing for emerging disease threats.

For example, action to improve rabies surveillance has resulted in more effective engagement of front-line human and animal workers in the detection and reporting of cases, with the deployment of rapid diagnostic tests and development of more integrated data management systems across human and animal health (47). An example of how

this capability has been transferred to an emerging disease threat comes from Kenya, where teams with expertise in using contact-tracing to identify rabies cases and human exposures have been at the forefront of developing contact-tracing systems for COVID-19 (48). Improved provision of the human rabies vaccine, and scaling up of mass dog rabies vaccination programmes, the two key actions needed to achieve human rabies elimination (48), could also strengthen capability in many of the critical areas identified by the World Health Organization for improving readiness for COVID-19 vaccination, including planning, procurement and supply-chain management, communications and community engagement (49).

Despite the potential of the private sector for managing animal health problems of direct economic benefit to farmers, this delivery route is unlikely to be effective for veterinary public health or other public good interventions at the scale that would be needed for effective disease control. In low-income countries, it is often advocated that cost recovery should be imposed for the delivery of veterinary interventions to achieve public health outcomes, but this seems paradoxical when zoonoses disproportionately affect the poorest communities, and cost-recovery models have generally not been imposed in high-income settings. For example, the control and elimination of brucellosis has been achieved in Europe through state-supported veterinary interventions or through European Union co-funding initiatives (50). While substantial investments are being made in the research and development of safe and effective brucellosis vaccines for use in low-income countries (brucellosisvaccine.org), little attention has yet been given to how these vaccines will be delivered at scale to achieve public health outcomes. Even if it is assumed that farmers will pay for a product that improves livestock productivity, these approaches are unlikely to be effective for brucellosis as the 'visible' benefits to the family, in terms of both human health and livestock productivity, will be difficult to recognise (51, 52).

Market-led approaches are also less likely to be effective in more subsistence-orientated production systems, including pastoral communities, where the human health burden of brucellosis is particularly high (53, 54, 55). Gaps still remain in our understanding of the epidemiology of *Brucella* species in Africa, but growing evidence suggests that sheep and goats are important sources of transmission in East Africa (56, 57), and this will likely exacerbate the economic and social challenges in delivering large-scale vaccination campaigns. Not only will the lower economic value of sheep and goats constrain farmers' willingness to pay, but farmers' perceptions of disease risk and disease losses in sheep and goats can also differ substantially from those in cattle, with consequences for the uptake of vaccines and other veterinary products.

In human disease elimination programmes, such as polio and measles, it is generally unquestioned that vaccines should be administered to people free of charge. However, many still advocate charging fees for administering dog vaccines for the control and elimination of human rabies. Across these programmes, the goals are the same – elimination of a deadly human disease – and strategies are based on similar interventions involving mass vaccination campaigns. Yet cost recovery for public health vaccination campaigns is only invoked when the intervention involves veterinary service delivery. This may seem to be the only available solution to the scarcity of Veterinary Services when budgets are so limited. But, in low-income settings, imposing charges for dog vaccination has resulted in vaccination coverage that is too low to control rabies (58). Greater investments will be needed if veterinary interventions, such as dog vaccination, are to deliver human health benefits for the poor. In order to make the investment case, in terms of cost-effective health and development outcomes, advocacy from both the Veterinary Services and the medical sector will be essential, building on the strong evidence base available (59).

What are the solutions?

In 2002, the Food and Agriculture Organization of the United Nations wrote: ‘there is increasing realization that a balance needs to be struck between developing a robust private veterinary sector [and] providing animal healthcare services to the vulnerable poor groups’ (60). While the issues discussed here are clearly not new, there is little evidence that the provision of animal health services to the rural poor has improved since this was written, despite significant investment in other aspects of animal health. Veterinary Services remain significantly under-resourced (4) and the gaps in service provision are not filled by the private sector. The case for investment is clear, with positive returns through the benefits to animal and public health, animal welfare, reduction of poverty and facilitating trade, as well as a wide range of societal benefits (4), although there is a need for more data to better quantify the trans-sectoral nature of these benefits. However, the lack of access to animal health services in rural poor communities is widespread.

This issue is not addressed effectively by current livestock policies. To meet global demands on food security, emphasis is placed on intensification and modernisation of livestock production, often assuming that strategies should follow those in industrialised countries. However, global attention is now shifting towards more environmentally sustainable livestock production, such as agroforestry and silvo-pastoral systems (61). This provides an important opportunity to examine assumptions around the optimal trajectory for the development of livestock systems in Africa.

Policies for intensification and modernisation often also include strategies for genetic improvement. While these investments are likely to yield important benefits in some sectors, such as dairy production, the more critical need in subsistence-orientated sectors is to address the huge unmet demand to support the basics of livestock production, including primary animal health services (62). Cattle herds in traditional systems in East Africa are already managed to maintain diversity in key traits that balance productivity and adaptability, which is needed if herds are to survive in precarious and highly variable environments (63). As climate becomes increasingly unpredictable in East Africa (64), strategies for maintaining herd diversity will become ever more important.

In developing appropriate models for livestock modernisation in East Africa, there needs to be a better understanding of where and how benefits accrue, but also a greater appreciation of the values and benefits provided by more traditional production systems (65), particularly those which address the social and environmental dimensions of the SDGs. Rather than being constrained to deliver only within preconceived pathways of livestock development, animal health services could play a vital role in facilitating and supporting ongoing adaptation and, potentially, the emergence of new systems of production.

To better encompass these wider aspects of animal health service provision, the authors conclude that considering these services within the framework of ‘animal health systems’ would be helpful. Animal health systems are defined as: ‘the organisation of people, institutions and resources that deliver healthcare services to animals and their owners [that]...includes animal health practitioners (veterinarians and veterinary paraprofessionals), veterinary medicines, surveillance and diagnostics of disease as well as the legal framework and financing of health services’ (66). This also provides the animal health sector with a useful parallel to the more recognised dialogue around strengthening human health systems, and may be valuable in promoting discussion around the real needs of livestock-dependent communities for access to animal health services.

In identifying solutions that provide more equitable access to services, particularly in supporting the essential health and welfare needs of the most vulnerable livestock-dependent communities, there is a need to:

- recognise the full scope of the potential contribution of animal health systems to development and become advocates for increased investment
- expand the vision for animal health services
- ensure that efforts to improve the private-sector provision of animal health services bring benefits to poor communities

- increase awareness of the demand for animal health services from affected communities
- increase recognition of opportunities for private veterinarians within state- or donor-funded programmes.

Recognising the potential contribution of animal health systems to development

Experience has shown that animal health services cannot be adequately provided to the rural poor by the private sector. Yet, the provision of essential animal health services must improve if livestock-dependent communities are to achieve basic nutritional and health needs, analogous to universal healthcare coverage. The Abuja Declaration of 2001 set targets for all African nations to invest 15% of their national budget into the health sector (67). While translating increased investment into increased healthcare coverage remains challenging, this high-level advocacy has had some success (68). The case for investing in animal health services is clear; similar incentives to encourage and commit to investment are needed.

Expanding the vision for animal health services

Supporting animal health provision is a good candidate for donor programmes, and public-private partnerships have had some success in enhancing access to animal health services and improving their quality. But an adapted and expanded vision of health service provision could be considered to better meet the needs of the poorest farmers within subsistence-orientated livestock systems. Including more holistic views of animal health, rather than focusing on single disease interventions, and working with local knowledge/belief systems, where appropriate, would help to address a broader suite of SDGs. More inclusive discussions around appropriate pathways for livestock development that draw on expertise and experience from other sectors, actors and disciplines would enable better adaptation of animal health systems in response to environmental, economic and social change.

Ensuring that efforts to improve private-sector provision of animal health services bring benefits to poor communities

Efforts are being made to address obstacles to market access, including building regulatory capacity, encouraging market entry and investment, and promoting the registration of products, particularly through collaborations between industry, non-governmental organisations and the research sector. These projects focus on removing the barriers to animal health investment in Africa. However, further consideration is needed to understand and address the constraints that limit the poor's access to markets, particularly in rural areas, to avoid perpetuating current

inequalities. Efforts to recognise CAHWs and their role in providing animal health services to the rural poor could prove beneficial here.

Increasing awareness of the demand for animal health services from affected communities

Making sure that the voices of people in affected communities, particularly the rural poor, are heard by policy-makers is important in ensuring that the services provided are appropriate and available. This would be strengthened by encouraging the grassroots engagement of veterinary policy-makers with the problems that affect rural communities, and facilitating the involvement of local and regional authorities in programmes that generate tangible benefits, which are recognised and appreciated by these communities.

Increasing recognition of opportunities for private veterinarians within state- or donor-funded programmes

The delivery of mass dog rabies vaccination campaigns is an example of the large untapped potential for private veterinarians to engage with donor- or state-funded programmes to improve primary animal health care. Although there is a widespread perception that free delivery of dog rabies vaccines could undermine private animal health services, the opposite is likely to be true. Dog vaccination campaigns provide opportunities for private veterinarians to access and develop potential markets, since many dog owners attending such campaigns are likely to be interested in primary healthcare services that could be offered through the private sector.

To conclude, despite their potential to improve animal and public health outcomes, animal health systems suffer from chronic under-investment and inequitable access. Opportunities exist for action and investment but these must be prioritised to ensure that animal keepers in under-served communities are not 'left behind'.

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Comment réaliser tout le potentiel des systèmes de santé animale afin de contribuer avec des résultats tangibles au développement et à la santé ?

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Résumé

Les services de santé animale accomplissent une fonction essentielle en faveur de la production animale tout en ayant un potentiel d'action pour relever les défis de la faim, de la pauvreté, de la santé, de la justice sociale et de la santé dans la perspective des objectifs de développement durable (ODD) définis dans l'Agenda 2030 des Nations Unies. Toutefois, la prestation de services de santé animale souffre d'un sous-financement chronique. Bien que l'aspiration de « ne laisser personne pour compte » soit au cœur du programme des ODD, à ce jour la prestation de services de santé animale ne parvient pas encore à répondre aux besoins fondamentaux de nombreux propriétaires de bétail parmi les plus pauvres. Les auteurs s'appuient largement sur l'expérience de la Tanzanie pour mettre en évidence les obstacles à une prestation équitable de services de santé animale, et relever des perspectives d'amélioration. Les modèles de prestation assurés dans le cadre du secteur privé ou de partenariats public-privé et reposant sur le paiement des services par les propriétaires se révèlent efficaces lorsqu'il s'agit de maladies qui ont une importance économique évidente pour les détenteurs d'animaux, en particulier dans les systèmes de production orientés vers le marché, mais ils sont actuellement limités par des problèmes d'accès, de coût, de disponibilité de l'offre et de qualité. Des difficultés encore plus grandes subsistent lorsqu'il s'agit de lutter contre des maladies moins connues bien qu'ayant un impact important sur la santé animale ou humaine, ou d'assurer des services de santé publique vétérinaire ou d'autres interventions relevant du bien public. Les auteurs proposent des solutions centrées sur : une meilleure sensibilisation concernant le potentiel des services de santé animale à réaliser les ODD, en particulier ceux qui portent sur la santé publique et la santé environnementale ; la mise en place de liens plus explicites avec les plaidoyers en faveur d'investissements accrus ; des mesures garantissant que les voix de toutes les parties prenantes soient entendues, en particulier celles des pauvres

du monde rural ; l'adoption d'une stratégie transversale et de grande ampleur pour les services de santé animale en faveur d'un développement plus adaptatif des systèmes d'élevage.

Mots-clés

Agropastoralisme – Objectifs de développement durable – Pastoralisme – Santé publique vétérinaire – Science de la santé animale – Services de santé animale – Services vétérinaires – Tanzanie.



¿Cómo aprovechar al máximo el potencial de los sistemas de sanidad animal para obtener resultados sanitarios y de desarrollo?

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Resumen

Los servicios de sanidad animal cumplen una esencial función de apoyo a la producción ganadera, potencialmente útil para abordar problemas relacionados con el hambre, la pobreza, la salud, la justicia social y la salud ambiental como parte del camino hacia los Objetivos de Desarrollo Sostenible (ODS) marcados en la Agenda 2030 de las Naciones Unidas. Sin embargo, la prestación de servicios zoonosanitarios está lastrada por un déficit crónico de financiación. Aunque en la base misma de los ODS late la aspiración de «no dejar a nadie atrás», la prestación de estos servicios aún no alcanza para responder a las necesidades básicas de muchos de los propietarios de ganado más pobres. Los autores, basándose principalmente en la experiencia de Tanzania, destacan los obstáculos que dificultan una prestación equitativa de servicios zoonosanitarios y señalan las posibilidades existentes para progresar al respecto. Los modelos de prestación que requieren que el propietario pague por los servicios recibidos, ya sea del sector privado o de alianzas publicoprivadas, pueden resultar eficaces en el caso de enfermedades que revisten una clara importancia económica para los productores, especialmente en sistemas productivos con una marcada orientación comercial, aunque actualmente se ven lastrados por problemas de acceso, asequibilidad, disponibilidad y calidad. Por otro lado, subsisten dificultades de gran calado a la hora de combatir enfermedades menos reconocidas, aunque estas entrañen una pesada carga sanitaria o zoonosanitaria, y también a la hora de implantar medidas de salud pública veterinaria u otras intervenciones de interés público. Los autores proponen soluciones centradas en: dar mejor a conocer el potencial que encierran los servicios de sanidad animal para perseguir los ODS, sobre todo los relacionados con la salud pública y ambiental; vincular más explícitamente esto último a la labor de sensibilización para lograr inversiones más cuantiosas; hacer oír la voz de todos los interesados, en especial la de los pobres de zonas rurales; y adoptar una visión más amplia y transversal de los servicios zoonosanitarios para favorecer un desarrollo más flexible de los sistemas ganaderos.

Palabras clave

Agropastoral – Ciencias de la sanidad animal – Objetivos de Desarrollo Sostenible – Pastoral – Salud pública veterinaria – Servicios Veterinarios – Servicios zoonosanitarios – Tanzania.



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